

Key issues relating to contact tracing for consideration by NERVTAG

Public Health England
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Introduction

During the 'Contain' phase of the response in the UK to pandemic of Covid-19, before the move to 'Delay' and the lockdown, PHE was conducting contact tracing around confirmed cases of Covid-19 disease. The aim of the contact tracing was to identify all known contacts of reported cases and advising them according to the category of exposure to either self-isolate (place themselves in quarantine) during the potential incubation period of the infection (14 days from their last contact with the case) or to be aware of the symptoms and signs of infection and what to do if they develop. This was intended to interrupt chains of transmission of infection in the community and thus delay the onset of the greatest pressure from the pandemic.

In addition to the contact tracing around confirmed cases, anyone developing symptoms compatible with Covid-19 was advised to self isolate for 7 days (the period over which uncomplicated mild illness was generally being observed to resolve). Towards the end of the 'Contain' phase, people who share a household with anyone developing symptoms compatible with Covid-19 were also asked to place themselves in quarantine for 14 days on the basis that they were at especially high risk of having contracted the infection within the household.

Once widespread transmission was judged to be occurring in this country, the approach to control was changed to 'Delay', everyone was asked to confine themselves to their homes (other than when absolutely necessary) and contact tracing was stopped (other than for specific outbreaks and other 'high-risk' situations).

As case numbers begin to decline, discussion has moved on to the need to relax the lockdown and other social distancing measures, and how this can be done while continuing to save lives and protect the NHS. Gradual relaxation of social distancing measures, combined with careful surveillance and evaluation of the impact, will be the main approach. The resumption of contact tracing is seen as an essential part of this. In addition to protecting the vulnerable, the overall aim will be to keep the average number of cases generated by each new case (R) to below 1.0. Above 1.0, case numbers will begin to increase again; below 1.0 case numbers will continue to decrease. There needs to be a ministerial decision, however, on how far from 1.0 the goal of the overall Contact Tracing and Testing programme should be aiming to achieve and over what period of time.

Contact tracing can never be perfect. It is rarely possible to identify reliably all contacts of cases and, as a result, some instances of transmission will go unrecognised. In addition, only a minority of contacts will, in general, have been

infected by a case and therefore the measures recommended for contacts need to take into account the level of their risk.

Current PHE guidance on identification and management of contacts of confirmed and suspected cases.

The production of the Government's guidance has been led by PHE signed off by ministers and CMO. PHE's current approach to identifying, categorising and managing contacts is based on the presumption of a confirmed diagnosis of Covid-19 in the case. This is described in an accompanying set of slides. Cases are categorised according to their risk of having been infected, and the actions and advice recommended for the contacts tailored to that risk. Close contacts of confirmed cases, such as household contacts and others who have had direct face to face contact, require a 'high intensity' follow-up approach and are recommended to go into 14 days quarantine. Others with less close exposure to the case require 'moderate intensity' follow-up, such as people who have sat within two seats of a confirmed on an aircraft flight or people who have spent more than 15 minutes within 2 metres (but not face to face defined as being within 1 metre) of a confirmed case, are given advice about their risk and the need to self isolate promptly if they develop compatible symptoms.

This guidance has been reviewed in the light of the outcomes of contact tracing collected by PHE from contact tracing carried out in the 'contain' phase.

PHE conducts contact tracing around laboratory confirmed cases of infection and does not carry out contact tracing on people who have been identified as contacts of clinically diagnosed unconfirmed cases. In the event that such persons are identified, PHE's general advice is that they should be aware of the possibility of infection as a result of such a contact, should continue to practice good hand and respiratory hygiene, and should isolate themselves promptly if they become unwell. PHE does not recommend that non-household contacts of possible cases place themselves in quarantine.

PHE is exploring ways to reduce the time from the case identifying their symptoms to the contacts being traced and receiving advice, as this is a critical component of the tracing programme. Reducing the time from ordering to test result is key to this, and this is being addressed by the testing programme. Collecting data on contacts through PHE CTAS, at the time when the test is ordered by the possible case, is one possibility for helping to reduce the time required if contacts subsequently need to be alerted. Contacting the contacts, however, with what will prove to be a false alarm in at least 75% of cases, may discredit the contact tracing system and lead to people deciding to not follow the advice.

Advice proposed to be provided by the NHSX App

Individuals who sign up to the NHSX App have the opportunity to report the occurrence of symptoms that may be compatible with Covid-19 through self-diagnosis. Using Bluetooth technology, the App identifies other people who have

signed up to the App whose phones have been within a set distance (eg 2 metres) of the possible case's phone for a minimum period of time. Using an algorithm based on time, proximity, age of case and stage of infection, the App determines which of the contacts may have had the opportunity for exposure to the possible case, and advises the contact to quarantine themselves for 14 days. The App also has the ability to advise the person with symptoms to self-isolate. It is proposed that the App be further developed to facilitate the process whereby the person with symptoms can obtain a diagnostic test. In addition, it has also been proposed that the App could advise contacts of the contacts to quarantine themselves.

The App can only identify other individuals who are also signed up to the App and cannot therefore provide advice to proximity contacts who are not signed up.

