

UK Testing Was “a shambles” so Why Hasn’t the Government Learnt from Its Mistakes, Asks Paul Nurse

The winner of the 2001 Nobel Prize in Physiology or Medicine tells Mun-Keat Looi of his experience with testing during the pandemic and the effect of covid-19 on UK research

By [Paul Nurse](#) and [Mun-Keat Looi](#)

Global Research, March 07, 2022

[BMJ](#) 2 March 2022

Region: [Europe](#)

Theme: [Science and Medicine](#)

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Paul Nurse is no expert, he says. The geneticist and former president of the Royal Society is humble about the limits of his knowledge when it comes to covid-19, and yet on the hot topic of testing he does not hesitate to use his prominent voice.

“Under Matt Hancock, it was a shambles, frankly, given the strength and quality of UK biomedical science,” he says of the test and trace system. “They immediately turned only to private company solutions without recognising that that had to be set up from scratch when it was needed almost immediately. It is possible, but not something you can put together in weeks. I think they made a fundamental strategic error.”

What irks Nurse is that he and other research leaders with PCR testing expertise and infrastructure at their fingertips were ignored when UK science was chomping at the bit to help fight the virus.

“We have throughout the country many, many academic laboratories with both the facilities and the skilled staff to do these tests, and they were all sitting at home under furlough. [At the Francis Crick Institute, where I am director], we brought them back in and within three weeks we were doing around 10-15% of total test capacity in the country when we’d never done anything of the sort before.”

Nurse appealed to then health secretary Hancock to roll out what his institute was doing around the country. Within weeks, he claims, local laboratories could be providing a 24 hour turnaround testing service using pre-existing healthcare logistics.

“Here could have been a contribution to the complete chaos of the first round when

people weren't being tested—including healthcare professionals.

"We wrote to Hancock about it. Peter Ratcliffe, clinical physician and another Nobel laureate, wrote to him. We talked about it on the radio and television. We got no replies, then after three months we got a holding note from a civil servant. It beggars belief," he says.

At the Crick, PCRs can be turned around very rapidly, usually within 8-9 hours.

"You just have to be good at logistics and be well organised, and also to have the testing facilities close to the people being tested so that it can work efficiently," says Nurse.

The Crick's efforts have kept them "surprisingly active" over the past two years. Nurse is proud of how the institute's scientists have provided testing for 10 local hospitals and 150 care homes, set up within a week of the start of the pandemic.

Nurse fears that, if a similar pandemic occurs again, the government is likely to do the same thing and fall back on the private sector. And even today, it needs a contingency plan for testing.

"They're not going to keep testing capacity up at half a million a day running for ever and ever. They can't afford to do it."

The UK government is starting to withdraw free testing for everyone, as we learn to live with the virus. Do you think that the time is right for that?

I'm getting more relaxed about it, but given the massive amount of virus that's circulating around the globe and the extraordinary rapidity in modern societies of how that can spread, we have to always worry about new variants and what they might bring.

The circumstances in which [omicron] is hitting the UK now are certainly not as lethal as covid was 18 months ago, whether that's partly because of the virus or the fact that so many of us are vaccinated. We know from our own [ongoing] research, although it's not yet published, that the booster massively increases immunity. We've tested over 300 people, including myself, and [antibody levels are] massively increased compared with one dose and two doses of the vaccine.

[But] I'm not as blasé as some—there is a pool of virus there, it's almost certainly mutating, so something else could go wrong. There is a case for complacency with this. And of course the answer is worldwide vaccination, which has got to be a focus.

Might the tribulations with testing—in terms of the science, the technology, the infrastructure, our understanding, and interpretation of results—lead to benefits for research?

What has been evident and obvious is that high quality testing coupled with essentially social measures are the only defences with a new viral pathogen. It's clear that testing is a frontline defence system that will always be important and was always identified as being important. Long term planning processes in the NHS over the past 10 years were aware of it

and did nothing about it. It was obvious—even to a yeast geneticist like me—that this was the case, and yet nothing happened.

What has this taught us? We should take notice of scientists, and when they say something is important, test it properly in the political domain rather than having a report like the one over flu [Exercise Cygnus in 2016][1](#) and then just burying it and forgetting about it.

