UK Health Security Agency

An evaluation of the pilot of daily contact testing of healthcare workers in NHS acute hospital and ambulance trusts

Contents

1 Executive summary 3
2 Introduction 8
3 Methodology 15
4 The pilot in numbers 21
5 Operational feasibility 22
6 Scientific knowledge 29
7 Public health 35
8 Behaviours 43
9 Broader societal benefits 52
10 Discussion 56
11 Conclusion 57
References 58
Annex 1: Daily contact testing – minimum data set 59
Annex 2: Operational considerations for implementation 61
Annex 3: DCT module of Master SOP 63
Annex 4: Assumptions from previous modelling 83
Annex 5: Summary of pilot evidence against Quilty and others (2021) modelling study assumptions 84
Annex 6: National positivity rate before and during pilot 87
Annex 7: Estimated setup and ongoing staff requirements for DCT pilot 88
Annex 8: Pilot Evaluation Working Group terms of reference 92

1 Executive summary

1.1 Overview of NHS workforce DCT Pilot

In order to inform decision-making by NHS England and NHS Improvement on a wider rollout of daily contact testing (DCT) in the NHS workforce, a small pilot study was conducted in 4 acute hospital trusts and one ambulance trust.

DCT was used in this pilot as an alternative to immediate self-isolation for healthcare workers (HCW) who had been identified as a close (high risk) contact of someone who had tested positive for SARS-CoV-2 (COVID-19). Once identified as a contact, staff members tested themselves at home using an antigen Lateral Flow Device (LFD) each day for 7 days. If the result of their test was negative, they could continue to work as usual. This approach was intended to find cases, while at the same time minimising the number of days spent in unnecessary self-isolation. It was a way to manage the risk of workplace transmission, whilst maintaining essential services.

The NHS workforce DCT pilot was unique when compared to other DCT pilots for several key reasons, which were hypothesised to reduce the risks of DCT. These included rigorous infection prevention and control (IPC) measures, existing testing, contact tracing and infection prevention control functions, ready access to PCR testing, regular (twice-weekly) asymptomatic staff testing and rising staff vaccination rates.

The Department for Health and Social Care (DHSC) prepared a standard operating procedure (SOP) for the implementation of DCT by HCWs in this pilot. This SOP was adapted by NHS England and NHS Improvement (NHSEI) with the Royal Free London NHS Foundation Trust, and, thereafter, tailored for use by the other NHS trusts when they joined the pilot.

HCWs who had been identified as close contacts were considered eligible for recruitment to the pilot if they had been identified as a close contact[i] through workplace tracing, or by notification through NHS Test and Trace. Midway through the pilot, eligibility was extended to individuals who were contacts of a positive household member, if the individual had themselves tested positive by polymerase chain reaction (PCR) within the previous 90 days.

Trusts commenced the pilot between 9 and 22 January 2021, and recruitment of participants for the evaluation ended on 28 February 2021.

Trusts reported aggregate data for all 138 eligible contacts and individual-level data for each of the 111 DCT participants, and provided an estimate of the staffing costs of setting up and running DCT in their respective organisations.

[i] Correct use of Personal Protective Equipment (PPE) by HCW precludes them from being identified as a close contact.

All HCWs eligible for the NHS workforce DCT were invited to complete a survey about their experience. 60 of the 138 people who were eligible responded (43%). A further 18 telephone interviews were conducted with participants, site leads, administrators, and union representatives. IPC leads for each trust were interviewed to establish whether any transmission incidents related to the pilot had occurred.

1.2 Operational feasibility

The introduction of DCT in the pilot trusts was broadly welcomed by NHS staff, administrators, and unions, although the need for early engagement and meaningful consultation was highlighted.

The acceptability of the DCT testing regime was high, with evidence that the existing systems in the trusts supported participants effectively. Many staff were already testing themselves routinely with LFDs, so were familiar with how to use a LFD and how to report the results locally to their trust management.

Trusts reported that the burden of initial setup was high, and this was reflected in the front-loaded estimated staffing costs. However, all trusts had existing IPC, contact tracing and testing functions, into which DCT was rapidly incorporated.

We have captured learning from all the participating sites and used this to build a list of tactical recommendations, from which other trusts may benefit should DCT or a similar testing regime be adopted more widely. At the time of preparing this report for publication (autumn 2021), HCWs who had been fully vaccinated and identified as close contacts, while exempt from self-isolation, should only return to work after a negative PCR and should then test daily with LFDs until day 10. This is not identical to the model of DCT used in the NHS workforce pilot but is sufficiently similar for useful lessons to be applied.

1.3 Scientific knowledge

719 LFD tests were taken as part of the pilot: a mean of 6.5 tests per participant. One participant tested positive via LFD during the 7-day testing period, and this was confirmed by PCR.

3 of the 5 pilot trusts chose to add PCR tests to their DCT schedule, and a number of participants were tested during the period of the pilot by PCR for other reasons (for example testing of asymptomatic staff during a ward outbreak). In total, 75 PCR results were reported, 59 of which could be matched to an LFD result on the same day. Of these, 56 were concordant – 55 pairs were negative, one pair was positive. 3 were discordant – in each case PCR was positive and LFD negative.

5 participants tested positive on PCR, although one was outside the 7-day DCT testing period. 3 of these consistently tested negative on LFD, and the PCR cycle threshold (Ct) values in 2 of

these cases suggested this may have been due to low viral loads. Genomic sequencing of samples was conducted for 2 cases. The sequence of the sample for one of these cases did not match the index case, implying that the infection was not related to the index case exposure that led to participation in DCT.

1.4 Public Health

The uptake of DCT was high, with 80% of eligible HCW contacts participating. Only 27 of 138 eligible people declined to take part (20%). Limited data was obtained for these individuals, so we do not have a good understanding of their characteristics.

IPC and contact tracing leads at the pilot trusts had high confidence that any workplace transmission from DCT participants would have been detected. They all reported that no incidents of onward workplace transmission occurred related to the DCT pilot. Trusts noted that the risk of harm from onward transmission of COVID-19 in this setting was low, because of the increasing rates of vaccination amongst staff and the strict infection control measures already in place (which, in some trusts, were further strengthened by having DCT participants agree to a 'behaviour contract').

One participant tested positive (0.9% of total participants) on LFD and 4 participants (3.6%) tested positive on PCR during their 7-day DCT period. It was not possible from the study design to conclude whether this was greater than the number of cases that would have been detected in the absence of DCT (that is self-isolation and voluntary twice weekly testing). However, there was no sign that introduction of DCT led to an increase in the number of positive LFD results in the wider workplace.

1.5 Behaviours

The most cited reason for wanting to participate in DCT was the perceived ease of the process (34 participants (59%). 19 participants (33%) reported that they wanted to know whether they were infected, and 14 participants (24%) said that their employer wanted them to do it.

82 participants (74%) successfully completed tests for every day required, and a further 12 participants (11%) completed DCT with an interruption which may have been one or more omitted LFDs at any time once the 7-day period had commenced. Only 17 participants (15%) dropped out before the end of the 7-day period. It was not possible to determine whether adherence to the process was influenced by age, gender, or ethnicity.

Whilst participants reported that they found daily testing reassuring because they were minimising the risk they posed to others, there was no evidence that this led to a general relaxation of IPC and COVID-safe behaviours. But there was some evidence that, having been identified as contacts, participants became more cautious than they would otherwise have been. This was borne out both by participants' self-reporting and the observations of site and IPC leads.

1.6 Broader societal benefits

There are risks and benefits of operating DCT, associated with financial and other costs (including costs of testing, staff setup, participants' time and risk of onward transmission, and benefits of case finding, improvements to staff wellbeing, and increased productivity from averted work absences). As well as identifying and describing these throughout the evaluation report, we were able to specifically quantify the benefits on staffing levels, which was of salience for NHS trusts struggling to staff critical clinical services following the winter peak of COVID-19 cases.

Observational data from 3 of the pilot trusts between November and December 2020 suggested that the proportion of staff identified as close contacts due to workplace exposures in NHS acute hospitals who go on to develop COVID-19 was low, which means that the vast majority self-isolate unnecessarily.

We estimated that the DCT pilot averted a total of 729 potential days of work absence – a mean of 146 days per trust, which equated to an average of 23.6 averted absence days per trust per week. 91% percent of these were associated with clinical staff.

We divided the estimated staff costs of running the DCT programme by the number of potential work absence days averted, which gave an average running cost of £50 per potential day of work absence averted. As this is less than the day rate of most NHS staff, it seems likely that DCT was cost saving for the participating trusts.

1.7 Strengths and weaknesses of this evaluation

The short time frame of the pilot enabled the rapid generation of evidence for decision-making by NHSE on possible wider implementation. At the time of the preliminary results becoming available (April 2021), the decision was not to adopt DCT at scale but by July 2021 a testing regime for contacts had been put in place that was very similar to DCT.

The devolved delivery model, which allowed for variation in how DCT was delivered in different trusts, meant that the intervention being tested in each was not identical, but does make it more likely that findings would be generalisable to a real-world NHS. However, the findings may be less applicable to other workplaces due to the unique features of the NHS.

Whilst we were able to get rich insight, the lack of a defined control group precluded a direct comparison of DCT against self-isolation and the small size of the pilot meant that our findings had limited statistical power. We had some difficulty engaging with those who declined to take part and there is an inherent risk of bias in relying solely on the views of those involved in administering or participating in DCT.

Conclusion

The evaluation found no evidence of DCT being unsafe in acute hospital and ambulance NHS trust settings. Most participants remained negative on LFD throughout the pilot. Although a small number of participants tested positive, there was no evidence of onward transmission in the workplace. However, this was a small and pragmatic pilot study, and its limitations mean that the evidence cannot be considered definitive proof that the introduction of DCT does not increase the risk of workplace transmission. In the absence of randomised controlled studies of DCT, any wider pilot or rollout would need careful evaluation and monitoring.

DCT was well accepted by NHS staff, administrators, and unions as an alternative to self-isolation. Participating staff who took part in the pilot found it straightforward, largely adhered to the full 7-day series of tests, were able to stay in work, and did not show signs of relaxing their IPC behaviours. The pilot demonstrated that the DCT programme could be effective in averting work absences in people identified as close contacts, and that it could be cost saving.

Participating trusts acknowledged the effort needed to recruit and support participants through DCT. But, in general, they found this to be worthwhile in terms of keeping people in workplace, maintaining staff morale, and avoiding incurring agency or locum costs. We were able to use the learning from this pilot to provide detailed advice on how to implement DCT successfully on a larger scale in the NHS.

2 Introduction

2.1 Context

In early November 2020, NHS England and NHS Improvement (NHSEI) organised a national programme of twice weekly self-testing for the NHS workforce, using SARS-CoV-2 antigen detection with INNOVA lateral flow devices (LFD).

At the time that the pilot commenced in January 2021, all NHS trusts had many staff unable to come to work because they were self-isolating. At that time, a close contact in a healthcare setting was described as a member of staff not wearing personal protective equipment (PPE) when exposed to someone who had tested positive for SARS-CoV-2. Transmission from COVID-19 positive patients to healthcare workers (HCWs) is thought to be low due to preventative measures, such as PPE and hygiene factors. Transmission due to contact between HCWs is less well mitigated through use of PPE, as it appears to take place in shared canteens, changing areas, and travelling arrangements, where PPE is not typically worn.

Observational data from 3 of the trusts in this pilot between November and December 2020 suggested that the proportion of staff identified as close contacts due to workplace exposures in NHS acute hospitals who go on to develop COVID-19 was low[ii], which means that the vast majority self-isolate unnecessarily:

- between 23 October and 29 December 2020, Royal Free London NHS Foundation Trust identified 222 staff as close workplace contacts, only one of whom was known to have developed COVID-19 illness during the 10-day isolation period
- in December 2020, Barts Health NHS Trust identified 179 staff as workplace contacts and only one was subsequently identified positive for COVID-19
- in the Oxford University Hospitals NHS Foundation Trust (OUH), 48 staff self-isolated for 10 days following a close workplace contact in November 2020 and only one was known to have developed COVID-19 during this time (in the context of a generalised ward outbreak). In addition, close follow up of 140 contacts in the initial stages of asymptomatic swabbing programme at the OUH elicited no positive PCR tests

It should be noted that these data relate to wild-type virus and not variants that emerged subsequently, such as Alpha, Delta or Omicron, which are associated with increased transmissibility.

NHSEI is seeking ways to apply a highly risk-managed approach to managing close contacts in such a way that fewer days will be lost to unnecessary self-isolation while not compromising

[ii] Although it is possible that these numbers miss some asymptomatic cases, since regular testing of NHS staff is voluntary, and uptake is not 100%.

safety of staff or patients. A pilot of daily contact testing (DCT) in NHS trusts was proposed and 5 NHS trusts volunteered to participate.

2.2 Daily contact testing

2.2.1 Background

DCT is an alternative to immediate self-isolation for healthcare workers (HCW) who have been identified as a close (high risk) contact of someone who has tested positive for SARS-CoV-2 (COVID-19). Once identified as a contact, staff members test themselves using an antigen Lateral Flow Device (LFD) each day for 7 days. If the result of the LFD test is negative, they can continue to work as usual. DCT, as an intervention, is intended to find cases, while at the same time minimising the number of days spent in self-isolation which ultimately prove not to be necessary.

At meeting 96, the Scientific Pandemic Influenza Group on Modelling (SPI-M) and Scientific Advisory Group for Emergencies (SAGE) considered a theoretical model of the expected impact on viral transmission using LFDs for DCT as an alternative approach to self-isolation.[1]

SAGE was supportive of piloting regular LFD testing to avoid quarantine (that is a minimum 10-day period of self-isolation) and assessed that this could provide a similar effect to what was then the 14-day isolation period.[2]

On this basis, a programme of DCT pilots was authorised, which were running in different use cases at the same time as this pilot in the NHS. These included the general public, private organisations, schools and other public sector institutions.

In the NHS DCT pilot, a daily LFD test was performed for a series of 7 days. Each negative test, as long as the individual remained asymptomatic, allowed a 24-hour period of normal activity. Individuals self-isolated if they showed symptoms or if they had a positive test result. This close monitoring regime aimed to find asymptomatic positive cases so that they could be isolated immediately from the workplace. Staff who tested negative on LFD throughout the 7-day period were able to go to work, subject to the usual restrictions imposed through tiering or lockdown.

The broad aim of the programme of DCT pilots was to investigate the following potential benefits and risks:

Table 1. Potential benefits and risk of DCT

Benefits	Risks
Contacts that test positive are more willing to comply with self-isolation	COVID-19 contacts may become PCR positive (and infectious) whilst remaining LFD negative
DCT leads to improved tracing of contacts and chains of transmission	Contacts may become less compliant with COVID-19 safe behaviour if testing negative, leading to increased viral transmission
DCT leads to increased uptake of testing in established groups or demographics	DCT leads to a higher secondary attack rate when compared to self-isolation (with current rates of compliance)
DCT improves detection of asymptomatic cases	
DCT supports increased sharing of contacts details should an individual prove positive	
DCT enables engagement with testing in groups or demographics who may not otherwise access it	
DCT reduces requirement of self-isolation except for those with clear evidence of the virus	
DCT reduces workforce days lost to self-isolation, including in critical services and infrastructure	

2.2.2 Purpose of the pilot

From the perspective of participating NHS trusts, DCT would help them to find asymptomatic cases of COVID-19 who had been identified as contacts of positive cases (the index cases) and remove them from the workplace. This could help the trusts to minimise the number of days staff members were obliged to spend in self-isolation even if they did not subsequently become infected by COVID-19 through their exposure to the index case.

Before NHSEI could take a policy decision to introduce the widespread use of DCT, it wanted to know more about the operational impact on NHS trusts of implementing and maintaining a DCT regime. NHSEI needed to understand if this intervention was achievable in practice, what

systems needed to be in place to manage and monitor the staff in the pilot, and whether there was a benefit of having a process for daily testing in readiness for an outbreak of COVID-19 amongst staff groups. It was also important to be aware of barriers to uptake, the cost and management effort associated with running DCT, and whether this outweighed the benefit of having more staff present in the workplace. This small-scale pilot was run to address those questions.

2.2.3 Unique features of the NHS workforce DCT pilot

The NHS workforce DCT pilot was unique when compared to other DCT pilots for several key reasons, which were hypothesised to increase the chances of safe implementation:

- NHS trusts, unlike almost all other workplaces, have rigorous infection prevention and control (IPC) measures already in place, which includes mitigation initiatives such as the use of PPE, avoiding car-sharing and mixing during breaks as well as the proactive systems of monitoring, which allows the management of linked cases and outbreaks
- most NHS trusts have existing (LFD and PCR) testing, contact tracing and infection prevention control functions, into which DCT could be rapidly integrated
- most NHS trusts have ready access to PCR testing, which allow rapid confirmatory tests and precautionary tests to be conducted alongside LFD tests at trusts' discretion, which may encourage participation and provide reassurance to staff in the wider workplace. This would not be available in most workplaces
- many NHS staff are familiar with self-administering Innova LFDs at home as part of the voluntary regime of regular (twice-weekly) asymptomatic staff testing programme. This would mean the pilot would have few novice users
- at the time of the pilot, many NHS staff had already received an initial dose of vaccine against COVID-19, and emerging evidence suggests that vaccination may reduce the transmissibility of infection –reducing both the actual and perceived risks of DCT[3]

2.3 trusts

1. Royal Free Hospitals NHS Foundation Trust ("Royal Free") – Site Leads: Prof. Alison Rodger, Infectious Diseases Clinical Lead and Dr Sian Williams, Occupational Health COVID Lead. DCT pilot commenced on 9 January 2021
2. Barts Health NHS Foundation Trust ("Barts") – Site Lead: Dr David Harrington, Virology Consultant. DCT Pilot commenced on 18 January 2021.
3. London Ambulance Service NHS Trust ("LAS") – Site Lead: Robert Bowen, Deputy Director of Strategy and Transformation. DCT Pilot commenced on 20 January 2021
4. Oxford University Hospitals NHS Foundation Trust ("Oxford") – Site Lead: Dr Katie Jeffrey, Director of Infection Prevention and Control. DCT Pilot commenced on 22 January 2021

5. Lancashire Teaching Hospitals NHS Foundation Trust ("Lancs") – Site Lead: Claire Woods, Operational Lead for COVID-19 Testing. DCT Pilot commenced on 22 January 2021

For all NHS trusts the last date for recruiting participants for the evaluation was 28 February 2021.

