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## Do members of the public think they should use lateral flow tests or PCR tests when they have COVID-19-like symptoms? The COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study

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**Abstract**

**Objectives:** To investigate public use of lateral flow test [LFT] or polymerase chain reaction [PCR] test when experiencing key COVID-19 symptoms.

**Study design:** Two waves of a cross-sectional nationally representative online survey (data collected 1-2 June and 14-15 June 2021; n=3665 adults aged 18 years or over living in England or Scotland).

**Methods:** We report data investigating which type of test, if any, the public think Government guidance asks people to use if they have COVID-19 symptoms. In people with key COVID-19 symptoms (high temperature, cough, loss of sense of taste or smell), we also describe uptake of testing, if any.

**Results:** 10% of respondents thought Government guidance stated that they should take an LFT if symptomatic, while 18% of people thought that should take a PCR test; 60% thought they should take both types of test (12% did not select either option). In people who were symptomatic, 32% reported taking a test to confirm whether they had COVID-19. Of these, 53% reported taking a PCR test and 44% reported taking an LFT.

**Conclusions:** Despite Government guidance stating that anyone with key COVID-19 symptoms should complete a PCR test, a significant percentage of the population use LFT tests when symptomatic. Communications should emphasise the superiority of, and need for, PCR tests in people with symptoms.

**Keywords:** antigen testing, lateral flow devices, testing, behaviour, knowledge, COVID-19

## Main text

Since 18 May 2020, guidance in the UK has been that people with a new onset cough, high temperature, or loss of taste or smell should receive a polymerase chain reaction (PCR) test for COVID-19.<sup>1</sup> In addition, since 9 April 2021 everyone in the UK has been able to access free, rapid lateral flow tests (LFTs) for COVID-19 for use when asymptomatic.<sup>2</sup> In England and Scotland, it is recommended that all adults should use an LFT twice a week, with any positive LFT results requiring a follow-up PCR test to confirm infection. While the results of all LFTs conducted at home should be reported on a Government website, in practice it is believed that most LFTs go unreported.<sup>3</sup> How LFTs should be incorporated into efforts to combat the pandemic has been a source of controversy, with arguments played out across academic journals and the national media.<sup>4,5</sup> Often missing from this debate are any data on how tests are used in practice. Many members of the public are uncertain as to the difference between PCR tests and LFTs and, despite warnings from the Government and NHS that people should “...not use a rapid lateral flow test if you have COVID-19 symptoms. Get a PCR test and self-isolate”,<sup>6</sup> it is clear that some people do indeed use LFTs to check their symptoms.

To assess current public usage of tests, we analysed data from the CORSAIR study (COVID-19 Rapid Survey of Adherence to Interventions and Responses study). This is a series of nationally representative (UK) cross-sectional surveys, conducted by BMG data on behalf of the Department of Health and Social Care.<sup>7</sup> This work was conducted as part of service evaluation of the marketing and communications run by the Department of Health and Social Care and, following advice from King’s College London Research Ethics Subcommittee, was exempt from ethical approval. For this study, we used a sample of 3665 adults aged 18 years or over living in England or Scotland from two survey waves, collected 1-2 June and 14-15 June 2021.

Participants were asked what they thought Government advice was if they had symptoms of coronavirus (true/false statements). Only 17·8% of people selected that they should take a PCR test, 10·0% thought they should take an LFT, and 60·0% thought they should take both types of test (Table 1). Twelve percent of people did not select either option.

Table 1. Understanding of Government guidance on testing if you have symptoms of COVID-19.

The Government has issued advice on how people should help prevent the spread of coronavirus if they have symptoms. If you have symptoms of coronavirus, you: [Total n=3665]	Selected “true”, % (95% CI)	N
Should take a rapid ‘lateral flow’ coronavirus test (results within 30 minutes)	10·0 (9·1 to 11·0)	368
Should take a lab-processed ‘PCR’ coronavirus test (results typically within a day or two)	17·8 (16·5 to 19·0)	651
Selected both options	60·0 (58·4 to 61·6)	2200
Selected neither option	12·2 (11·1 to 13·2)	446

Among people who reported that they had developed cough, high temperature / fever, loss of sense of taste or smell in the last 10 days (n=185), 31·9% (95% CI 25·1% to 38·7%, n=59) reported taking a test to confirm whether they had COVID-19. Of those, 52·5% (95% CI 39·4% to 65·7%, n=31/59) reported taking a PCR test, and 44·1% (95% CI 31·0% to 57·1%, n=26/59) reported taking an LFT. Two people did not know what type of test they took. We did not include a “both” option for this item.

Our findings suggest that intended and actual testing behaviours in the public are out of step with Government recommendations. Our previous work has suggested that only 20% of people with COVID-19-like symptoms requested a test for COVID-19 in the UK <sup>7</sup>, although among those who have reason to believe they have been exposed to infection this percentage is likely to be higher.<sup>8</sup> The easy accessibility of LFTs, 30 minute turnaround time, and lack of compulsion to formally register the test with the Government (and hence self-isolate if the result is positive) probably make LFTs a more attractive option than PCR for some people. What the net effect of this is on rates of transmission is unclear. If LFTs are used instead of PCR by symptomatic people who would otherwise have requested a PCR test, their lower sensitivity reduces the chances of an accurate diagnosis.<sup>4</sup> On the other hand, if LFTs are used by people who would not otherwise have sought a test, and a positive result leads to a reduction in behaviours associated with transmission, then this would be a beneficial outcome. The use of an LFT among symptomatic people who have already requested a PCR test is unclear. At present adherence to self-isolation among people who seek a PCR test tends to be weakest in the period between symptom onset and receiving a test result.<sup>9</sup> If a positive LFT result during this period encourages more people to self-isolate, this may reduce transmission. Conversely a false negative result at this point may reduce adherence in some, offsetting this impact, though findings from elsewhere suggest reduced adherence as a result of false reassurance is relatively uncommon.<sup>10</sup>

Modelling is required to quantify the impact of testing behaviours. Until then, good communication with the public emphasising the superiority of PCR tests when symptomatic remains important.

### **Author contributions**

All authors conceptualised the study and contributed to survey materials. LS completed analyses and analyses have been verified by HWWP. LS wrote the first draft of the manuscript. All authors contributed to, and approved, the final manuscript. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

### **Declaration of interests**

All authors had financial support from NIHR for the submitted work. RA is an employee of Public Health England; HWWP receives additional salary support from Public Health England and NHS England; NTF is a participant of an independent group advising NHS Digital on the release of patient data. All authors are participants of the UK's Scientific Advisory Group for Emergencies or its subgroups. There are no other financial relationships with any organisations that might have an interest in the submitted work in the previous three years and no other relationships or activities that could appear to have influenced the submitted work.

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NIHR and DHSC had no role in analysis, decision to publish, or preparation of the manuscript. Preliminary results were made available to DHSC and the UK's Scientific Advisory Group for Emergencies.

### **Ethics**

This work was conducted as part of service evaluation of the marketing and communications run by the Department of Health and Social Care and, following advice from King's College London Research Ethics Subcommittee, was exempt from ethical approval.

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