We need to prepare for these sorts of things. The fact that we had no personal protective equipment was ridiculous. We were being run by accountants rather than those who know what goes on—the cost of having a warehouse that is immediately available, and you might throw stuff away after 5-10 years, but you keep it stocked up, compared with [doing nothing and] killing people. We need a major new shift in how to do this, driven not by the accountants, not by constant attention to the penny that can be saved, but [by] the lives and the economy that can be saved.

The UK has long been regarded as a world leader in research—how will the pandemic affect that in the years to come?

I don't think the research infrastructure as a whole responded brilliantly to keeping students, postdocs, and younger colleagues productive during the pandemic. Like what we did [at the Crick]—it would not have been difficult for many universities to [get involved in testing], but they didn't, probably because they're risk averse.

Even for our staff, even though we protected the workplace and kept our research activity going, our graduate students and postdocs work on projects that last for three to seven years, and they've been blighted by the pandemic. They've not interacted with people, they've not had meetings, conferences, seminars—the bread and butter of intellectual research activity has been severely truncated. And that's brought stress for these younger people, and they are unhappy. I think the system has got to support them because otherwise we will have a cohort of people who didn't have proper training, who didn't have the proper exposure to research, who couldn't make sensible decisions about what their career should be.

What do you see as the biggest challenges to biomedical research over the next five years?

Firstly, there are the consequences of covid-19. The second thing is that we in the UK think we're very good at research and biomedical life sciences, which in general we are, but we should not rest on our laurels. I'm writing a review for the government [on research and development in the UK], and it isn't just a question of money and investment, it's a question of how we order it, how we structure it, how we deliver it.

If we look at the more academic side, we have about £8-9bn being spent in the UK on what I call “discovery research” at the interface between translation and commercial application, which is largely driven by universities. And we have over £4bn a year going into what are called public service research establishments, which are run by the government. These two sectors barely talk to each other. And we know there's a lot of stress in university departments about people finding money to do research and so on. This all needs to be looked at.

The term “life sciences” has come to simply mean biomedicine and the drug industry, but it

is much wider than that, including applications in agriculture, protecting the environment, and other forms of biotechnology. This has been almost lost in the fact that we have a life sciences strategy that takes no notice of other categories. It's just invisible. We need a new life sciences strategy that embraces the entire territory of life sciences because the different categories have much to learn from each other when it comes to applications.

Finally, the obvious one is we need funding. You only can make a case for funding if you deserve funding. Now is the moment [given everything that science has delivered over the past two years]. So let's get out there and make the case for it. And not by calling for individual sectors, which is where we tend to go tribal. We need to make a concerted effort to communicate that science as a whole—understanding of the world and ourselves—leads to improvement of humankind and increasing prosperity and protection of the environment.

Has science become more politicised and polarised?

I think communication is critical between scientists, political leaders, policy makers, and the public. And I'm not sure we're brilliant at it. We need to consider very carefully the relationship between scientific discovery, research, public policy, and communication with the public because we've seen politicians having to adapt to science in a way that they've never had to before. And they think that one liners like "We are following the science" are appropriate. But that just shows they don't really know what science is, because there are going to be a range of opinions. What is the evidence base? What is the reasonable thing to follow?

My view is that people have mostly done their best, including the politicians. I give them a hard time, but I think they've all had a hard time, and I think we have to recognise that they're not going to get everything right, just as scientists wouldn't. But now we need to reassess. We need a healthy relationship between science and the public, and for decision making to be built on it. How can we present science in a way that engages the public, leads to proper outcomes, and doesn't lead to these one liners, which simply distort the whole process?

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Paul Nurse graduated with a degree in biology from the University of Birmingham and then with a PhD from the University of East Anglia. A yeast geneticist, his research looks at the cell cycle, which led to the 2001 Nobel Prize in Physiology or Medicine for his part in discoveries of protein molecules that control the division (duplication) of cells.

He is a former chief executive of Cancer Research UK and former president of Rockefeller University in New York City. He has been the director and chief executive of the Francis Crick Institute in London for 10 years, during which time he also served for five years as president of the Royal Society. He was knighted by the Queen in 1999.

Mun-Keat Looi is an international features editor.

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