2.4 Pilot design

DHSC prepared a module to the Master Clinical Standard Operating Procedure (SOP) for implementation of DCT, and each NHS trust tailored this for use in its own environment. The resultant SOP documents are available on request.

Factors that each NHS trust had in common in its implementation of DCT:

- eligibility was determined by the NHS trust, but participation was voluntary and was the choice of individual staff members once the requirements of DCT had been explained. If staff members did not wish to participate, then they remained in self-isolation as per current standard national guidance
- eligible staff:
  - staff identified by the trust's contact-tracing team as close contacts in the workplace of a COVID-19 positive staff member
  - staff alerted to a COVID-19 positive encounter via the NHS app or by NHS Test and Trace (T&T)
  - Household contacts where the individual staff member had themselves tested positive on PCR in the previous 90 days
  - staff were eligible for inclusion in the pilot regardless of their vaccination status.
- ineligible staff:
  - staff who were household (or support bubble) contacts of an index case of COVID-19 who had not themselves tested positive on PCR in the previous 90 days.[iii] These individuals self-isolated in line with the national guidance and were not able to enrol into this study[4]

Trusts differed in their implementation of DCT due to differences in operational context and the associated risks (see Table 2).

[iii] Midway through the pilot, eligibility was extended to individuals who were contacts of a positive household member, if they themselves had tested positive within the previous 90 days.

Table 2. Variance from master DCT SOP by trust

Trust	All NHS DCT pilot trusts	Staff excluded	Return to work	PCR Test (LFD negative)	Behaviour contract[iv]
Standard SOP – Royal Free Hospitals	Test for a minimum of 7 consecutive days, or up till the end of the 10-day self-isolation period (whichever is sooner)[v]	-	Day 1	-	Yes
SOP Variant 1 - Bart's Health		Excluded staff from bone marrow transplant unit and high-risk workplace exposures (for example aerosol-generating procedure exposure without eye protection)		Day 5	Yes
SOP Variant 2 – London Ambulance Service	Exclude staff where index case is at home/support bubble (unless staff has had positive PCR within 90 days)	Initially excluded serving paramedics and ambulance staff, although expanded eligibility to all crew mid-way through pilot		Day 5 after exposure	-
SOP Variant 3 – Oxford University Hospitals		-		Day 5 and Day 8	
SOP Variant 4 – Lancashire Teaching Hospitals	Confirmatory PCR required for positive LFD or COVID-19 symptoms. If		No return to work (participants do daily testing and	-	

[iv] Behaviour contract: Responsibilities of staff member

- Self-monitor for development of symptoms – if any develop you must inform Staff Test and Trace Team and your line manager, arrange a PCR test, and go home to self-isolate if advised by Staff Test and Trace Team to do so.
- Wear appropriate PPE, face mask and eye protection in all clinical areas.
- Wear a type II fluid resistant surgical facemask at all times when not in a clinical area.
- You may **not** remove your mask around other colleagues at any time
- You should try to eat meals and take water/coffee breaks alone if possible. If not possible, you MUST ensure you are at least 2m away from your colleagues at all times before removing your mask
- You must limit contact with other staff members in non-clinical areas and outside of work
- You must adhere to the LFD testing guideline

All the above will be in place for 10 days following the exposure

[v] In practice, some trusts extended the duration of daily testing.

Trust	All NHS DCT pilot trusts	Staff excluded	Return to work	PCR Test (LFD negative)	Behaviour contract[iv]
	PCR is negative, continue on DCT pilot No return to work if showing major symptoms of COVID-19 even if LFD is negative until negative PCR obtained Clinical and non-clinical staff included		continue to self-isolate)		

3 Methodology

3.1 Objectives

The primary objective of this pilot and evaluation was to inform decision-making by NHSEI on a wider rollout of DCT in the NHS workforce, by:

- investigating whether DCT reduces spread of infection in the NHS working environment
- demonstrating the feasibility of operating a safe DCT regime in the NHS workforce, including identifying which measures are required to effectively manage and monitor rollout, and learning from operational insights gained from participating trusts and individuals

The secondary objectives were to:

- quantify the number of staff days not lost to self-isolation, enabling NHS trusts to evaluate cost and benefits of NHS workforce DCT
- provide data and information to add to the emerging body of knowledge on DCT

These objectives were discussed and approved by the Testing Initiatives Evaluation Board on 2 February 2021. It became clear as the pilot progressed that while we were able to observe the impact of DCT in the participating NHS organisations, we would not be able to make any kind of conclusion on reduction in transmission in the NHS working environment, as per our primary objective. However, the pilot design and scope leant itself well to the second primary objective of demonstrating feasibility.

3.2 Ethics and governance

This was a service evaluation of a pilot of government policy, and as such did not require review by a research ethics committee. No personally identifiable information was collected for the evaluation. Recruitment of participants was done by the NHS trusts, and consent to participate was documented locally. Participation in interviews and surveys was optional and anonymous, and efforts were made to minimise any additional burden on NHS staff members.[vi]

The pilot and evaluation were coordinated by a multiagency working group, including NHSEI, the DHSC T&T pilot and evaluation team, leads from the pilot NHS trusts, and other key stakeholders (see Annex 8: Pilot Evaluation Working Group Terms of Reference).

[vi] Two out of 3 reviewers in the Independent DCT Review (June 2021) recommended that more consideration should be given to the need for ethics approval for workplace DCT pilots given the elements of research in the design of the evaluation

The evaluation was overseen by the Testing Initiatives Evaluation Board, which provides expert review of scientific, clinical, and operational findings and conclusions from evaluation activities across NHS Test and Trace and the devolved administrations in Wales, Scotland and Northern Ireland, and considers the impact these outputs could have on policy.).

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3.3 Evaluation questions

In order to support evaluation across multiple DCT pilots, a common set of 11 evaluation questions was developed. The NHS DCT pilot evaluation gathered data and evidence to answer these.

Table 3. Daily contact testing broader evaluation questions

Evaluation dimension	Evaluation questions
Operational feasibility 	1. How acceptable is the testing regime to those staff being tested?
	2. What operational burden does it place on the NHS trust?
	3. What are the implications for scaling up?
Scientific knowledge 	4. What is the operational performance of LFDs in this setting? Do we see concordance between LFD tests and confirmatory PCRs?
	5. Are the assumptions used in previous modelling of DCT's effectiveness borne out in real-world practice?
Public health effectiveness 	6. What is the uptake of DCT? How does that vary by staff group? How does that vary by socio-demographic factors?
	7. What effect does DCT have on the spread of infection in the NHS? Does it increase or decrease compared to self-isolation?
Behavioural factors 	8. Why do people choose or decline to take part in DCT?
	9. What factors affect whether people complete the regime of tests as intended?
	10. How do people respond to positive and negative test results? To what extent do they alter their behaviour?
Broader societal benefit 	11. What impact does this have on staffing levels within the NHS compared to self-isolation?

3.4 Evaluation design

This was not a formal scientific study or research trial. The timing and scale of the pilot and the nature of deployment in a public health emergency were such that it was not possible to design sophisticated control comparisons or establish randomised patterns of testing approaches.

This was a rapid evaluation of a developing pilot with continuous learning at the forefront. It was primarily designed to test the practical implications of DCT of NHS staff and observe (in a qualitative way) the impact on the participating trusts and individuals.

The protocol for this evaluation was discussed at the Testing Initiatives Evaluation Board on 2 February 2021. The Board's advice was to keep this a small self-contained pilot, focussed on feasibility of daily contact testing in this context. In particular, the advice was to:

- not recruit more participating trusts
- not lengthen the recruitment period
- not widen the eligibility criteria

3.5 Evidence collection methods

3.5.1 Direct supply from the NHS trusts

We set up a dedicated mailbox to receive data submissions from the trusts directly to the evaluation team. Each trust provided data in spreadsheet format using this mechanism. Data collected comprised:

- aggregated management information (number eligible, number recruited, total tests taken)
- individual-level testing data to allow the evaluation team to assess the performance, uptake, and impact of the DCT regime, including test results, anonymised socio-demographic factors (for example age, ethnicity), vaccination status and so on. See Annex 1: Daily Contact Testing – Minimum Data Set

All data supplied via email were anonymised prior to transmission.

Trusts provided estimates of the staff time required for setup and administration of the DCT programme.

3.5.2 Online survey

We designed an online survey, using SmartSurvey, to gain insight from people eligible for DCT to address the 'Behavioural Factors', 'Operational Feasibility' and 'Public Health' dimensions. We sent the survey to:

- participants on completion of their final test to gather their views on the DCT regime
- eligible people who declined to take part to understand their reasons for declining and any barriers to uptake

3.5.3 Qualitative (telephone) interviews

We conducted telephone interviews with a sample of administrators and participants to provide further insight in understanding the behaviour of participants and the feasibility of implementing DCT within NHS trusts. Interviews were also conducted with union representatives at some of the trusts to understand the staff-side perception of the introduction of DCT.

3.5.4 Working group

We established a working group at the start of the pilot to bring stakeholders together to engage in the evaluation. For the first 5 weeks the working group met weekly, and subsequently only if needed. NHS trusts were also in regular contact with the pilot evaluation team to share their experiences and report progress. One result of this formal and informal interaction was the ability to learn lessons throughout the duration of pilot on improvements that could be made to ensure the DCT service has a lower operational burden and is effective for NHS trusts. These lessons learned were recorded and are included in the evaluation.

3.5.5 Investigation of outbreaks

The IPC teams at each participating trust were informed about the pilot launch. We interviewed IPC leads at each trust to establish whether there were any outbreaks or linked cases during the pilot, and gain details of any investigations that had been carried out.

3.5.6 Positivity estimates

We obtained estimated national positivity rates from the COVID-19 Infection Survey.[5]

We obtained daily aggregate numbers of positive LFD results from each NHS secondary care trust from the Test and Trace Environment for Data Gathering and Engineering (EDGE) database, which includes data feeds from the Point of Care Testing (POCT) database and Strategic Data Collection Service (SDCS) database.

3.6 Analytical methods

3.6.1 Qualitative data analysis

We transcribed data from the interviews and coded it to identify themes. This was an iterative process as data was repeatedly reviewed and themes emerged. We also reviewed data from the survey results to identify themes and emerging patterns, using thematic analysis.

We have included quotes in this report to illustrate the findings. Quotes are attributed using the following categories:

- participant
- union representative
- site lead
- site administrator

3.6.2 Staff resource cost and benefit estimates

We applied national pay scales to trust estimates of staff resource required for the pilot, to give an estimate of the total financial value of this requirement.[6-10] We counted the number of potential work absences averted as the number of LFD negative results during the self-isolation period, plus any days remaining from the self-isolation period for those who returned a negative result on day 7 – up to a maximum of 10 per participant. We divided the total estimated staffing resource costs by the number of work absences averted to give an estimated cost per work absence averted. We divided the total costs for each trust and the total potential work absences averted by the number of weeks that the trust participated in the pilot, to give weekly averages.

3.6.3 Trust-wide LFD positive cases

We aggregated the daily number of positive LFD results into 7-day periods for DCT trusts and other NHS secondary care trusts. These were standardised by transforming each data point into a ratio indexed to the date of the pilot going live in the first trust (week commencing 10 January 2021).

4 The pilot in numbers

The data presented in Table 4 represents the result of our analysis of the complete set of detailed results returned to us by the trusts. In some cases, trusts elected to continue testing DCT participants for longer than 7 tests, either to reach the end of the 10-day isolation or up to 14 days. Therefore, not every negative LFD result represents a potential working day gained through DCT (as some would have been beyond the individual's isolation period).

Table 4. Summary of participation and testing by trust. See section 0 for PCR results

Variable	Royal Free	Barts	LAS	Oxford	Lancs	Total
Total eligible contacts	53	40	19	24	2	**138**
Declined	3	17	4	2	1	**27**
Participated in DCT	50	23	15	22	1	**111**
Uptake rate	94%	58%	79%	92%	50%	**80%**
Total LFD tests taken	338	114	95	169	3	**719**
Positive LFD results	0*	0	0	0	1	**1**
LFD tests per participant (mean)	6.8	5.0	6.3	7.7	3.0	**6.5**
LFD tests per participant (median)	7	5	7	8	3	**7**
Survey responses by participants	32	3	8	15	0	**58**
Survey responses by non-participants	0	0	2	0	0	**2**
Overall responses for participants and non-participants combined (percent response)	32 (60%)	3 (8%)	10 (53%)	15 (63%)	0 (0%)	**60(43%)**
Interviews**	5	3	3	5	2	**18**

*One positive result for an LFD test conducted the day after the 7-day DCT window was verbally reported by this trust but was not included in the data returns.

** For each trust we aimed to interview 2 participants, 2 site leads or administrators and one union representative

5 Operational feasibility

5.1 How acceptable is the testing regime to those staff being tested?

Acceptability of the testing regime was high, with participants feeling that the testing was:

> "rolled out very well, was easy to pick up and do" [participant].

The process of administering the test was easy for participants to do, especially as some of the participants already participated in regular self-testing at home and/or testing patients within their workplace:

> "I would say it's easy, just like we swab the patients at work. You just put a bit of fluid in a phial. It's very simple to do". [participant]

The home setting for conducting the test was seen as beneficial:

> "I was testing at home – I thought that was the best place because I've got time here – I haven't got time at work. I couldn't have done it there – I would have always found something else to do". [participant]

There was evidence of an infrastructure that supported participants effectively with, for example, close one-to-one support when they omitted to send in results:

> "[Person XXX] remind us if you haven't done the test, which is very good. A good idea". [participant]
>
> "…and I forgot to do my test but the support from [Person XXX] has been great, I got a phone call that day saying: "we noticed that you haven't done your test, can you log your test. The test wasn't too bad, just a swab in the nose". [participant]

Participants weighed up the acceptability of testing against the benefits that it brought, both to the professional and personal lives of those involved. This was articulated by a participant who had already experienced self-isolation:

> "Need to know that I am going into work safely instead of needlessly going into isolation". [participant]

For the staff that took part in DCT there were clear positive experiences of DCT:

> "There wasn't anything that was confusing. I wouldn't change anything about the experience." [participant]
>
> "I would be happy to be tested every day, it's no hardship, I have no problem with it" [participant]

However, although participants knew that participation in DCT was voluntary, there was a sense of obligation amongst some. This will be further explored in 'Behavioural Factors', section 0 below.

5.2 What operational burden does it place on the NHS trust?

5.2.1 Initial burden of set up

The operational burden of the DCT programme was initially high as a result of the rapid design and development process. This was compounded by the resource pressures that the trusts were experiencing, due to COVID-19, at the time DCT was being implemented. This led to some site leads taking an active role in recruiting into the programme. Through this hands-on involvement, they gained knowledge and insight into the mechanics of the programme and, in turn, were able to pass this on:

> "In terms of setting it out, that was a challenge. When we started, we had so many staff testing positive, we were concerned we wouldn't have enough staff to administer this. So myself and another member of staff did all the recruiting of people on to DCT. It was important in terms of learning and training others (registrars are now doing recruiting, 7 days a week and they've been brilliant). Still needed for queries about whether people can be signed up." [site lead]

One trust employed a 'soft' launch approach to test the recruitment process, contacting people who NHS Test and Trace had identified as contacts directly, before moving to:

> "more communication from managers so they were able to recruit." [site administrator]

For most trusts however, clearly agreeing and communicating the process was a key to efficiently recruiting the correct participants, as expressed by one trust administrator:

> "Needs a clear process and careful decision about contact, clear protocol, dependent on contact tracing team being clear about eligibility, flow chart and discussion and training with the team." [site lead]

For most trusts, it was clear that DCT could be readily integrated with an existing trust function. As one trust noted:

> "We felt the pilot would sit within existing testing" [site administrator].

For others who were involved in iteratively designing the DCT process with the T&T pilot team there was more of a burden:

> "It was quite complex and lengthy, several parts to it" [site lead].

Many of those involved in the pilot told us that implementation of DCT was rapid and iterative in nature and this was always going to create a challenging environment. There was evidence that the newness of their own roles within the organisation meant that there was a steep learning curve, as they had to rapidly identify wider governance arrangements within the trust:

> "I'm not a permanent member of staff, I'm not full time, I've only worked here less than a year and I'm not embedded into management, so I didn't know all the appropriate groups to make aware of DCT and getting sign off. We went round in circles." [site lead]

5.2.2 How knowledge, learning and materials can be reused between trusts

The operational burden was somewhat eased by reusing or adapting existing materials. This included adapting existing forms for contacting participants. For example, one trust used…

> "…the LCRC [London COVID Response Cell for health Care] form, designed by London COVID Response Cell for health care organisations for risk assessment." [site lead]

This was then adapted to suit the context and the needs of trusts. This sharing and reuse of materials between trusts was useful in the rapid development of the DCT programme and given the often stretched resources available to support it:

> "We used flow chart from… [trust X] …and tailored it to us, it would be useful to share things like the flow chart with others." [site lead]

Similarly, making more central resources available would have been helpful:

> "We wrote a detailed guidance sheet for participants which would have been useful, all we got from T&T was the exemption letter". [site lead]

5.2.3 Availability of resources

There were different levels of resource availability for the DCT programme across the different trusts, resulting in different ways of implementing and administering the programme:

> "Database – we didn't have anything sophisticated, but we needed to make it easy for us to do follow up, as well as collating information for recruitment and data submission. We developed a template email for participants including all the documents, for example reasonable exemption." [site administrator]

The same trust identified the need for ongoing resources to support the DCT programme and develop how data is captured:

> "From the operational point of view, we have an Excel spreadsheet of the data, and it would be good to develop a more sophisticated version of this, to make it more secure and easier to access". [site administrator]

Other trusts were reliant on different departments, such as the IT department for developing systems to implement DCT. For some trusts, specialist support was required to develop data capture methods:

> "We had to spend quite a bit of time with IT to figure out how we were going to collect test data and enter them every day. This was resource intensive, we got someone redeployed who was data orientated and rang participants every day, but as numbers increased this wasn't practical. We designed a mass text sent out every day instead and they had to reply. Text works better by not interrupting people who could be working/in theatre". [site lead]

At one of the trusts, existing staff resources could be used on DCT to administer or develop systems to support the programme:

> "We were lucky in that one of our researchers set up an online system, so we didn't need to phone people every day like some trusts. We had some medical students to check every day if anyone had not sent their results. Because we already had staff doing LFD twice weekly anyway, so this wasn't much more of an ask". [site lead]

5.2.4 Estimated staff resource requirement

The estimated staff resources required, and their associated costs varied substantially between trusts (see Annex 5 for detailed estimate by NHS trust). The amount of staff time required for setting up the pilot in any single trust ranged from 0.5 days to 20 days, which equates to between £93 and £5,316 gross pay costs, and the amount of staff time required for ongoing management of DCT ranged from half an hour to 12 days per week, which equates to between £12 and £1,964 gross pay costs. The estimated setup costs were highest for LAS – the only ambulance trust in the pilot – and this may have been due to the need to coordinate management of the programme across a large number of dispersed sites. Lancs, which had the lowest estimated costs overall, reported that this was a reflection of the low numbers of people eligible for DCT participation in that trust at that time.

