



Q&A

Covid-19: What is the UK's testing strategy?

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What tests are currently available in the UK?

The NHS is using polymerase chain reaction (PCR) testing to determine which people currently have covid-19. This involves extracting RNA from a nose or throat swab sample through laboratory analysis. It has a high level of accuracy, and results take around a day to come through. But once a person has recovered the test can no longer tell if they have been infected. The other type of test, which Public Health England (PHE) says could be available to UK residents to use at home "within days," subject to testing, detects antibodies in the blood. This test is designed to detect whether someone previously had the virus. Blood or plasma samples are inserted into a small plastic cassette-shaped device, and results are typically ready within 10 minutes. Aside from the speed of obtaining results, the UK's chief scientific adviser, Patrick Vallance, said that antibody tests had the advantage of being able to detect infection in people without symptoms. But the tests are less sensitive and specific than PCR tests, so can produce more false positives and false negatives.

Who is being prioritised for testing in the UK?

Patients in hospital intensive care units with suspected covid-19 have been first priority, followed by people with severe respiratory illness such as pneumonia. The next priority has been isolated cluster outbreaks, such as in care homes. And in addition 100 general practices are carrying out random testing for surveillance purposes. One of the biggest criticisms of the UK's approach so far has been the lack of testing of healthcare staff. The government has said that healthcare workers are the next priority as capacity grows. When quizzed by the health select committee last week on the UK's limited testing approach, Vallance said that he wanted to see testing extended widely to other groups but admitted that capacity was a problem. "We need to use the testing in the right place at the moment, and we simply don't have mass testing available for the population now," he admitted. "The quicker we can get to something that looks like a true community based test that people can do easily, the better."

Why is the UK's testing capacity so low?

David Farren, a consultant in medical microbiology and an infection control doctor in Northern Ireland, believes that the UK-wide consolidation in the number of pathology laboratories resulting from a review in 2006 left the UK less equipped to deal with a pandemic of this scale.¹ He said, "A lot of laboratories were centralised, and each hospital now wouldn't necessarily have a fully functioning lab. So we weren't in as good a position as we might have been 10-15 years ago, where we might have had more staff and more laboratory footprint. But we have to work with what we have . . . and if there's political will and enough resources, we should be able to get that [capacity] back up and running fairly fast."

What is the UK doing to boost its testing capacity?

PHE said that as at 18 March eight of its own laboratories were testing for covid-19 and that their capacity was around 5000 PCR tests a day. But the government pledged to rapidly expand this to 10 000 by day by the end of this week and eventually to 25 000 a day in the coming weeks. To do this it was mobilising nominated NHS laboratories in hospitals to carry out covid-19 testing, with leading hospitals in London among the first wave to offer tests. In parallel, England's health secretary, Matt Hancock, announced on 24 March that the government had purchased 3.5 million antibody tests, promising to make them available to frontline NHS staff "very soon" so that people could find out whether they had been infected and get back to work as quickly as possible. Sharon Peacock, director of the National Infection Service at PHE, said that, subject to testing this week, the kits for swab testing at the point of care could be available for people to use at home "within days." The online retailer Amazon has agreed to distribute the tests, which will also be on sale in pharmacies. The tests will not have to be sent away for analysis, giving instant results through a finger prick test.

Are other antibody tests available?

Vallance said that PHE had been assessing several different tests. Farren predicted that more would follow as the industry responded to the government's call to scale up production, but he emphasised the need to balance swift availability with efficacy. "We want the best tool for the job," he said. "I'm sure

that scientific staff and advisers will be telling the government that they don't want to go in and purchase the wrong thing, because it serves nobody any benefit. The risks are that you cause wider spread of disease or that you miss it completely." Farren also believes that there needs to be more flexibility in procurement and contracting because of the nature of the threat. "We need to be in a position where if something isn't performing as it's supposed to be, we can try something different. That would be a massive step change in terms of procurement and contract law, but it would be useful if we were able as a country to say we need to do what's right by the population, and if that means cutting our losses and losing a bit of money on a contract then so be it."

How does the UK's approach compare with other countries?

As at 24 March 90 000 people in the UK had been tested for covid-19 (around 1300 tests per million people).² This is a higher proportion than in some nations such as France (around 550 per

million as at 15 March) but behind the likes of Australia (6590 per million as at 25 March) and South Korea (7000 per million as at 25 March).³⁻⁵ South Korea implemented mass community testing, isolation, and contact tracing, and the World Health Organization has criticised countries that haven't prioritised testing. Its chief executive, Tedros Adhanom Ghebreyesus, said, "You cannot fight a fire blindfolded. Our key message is test, test, test."

- 1 Carter P. Report of the review of NHS pathology services in England. 2006. <https://www.networks.nhs.uk/nhs-networks/peninsula-pathology-network/documents/CarterReviewPathologyReport.pdf>.
- 2 Number of coronavirus (COVID-19) cases and risk in the UK. <https://www.gov.uk/guidance/coronavirus-covid-19-information-for-the-public>.
- 3 COVID-19; point épidémiologique du 15 mars 2020 - Santé.... 15 Mar. 2020 <https://www.santepubliquefrance.fr/content/download/237536/2535424>.
- 4 Coronavirus (COVID-19) current situation and case numbers. Mar 2020. <https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-current-situation-and-case-numbers>.
- 5 Coronavirus infection-19 domestic outbreak status. Mar 2020. https://www.cdc.go.kr/board/board.es?mid=a20501000000&bid=0015&act=view&list_no=366635&tag=&nPage=1.

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