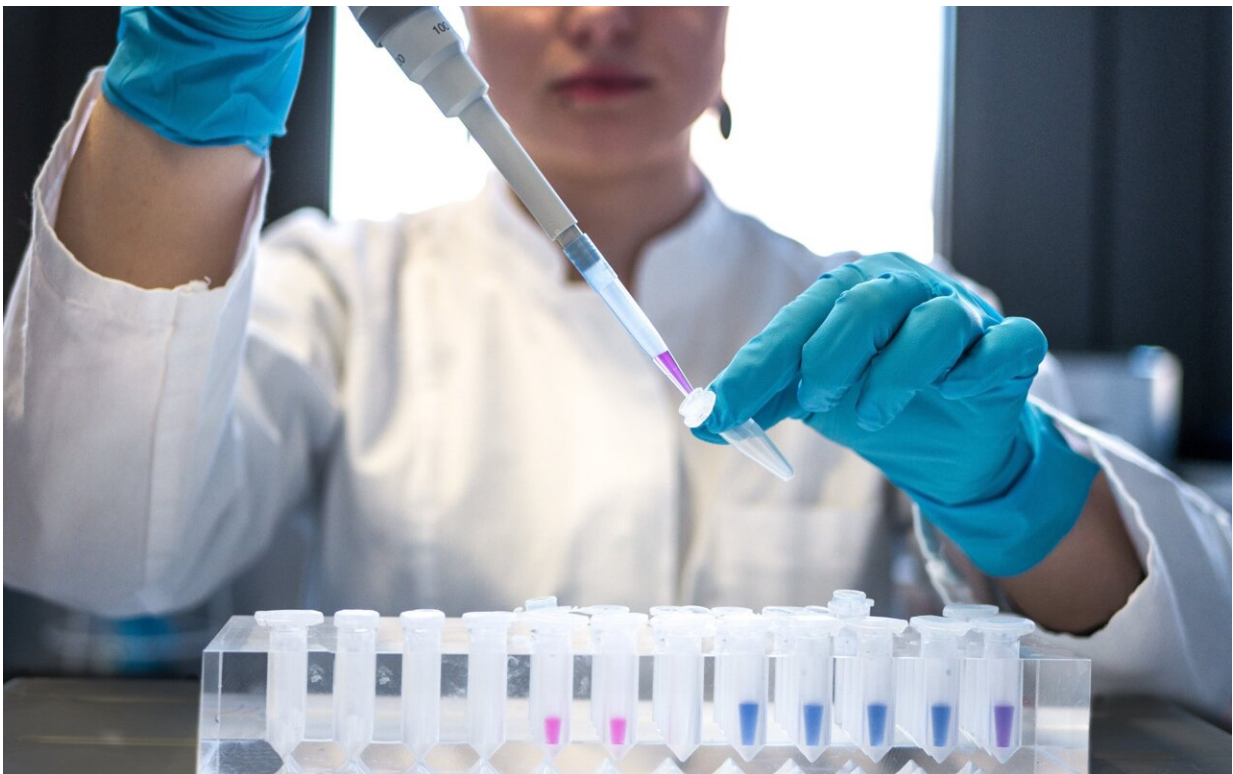


Set up reserve lab capacity now for faster response to the next pandemic, say researchers

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Researchers say a "human bottleneck," due to historical cuts in public health funding, delayed the UK's scale-up of COVID-19 testing in the early stages of the country's pandemic response.

The researchers, who were on the front line of the UK's early response to COVID-19 in 2020, say a system of reservist lab scientists should to be set up now to provide surge capacity that will help the country respond faster—and more effectively—to future outbreaks of infectious disease.

They considered a number of options for providing scientific surge capacity and concluded that the best scenario would be a mix of highly skilled paid reservists, and volunteers who could be called on and trained rapidly when required.

In their report, published today in the journal *The BMJ*, the researchers say the lack of early COVID-19 PCR testing capacity had a knock-on (domino) effect on other health services in 2020. This included delaying the ability to make sure hospitals were COVID-secure and patients had surgery as safely as possible, and slowing down the identification of people with COVID-19 in the community—which delayed contact tracing.

"Because COVID-19 testing wasn't scaled up quickly enough, we couldn't detect all cases quickly enough to try and stop the spread of the disease," said Dr. Jordan Skittrall in the University of Cambridge's Department of Pathology and first author of the report.

"It was frustrating to hear politicians' promises to repeatedly scale up COVID-19 testing capacity during the early stage of the [pandemic](#). The scale-up was extremely challenging: A lot of expertise is needed to get the tests working in the early stages of dealing with a new pathogen," he added.

In early 2020, PCR testing for SARS-CoV-2, the virus that causes COVID-19, was a highly skilled job that required lab staff to undergo lengthy training. As the testing process was developed, it became increasingly automated.

The researchers say that the risk of another pandemic like COVID-19 happening is ever-present: There have been outbreaks of infectious disease throughout history. But nobody can say for sure when it will happen.

They suggest that effective preparation for the next pandemic includes recruiting a relatively small number of highly skilled scientists, who would be paid on retainer, to help in the initial phases of an emergency. It would also involve a large reserve of volunteer staff to provide essential testing capacity; these people would not need to have specialist skills but could be trained quickly in an emergency and paid only when needed. Those working in sectors of the economy likely to close during a pandemic—such as entertainment and hospitality—would be ideal candidates as voluntary reserves, the researchers say.

"There's an extent to which the emergence of an is a random process, but a pandemic like COVID-19 is guaranteed to happen again at some point," said Skittrall, who is also an Honorary Specialty Registrar in Infectious Diseases and Medical Virology at Addenbrooke's Hospital, part of Cambridge University Hospitals NHS Foundation Trust. "In the UK we're in the privileged position of having the right scientific skills to respond to the next big outbreak. But we need to make sure that we have these people ready, so that infectious diseasewhen something does happen they can hit the ground running."

As a clinician at Addenbrooke's Hospital in Cambridge, Skittrall put his normal work on hold to help interpret COVID-19 test results in the lab in early 2020, and ensure the right clinical responses were carried out.

"In early 2020 we were working until late at night, with very few people processing tests for the whole country," said Skittrall. "The speed at which people were having to work, and the difficulty of trying to scale up the process in a busy hospital lab, made me realize there was a real

human bottleneck. We needed more people to process the tests."

In their paper, the scientists compare COVID-19 with other large-scale emergencies including war, where the military has a system of reservists for built-in surge capacity. But they say that unlike the military where reservists serve to deter warfare, having an "always-on" capacity to deal with public health emergencies wouldn't do anything to deter a new pandemic from emerging—and that's why there has always been a pressure to close labs and streamline public health services.

Their suggested solution does not require sustained, cross-party political will to fund, so is more likely to succeed; the researchers acknowledge there are many other pressures on the UK economy that must take priority. They recommend that other countries should consider their requirements for surge capacity based on their own circumstances.

UK laboratories have now conducted over 200 million PCR tests for SARS-CoV-2, the virus that causes COVID-19.

More information: Preparing for the next pandemic: reserve laboratory staff, *The BMJ* (2022). [DOI: 10.1136/BMJ-2022-072467](https://doi.org/10.1136/BMJ-2022-072467)

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