Table 5. Estimated staff requirement for setup and ongoing management of DCT pilot

Trust	Setup		Ongoing management (per week)	
	Staff days	Approx. cost	Staff days	Approx. cost
Royal Free	10	£3,075	9.5	£1,964
Barts	9	£2,325	12	£1,475
LAS	20	£5,316	9.4	£1,800
Oxford	4	£1,597	2.8	£706
Lancs	0.5	£93	0.1	£12

Approximate cost derived from staff roles and pay band. See Annex 4 for details of staff requirements by role and pay band.

5.3 What are the implications for scaling up?

As the pilot progressed and issues arose, a list of "lessons learnt" was compiled by the evaluation team with the working group (Table 6). Some of the lessons would be applicable to the planning and running of further DCT pilot studies at any scale, and some would be specifically applicable to a large-scale rollout of DCT in the NHS (although it is acknowledged that the reporting of "lessons learnt" may not be fully representative of the range of experiences between or within sites).

Table 6. Lessons learnt identified by the evaluation team and the pilot working group

Category	Considerations
Scope / Objectives	• aims, Objectives, Scope to be clearly defined in advance • understand use of terms in NHS setting ("research" "study" "serial" all have meaning in clinical setting) • provide clarity in the Clinical SOP on eligibility and management of: – household contacts – people who have tested positive in last 90 days – vaccinated staff

Category	Considerations
Data gathering	• agree all measurements before going live – with clear links to pilot objectives • sending and receiving data should be aligned with existing practices – wherever possible • data privacy, data protection and GDPR must be adhered to • avoid free text response (where possible) • data captured should include details and reasons from those who declined DCT • establish cadence of regular reporting • robust, sustainable, scalable processes for collating and reporting information[vii]
Operational	• need for named individual responsible for DCT at each NHS trust • recruitment onto DCT must follow agreed, structured pathway – perhaps via occupational health (no self-recruiting or via local line-managers) • compliance with DCT testing requires 1-on-1 monitoring • value of informal forum where participating trusts can support each other • monitor cost of implementation and ongoing management • if tactical tool for deployment: agree conditions and triggers for take-up and ongoing use of DCT • for future use of DCT, involve operational staff from NHS trust in the design team
Communication	• ensure all stakeholder groups represented and consulted from the start (for example staff groups, microbiology leads, IPC leads, Caldicott Guardians, PHE, unions) • address concerns around data privacy, data protection and GDPR Approach to enrolment (recruitment or administrative process) may affect take-up

Interviewees suggested the following if wider rollout happened:

- formalising common materials into a generic 'starter pack', to be tailored to individual trusts' needs

[vii] One of the reviewers in the Independent DCT Review (June 2021) specifically recommended that participating trusts should be provided with an integrated package including IT and training

- meaningful engagement (collaboration) with all stakeholders including unions from the start
- understanding where local organisational knowledge resides within a trust, and how to access it would speed up the bureaucratic process of implementation of DCT
- create consistent messaging that trusts can use in the future, and to define the channels used for this consistent messaging (unions, staff emails, notice boards, senior leadership meetings, COVID-19 reports and so on)

These have been collated in Annex 2: Operational considerations for implementation, for reference in any future pilot or rollout.

6 Scientific knowledge

6.1 What is the operational performance of LFDs in this setting? Do we see concordance between LFD tests and routine PCRs (and confirmatory PCRs)?

6.1.1 PCR testing

In this pilot, 3 of the 5 participating trusts introduced routine PCR testing of DCT participants for their own assurance that all positive cases would be detected, rather than for the purposes of validating the performance of the LFDs. In addition, a number of participants took incidental PCR tests during the DCT period because they had minor symptoms[viii].

Table 7. Number PCR tests taken, and number of positive results reported, by trust

	Royal Free	Barts	LAS	Oxford	Lancs	Total
Total PCR tests taken	12	21	0	41	1	**75**
Positive PCR results	1*	1	0	2	1	**5**

*Result was not included in individual data returns from trust.

6.1.2 Concordance

Many of the PCR tests were not taken on the same day as an LFD test – either because they were outside the 7-day DCT period, or due to the presence of symptoms, in preference to an LFD test that day. As a consequence, not all of the PCR results could be directly matched and compared with an LFD result to assess concordance.

[viii] Some trusts had a general policy (pre-dating the DCT pilot) of PCR testing staff with minor symptoms, such as headaches and sore throats (that is not the 3 “typical” coronavirus symptoms of cough, fever and anosmia) as a precaution. Staff with symptoms such as these were usually permitted to remain in work.

Table 8. Number of matched PCR and LFD tests, by result, by trust [ix]

	Royal Free	Barts	LAS	Oxford	Lancs	Total
PCRs taken on same day as LFD	5	19	0	34	1	**59**
Negative PCRs	5	18	0	32	0	**55**
– of which LFD also negative	5	18	0	32	0	**55**
Positive PCRs	0	1	0	2	1	**4**
– of which LFD also positive	0	0	0	0	1	**1**

Across all the trusts there were a total of 59 PCR tests taken as part of the pilot that could be matched to a corresponding same-day LFD. Of these, 56 showed concordance between the results (55 pairs LFD and PCR were both negative, one pair both were positive).

3 of the 4 positive matched PCRs were taken on the same day as an LFD test that returned a negative result.

Although the number of positive results was too small to be used for validating the performance of LFDs in this pilot, we are reporting this data to add to the wider evidence base of DCT.

6.1.3 Positive PCR results

5 DCT participants were reported as having tested positive on PCR. Of these, 4 tested positive during the 7-day DCT period, only one of which tested positive on LFD (see

Figure 1 and Table 9). 3 participants tested positive on PCR, but not LFD although the interpretation of the PCR results was not straightforward (see notes in Table 9 and section 0). Although some trusts made efforts to confirm whether these infections in DCT participants represented transmission from the associated index cases, the results of sequencing were only conclusive in one case, which showed that the infection was not related to the exposure that led to participation in DCT.

[ix] Of the 5 participants who tested positive for PCR, only 2 tested positive on LFD at any point. 4 of the positive PCR tests were matched with a concurrent (same day) LFD test, only one of which was positive.

Figure 1. Timeline of symptoms and test results for positive cases (days since exposure)

Case	Days since exposure												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Case 1				n	n	n	n	n	n	P	n		
Case 2			N	n	n	n	P	n	n	n	n		
Case 3		N	S	LP									
Case 4				n	P	n							
Case 5					n	n	n	n	n	n	n	L*	P

*Also developed symptoms on this date

Key

n	Tested negative on LFD
L	Tested positive on LFD
LP	Tested positive on both LFD and PCR
P	Tested positive on PCR but negative on LFD
S	Symptoms started (but tested negative on LFD)
	End of 10-day self-isolation period

Table 9. Line listing of DCT participants that were reported to have tested positive by PCR or LFD

Case no.	Date of exposure (close contact)	DCT start date (first LFD test)	Symptom start date	LFD positive test date	PCR positive test date	Notes
1	25/1/21	28/1/21	Nil	Nil*	3/2/21 (9 days post-exposure; day 7 of DCT)	Tested negative on LFD the day after PCR result. Ct value 21 (orf1) suggests infectious at point of test. Had not developed antibodies 2 weeks later, so IPC team doubted reliability of result. Sequencing was unable to be conducted due to poor sample quality.
2	2/2/21	4/2/21	Nil	Nil*	8/2/21 (6 days post-exposure; day 5 of DCT)	Continued to test negative on LFD for 4 days following PCR result. Ct value 30 (orf1) suggests low viral load or not infectious at point of PCR test. Sequencing showed that sample did not match with the index case, that is the infection was not related to the exposure that led to participation in DCT. Was part of a simultaneous outbreak in ward (determined not to be the source due to temporal sequence of cases).
3	20/01/21	21/01/21	22/01/21	23/01/21 (3 days post-exposure; day 3 of DCT)	23/01/21 (3 days post-exposure; day 3 of DCT)	Tested negative on LFD on date of symptom onset.

Case no.	Date of exposure (close contact)	DCT start date (first LFD test)	Symptom start date	LFD positive test date	PCR positive test date	Notes
4	17/01/21	20/01/21	Nil	Nil*	21/01/21 (4 days post-exposure; day 2 of DCT)	Tested negative on LFD the day after PCR result. Ct value 30.1 (orf1) suggests low viral load at point of PCR test.
5	6/1/21	10/1/21	17/1/21	17/1/21 (11 days post-exposure; day 8 of DCT)	18/1/21 (12 days post-exposure; day 9 of DCT)	Outside 7-day testing window and 10-day self-isolation period. Symptoms and tests were reported verbally and are not captured in the statistics.

*Never tested positive, and tested negative on LFD the same day as testing positive on PCR

6.2 Are the assumptions used in previous modelling of DCT's effectiveness borne out in real-world practice?

Quilty and others (2021) used an agent-based model to simulate the viral load dynamics of exposed contacts, and their potential for onward transmission in different quarantine (self-isolation for close contacts of a confirmed case) and testing strategies.[1] They compared the performance of quarantines of differing durations, testing with either PCR tests or LFDs at the end of quarantine, and daily LFDs without quarantine, against a 14-day quarantine strategy. They also investigated the effect of contact tracing delays and adherence to both quarantine and self-isolation on the effectiveness of each strategy.

They concluded that testing might allow for a substantial reduction in the length of, or replacement of, quarantine with a small excess in transmission risk. Decreasing test and trace delays and increasing adherence will further increase the effectiveness of these strategies.

It had been our intention to compare the evidence obtained from this pilot against the assumptions of the model which was used to inform the planning of the pilot (See Annex 4: Assumptions from previous modelling for full list of model assumptions). Although the small numbers of DCT participants and low positivity rate observed in the pilot mean that the evidence we collected is not strong enough on its own to challenge or uphold these assumptions, it adds to the wider evidence base for DCT(see Annex 5: Summary of pilot evidence against Quilty and others (2021) modelling study assumptions for a summary of pilot evidence against relevant assumptions and cross-references to more detailed findings in this report).

7 Public health

7.1 What is the uptake of DCT? How does that vary by staff group? How does that vary by socio-demographic factors?

7.1.1 Overall uptake

To calculate the uptake of DCT by potential participants we have considered those individuals who were deemed eligible for DCT by their trust and were subsequently offered the option to undertake DCT. The overall uptake rate across the trusts was 80% (Table 10); that is 80% of eligible candidates elected to undertake the DCT testing regime as opposed to self-isolation.

Table 10. Overall uptake of DCT by trust

	Royal Free	Barts	LAS	Oxford	Lancs	Total
Total eligible contacts	53	40	19	24	2	138
Total declining	3	17	4	2	1	27
Total participants	50	23	15	22	1	111
Uptake rate	**94%**	**58%**	**79%**	**92%**	**50%**	**80%**

7.1.2 Eligible people who declined to participate

3 trusts provided some demographic information for those who declined, which accounted for 21 of the 27 people in this group, however the information was not complete for every individual and data point. Ethnicity information was provided for 21 of the potential participants who declined (although for 2 this provided as “not stated”). Age information was provided for 19 individuals, but only 4 had gender provided. These small numbers restricted our ability to do detailed analysis.

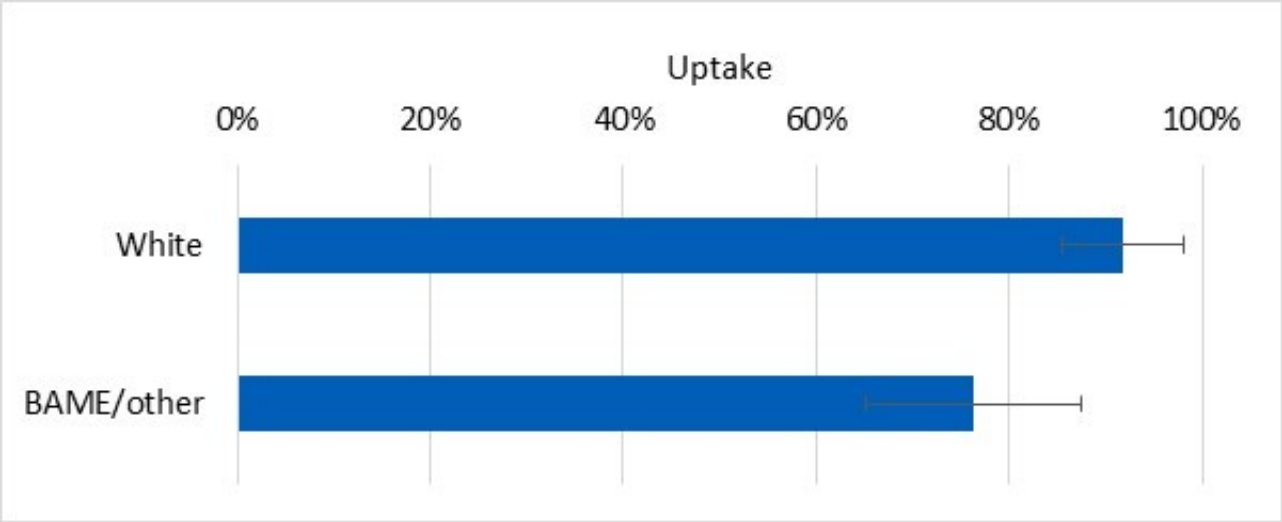
- Gender: 3 of the 4 decliners with associated gender information were female (75%). This is compared with 62% in the overall participant group (54/87)
- Ethnicity: A small percentage of those declining were of White ethnicity, 29% (6/21). This was the opposite for participants, for which the majority were White (61%, 67/110)

- Age: 58% of those who declined were aged over 35 (11/19). In the participant group 51% (56/110) were over 35

Ethnicity is the only area in which there was a noteworthy difference between the participant and declining groups. When considering uptake by ethnic group; 92% of the white potential participants elected to take part in DCT (67/73). Comparatively, the uptake rate for potential participants from BAME and other backgrounds was 76% (42/55, Figure 2).

It should be noted the precision of these estimates suffers from the small sample sizes (as indicated by the large error bars). In addition, the observed differences could be explained by information bias (for example due to the lack of ethnicity data for more than a quarter of decliners, from incomplete data or "not stated" returns) or confounding factors (for example pay band and job role).

Figure 2. Proportion of potential participants who elected to take part in DCT, by ethnic group. Error bars represent 95% confidence intervals



7.1.3 Socio-demographic factors

In order to assess the impact of socio-demographic factors on the uptake and completion rates, we asked DCT trusts to provide participant level data on: age, ethnicity, gender, postcode, job role, vaccination status and antibody status (an indicator of past infection). Data returns were largely well-completed by trusts, although one did not provide any gender information. Vaccine and antibody information were less well-completed, particularly the latter, which was added as a requirement relatively late in the pilot.

Of the participants for which gender information was provided, 62% were female (54/87). Over half of the participants within the trusts for whom we were provided ethnicity information were white (63%, 67/107). Across the trusts, 49% of participants were aged 34 or under (54/110).

Comparison with trust workforces

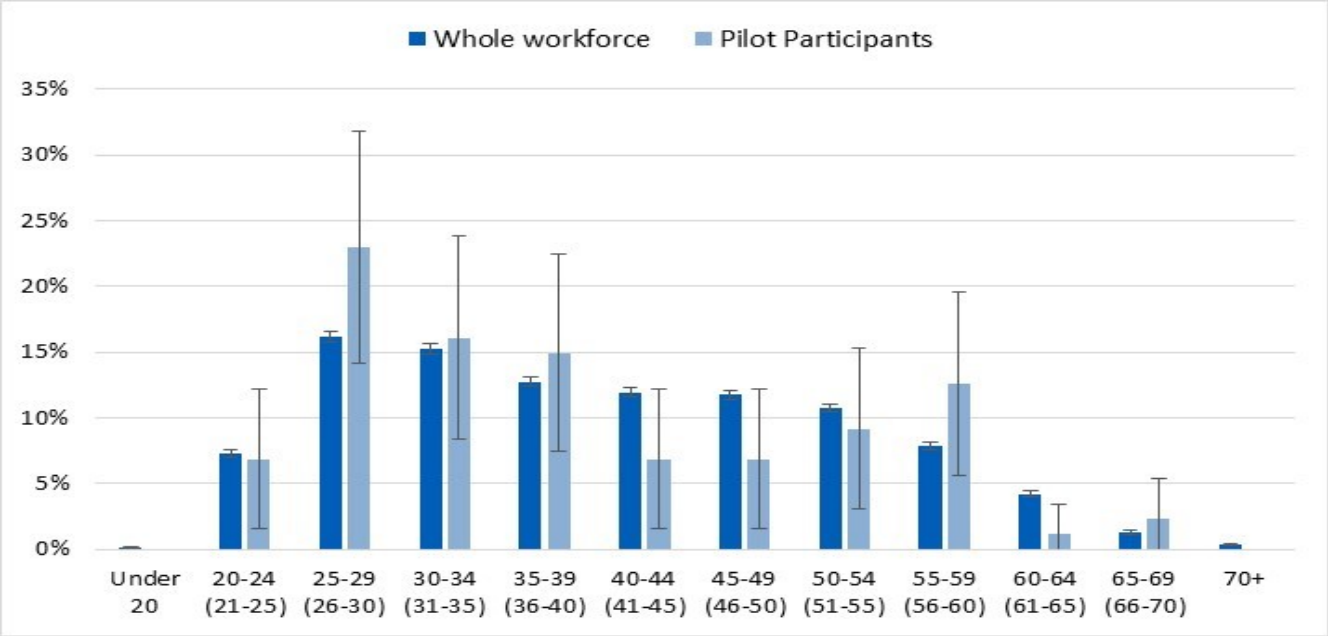
NHS trusts publish data on their workforces in their annual returns. While the exact format of this varies by trust, we were able to use the information to provide some high-level comparisons between the overall trust workforce and the participants who took part in DCT. This analysis is limited in that:

- the sample sizes are low, particularly when breaking down the 111 participants into constituent groups
- these data are taken from the 2019 to 2020 annual returns, so there may have been some changes in the overall workforce at these trusts between the time of the report and the start of the pilot
- staff who are identified as close contacts may not be representative of the wider workforce, and if not, this could explain any observed difference in workforce populations and DCT – this could be addressed in future by obtaining socio-demographic data for the wider cohort of trust staff identified as close contacts

There was little difference between the pilot participants and the wider workforce when considering either age, gender or ethnicity.