NHSX has committed to align the advice it provides to cases and contacts with that recommended by PHE.

Key related questions for consideration by NERVTAG

- 1. Is NERVTAG content with the actions and advice provided by PHE with respect to contacts of confirmed cases of Covid-19, tailored to the assessed risk of infection in the contact?*
 - 2. What period of presumed infectiousness in the case should be used for identifying relevant contacts?*
- Currently PHE bases contact identification on the day of onset of symptoms in the case (Day 0). In the light of the evidence that some transmission may occur before the onset of symptoms, should the relevant period for contact tracing continue to start at Day 0, the day before onset (Day-1) or two days before onset (Day-2).
- 3. If an individual without symptoms is tested (for whatever reason) and found to be positive for coronavirus infection, what action should be taken, if any, for contacts of this individual?*
 - 4. Should the advice to cases and contacts provided by NHSX App be aligned with that recommended by PHE?*

It is recognised that the approach to identifying contacts by the NHSX App, using the Bluetooth function to assess proximity and time, differs from that used by PHE which depends on the declaration of the case of their significant contacts. NHSX and PHE recognise the strengths and weaknesses of their respective methods to identify contacts and have discussed how to align, as far as possible, their designation of contacts.

A key difference, however, is that the contacts identified by PHE are contacts of confirmed cases whereas those identified by the App are contacts of possible 'self-diagnosed' cases.

5. Does NERVTAG consider that the contact tracing of 'self-diagnosed' cases in the absence of laboratory confirmation is a proportionate and practical public health approach at this phase of the pandemic?

6. If NERVTAG does consider that contact tracing of 'self-diagnosed' cases in the absence of laboratory confirmation is a proportionate public health approach, what should be the advice provided to contacts of self-diagnosed unconfirmed cases?

PHE recommends that such individuals should be:

- alerted to the fact of their recent potential contact with a possible case
- advised to re-double their efforts to maintain good hand and respiratory hygiene, work from home and avoid public transport if possible (as well as any other currently prevalent general advice to the population about social distancing)
- isolate themselves promptly in the event that they develop symptoms, and seek to access a diagnostic test through the community scheme.

The NHSX App proposes to advise the individual with symptoms to self isolate immediately (supported by PHE), to obtain a local diagnostic test (supported by PHE). In addition, it is proposed that the App tell those contacts who are also signed up to the App, and who have been identified by the proximity algorithm, to place themselves in quarantine for 14 days. This is not consistent with PHE advice, and exceeds even the advice offered to some contacts of confirmed cases.

The argument presented by NHSX for recommending that the contacts of possible cases quarantine themselves is based on the modelling simulation work from the Oxford group and the fact that there is evidence that some transmission may occur in the one to two days before the onset of symptoms in the case. This issue is recognised by PHE which, nevertheless, does not believe that the instruction to go into quarantine is justified for the following reasons.

- Individual contacts of even confirmed cases of Covid-19, other than close household contacts, have a low likelihood of developing disease. Contacts of possible cases are at an even lower risk. The minority of suspected cases that are tested at the moment are positive for infection. As testing moves out into the community and involves a much greater number of individuals with mild symptoms, the likelihood that Covid-19 is the underlying cause will diminish further, compounded by the likely continuation of the decline in prevalence of the infection in the population generally. Advice to contacts of suspected cases in the community to go into quarantine will lead to a very large number of people who are not at risk of Covid-19 infection being instructed unnecessarily to go back into quarantine.

- Basing contact tracing advice on confirmed cases of infection increases the confidence that both the adviser and the person advised can have that the action proposed is appropriate. A substantial effort is now underway to ensure that testing is not only readily available in the community, but that it can be accessed quickly and their result fed back in time to allow for contacts of true cases to go into quarantine either before the onset of their infectious period, or only shortly into it. As they will have been recently advised about the need to be especially careful about social distancing, hand and respiratory hygiene, this risk would be low.
- Household contacts are at highest risk of infection. PHE would support the advice that was provided prior to lockdown, that household members of people who develop compatible symptoms be advised to go into quarantine, pending the result of testing in the symptomatic case.

The NHSX App and PHE contact tracing must complement each other in line with the advice that PHE will be overseeing on behalf of Government as social distancing measures are relaxed. In particular, the ability to advise people with symptoms to self isolate themselves is important as would be an ability of the App to facilitate the testing process in the person with symptoms. The app can also provide very valuable advice to the contacts of the symptomatic case about hygiene and how to act in the event that become unwell. The helpfulness of the App, however, is dependent of the confidence and trust that people can place in it. As yet, an unknown proportion of the population (and therefore of suspected cases and their contacts) will agree to download and use the App. Advice to individuals who are possible contacts of only possible cases to put themselves back into quarantine, without the greater certainty that a confirmed diagnosis provides, risks losing the confidence of the App users and may discourage non-App users to take up the App.

In addition the App has huge potential to help people make immediate decisions about speaking with their close friends and family if they have symptoms and are waiting for a test result. This advice needs to be the same whatever channel is used to provide it.