

## Testing for initiation of quarantine in contacts

N.B. This note has been prepared at short notice to inform discussion around a strategy for quarantine in which contacts test themselves daily / every other day and only begin self-isolation if they test positive. There is no direct evidence regarding how feasible, acceptable or effective self-testing to initiate quarantine will be or the effects it will have on adherence to self-isolation.

### **Key points**

#### Potential benefits

- Reduced financial, social and occupational costs associated with quarantine.
- Early warning to household members of serious infection risk, which may prompt implementation of more effective measures to reduce transmission from the infected household member.
- Increased perceptions of risk of transmission following a positive test, which should increase motivation to quarantine. This could increase adherence IF combined with a package of informational, financial, practical and emotional support for adherence to self-testing and self-isolation.

#### Potential negative outcomes

- High false positive and negative rates may undermine credibility and adherence to testing and quarantining. This problem might be mitigated by repeat testing.
- The burden and complexity of repeat testing may disadvantage people with lower incomes, other social disadvantages (e.g. language or technology barriers), or disabilities.

#### Implementation

- It may be necessary to offer people who will find self-testing difficult or inaccessible the option of simply quarantining.
- Motivation to self-test may decline in the latter part of the quarantine period. A strong package of support is required throughout the quarantine period to maintain adherence.
- Access to test kits must be rapid and reliable or the credibility of the system will be undermined, resulting in reduced adherence.
- It is essential to evaluate the system quickly to learn lessons for improving implementation.

### **Further detail**

Some testing regimes may have the potential to improve acceptability, sustainability and adherence but there are many important questions to consider and issues to be addressed. The risks, barriers and potential benefits of testing are heavily dependent on the accessibility, feasibility, timing and reliability of testing, and the likely number of false negative and positive results. Once the precise parameters for effective testing are established it will be possible to consider in more detail the likely effects on acceptability and adherence.

Collection of Patient and Public Involvement, survey and qualitative feedback on proposed testing regimes is required to provide an evidence base; the planned rollout of biweekly testing to healthcare professionals may provide useful data in this respect. In the absence of evidence, we have highlighted below some potential issues relating to the proposed testing scenario and options for addressing these issues.

### Home self-testing of contacts

The proposal is for home self-testing of contacts of cases using lateral flow tests daily (or every two days). Contacts would only be asked to quarantine if they test positive.

#### Potential positive behavioural outcomes

- Daily testing of contacts could help to reduce transmission within households by identifying cases soon enough to encourage the household to effectively implement isolation and other measures to reduce infection spread within the home. In households where effective isolation and distancing is not feasible, or where a household member is vulnerable, a positive test could be used to initiate an offer of accommodation for self-isolation outside the home [1].
- Quarantining on a positive test has the potential to increase motivation to adhere, by increasing the perceived risk of spreading infection and necessity of self-isolating. However, increased motivation to self-isolate is only likely to lead to better adherence if the barriers to adherence are addressed (see recent SAGE paper on reducing duration of quarantine) [2].
- Quarantining only on a positive test could be useful for reducing the impact of quarantine in settings where there are high levels of exposure to contacts resulting in staffing shortages, such as healthcare workers, care workers, key workers and teachers. In these contexts, ensuring that only contacts who tested positive are obliged to self-isolate could make employers and staff more willing to engage with NHS TT as there would be less concern about the impact on the workplace of people quarantining when they were not actually infectious.
- By allowing contacts freedom to continue with their day to day lives unless and until they test positive, the financial, social and occupational costs associated with quarantine will be reduced for many people.

#### Potential negative behavioural outcomes

- If high false negative rates result in infection of vulnerable friends, relatives or colleagues this will reduce confidence in the NHS TT system and in pandemic management. High false positive rates could have the same effect if positive tests are combined with certification to reduce multiple quarantine periods, and if a positive test results in more risky behaviour subsequently [3]. High false positive rates are also likely to impact inequitably on people in high risk occupations with many contacts, who tend to be from lower income households [1] [4]. However, repeated self-testing may be sufficient to confirm test results.
- Unless effectively explained and easy to implement, the additional layer of complexity this strategy presents has the potential to reduce rates of quarantine in high-contact occupation groups, particularly amongst those with fewest social and material resources, thereby increasing inequalities.

#### Implementation

- Some people may find it difficult to self-test or lack confidence to do self-testing in their home (for example, if they cannot understand instructions or use digital methods of uploading results), and/or may not be able to easily access self-testing outside the home. It is possible that this problem could increase inequalities in both adherence and the impact of self-isolation, and reduce adherence among the sectors of the population with the highest risk and incidence levels, such as those with low incomes, from BAME communities, homeless or in precarious housing etc. It may be necessary to offer alternative easily

accessible methods of testing, and possibly also retain the option of quarantining without self-testing. Offering people a choice of either the current quarantine approach, or self-testing for those who wish to do so, might increase acceptability and feasibility.

- It is unclear whether and how self-testing could be regulated and enforced at the scale required. Although lessons could be learned from other programmes, e.g. directly observed therapy in tuberculosis, this may be difficult to implement at scale. This makes it particularly important to motivate people to self-test by providing a good package of support for quarantine if it is initiated by a positive test.
- The impact of this system on the support being offered to people must be carefully considered. Contacts will require support even when not self-isolating (e.g. advice on how to plan and prepare for a positive test result).
- Clearly, for the system to work, contacts must be provided with rapid access to test kits. Any difficulties or delays in obtaining tests will reduce the perceived competence of the system, and may impact on adherence more generally. One implementation option to safeguard against this is to only provide, or guarantee the provision of, self-test kits after several days in quarantine to better manage expectations around the timeliness of self-tests. This would be especially credible given scientific evidence of prodromal periods, during which a self-test would have poor cost-benefit trade-off [5]. In this case, the package of support for quarantining would need to be made available immediately. Alternatively, prioritising key workers (healthcare workers, teachers) could reduce strain and manage expectations.
- Evaluation of the new testing regime will be important. This should be designed now, so that lessons can be learned quickly and adaptations made where necessary. Evaluation should focus on acceptability and feasibility, and impacts on adherence to quarantine and broader protective behaviours

## References

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- [2] SPI-B, *What are the potential behavioural effects of reducing the duration of quarantine for contacts?*, Available from the SPI-B Secretariat, 12 November 2020.
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- [4] SAGE, "Managing infection risk in high contact occupations," 15 June 2020. [Online]. Available: <https://www.gov.uk/government/publications/managing-infection-risk-in-high-contact-occupations-11-june-2020>.
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