- Gender: the proportion of female participants taking part in DCT was 62% [95% CIs: 52% -72%]. This figure covers the 4 NHS trusts who provided gender information in their data returns to us. This was slightly lower than the overall proportion of the staff of these workforces who are female, which was 71%
- Ethnicity: data on the ethnic breakdown of the workforce is available for 4 of the 5 trusts who completed the pilot. Due to the way the data is published we cannot provide a detailed ethnic breakdown of the staff base. For example, some trusts grouped Black and Asian staff into one category in their figures. However, we can establish that 55% of the workforce in these trusts was White, which was similar to the pilot, where 58% [95% CIs: 48%, 68%] of participants were White
- Age: 3 trusts have published detailed data on the age of their workforce, in bands of 5 years. Across these trusts 39% of the workforce is below the age of 35. Comparatively, 46% of the pilot participants in these trusts were aged under 35. Looking at the overall age distribution of the trusts' workforces compared to the pilot participants it appears the age profile of pilot participants may be slightly younger than the overall age profile of the workforce, (although differences by age band were not statistically significant)

Figure 3. comparison of DCT participant age with workforce population (3 trusts only)



Error bars represent 95% confidence intervals.

Note that the published data on age are not always consistent (for example age bands do not align such as 25 to 29 or 26 to 30). For the purpose of this analysis the published bands have been aligned as closely as possible to produce the most representative results.

7.1.4 Limitations

During the design of the evaluation, the trusts expressed some concerns around the provision of postcode data and the potential that this could lead to identification of participants. The data supply were subsequently limited to postcode district (the first half of the postcode). The intention was to use postcodes to link participants to the index of multiple deprivation. However, this was not possible, as postcode districts cover too wide an area.

Similar concerns were raised around job role data. For this reason, some trusts provided only a breakdown between clinical and non-clinical roles, while others provided specific job titles. This inconsistency limited the options for analysis of socio-demographic factors.

To enable better analysis of the impact of socio-demographic factors on the uptake of DCT, it would be useful to explore alternative measures of economic status, such as pay band, that can be confidently and consistently reported by NHS trusts. It would also be useful – where possible – to investigate the number of bank hours staff members typically work, to see if this might be a factor in the decision to participate in DCT.

7.2 What effect does DCT have on the spread of infection in the NHS? Does it increase or decrease compared to self-isolation?

7.2.1 Transmission risk from DCT participants

The main public health risk from DCT is that participants (close contacts of confirmed cases of coronavirus and may be incubating) could become infectious and transmit the infection to others before the infection is detected on daily testing.

Close contacts are more likely to test positive than the general population, so the baseline positivity rate of DCT participants is expected to be higher than average.[11] However, the presence of IPC measures and the rising proportion of staff who are vaccinated reduce the likelihood of transmission from staff – 73% of DCT participants were reported to have received at least one dose of vaccine (65 of the 89 participants for which this data was provided).

Modelling suggests that DCT is likely to substantially mitigate the risk of transmission from close contacts, bringing it in line with self-isolation.[1] Therefore, if any incidents of transmission from a DCT participant were detected in the pilot it would be concerning, and establishing a) whether such incidents would be detected and b) whether any such incidents *were* detected, was the focus of efforts to answer this evaluation question.

In the participating trusts, all infection prevention control (IPC) leads and contact tracing leads were aware that the pilot was taking place and received regular reporting on the pilot progression. They reported that no DCT-associated transmission incidents (that is cases or outbreaks where exposure to a DCT participant was the likely source of infection) were identified by any trust during the pilot, for example:

> "No, there were no related outbreaks or cases. We tracked every DCT participant on the daily test and trace call between IPC, virology and employee wellbeing service" [IPC lead]

> "There have been no cases of onward transmission from one of the pilot study participants, to the best of my knowledge." [IPC lead]

They reported generally high confidence that, if any workplace transmission from DCT participants were to occur, it would be detected – especially if it was the cause of an outbreak (that is 2 or more secondary cases). Confidence was especially high when the numbers of positive results in the trust were small enough to allow every single case to be investigated thoroughly (as was the situation during the pilot).

> "Highly confident. Any DCT positive cases would be fed back to the IPC team at twice weekly trust meetings and would be investigated for potential incidents of transmission." [IPC lead]

Trusts reported that potential transmission was investigated by interviewing all positive staff (and their line managers) to ascertain if there were any epidemiological links (in time, person or place) between cases and to identify any close contacts (who would need to be self-isolate or start DCT). If any of the close contacts were on DCT at the time of exposure, this would be detected. This was supported using electronic contact tracing systems. Sometimes targeted PCR screening of patients and staff on ward would be conducted (in unexplained cases or where there were unexpected numbers of cases in any given ward). Whole genome sequencing was sometimes performed.

Nevertheless, it was recognised that investigation of transmission is not fool-proof, and the following limitations were reported:

- trust-based contact tracing is restricted to the workplace, it relies on psychological factors, for example staff memory, honesty and cooperation, and may be hampered by staff movement between wards and sites. Where there is separation of the infection prevention control, testing and contact tracing functions in a trust, links between positive staff and patients may not be made systematically
- detailed backwards contact tracing is not always undertaken for single cases, and it is difficult to ever definitively identify a source of infection (or rule out a possible source of infection), even where samples are sequenced
- not all cases of coronavirus in staff will be detected. Some symptomatic staff in wider workplaces will get tested via the national testing programme (Pillar 2) and hence could bypass internal contact tracing processes. Regular LFD testing in the workplace is voluntary, so some asymptomatic cases may not be detected

In addition, it is important to note that the scope of the evaluation was restricted to the workplace. Transmission incidents outside the workplace would not have been detected because it was not possible to link DCT participants' data with the Test and Trace contact tracing database.

The following practices were recommended as feasible ways to improve confidence that transmission would be detected:

- provide dedicated resources for managing the DCT programme
- increase incentives for contacts to participate in DCT
- ensure messaging and communications allay any potential privacy concerns
- routine whole genome sequencing of all patient and staff cases
- include routine PCR testing in DCT schedule (for example on days 5 and 8)
- daily phone call or meeting of IPC and contact tracing teams to review new cases and hotspots across staff and patients

7.2.2 Positivity rates

Understanding the positivity rate in and around the DCT pilot population provides important context for interpreting the other results. However, it needs to be interpreted with caution.

The positivity rate affects both the potential benefit (yield of case finding) and the risk of onward transmission. Therefore, an elevated positivity rate could be driven by a desirable change (improved case finding) or an undesirable change (increased workplace transmission).

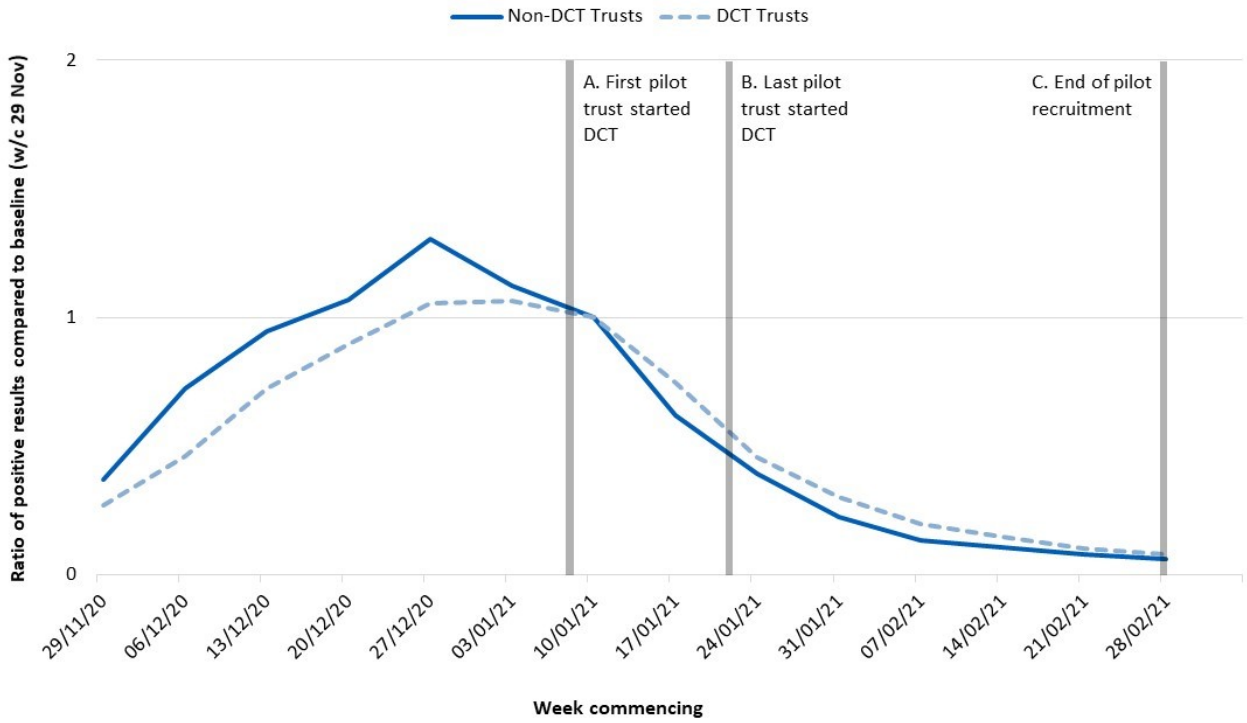
Out of 111 DCT participants, 1 participant tested positive (0.9% of total participants) on LFD and 4 participants (3.6%) tested positive on PCR during their 7-day DCT period.

In the absence of a control group, it was difficult to assess whether DCT led to an elevated positivity rate from baseline (that is the number who would have tested positive if self-isolating and continuing with voluntary twice-weekly testing). A before-and-after comparison was not useful, since the pilot was started at a time when the estimated national positivity rate was at a peak during the winter of 2020/2021, and by the time the pilot ended, the national positivity rate had fallen by over 2 thirds (See Annex 6: National positivity rate).

Therefore, rather than focus on the positivity rate in contacts participating in DCT, we compared the trends in the total number of positive staff cases identified in the trusts that participated in DCT, with trusts that did not, to assess whether DCT had any impact on transmission in the wider workplace. If DCT led to an increase in transmission, one would expect the gradient of the trend of positive cases in DCT pilot trusts to deviate upwards from the trend in other trusts during the DCT pilot time period.

Contrary to this, Figure 4 shows no noticeable upward deviation in the number of positive cases identified at DCT pilot trusts compared to other trusts during the pilot period.

Figure 4. Positive LFD results reported by DCT trusts and other NHS trusts each week before and during DCT pilot



Data includes all LFD positive results reported by trusts (that is including regular staff testing and other non-DCT participants). Data has been normalised as the ratio of the number of positive results reported at the point the first pilot trust started DCT (week commencing 10 January 2021: DCT trusts n = 184 positives, other trusts n = 5,445 positives).

There are limitations to this approach, because the trusts that participated in DCT were not selected randomly, and so any difference in positivity trends could be due to factors other than the introduction of DCT[10]. Notwithstanding this, there was no perceptible signal in the data that the introduction of DCT led to an increase in the number of positive LFD results in wider staff in pilot trusts.

[10] The difference in the shape of the curve between DCT and other trusts could be due to a range of factors, including random chance / regression to the mean, differences in testing strategies and workforce profiles between trusts.

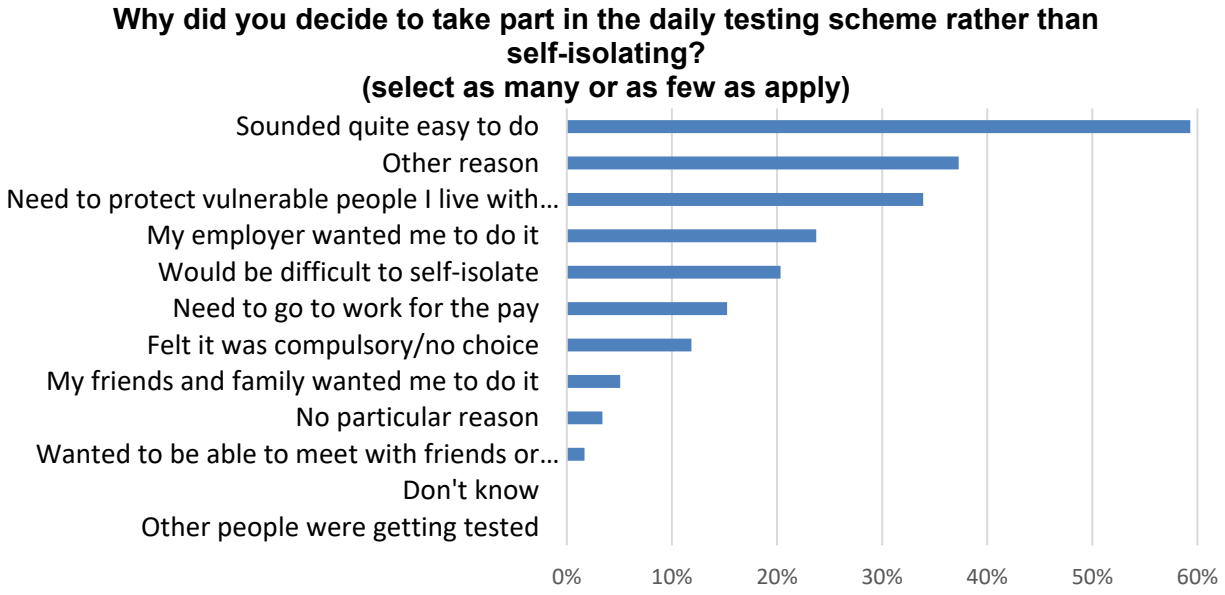
8 Behaviours

8.1 Why do people choose or decline to take part in DCT?

8.1.1 Reasons for taking part

The DCT service was rolled out within an existing landscape of wider testing (twice weekly LFD and PCR if symptomatic or working with at risk groups) in the trusts and, as such, participants were familiar with the practice of carrying out lateral flow device testing. Over 95% respondents to the survey rated their understanding of what a test would involve positively ('fairly good' or 'very good').

Figure 5. Reasons for volunteering to participate in DCT (n=59) (note: participants could choose more than one option)



There were multiple reasons for people choosing to take part in DCT, but the most popular response (59%) was 'sounded quite easy to do'. This was confirmed in the interviews:

> "[the process was] easy and relatively quick….it was less intrusive than I thought it would be". [participant]

The next most common reason for participating was given as 'other' (38%). A reason that – respondents gave here in free text responses was wanting to be able to keep working in order to support colleagues:

> "Our ward was short staffed and about to move. I was asymptomatic and wanted to be at work to help the team." [participant]

> "So that I could still go to work – it was peak COVID time and I was worried about the already high workload on my colleagues and the reason I had to isolate was because the app was triggered at work. Therefore, it was very unlikely that I had been exposed to COVID without the necessary PPE." [participant]

Further reasons were given under 'other' including:

> "Wanted to be able to continue day-to-day life as already isolated for contact reasons twice and found it mentally very challenging". [participant]

> 'Just came back from isolating didn't want to do it again". [participant]

This sentiment of obligation to support team members sometimes seemed to morph into stronger feelings about how absences might impact others:

> "My team needed me; isolating for 10 days would put my colleagues in a difficult position with the current caseload and felt pressure to do it for the team". [participant]

Furthermore, although the scheme was voluntary, in practice, this may not always have been the perception:

> "There was a concern that, as much as it was voluntary, they weren't really going to be given a choice because they would be made to feel guilty." [union rep.]

> "Although we know the scheme is voluntary there are levels of presenteeism[11] to the nursing workforce, so how will the trust mitigate against that?" [union rep.]

There was widespread acknowledgement that the DCT pilot had to be set up rapidly, and the concept of daily testing was well understood. On the other hand, union representatives had questions about how to take breaks separately from other staff, and the impact of participation in DCT on participants' nursing registration (which could be perceived as a breach of the rules for going to work after having been identified as a close contact).Such questions could have been pre-empted through a more thorough consultation process, which could also have brought greater trust and engagement from the target audience.

8.1.2 Reasons for declining

There were multiple reasons for declining to take part in the DCT pilot.

Concerns about the accuracy of LFDs was evident among participants, especially in trusts where there was a high rate of declining to take part in DCT:

> "Some decliners – 15 declined overall, people don't trust LFD testing…bad press about it…anecdotally people knew others who had tested negative on LFD but then went on to test positive on PCR...used it for symptomatic testing". [site lead]

[11] 'Presenteeism' - this is a verbatim quote, which, interpreted in context, seemed to refer to the feeling of obligation to attend work per se, rather than referring to the attendance of work whilst unwell.. There was no evidence that any pilot participants attended work whilst they were unwell.

However, not all participants heeded anecdotal evidence unfavourable to LFDs:

> "We did hear some stories that it wasn't very sensitive. That some nurses had symptoms but didn't show up positive. Then they had a PCR test positive. I don't know that person, but it did circulate, and we're doing this – is it working? But everyone continued to do it because we didn't know that person and it was just hearsay". [participant]

Some managers expressed doubt over the reliability of LFDs which may have allowed individual bias to factor into the recruitment process:

> "Briefing to the other managers was quite mixed – some were enthusiastic, saw it as support, way to reduce absence. There were others who were more cynical around the accuracy of the LFDs, so questions around "is this safe? Is this something we should be doing?" [site lead]

8.1.3 Other reasons for declining

There was also evidence that the heightened workload that staff have endured as a result of COVID-19 has led to exhaustion. Therefore, in some instances, the opportunity to self-isolate was more appealing than continuing to work through the DCT pilot:

> "Some people were absolutely exhausted, they saw the isolation period as a break, they were just being honest. I understand where people are coming from". [site administrator]

Similarly, among participants where annual leave had been cancelled and they were exhausted, the opportunity to take a rest through self-isolation was welcomed:

> "Some were on annual leave, annual leave had been cancelled and they were desperate for leave, so they declined so they could have 10 days isolation during annual leave rather than being called back to work". [site lead]

It should also be noted that at least one participant was declined by their trust because of their lack of IT skills:

> "…certain staff members had to be excluded because they struggled to use the portal so there is an unintended bias to the more educated IT users, something around digital literacy" [site lead]

8.1.4 Willingness to take part in DCT again

Over 90% of survey respondents said they would take part in daily testing again, and there was a clear appreciation of the benefits that DCT bought over self-isolation:

> "The difference between self-isolation and DCT is the difference between having a life and not having a life (and everything that's included within that)" [participant]

The prospect of self-isolation had a clear emotional connection, as one participant notes:

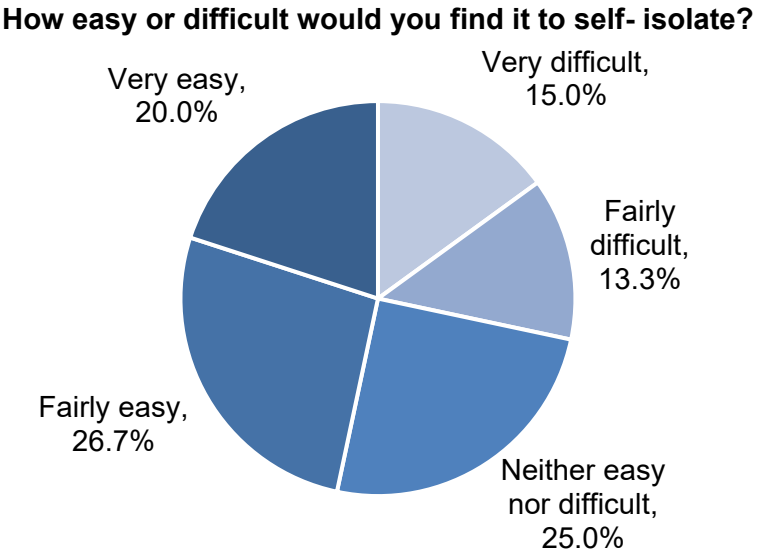
"The thought of isolation is an absolute nightmare". [participant]

The stress associated with self-isolation was also linked to the stress experienced to being 'pinged' as a contact of someone who has tested positive and DCT provided not just an opportunity to come back to work but, more broadly, DCT:

"Enables a bit of normality". [participant]

However, respondents were divided in how easy it would be for them to self-isolate. On the one hand, over a quarter (28.3%) reported that it would be difficult (13.3% "fairly difficult" and 15.0% "very difficult"), and on the other, nearly half (46.7%) reported that it would be easy (26.7% "fairly easy" and 20.0% "very easy", see Figure 6). Therefore, the willingness to DCT again did not seem to be purely driven by a comparison with self-isolation.

Figure 6. Survey respondents' ease to self-isolate. (n=59)



8.2 What factors affect whether people complete the regime of tests as intended?

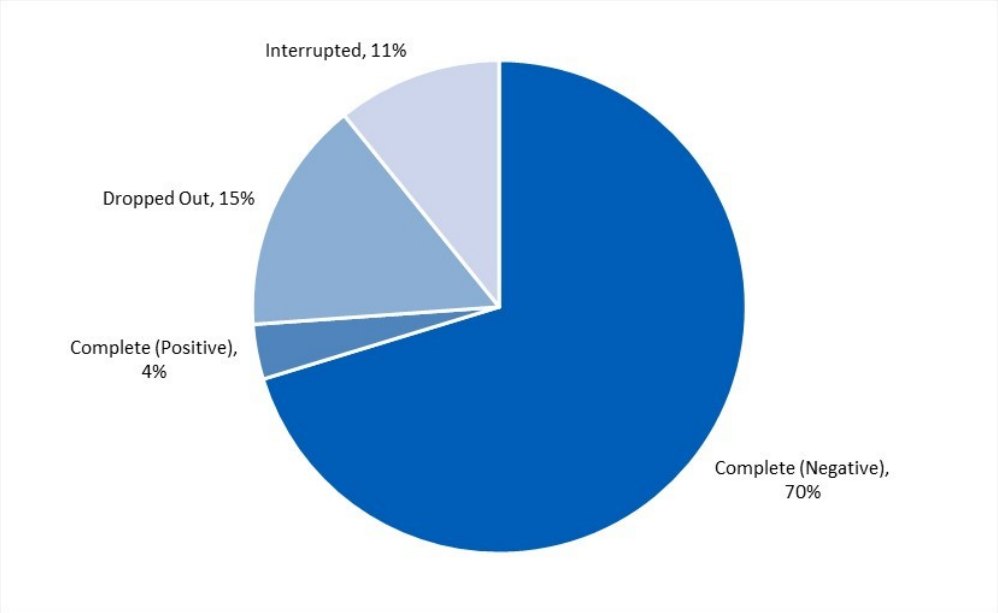
Out of the 111 DCT participants:

- 74% successfully completed tests for every day required – either to the end of their testing window[12], or when a positive result (LFD or PCR) was received (Figure 7 and
- Table 11)

[12] As per the particular trust SOP, that is Barts used a different testing window to other trusts.

- 11% of the participants interrupted their testing period, meaning one or more tests were missed but they subsequently return to testing up to day 7
- 15% dropped out, meaning that their testing period was shortened due to one or more tests omitted at the end of the 7-day period

Figure 7. Proportion of candidates completing and not completing the full regime of LFD tests [n=111]



Anecdotal evidence from the trusts suggests that, where participants missed tests, it could often be attributed to the participant not working on that day. There were also some cases where the SOP was not fully understood (for example, one participant did not take LFDs after a negative PCR test was taken on day 5).

Table 11. DCT completion and non-completion, by trust

	Royal Free	Barts	LAS	Oxford	Lancs	Total
DCT Complete (Positive)	0 (0%)	1 (4%)	0 (0%)	0 (0%)	1 (100%)	**2 (2%)**
DCT Complete (Negative)	41 (82%)	14 (61%)	11 (73%)	14 (64%)	0 (0%)	**80 (72%)**
Dropped Out	3 (6%)	7 (30%)	3 (20%)	4 (18%)	0 (0%)	**17 (15%)**
Interrupted	6 (12%)	1 (4%)	1 (7%)	4 (18%)	0 (0%)	**12 (11%)**
Total	**50**	**23**	**15**	**22**	**1**	**111**

As discussed in Section 0 we also collected socio-demographic information on participants to understand what factors may be impacting on uptake and completion of DCT. While the small sample size in this pilot meant that there was limited statistical power, there was no significant effect of either age, gender or ethnicity on the rate of DCT completion. Note that not every piece of data was provided for every participant. Therefore, the data below does not always relate to the full set of 111 participants.

Table 12, Table 13 and Table 14. DCT completion rate, by socio-demographic characteristics

Gender	Completion rate [95% CI]
Female	80% [69%, 90%]
Male	70% [54%, 85%]

Age	Completion rate [95% CI]
20-29	71% [55%, 88%]
30-39	75% [62%, 88%]
40-49	69% [46%, 91%]
50-59	76% [58%, 94%]
60-69	80% [45%, 115%]

Ethnicity	Completion rate [95% CI]
Asian	69% [46%, 91%]
Black	67% [40%, 93%]
Mixed/Other	75% [51%, 100%]
White	78% [68%, 88%]

8.2.1 Support provided to participants by trusts

There was evidence that the high degree of support participants received, aided them to adhere to DCT. This was manifest in the one-to-one contact provided by some trusts when people failed to submit their test results:

> "If they didn't test on one particular day we would get an email and we could follow up, often it was because they were on a night shift. So we had direct access to what was happening". [site administrator]

There was also a need to be able to respond to participants' queries about both the administrative and the clinical aspects of the testing process, which required both administrative and clinical provision in the DCT team:

> "One nurse and one administrator were working on it, because although it's quite a simple process, you always find that a conversation can develop into something else, so we had to make sure that we had people there who could answer those questions". [site administrator]

Administrators were keen to make the process of testing as easy as possible for participants – from receiving test kits, to administering tests, to uploading results:

> "When we engaged with LFD in Nov it was just added to the staff website so people could order and collect their kit, people were familiar with the website so it was a natural home". [site administrator]

> "No issue with collecting LFD testing kit. It's key that people have access to tests, there's a video on the website to show how to do the tests, there's FAQs". [site administrator]

8.3 How do people respond to positive and negative test results? How do they alter their behaviour?

8.3.1 Perception of result

There was evidence from the interviews that a negative LFD test result gave people a level of reassurance that they were not putting their household members at a high risk:

> "It gave people confidence if they were negative, not taking anything home to my loved ones". [participant]

There was evidence that this reassurance made participants more comfortable in going about their day to day activities:

> "I felt happy when I got the results. It was nice to know that I was safe for the next 24 hours. It made it easier for me to plan my day and get on with doing my day to day activities like food shopping, going into work and so on., and not putting other people at risk". [participant]

> "With DCT, it takes a few minutes of your day, but the benefits of being able to carry on with a normal lifestyle whilst having the peace of mind that you are doing so safely, outweigh the drawbacks of having to do the test". [participant]

Of the participants who tested positive, one participated in an interview and 2 responded to the survey. The interview respondent had tested positive on PCR but not LFD, and therefore had an emotional response to the positive result:

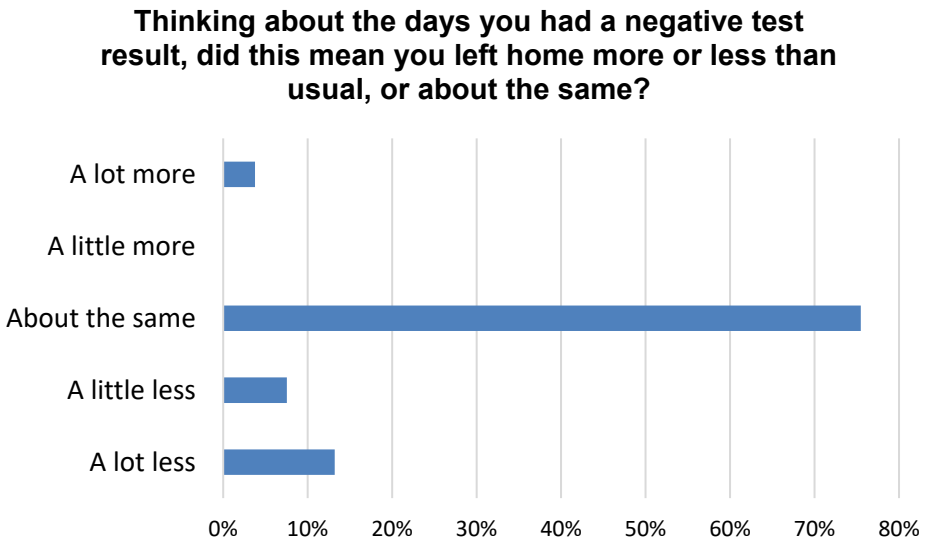
> "I was totally gutted. I happened to be in the office with my manager at the time when the email came through because I'm one of the [job role] and, if I'm brutally honest, I promptly burst into tears. I was completely shocked by it". [participant]

Nevertheless, the respondent still felt that daily contact testing using LFD was a good idea, but felt that the inclusion of at least one routine PCR test in the regime was important, to provide reassurance that no infection was missed.

8.3.2 Impact on behaviour

There was no evidence that the feeling of reassurance following a negative result led to a general relaxation of IPC and COVID-safe behaviour. The majority of survey respondents reported that the amount they left home and the amount of contact they had with people outside their household did not change following a negative result (Figure 8 and Figure 9, respectively).[13]

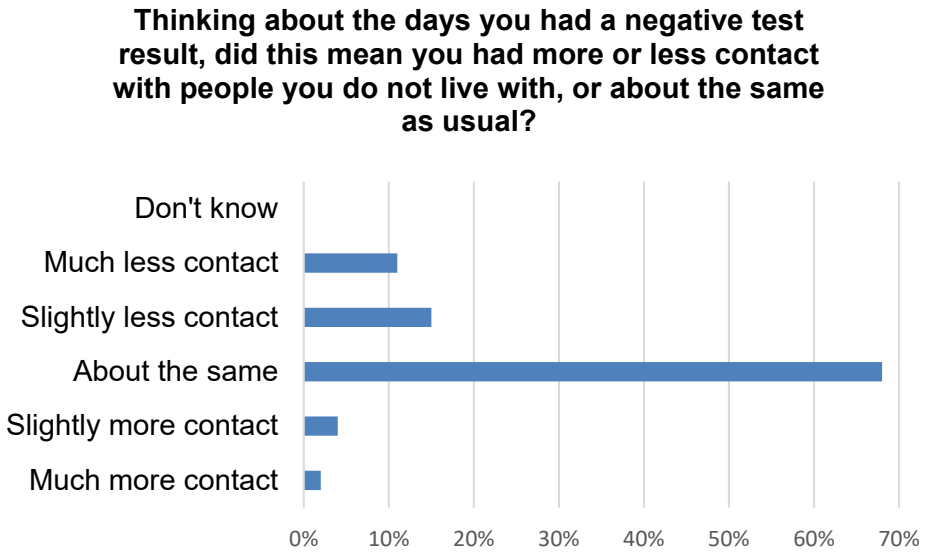
Figure 8. Effect of a negative result on behaviour leaving home (n=53)



About 20% of survey respondents reported that, after receiving a negative test, they left home less than usual (Figure 8) and over a quarter reported that the amount of contact they had with people outside their household was less than usual (Figure 9). It seems more likely that this precautionary behaviour was a consequence of having been identified as a close contact, rather than having tested negative on that day, but either way it is a reassuring finding.

[13]However, it should be noted that both questions are ambiguous, as they do not specify what comparison the respondent was being asked to make. The implication is that "usual" refers to activity prior to being identified as a close contact, but participants may have interpreted it differently – for example comparing to self-isolation (as the alternative to DCT).

Figure 9. Effect of a negative result on contact with other people (n=53)



Although there were no objective measures of participants' actual behaviours to validate them, these self-reported findings are consistent with the observations reported by trust administrators that being identified as a contact made people even more cautious than they would otherwise have been:

> "Affects behaviour, positively: It elicits behaviour, the way the contacts behaved was improved by being in the pilot, they were meticulous about wearing mask all the time, keeping distance. Knowing they were a contact and had the potential for being positive". [site lead]

9 Broader societal benefits

9.1 What impact does this have on staffing levels within the NHS compared to self-isolation?

There are many costs and benefits of DCT in the NHS staff setting that will affect the wider community (see Box 1). As well as identifying and describing these throughout the evaluation report (see Box 1 for cross-references to the relevant sections), we were able to specifically quantify the benefits in terms of maintaining staffing levels, which was of particular salience for NHS trusts struggling to staff critical clinical services following the winter peak of COVID-19 cases.

Box 1. Potential costs and benefits of DCT

Costs

- cost of LFD devices – £3.52 per unit (£87.90 for a box of 25)
- PCR testing – Use of local hospital pathology services (unit costs will vary between trusts)
- staffing costs of setting up and administering DCT programme (see section 0)
- participant time for testing and reporting result (30-45 mins per day for 7 days)
- transmission risk – Societal and workplace costs of secondary transmission from DCT participants in workplace (see sections 0 and 0)

Benefits

- case finding – Societal and workplace benefits of reduced transmission from asymptomatic cases identified that would not otherwise have been detected – or detected earlier than would have been via regular testing (see section 0)
- staff wellbeing – participants able to continue to work, reassurance of regular testing, reduction in impacts of self-isolation, negative impacts of regular testing (see sections 0 and 0)
- averted staff absence (averted costs of sick pay, bank staff, productivity impacts on proximal team due to absence, interrupted training)

Staffing benefits were estimated by counting each time a DCT participant tested negative on LFD during the quarantine period, plus any days remaining from the quarantine period for those who returned a negative result on day 7 – up to a maximum of 10 per participant, as this means they were legally able to work that day, when otherwise they would be self-

isolating. In other words, each of these was one calendar day of self-isolation avoided and, thus, one day potentially available to work: a "potential work day absence averted".[14]

By this definition, the DCT pilot averted a total of 729 potential work absence days – a mean of 146 per trust (range: 2 – 334). 91% percent of these were associated with clinical staff Table 15).

Table 15. Number of potential work absence days averted, by job type, by trust

Job type	Royal Free	Barts	LAS	Oxford	Lancs	Total
Clinical	304	94	105	155	2	**660**
- Percentage	91%	77%	95%	96%	100%	**91%**
Non-clinical	30	28	5	6	0	**69**
- Percentage	9%	23%	5%	4%	0%	**9%**
Total	**334**	**122**	**110**	**161**	**2**	**729**

Dividing the direct staffing costs (estimated from the amount of staff time trusts reported being needed to setup and administer the DCT pilot, see section 0) by direct staffing benefits (in terms of potential work absence days averted) to calculate a mean cost of £67 per potential work absence averted (range: £33 to £140, see Table 16).

At the extremes, estimated staff cost and potential work absence days averted seemed to be related (that is the trust with the lowest estimated cost saw the lowest number of potential work absence days averted, and the trust with the highest estimated cost saw the highest number of potential work absence days averted).However, the causal mechanism cannot be inferred and the relationship was not consistent across trusts.

[14] This will tend towards overestimating the true number of work absences averted, because some non-clinical staff would be able to work from home (in which case, self-isolation would not equate to a work absence, and so DCT would not equate to an averted work absence) and most staff continued to test on days that they were not on shift (in which case, a negative result would not avert a work absence). However, information on participants' ability to work from home and shift patterns was not reliably collected.

Table 16. Estimate of direct NHS staff costs and benefits of the pilot. Includes pre-pilot setup costs and total costs of running pilot between January to February 2021

Trust	Total estimated setup cost	Total estimated management cost	Estimated staff cost	Cost per potential work absence day averted
Royal Free	£3,075	£14,030	£17,105	£51
Barts	£2,325	£8,638	£10,963	£90
LAS	£5,316	£10,031	£15,347	£140
Oxford	£1,597	£3,732	£5,330	£33
Lancs	£93	£66	£159	£80
Total	**£12,408**	**£36,497**	**£48,905**	**£67**

Ignoring the setup costs, we divided the estimated staff costs of running the DCT programme by the number of potential work absence days averted, which gave an average running cost of £50 per potential day of work absence averted (range: £23 to £91, see Table 17). This assumes that the number of close contacts entering DCT in each trust remains constant, whereas in reality this is likely to vary as the epidemiology of the pandemic progresses, and there may be stepped costs as the incidence of close contacts increases or decreases.

Table 17. Ongoing weekly direct NHS staff costs and benefits of DCT in pilot trusts

Trust	Duration in pilot (weeks)	Estimated weekly ongoing cost	Potential work absence day averted per week	Cost per potential work absence day averted
Royal Free	7.1	£1,964	46.8	£42
Barts	5.9	£1,475	20.8	£71
LAS	5.6	£1,800	19.7	£91
Oxford	5.3	£706	30.5	£23
Lancs	5.3	£12	0.4	£33
Trust average	**5.8**	**£1,192**	**23.6**	**£50**

Whether the running costs per potential work absence averted makes DCT a worthwhile programme to pursue may vary between staff groups, specialties and organisations.

Although there may be minimal costs incurred for office-based staff who have to self-isolate (if they can work productively at home), it seems likely that for most patient-facing staff, the costs associated with a day's absence from work[15] would exceed the estimated cost of a potential work absence averted by DCT, in which case, DCT would represent a net saving to the organisation. Some trusts felt that this meant they would not continue DCT as a universal policy but have it ready to be activated for business continuity purposes, for example to maintain staff levels in a critical service such as an intensive treatment unit (ITU).

[15] The hourly rate for the lowest NHS pay band (band 1) is £9.21, which equates to £69 for a 7 and a half hour day, so the cost of hiring cover staff alone would exceed the average DCT cost per potential work absence day averted.[9]

10 Discussion

The pilot generated specific learning about the real-world implementation of use of LFD testing for DCT in NHS acute and ambulance services, where both the risks of harm associated with SARS-CoV-2 transmission, and the benefits of DCT, in terms of averted absences of clinical staff, are potentially high.

The findings provide valuable insights into the practicalities of delivering DCT in NHS settings, and a quantitative estimate of the direct staffing costs and benefits of a DCT programme. However, the lack of a defined control group in the study design was a limitation, which precluded a direct comparison of the effects of DCT versus quarantining of close contacts in the NHS.

Although the uptake rate was high, the total number of participants and the number of positive cases were small. As a result, there was limited statistical power to generate precise quantitative estimates, and so these need to be interpreted with caution.

Because of the nature of the recruitment to DCT, it was difficult to engage with those who declined to take part, and so there was limited information obtained from and about them. The reliance on the reports of those who actively engaged with DCT and with those who were responsible for delivering the pilot means that there is a risk of bias in the findings.

The model of delivery of DCT combined central organisation of protocols and provision of test technologies, and devolved operationalisation, communications and engagement to NHS trusts. Assuming that any wider rollout in the NHS would follow a similar model, the findings from the pilot, especially those that relate to the logistical requirements of such a model, are likely to be highly generalisable to other NHS settings.

On the other hand, the devolution of substantial aspects of the pilot implementation to trusts led to heterogeneity in the way DCT was recruited to and delivered and in the consistency of data collected, which meant that it was more difficult to draw definitive inferences from the pilot evidence.

In addition, the findings may not be generalisable to other workplaces and institutions because of the unique features of the NHS (see section 0).

11 Conclusion

The evaluation found no evidence of DCT being unsafe in acute hospital and ambulance NHS trust settings. The majority of participants remained negative on LFD throughout the pilot. Although a small number of participants tested positive, there was no evidence of onward transmission in the workplace. However, this was a small and pragmatic pilot study, and its limitations mean that the evidence cannot be considered definitive proof that the introduction of DCT does not increase the risk of workplace transmission.

DCT was well accepted by NHS staff, administrators and unions as an alternative to self-isolation. Participating staff who took part in the pilot found it straightforward, largely adhered to the full 7-day series of tests, were able to stay in work, and did not show signs of relaxing their IPC behaviours. The pilot demonstrated that the DCT programme could be effective in averting work absences in people identified as close contacts, and that it could be cost saving.

Participating trusts acknowledged the effort needed to recruit and support participants through DCT. But, in general, they found this to be worthwhile in terms of keeping people in workplace, maintaining staff morale and avoiding incurring agency or locum costs. The learning from this pilot of DCT has been used to provide detailed advice on how to implement testing of fully vaccinated contacts who are exempt from self-isolation to enable them to attend work across the NHS.

References

1. Quilty BJ, Clifford S, Hellewell J, Russell TW, Kucharski AJ, Flasche S and others. 'Quarantine and testing strategies in contact tracing for SARS-CoV-2: a modelling study' The Lancet Public Health 2021: 6(3):e175-e83

2. Scientific Advisory Group for Emergencies. SAGE 68 minutes: Coronavirus (COVID-19) response 16 November 2020 [Online]. GOV.uk; 2020 [cited 18/3/2021]

3. Levine-Tiefenbrun M, Yelin I, Katz R, Herzel E, Golan Z, Schreiber L and others. 'Decreased SARS-CoV-2 viral load following vaccination' medRxiv 2021: 2021.02.06.21251283

4. Public Health England. Guidance for contacts of people with confirmed coronavirus (COVID-19) infection who do not live with the person [Online]. GOV.uk 2021 [cited 18/3/2021]

5. Office for National Statistics. Coronavirus (COVID-19) Infection Survey, UK: 5 March 2021 [Online]. ONS 2021 [cited 18/3/2021]

6. Department of Health. Pay Framework for Very Senior Managers in Strategic and Special Health Authorities, Primary Care Trusts and Ambulance Trusts [Online]. GOV.uk 2013 [cited 18/3/2021]

7. NHS Employers. Terms and Conditions – Consultants (England) 2003 [Online]. NHS Employers 2007 [cited 18/3/2021]

8. NHS Employers. Pay and Conditions Circular (M&D) 3/2020 [Online]. NHS Employers 2020 [cited 18/3/2021]

9. NHS Employers. NHS Terms and Conditions (AfC) pay scales – Hourly [Online]. NHS Employers 2021 [cited 18/3/2021]

10. NHS Employers. NHS Terms and Conditions (AfC) pay scales – Annual [Online]. NHS Employers 2021 [cited 18/3/2021]

11. Scientific Advisory Group for Emergencies, Public Health England. PHE: Factors contributing to risk of SARS-CoV2 transmission in various settings, 26 November 2020 [Online]. GOV.uk 2020 [cited 18/3/2021]

Annex 1: Daily contact testing – minimum data set

Ref	Data Item	Reason for Inclusion
	Standing data relating to specific pilot	Reported initially and whenever changed
1	Population size and so on	To identify and record size of pilot
	Historical data	
2	Number of staff in isolation over a period	For comparison
3	Number in isolation who went on to contract symptoms or test positive	For comparison
	Summary Stats (for DCT dashboard)	
4	Cumulative Total number of people recruited onto DCT Pilot	Volumetric assessment of affected population size
5	Cumulative Total number of LFDs taken – relating to DCT pilot	Volumetric assessment of LFDs required
6	Cumulative Total number of positive LFD results – relating to DCT pilot	Assessment of prevalence amongst identified contacts
7	Cumulative Total number of confirmatory PCRs – relating to DCT pilot	Sensitivity of self-administered LFD
8	Cumulative Total number of positive confirmatory PCRs – relating to DCT pilot	Sensitivity of self-administered LFD
	Information requested at Evaluation Working Group	
9	Cumulative total number of people excluded from pilot (to determine population size)	
10	Reasons for exclusion from pilot [for example index case at home, foreign travel, role]	
11	Cumulative total number of people who declined to take part (to determine staff uptake)	Volumetric assessment of uptake rate
12	Individual reasons for declining to take part	

Ref	Data Item	Reason for Inclusion
	For each test result:	
13	Staff member age	Identify potential trends in observed results
14	Staff member ethnicity	Identify potential trends in observed results
15	Staff member gender	Identify potential trends in observed results
16	Staff member postcode (only 1st part of postcode required)	Identify potential trends in observed results
17	Has staff member been vaccinated	Identify potential trends in observed results
18	Which day of the pilot each result correlates to (1 to 7)	Identify potential trends in observed results
19	Date of exposure	Identify potential trends in observed results
20	Date of pilot Day 1 (all recruits must do 7 consecutive tests)	Identify potential trends in observed results
21	Antibody status [for example immunisation, positive PCR within 90 days or no known antibody]	Identify potential trends in observed results
22	Job role / department	Identify potential trends in observed results
23	FLAG: recruited onto pilot even though contact is at home – due to positive PCR <90 days	Identify potential trends in observed results

Annex 2: Operational considerations for implementation

Considerations for further pilot studies:

- aims, objectives, scope to be clearly defined in advance
- agree all measurements before going live – with clear links to pilot objectives
- establish cadence of regular reporting
- monitor cost of implementation and ongoing management
- include or identify a control group
- conduct systematic concurrent PCR testing for validating LFD performance
- collect data on prospective symptom development
- collect minimum dataset including pay-band
- use objective measures of behavioural impacts (for example non-participant observation)
- trial on a larger scale for greater statistical power

DHSC NHS DCT team / wider rollout:

- understand use of terms in NHS setting (“research” “study” “serial” all have meaning in clinical setting)
- identify named individual responsible for DCT at each NHS trust
- involve operational staff from NHS trust in the design team
- ensure all stakeholder groups are represented and consulted from the start (for example staff groups, microbiology leads, IPC leads, Caldicott Guardians, PHE, unions)
- align data flows with existing practices
- establish a centralised data reporting system and/or generic templates for data capture
- develop generic “starter pack” for trusts, including:
  - consultation and engagement checklist
  - standard communications and messaging
  - information sheet and detailed guidance for participants

Policy:

- provide clarity in the Clinical SOP on eligibility and management of:
  - household contacts
  - people who have tested positive in last 90 days
  - staff with immunity (positive for antibodies or vaccinated)

Evaluation:

- avoid free text response in data proformas (where possible)
- data captured should include details and reasons from those who declined DCT
- report at summary/aggregated level
- avoid all identifiable information – even at NHS trust level

NHS trust – operational:

- recruitment onto DCT must follow agreed, structured pathway – perhaps via occupational health (not direct self-recruiting or local line-managers)
- provide dedicated resource for implementing or managing DCT (including IT)
- if tactical tool for deployment (for example for maintaining business critical services) rather than universal policy for all staff: agree conditions and triggers for take-up and ongoing use of DCT
- compliance with DCT testing requires 1-on-1 monitoring
- address concerns around data privacy, data protection and GDPR
- develop forum where participating trusts can support each other and share best practice
- “Soft launch” approach
- identify where local organisational knowledge resides within a trust, and how to access it
- increase incentives for participation in DCT
- conduct routine whole genome sequencing on all positive cases
- include routine PCR test(s) in DCT schedule
- use trusted gatekeepers within the community who can disseminate information and engage participants. Establish daily phone call or meeting of IPC and contact tracing teams to review new cases and hotspots across staff and patients

General:

- data privacy, data protection and GDPR must be adhered to

Annex 3: DCT module of Master SOP

Department of Health and Social Care (DHSC) COVID-19 response

National Testing Programme

Checklist for Master Clinical SOP Template to incorporate testing asymptomatic close contacts with Lateral Flow Antigen Testing Devices (Daily Contact Testing)

Version 1.0

Date of publication: 19 January 2021

Based on SOP Authorised by: Dr Tom Fowler and Dr Peter Marks, National Testing Programme Health Protection and Public Health Leads

Document control and approval

Version control

The table below contains a summary of the most recent version.

For additional version control please refer to the DCT SOP Module Version Control.

Version	Author	Summary of Changes	Reviewed By	Date
0.11	**PHCO**	Updates: • Advice for daily contact testing contacts if positive case identified outside organisation • Introduction and objectives • Terminology for 'Daily Contact Testing'	Chris Kenny	**5 Jan 2020**
0.12	**PHCO**	Updates: • Reinforcement of advice to maintain national guidance on infection prevention control measures following	Chris Kenny	**14 Jan 2020**

		receipt of a negative LFD result • Clarification of advice for 'Void' LFD results during Daily Contact Testing • Section reformatting based on changes to master ATS LFD SOP.		
1.0	**PHCO**	Updates: • Update for advice to participants on LFD testing and transmission • Clarification for 7 continuous days of daily contact testing where there is a delay in contact identification • Section reformatting based on changes to Master ATS LFD SOP	Tom Fowler Chris Kenny	**19 Jan 2020**

Ref. #	Section:	Content:
1	**1. Introduction**	**Addition**
	For 'Daily Contact Testing': This document provides guidance on how to test and find asymptomatic cases of COVID-19 in close contacts of a case. Such contacts would previously not have had access to testing and this guidance will remove barriers to close contact identification through reduced impact to work or education. When a person in an organisational pilot has symptoms of COVID-19 or tests positive, their close contacts currently are legally obliged to self-isolate (in accordance with national guidance for contacts). Sometimes the number of contacts may be quite large, and self-isolation can have considerable adverse impacts on the individuals (for example loss of pay). Furthermore, there can be a substantial impact on the organisation's business operations if a large proportion of their	

	population are in isolation (for example school closure, business continuity and so on). The organisations under consideration are primarily, but not limited to: • Schools • Universities • Care homes • Workplaces • Prisons It is proposed that when a positive case is detected in one of these settings, close contacts will be tested daily for 7 days using rapid Lateral Flow Device (LFD) antigen testing as an alternative to self-isolating for individuals who test negative. If a person has a negative LFD test at the start of the day, they will continue to be able to undertake their normal daily activities in accordance with national guidance for infection prevention and control. Testing is one way of minimising the risk of Daily Contact Testing in addition to the recommended IPC measures, including PPE. Testing is not a panacea. If used appropriately along with other risk mitigation measures, testing reduces the risk of transmission of COVID-19. If used to reduce other risk mitigation or remove other risk mitigation measures, testing could increase the risk of transmission. LFD test sensitivity increases with viral load and is most suitable at detecting those who are infectious – where those with a higher viral load are most at risk of transmission. This offsets some of the reduced sensitivity of these tests, but no test will detect every infectious case. It is important to recognise this risk when participating in daily contact testing and, in addition, ensure recommended IPC measures continue to be followed. It is essential that any participant taking part in Daily Contact Testing is made aware of these risks. Public health rationale for Daily Contact Testing is additionally based on modelling which shows daily testing without quarantine after tracing may avert a similar proportion of onward transmission potential from secondary cases compared to that of a 14 day quarantine (0.88; 95% UI: 0.60, 1.43), with greater benefit possible if individuals isolate more strictly after a positive

	test. This modelling was based on at least 5 days of daily testing and this proposal is detailed for 7 days. This process relies on having a rapid test result. Antigen lateral flow devices (LFD) currently give the quickest result turnaround of all the COVID-19 tests with results typically available in under an hour. The optimal interval between tests is still being evaluated, but it is anticipated that daily testing will occur until such time as this needs to change in the light of experience. If a person tests positive during this process, then they will be required to undertake a confirmatory test and self-isolate for 10 days from the date of the positive test result in the normal way.

2	**2.3 Risk and incident management**	**Addition**
	For 'Daily Contact Testing': The methodology within this SOP for the testing of contacts is subject to ongoing evaluation. For participating contacts in Daily Contact Testing, this entails being tested daily and being able to undertake their normal daily activities in accordance with national guidance for infection prevention and control. Testing is one way of minimising the risk of Daily Contact Testing in addition to the recommended IPC measures, including PPE. Testing is not a panacea. If used appropriately along with other risk mitigation measures, testing reduces the risk of transmission of COVID-19. If used to reduce other risk mitigation or remove other risk mitigation measures, testing could increase the risk of transmission. LFD test sensitivity increases with viral load and is most suitable at detecting those who are infectious – where those with a higher viral load are most at risk of transmission. This offsets some of the reduced sensitivity of these tests but no test will detect every infectious case. It is important to recognise this risk when participating in daily contact testing and, in addition, ensure recommended IPC measures continue to be followed. It is essential that any participant taking part in Daily Contact Testing is made aware of these risks.	

	A positive LFD test must be quickly communicated to participants so that they can self-isolate and any further close contacts outside of the pilot group can be notified through the Trace service if confirmed positive. Incidents such as those involving sampling, use of the LFD, contamination, disposal of waste, and so on will be managed according to the usual incident-reporting process.

3	**2.8 Accountability and monitoring**	**Addition**
	For 'Daily Contact Testing': • as standard, DHSC take responsibility for the Daily Contact Testing SOP module, and any training related to this • adherence to the SOP is the organisation's responsibility	
4	**3. Public health aims and evaluation**	**Addition**
	For 'Daily Contact Testing': Daily Contact Testing aims to meet key public health objectives: 1. find asymptomatic cases in close contacts 2. find asymptomatic cases in those who would otherwise not access testing 3. remove a barrier to cases identifying close contacts through reduced impact to work and education 4. to be able to describe the risks and benefits of Daily Contact Testing in the management of close contacts of a person testing positive for COVID-19 5. to confirm that lateral flow antigen testing devices can be used in a regular testing regime within an organisational pilot environment for active case finding and public health management in response to positive cases with confirmatory testing 6. to prevent onward transmission of COVID-19 7. to gain knowledge on the operational aspects of this process. This is to further inform and develop the design of this Daily Contact Testing process, with the aim of assisting all organisations to undertake this process in the future 8. to improve understanding of a range of behavioural factors, including reasons for participating, response to negative and positive test results, and compliance with self-isolation These objectives will be addressed via evaluation across several dimensions:	

	• scientific knowledge
	  ○ performance of lateral flow technology when deployed for Daily Contact Testing in different contexts
	  ○ concordance with confirmatory tests
	  ○ the tolerability of the LFD test
	  ○ viral genomic analysis of positive cases identified through Daily Contact Testing
	• behavioural factors
	  ○ decision to agree or decline to participate
	  ○ responses to negative and positive test results
	  ○ compliance with self-isolation
	  ○ identifying and understanding barriers
	• operational feasibility
	  ○ the acceptability of the testing regime to individuals, organisations and other stakeholders
	  ○ the overall operational burden on the organisation of delivery
	  ○ delivery, including digital journey, enabling equal access to testing
	  ○ the impact of delivery on the wider Test and Trace operation and on other systems
	• public health effectiveness
	  ○ the incremental case-finding ability of asymptomatic LFD testing
	  ○ the effectiveness of the repeat testing strategy at reducing onward transmission
	  ○ optimal Daily Contact Testing approach
	  ○ uptake and adherence to the intervention
	  ○ impact on general wellbeing of participants
	• broader societal impact
	  ○ incremental reduction in organisation days lost to self-isolation; financial benefits, opportunity benefits
	  ○ incremental reduction in individual days lost; financial and other benefits
	  ○ impact on local community
	
	As part of the Daily Contact Testing pilot, organisations will be required to support the running of an evaluation process. This will require systematic reporting on outcomes of Daily Contact Testing plus potentially a ‘control group’ within their institution. A combination of quantitative and qualitative data will be collected and reported back to DHSC and its evaluation partners.
	
	Organisations will be required to support the objectives of mass and Daily Contact Testing through encouragement of use of the anonymous

	contact tracing app and participation in additional surveys to build knowledge of participant behaviour after testing. An evaluation framework to support these objectives and kit supply requirements is included in the Appendix. All Pilots are required to register with the MHRA unless specifically agreed otherwise. This is done via the regulatory support within the LFD Supplies team. Use case teams are expected to collate this information for pilots within their remit.

5	**7.1 Eligibility**	**Addition**
	For 'Daily Contact Testing': Subject eligibility criteria will be prescribed by the organisation, but the following assumptions apply: • the subject will be the responsibility of the organisation under consideration (for example an employee) or, when home testing is available, a contact of a positive case. This includes where an individual is a household contact for authorised pilot organisations. • the subject will be asymptomatic • the subject will consent to participation in the process and daily testing for Daily Contact Testing • the subject will consent to sharing their data with the National T and T programme *Exclusions (those non-consenting to test, parental refusal, unable to self-swab) *Eligibility change depending if self-swabbing or assisted swabbing, requiring training and extra workforce *Eligibility for Daily Contact Testing does not preclude participants unable to participate in the full daily testing schedule through, for example, reduced working week. Participants where this applies will be required to self-isolate (as per national guidance for contacts) on days where a test is not performed. Where pilot eligibility criteria include children, tests should only be administered where appropriate consent is obtained. While different models may be considered by pilots, for generic ATS settings it is expected that the approach will be the following for individuals who are under the age of 18. • young people aged 16 to 17 are able to consent to their own medical treatment without parent or guardian present and therefore can self-swab	

	• children aged 12 to 15 may self-swab with supervision of a parent or guardian • children 11 or under, the accompanying parent or guardian is required to administer the test on the child (they are not permitted to self-swab). The accompanying adult should only administer the swab if they are comfortable to do so and appropriately trained individuals are not available to undertake swabbing • specific instructions have been prepared and made available for swabbing young children

6	**7.2.1 Initial case finding for Daily Contact Testing**	**New Section**
	• within the scope of this process, initial case identification will be completed by the National Test and Trace programme, wherein a test subject who tests positive will begin self-isolation at home. • upon receipt of a positive result from the National Test and Trace programme, the positive subject will inform their organisation which will trigger the operations detailed herein. • in the context of Lateral Flow Device (LFD) testing, organisations are advised to identify close contacts following a positive LFD case prior to the confirmatory test result. Contacts can be enrolled into Daily Contact Testing from this point or self-isolate. It is recognised, with limited exceptions, that current national policy does not require close contact self-isolation as a legal requirement until the positive confirmatory test result, but this is advised. Household contacts from the organisation are required to either be enrolled into Daily Contact Testing or self-isolate. In the event of a negative confirmatory test, Daily Contact Testing should recommence for the case individual, however any contacts for who Daily Contact Testing was initiated as a result of the initial LFD result should be discontinued for any positive cases identified outside the organisation and impacting contacts within the organisation, the impacted contact can be enrolled into Daily Contact Testing from this point or self-isolate	

7	**7.2.2 Management of those people in Daily Contact Testing following a positive index case and other close contacts**	**New Section**

This part of the protocol applies to people who are identified as contacts of COVID-19 positive individuals. Such contacts must be presenting as asymptomatic only. (If a contact shows symptoms, at any point, they must begin self-isolation and follow the national guidelines):

- all close contacts of the positive case will be tested by LFD at the start of every day, or the start of their shift
- participants will be required to wait within the designated waiting area to receive confirmation of their results by the testing team
- daily testing is continuous for 7-days from notification as a contact. (Daily testing would normally be a 24-hour period but can be extended to 36 hours to accommodate shift patterns)
- A negative LFD test at the start of the day, or shift, will allow the participant to continue to be able to undertake their normal daily activities in accordance with national guidance for infection prevention and control. This is until their next test is due the following day. Testing is only one part of the protect and contain strategy and no test will detect every case. It is vital standard national guidance continue to be followed in the event of a negative test. This includes, but is not limited to, wearing appropriate PPE or face mask, washing hands regularly, and social distancing
- those that test positive on LFD must follow the national guidance (link above) as if they have developed symptoms whilst at organisation. This involves:
  1. have a confirmatory test at site to avoid delays.
     a. those who test negative on confirmatory PCR testing can continue their normal activities until their next LFD test is due the following day (that is a negative confirmatory PCR trumps a positive LFD)
     b. those who test positive on confirmatory PCR testing must follow national guidance (link above) and self-isolate for 10 days.
  2. self-isolate immediately

Additional positive case(s) identified through Testing or Daily Contact Testing would require contact identification and all contacts invited to commence day 1 of Daily Contact Testing or self-isolate in alignment with national guidance for contacts.

	Daily Contact Testing is continuous for 7-days. Where there is a delay in contact identification, contacts are not required to continue daily testing beyond their self-isolation period in alignment with national guidelines. The intention is for Daily Contact Testing to be conducted by consenting contacts for 7 days following contact with a positive case. This is a voluntary alternative to self-isolation for contacts as per national guidance. Organisations should support daily contact testing as far as practical for their organisational setup. Participants will be required to self-isolate on days where a test has not been performed. If a non-tested day occurs at the end of Daily Contact Testing, a further negative test will be required to complete and release from the Daily Contact Testing protocol. It is anticipated, when home testing is available, contacts of a positive case who are testing at home will follow a similar agreed protocol. Home test format is not yet approved and will involve additional approvals over and above those currently covered in this document.

8	**7.2.3 Contacts who do not wish to be part of the Daily Contact Testing process**	**New Section**
	Those contacts of positive cases who do not wish to be tested daily or who are unable to be tested for any reason must self-isolate in accordance with national guidance. Staff and employees have the option not to take part in this process if they wish, or to opt out at any time.	

9	**7.2.4 Persons who become symptomatic during the Daily Contact Testing process**	**New Section**
	If any person develops symptoms at any time during the Daily Contact Testing period, they must immediately self-isolate and undertake a confirmatory test through the national Test and Trace symptomatic testing programme.	

10	**7.3 Registration**	**Addition**
	For 'Daily Contact Testing': Subjects will be identified by the organisation, who will inform the contacts of the purpose of the Daily Contact Testing process, their responsibilities as a participant, and how their data will be used by DHSC and NHS Digital. The organisation will organise their subjects, at their discretion, into cohorts. Within the scope of this SOP, single daily testing is assumed. Individuals will be required to register for each test they take using the gov service. They must do this after they have received a test kit barcode and can be done before or after completed a test (swab). This will link their personal details to a test record and allow their results to be issued.	

11	**7.3.1 Need for consent**	**Addition**
	For 'Daily Contact Testing': Participation in this process is voluntary. The responsibility for gaining consent is devolved to organisations providing the testing service. As part of the Daily Contact Testing process, participants will be required to provide their confirmatory test results to the organisation performing the testing. Participants will also be asked to provide permission to be followed up in line with the evaluation measures. The intention is for Daily Contact Testing to be conducted by consenting contacts for 7-days following contact with a positive case. This is a voluntary alternative to self-isolation for contacts and participants should continue to follow national guidance for infection prevention and control. Testing is one way of minimising the risk of Daily Contact Testing in addition to the recommended IPC measures, including PPE**.** Testing is not a panacea. If used appropriately along with other risk mitigation measures, testing reduces the risk of transmission of COVID-19. If used to reduce other risk mitigation or remove other risk mitigation measures, testing could increase the risk of	

	transmission. LFD test sensitivity increases with viral load and is most suitable at detecting those who are infectious – where those with a higher viral load are most at risk of transmission. This offsets some of the reduced sensitivity of these tests, but no test will detect every infectious case. It is important to recognise this risk when participating in daily contact testing and, in addition, ensure recommended IPC measures continue to be followed. It is essential that any participant taking part in Daily Contact Testing is made aware of these risks. Organisations will inform participants of the purpose, objectives and risks of the process as detailed in the relevant sections of this document. People who decline to participate in Daily Contact Testing will follow the usual national guidelines and are legally obliged to self-isolate according to the advice given to them by the Trace service.	
12	**7.5 Sample collection and analysis overview**	**Addition**
	*It is anticipated for Daily Contact Testing, when home testing is available, contacts testing at home will be enrolled and provided testing kits in an analogous process. Home test format is not yet approved and will involve additional approvals over and above those currently covered in this document.	

13	**7.6.1 Self-swabbing sample collection procedure**	**Addition**
	*It is anticipated for Daily Contact Testing, when home testing is available, contacts testing at home will be enrolled and provided testing kits in an analogous process. Home test format is not yet approved and will involve additional approvals over and above those currently covered in this document.	

14	**7.6.2 Sample Processing and Analysis Procedure**	**Addition**
	*It is anticipated for Daily Contact Testing, when home testing is available, contacts testing at home will be enrolled and provided testing kits in an analogous process and record the result. Home test format is not yet approved and will involve additional approvals over and above those currently covered in this document.	

15	**7.6.4 Recording of results**	**Addition**
	*It is anticipated for Daily Contact Testing, when home testing is available, contacts testing at home will follow similar prescribed online steps, as applicable, for result and record upload. Home test format is not yet approved and will involve additional approvals over and above those currently covered in this document.	

16	**7.6.5 Communication of results**	**Addition**
	*It is anticipated for Daily Contact Testing, when home testing is available, contacts testing at home will follow similar prescribed online steps, as applicable, for result and record upload. Home test format is not yet approved and will involve additional approvals over and above those currently covered in this document.	

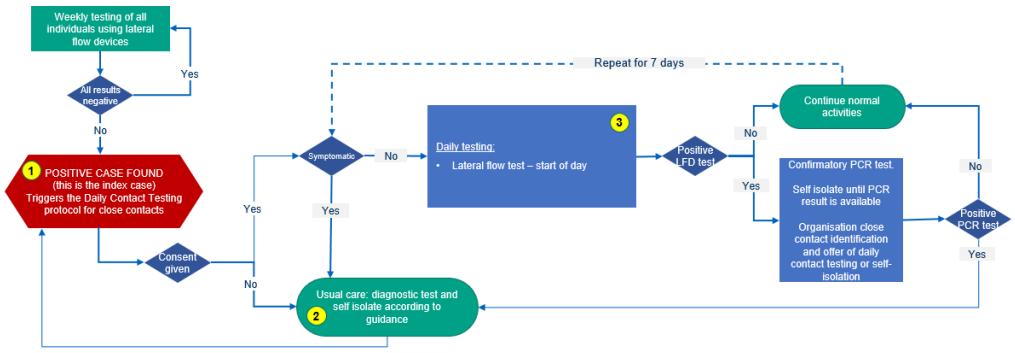
17	**7.6.7 Negative results**	**Addition**
	For 'Daily Contact Testing': Subjects who return a negative test result do not need to self-isolate (unless otherwise indicated) and can resume their normal activities for that day in accordance with national guidance for infection prevention and control. Testing is only one part of the protect and contain strategy and no test will detect every case. It is vital standard national guidance continue to be followed in the event of a negative test. This includes, but is not limited to, wearing appropriate PPE or face mask, washing hands regularly, and social distancing.	

18	**7.6.8 Invalid results**	**Addition**
	For 'Daily Contact Testing': • additionally, for participants enrolled in Daily Contact Testing, participants will need to self-isolate until a valid negative result is confirmed as per the standard guidance	

19	**9 Supply and Equipment**	**Addition**
	*It is anticipated for Daily Contact Testing, when home testing is available, contacts testing at home will require the following supplies:	

	• Lateral Flow Devices • buffer • instruction for use • PCR testing kit (where applicable)	
20	**Appendix: Daily Contact Testing process flow**	**New Section**

Testing asymptomatic close contacts with Lateral Flow Antigen Testing Devices



Plain text version of flowchart above:

Testing asymptomatic close contacts with Lateral Flow Antigen Testing Devices

The purpose of this decision-making process flow is to enable interested parties to understand how Lateral Flow Antigen Testing Devices (LFDs) should be used for daily contact testing of asymptomatic close contacts of individuals that test positive for COVID-19.

Step 1

In-scope individuals test twice-weekly with LFDs to find asymptomatic cases. Testing continues while individuals continue to be asymptomatic and while test results are negative. Question 1 should be asked after each individual LFD test result is available.

Question 1: Is the test result negative?

- Yes? Continue twice-weekly testing – return to step 1
- No? (that is positive LFD result). This is an INDEX case, which triggers the daily contact testing protocol and identification of close contacts.

Close contacts proceed to Step 2.

	Step 2 Question 2: Does the close contact give consent to participate in Daily Contact Testing? • Yes – proceed to Question 3 • No – revert to usual care for close contacts (as at January 2021) (diagnostic test and self-isolation). Exit flowchart as not participating in Daily Contact Testing. Question 3: is the close contact symptomatic? • Yes: revert to usual care (diagnostic test and self-isolation). Exit flowchart as not participating in Daily Contact Testing. • No: commence / resume daily contact testing by taking a test with a Lateral Flow device. Go to Question 4. Question 4: (for individuals participating in daily contact testing). Is test result positive? • Yes: take confirmatory PCR, self-isolate until result available. Go to Question 5. Organisation to commence organisation contract-tracing and offer daily contact testing to new contacts. (New close contacts should start at Step 2). • No: Continue normal activities for today. Return to Question 3 after one day – for up to 7 days while continuing to test negative and having no symptoms. Question 5: is confirmatory PCR result positive? • Yes: revert to usual care (diagnostic test and self-isolation). Exit flowchart as no longer participating in Daily Contact Testing. • No: Resume Daily Contact Testing. Continue normal activities for today. Return to Question 3 after one day – for up to 7 days while continuing to test negative and have no symptoms.

21	**Appendix: Daily Contact Testing evaluation framework**	**New Section**

Plans

Evaluation plans are required for each pilot, setting out the main questions the evaluation will address, the methods that will be employed, and who is responsible for collecting the data. Plans will include:

(1) A logic model that describes what the pilot is aiming to achieve and how it is intending to meet those aims. It should set out (at a minimum) Activities > Inputs > Outputs > Outcomes (see Introduction to logic models for an overview). This will enable evaluation to be targeted at the core objectives of the pilot and ensure overall desired outcomes are measurable.

Support is available for pilots in formulating their logic models. Please see below.

(2) An assessment of the pilot's potential to deliver evidence to inform the evaluation questions i-v below, and how it will do so. This should be related to the pilot's logic model.

i. scientific knowledge: What is test accuracy in the deployment or delivery context? Does the application of this technology or intervention give the outcomes we were expecting in the setting? Can unexpected findings be explained? Can we detect patterns in viral transmission?
ii. behavioural factors: What are the factors influencing (a) uptake (including provision and withdrawal of consent), (b) levels of user trust in the testing, (c) responses to positive and negative results (and what are these responses)?
iii. operational feasibility: Are we able to establish and safely run Daily Contact Testing in this setting? (What has the pilot identified as the process barriers to be overcome?) This may include:
    - Were delivery roles and responsibilities clear?
    - Was any information provided in a suitable format and understood?
    - How well did the end to end process work?
    - Could confirmatory tests be accessed when needed, samples sent, results paired?
    - How were results communicated and was correct advice given?
    - What was the acceptability of the Daily Contact Testing process? (including ease and tolerability of the tests, testing site environment),

	iv. public health: Is Daily Contact Testing effective at finding infected contacts before they become symptomatic? Is there evidence to support daily testing for 7 days, or is there a more effective approach to Daily Contact Testing? Are the findings generalisable across different demographic groups, use cases and geographies? Does participant wellbeing improve through Daily Contact Testing? v. wider societal impact: Can we measure the benefit to individuals, organisations and local communities of not having to self-isolate? Further detail on these questions will be made available to pilots to support their evaluations. (3) A set of quantitative and qualitative indicators. Outputs identified via the logic model and the evaluation questions will inform the choice of indicators for the pilot, which should be included in evaluation plans. A list of example indicators drawn from previous pilots is available and can be provided on request. <u>Approach</u> The evaluation approach will depend on the pilot context, logic model, and evaluation questions. Pilots will need to monitor and report against indicators as identified through their logic model, which will help track progress and guide evaluation. Evaluations will ultimately test whether and how the pilot delivered against the logic model and therefore had the desired impact, also seeking to identify unintended impacts (positive and negative). It is expected that evaluations will therefore include at least the following: • analysis of data from test and trace and other sources ○ an overview of the expected testing sample frame – that is the number of people potentially available for testing given 100% take-up, and demographic breakdown (for example age, sex, ethnicity), any information on likely COVID prevalence if available. This will be used to compare the group tested with those who were not ○ an analysis of testing data, including uptake, number of positives, number of negatives, positivity rate over time, broken down to the appropriate geographic unit ○ where possible, to generate evidence relating to public health and social and economic impacts the evaluation design will identify a comparison group to assess the

	outcomes of those who went through the intervention with those that did not
	
	• surveys and interviews with those who have and have not taken part in the testing
	  ○ perceptions of those tested and (where ethically and practically possible) those who could have been tested but opted not to be
	  ○ usability testing, including mapping the user journey, understanding the pain points through user research (for example direct observation and surveys)
	  ○ evaluations should include the potential (through capturing agreement to participate) to follow-up individuals tested after the pilot period
	We have prepared surveys and topic guides for interviews for pilots to adapt.
	
	• surveys and interviews with those involved in organising and delivering the training
	  ○ views of delivery leads, in particular focusing on lessons learnt.
	We have prepared surveys and topic guides for interviews for pilots to adapt.
	
	Support
	Assistance for developing evaluation plans and the approach is available from analysis teams in the National Testing Programme and partner organisations (including an evaluation guidance pack, direct support for planning, and quality assurance of research tools and outputs). Please contact C19TestingAnalysis@dhsc.gov.uk.

22	**Appendix: Daily Contact Testing evaluation kit requirements**	**New Section**
	Evaluation Kit Requirements for Daily Contact Testing 10 x LFDs 1 x Buffer 1 x Instruction for use 1x PCR testing kit with barcode 1 x letter	

	1 x evaluation form	
23	**Appendix: Exemption from Self-Isolation – Letter for participants taking part in Daily Contact Testing**	**New Section**
	This letter is addressed to people who are eligible to participate in daily contact testing pilot Thank you for agreeing to participate in the NHS Test and Trace Daily Contact Testing Pilot. Please accept our thanks for your assistance and support with this vital work. You may be aware that The Health Protection (Coronavirus, Restrictions) (Self-Isolation) (England) Regulations 2020 state that people who are notified that they have been in close contact with an individual who has tested positive are required to self-isolate. The regulations do provide exemptions to the requirement to self-isolate. While participating in Daily Contact Testing pilots is not an explicit exemption on the face of the regulations, the regulations state that individuals not complying with self-isolation are not committing an offence if they have a 'reasonable excuse'. It is considered that the public health benefit of participating in Daily Contact Testing does constitute such a reasonable excuse. Participants are close contacts of someone who has tested positive and have been notified that they should self-isolate. They may, therefore, participate in this Daily Contact Testing evaluation as an alternative to self-isolation. This does not include people who have received a positive test. To ensure that the evaluations can show whether the surveillance and Daily Contact Testing is effective, participants should follow their normal routine as closely as possible, including, where appropriate, attending classes, lectures and other places in which they receive instruction. This has also been clarified to enforcement officers, such as the police. For the avoidance of doubt, it does not release participants from the general obligation to maintain social distance, any further local restrictions that may be in place in your area, or any restrictions that your institution may have chosen to impose on you. Testing is one way of minimising the risk of Daily Contact Testing in addition to the recommended infection prevention and control measures, including PPE. Testing is not a panacea. If used appropriately along with other	

	risk mitigation measures, testing reduces the risk of transmission of COVID-19. If used to reduce other risk mitigation or remove other risk mitigation measures, testing could increase the risk of transmission. LFD test sensitivity increases with viral load and is most suitable at detecting those who are infectious – where those with a higher viral load are most at risk of transmission. This offsets some of the reduced sensitivity of these tests, but no test will detect every infectious case. It is important to recognise this risk when participating in daily contact testing and, in addition, ensure recommended measures continue to be followed. It is essential that any participant taking part in Daily Contact Testing is aware of these risks. We are very grateful for your continued support to progress this work, helping us to improve the management of coronavirus through Daily Contact Testing. With every good wish Department of Health and Social Care

Annex 4: Assumptions from previous modelling

Quarantine and testing strategies in contact tracing for SARS-CoV2: a modelling study	
Scientific knowledge 	Median incubation period is 5.1 days (IQR: 3.9, 6.7)
	Infectious period is the time for which Ct is less than 30; for symptomatic individuals mean 7·56 days, SD 1·54 days; for asymptomatic individuals mean 4·32 days, SD 1·09 days
	Time to PCR becoming negative again has a of mean 17 days for symptomatic, 40% shorter for asymptomatic
	Individual viral load kinetics modelled over course of infection
	Median of 31% secondary cases are asymptomatic based on further modelling and sample testing
	Majority of SARS CoV-2 transmission is driven by superspreading events, with 1000 index cases generating 10 secondary infections each
	PCR detects 100% of cases below Ct 35, 0% above Ct 35 LFD detects 95% of cases below Ct 27, 75% for 27-30, 30% for 30-35, 0% for above 35. (Model also tested low sensitivity LFD assumption, reducing LFD sensitivity by 33%)
Behavioural factors 	50% adherence to quarantine and 67% adherence to 10 day post-symptom or post-positive test isolation (although a range of values were tested)
	1 day after symptom onset, individuals seek out and have a PCR test, and no secondary cases are generated after this
	In the daily testing strategy, contacts are required to take an LFA test every day for 1, 3, 5, 7, 10 or 14 days after they are traced and are not required to quarantine unless they either develop symptoms or test positive
	1 day after symptom onset, individuals are able to have a PCR test
	PCR test takes 3 days for both result and complete contact tracing based on T and T contact tracing data

Quarantine and testing strategies in contact tracing for SARS-CoV2: a modelling study	
 **Operational feasibility**	Delivery of LFD tests within time frame to facilitate DCT
	100% of contacts successfully identified and traced
 **Public health effectiveness**	1 day after symptom onset, individuals seek out and have a COVID-19 test, and no secondary cases are generated after this

Annex 5: Summary of pilot evidence against Quilty and others (2021) modelling study assumptions

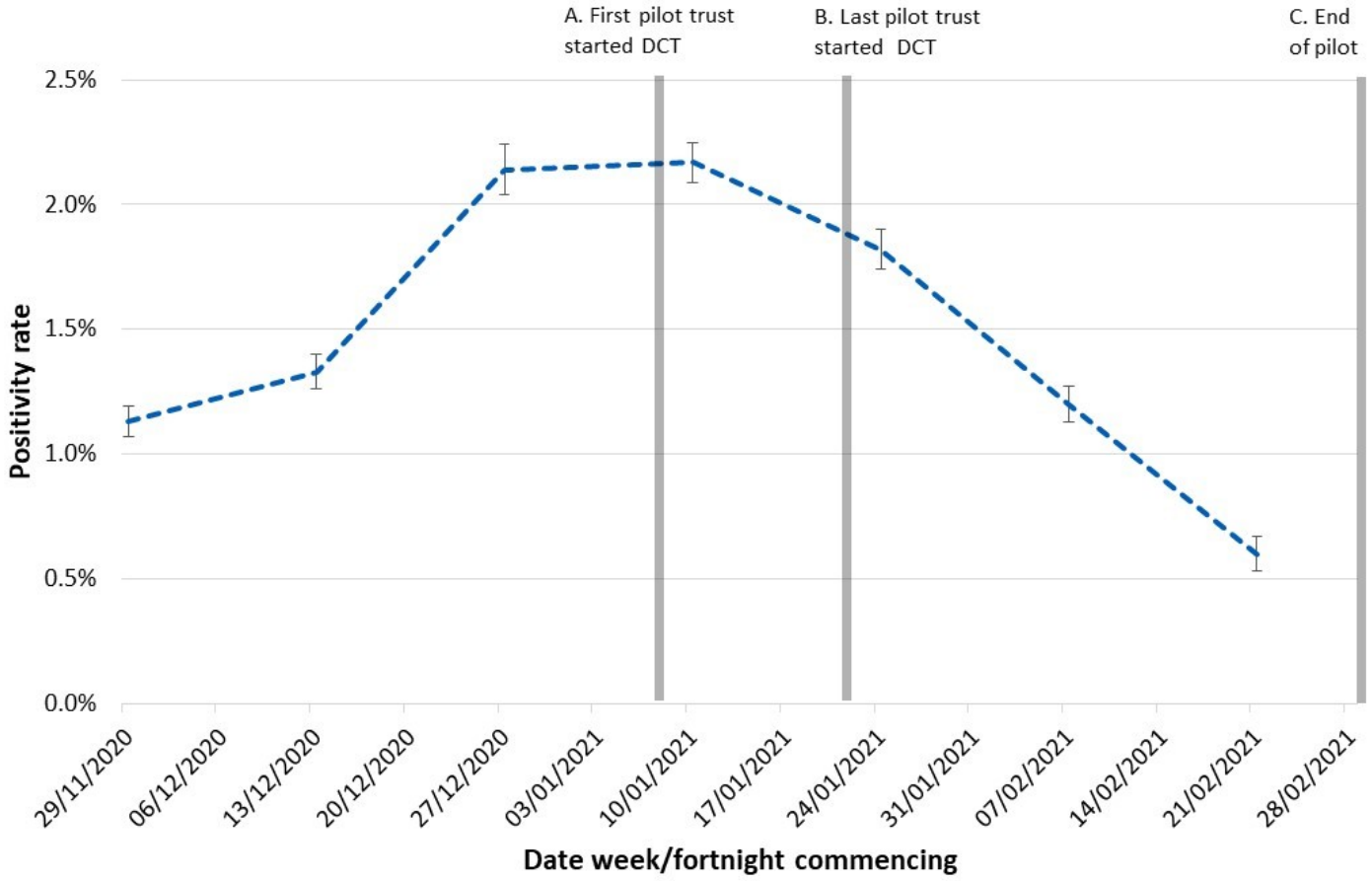
Model assumption	DCT pilot evidence
Median incubation period is 5.1 days (IQR: 3.9, 6.7)	2 DCT participants were reported to have developed symptoms. Assuming these reflected primary transmission from the exposure that led to them being offered DCT (an unverified assumption), this would equate to incubation periods of 3 and 11 days. (See section 0)
Median of 31% secondary cases are asymptomatic based on further modelling and sample testing	Of the 5 DCT participants who tested positive, symptoms were not reported for 3 (60%), although trusts were not required to collect data about prospective symptom development, so these cases may have been pre-symptomatic, rather than truly asymptomatic. (See section 0)

Model assumption	DCT pilot evidence
Majority of SARS CoV-2 transmission is driven by superspreading events	No transmission events from DCT participants were detected during the pilot, and it is likely that a superspreading event would have been detected, had one occurred. (See section 0)
PCR detects 100% of cases below Ct 35, 0% above Ct 35 LFD detects 95% of cases below Ct 27, 75% for 27-30, 30% for 30-35, 0% for above 35. (Model also tested low sensitivity LFD assumption, reducing LFD sensitivity by 33%)	Ct values were obtained for 2 of the participants who tested positive on PCR, and reported as 21 and 30 – neither of which were detected by concurrent LFD tests, although there was some uncertainty about the reliability of these results (see section 0).
50% adherence to quarantine and 67% adherence to 10 day post-symptom or post-positive test isolation (although a range of values were tested)	3 DCT participants who tested positive responded to the survey, and all 3 reported that they self-isolated immediately after receiving their positive result. Adherence to quarantine and self-isolation guidance by non-DCT participants in the wider workplace was not measured.
In the daily testing strategy, contacts are required to take an LFA test every day for 1, 3, 5, 7, 10 or 14 days after they are traced and are not required to quarantine unless they either develop symptoms or test positive	65% of DCT participants tested for 7 consecutive days from the date of their first test (67% including those that turned positive). DCT was interrupted and restarted (a gap of one or more days) in a further 11%. (See section 0) The DCT participants at one trust (albeit with the lowest uptake) were required to quarantine as well as doing daily testing (See section 0). Of the 5 participants who tested positive, one tested positive beyond the 7-day testing window. However, it was not possible to determine whether this was due to a long latent period after the identified exposure to the index case, or an unrelated and undetected exposure. (See section 0)

Model assumption	DCT pilot evidence
1 day after symptom onset, index case has a PCR test	Of the 2 participants who developed symptoms, one had a PCR test on the same day, and one had a PCR test the next day. (See section 0)
Delivery of LFD within time frame to facilitate DCT “We assume they are tested as soon as they are traced”	There was a high level of support around supplying test kits to participants. One trust advised that ‘if they needed extra kit St John Ambulance would take them to the home of participant’. Generally, test kits were either sent out as part of participation in DCT or picked up at place of work. Staff who were already participating in regular LFD testing would already have had a supply of test kits. There were no negative comments about lack of availability of testing kits.
100% of contacts successfully identified and traced, and are subject to a strategy to avert transmission	58% of survey respondents said that they would be somewhat more likely or much more likely to give the contact details of their contacts if they tested positive and they knew that their contacts would be able to have daily testing (instead of self-isolating). 42% said it would make no difference. However, the baseline level of willingness to provide the details of close contacts was not assessed. Infection prevention control and contact tracing leads emphasised that contact tracing is dependent on honesty and cooperation and could not guarantee that 100% of contacts were identified.

Annex 6: National positivity rate before and during pilot

Based on weighted overall number of COVID-19 infections by non-overlapping 14 day periods (charted at midpoint of 14 days), COVID-19 Infection Survey, Office for National Statistics. Error bars denote 95% credibility intervals.[5]



Annex 7: Estimated setup and ongoing staff requirements for DCT pilot

Barts Health NHS Trust

Table 18. Estimated staff resource required for setting up DCT programme

Role	Pay band	Days
Head of Service	8B/8C	2
Band 8a (nurse manager)	8A	2
Consultant in Infectious diseases	Consultant	3
Band 3 Admin	3	2
Band 6 nurse	6	0

Table 19. Estimated ongoing weekly staff resource required for managing DCT programme

Role	Pay band	Days/week
Head of Service	8B/8C	1
Nurse manager	8A	0
Consultant in Infectious diseases	Consultant	0.5
Band 3 Admin	3	7
Band 6 nurse	6	3.5

Lancashire Teaching Hospitals

Table 20. Estimated staff resource required for setting up DCT programme

Role	Pay band	Days
Pilot Lead	8A	0.5

Table 21. Estimated ongoing weekly staff resource required for managing DCT programme

Role	Pay band	Days/week
Pilot Lead	8A	0.07

London Ambulance Service

Table 22. Estimated staff resource required for setting up DCT programme

Role	Pay band	Days
Medical Director	VSM	0.5
People Lead	9	1
IPC Lead	9	1
Pilot Lead	9	6
Resourcing – Analysis	8D	0.5
Communications	8B	1
Database manager	8B	3
Staff Testing Team	6	6
Local managers	7	1

Table 23. Estimated ongoing weekly staff resource required for managing DCT programme

Role	Pay band	Days/week
Medical Director	VSM	0.07
People Lead	9	0.29
IPC Lead	9	0.14
Pilot Lead	9	1.50
Resourcing – Analysis	8D	0.07
Communications	8B	0.07
Database manager	8B	0.29
Staff Testing Team	6	7.00

Oxford University Hospital Trust

Table 24. Estimated staff resource required for setting up DCT programme

Role	Pay band	Days
Consultant in Occupational Medicine	Consultant	2
Contact tracing nurse	6	0
Consultant in Infectious diseases	Consultant	1
Staff testing team nurse	7/8	0
IT/workforce intelligence	8/9	1

Table 25. Estimated ongoing weekly staff resource required for managing DCT programme

Role	Pay band	Days/week
Consultant in Occupational Medicine	Consultant	0.125
Contact tracing nurse	6	1
Consultant in Infectious diseases	Consultant	0.5
Staff testing team nurse	7/8	1
IT/workforce intelligence	8/9	0.2

Royal Free Hospital

Table 26. Estimated staff resource required for setting up DCT programme

Role	Pay band	Days
Consultant in Occupational Medicine	Consultant	4
Nurse manager	8B	2
Consultant in Infectious diseases	Consultant	1
Band 7/Registrar	7	2
IT/workforce intelligence	6	1

Table 27. Estimated ongoing weekly staff resource required for managing DCT programme

Role	Pay band	Days/week
Consultant in Occupational Medicine	Consultant	1
Nurse manager)	8B	0.5
Consultant in Infectious diseases	Consultant	0.5
Band 7/Registrar	7	7
IT/workforce intelligence	6	0.5

NHS Test and Trace

Annex 8: Pilot Evaluation Working Group terms of reference

DAILY CONTACT TESTING OF NHS STAFF

Pilot Evaluation Working Group Terms of Reference

Meeting Details

FREQUENCY: Weekly
DATE/TIME: Tuesday 10:30
DURATION: 60 minutes
LOCATION: Virtual (Teams)

Working Group members

Chair: Sarah Tunkel (DHSC T&T) **Secretariat:** (TBC)

NHS

- **Nicola Hunt** - NHSE/I Director, Covid Testing
- **Jon Schick** - NHSE/I Testing Cell Programme Director
- **Marc Thomas** - NHSE/I Director of Policy for Emergency and Elective Care
- **Ailsa Willens** - London Region NHS Trusts
- **Justine Hofland** – NHS London
- **Sian Williams** - Royal Free Hospital
- **Alison Rodger** - Royal Free Hospital
- **David Harrington** – Barts Hospitals
- **Katie Jeffery** – Oxford University Hospitals NHS Trust
- **Anne-Marie O'Donnell** – OUH NHS Trust
- **Rob Bowen** – London Ambulance Service
- **Claire Woods** – Lancashire Teaching Hospitals

DHSC T&T Public Sector Use Case Team

- Jim Cranswick – Lead
- Yasmin Peiris
- Reena Aslam
- Sara Martin-Morante

DHSC T&T data analysts

- **Ashley Goddard** – Analysis Team
- **Stephen Finer** – Head of Analysis
- **Gillian Cope** – Qualitative analysis
- **Nick Sharp** – Project Manager

DHSC Public Health & Clinical Oversight

- **Andrew Dodgson** – Consultant Microbiologist
- **Steven Bow** – Public Health registrar

Public Health England

- **Anita Jolly**
- **Jo Wilson**

NHS Test and Trace

Purpose of the Joint Evaluation Working Group

- Agree evaluation protocol – including framework, criteria and methodology
- Establish Joint working principles – including roles and responsibilities
- Understand and resolve operational challenges Mutual learning
- Assess pilot data / information as it becomes available
- Evaluate efficacy of Pilot
- Consider possibility of national scale-up – if evidence supports
- Prepare updates for NHS T&T Testing Initiatives Evaluation Board
- Jointly produce interim and final reports – including recommendations for PB
- Capture Lessons Learned to apply to any future roll-out

Standing Agenda

1. Introductions
2. Terms of Reference
3. Evaluation Protocol
4. Progress to date
5. Risks / Issues
6. AOB

Inputs

- Evaluation Framework
- Pilot data received

A note on ethics

- This is a service evaluation, not research – and so does not require review by a research ethics committee
- The raw data collected from those being tested will contain personally identifiable information – but some fields (including name) will be removed before it is sent to the NHS T&T mailbox
- Participation in interviews and surveys will be optional and we will seek to minimise additional burden on NHS staff

Expected Outcomes

- Joint Evaluation Report
- Operational Recommendations

About the UK Health Security Agency

UKHSA is responsible for protecting every member of every community from the impact of infectious diseases, chemical, biological, radiological and nuclear incidents and other health threats. We provide intellectual, scientific and operational leadership at national and local level, as well as on the global stage, to make the nation health secure.

UKHSA is an executive agency, sponsored by the Department of Health and Social Care.

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