

Written Evidence Submitted by The Francis Crick Institute (C190072)

Introduction

The Francis Crick Institute is dedicated to understanding the fundamental biology underlying health and disease. Our state-of-the-art building in central London brings together 1,500 scientists, students and support staff working across disciplines, making it the biggest biomedical research facility under a single roof in Europe.

The contribution of research and development in understanding, modelling and predicting the nature and spread of the virus

The Crick was set up to be agile, multi-disciplinary, collaborative. In the face of the COVID-19 pandemic, the benefits of that approach have become evident. Some of our research groups put on hold years of work to respond, pivoting onto new projects to help build an understanding of SARS-CoV-2.

Our scientists are working collaboratively to answer some of the most pressing questions about the SARS-CoV-2 pathogen. Our comprehensive COVID-19 research programme brings together a team of over 100 world-leading scientists across 12 laboratories. Researchers are sharing data and techniques from labs across the world and online repositories make this easy, as studies become available months ahead of journals.

The capacity and capability of the UK research base in providing a response to the outbreak, in terms of:

advice to government, public bodies and others on managing the outbreak;
the development of testing, diagnostic methods and technologies;
the development and testing of vaccines; and
the development and testing of therapeutics;

Reliable testing is essential to identify who has a COVID-19 infection, and who may therefore be at risk of passing on the SARS-CoV-2 pathogen. We need this information to guide interventions to trace and contain the spread of disease. These requirements have placed an unprecedented demand on the testing capability of all countries. In the UK, we didn't have in place plans for adequate testing at a scale to detect, trace and contain infection, or to monitor front-line NHS staff.

In March, as the UK was entering lockdown, the Crick worked with local partners to repurpose our lab into a diagnostic testing facility. Led by our clinician scientists, the process took 10 days and involved close partnerships with University College London Hospitals Foundation Trust and their diagnostics partner Health Services Laboratories. By June 24th we had conducted our 40,000th test. We have worked with Cancer Research UK, NHS England and the Department for Health and Social Care to share the protocols and learning from our experiences so it can be replicated at labs around the UK and globally.

The Crick's experience of setting up a testing facility could be replicated across the country to support the national effort. Our experience is that a localised approach allows us to work directly with our partners to solve problems when they occur, adapting our processes where necessary. As lockdown began many labs across the country lay dormant and could have been repurposed at speed to provide additional capacity when it was most needed.

The Crick COVID-19 Consortium tests help the NHS to cope with the outbreak by telling healthcare staff within 24hrs if they are infected, and just as importantly, if they are not and can return to work. Evidence from the SAFER studyⁱ showed that at the peak of the pandemic in London, around 45% of healthcare staff tested had caught the virus. 25% were found to have already had the infection when they were first tested, and a further 20% acquired infection within the first month of follow up. Importantly, 38% of infections were not associated with symptoms within 7 days of the positive swab. These results demonstrate the importance of regularly testing staff, including those who do not have symptoms, to prevent the spread of coronavirus within healthcare settings.

Government must ensure that its testing strategy is informed by the evidence of what is needed and not constrained by the capacity in the system.

**The mechanisms for communication of scientific evidence internationally, within national governments and with the public:
including the handling of conflicting scientific opinions**

As COVID-19 has a profound impact on every aspect of society, the science behind it has been thrown into the spotlight. With scientists sharing the stage with politicians, there is a need for clear accountability, clarity about the governance arrangements and the demarcation of advisory versus decision-making roles. It is not enough for politicians to say they are “following the science”, they need to understand the uncertainty in the science and its relation to the recommended measures of policy makers, and to communicate that to the public well.

Trust is particularly critical if the public are to have confidence in politicians. There has to be trust in scientists and the way they work if their advice is to influence behaviour. Openness and transparency in the scientific advice and the evidence it is based upon is critical to enhancing trust in the public policy outcomes it informs.

With a new pathogen like SARS-CoV-2, scientific knowledge is partial and limited and may change as scientists learn more. Communicating uncertainty and complexity to policy makers and to the public can be difficult, but is essential if trust in politicians and scientific advice is to be maintained.

**The UK’s readiness for future outbreaks, including a consideration of:
the National Risk Register;
the UK Pandemic Influenza Strategy; and
PHE’s Global Health and Infectious Diseases Strategy.**

The UK must learn lessons from the COVID-19 pandemic, particularly the length of time it took to ramp up testing capacity.

“We have lions on the front line of clinical care, taking innovative approaches to treating patients and saving lives, sometimes risking their own lives in doing so. We also need lions as leaders at scientific, medical, and political levels, willing to take responsibility, admit to our failings, learn from them, and show us the way out of this pandemic.” Paul Nurse - Director of the Francis Crick Institute.

ⁱ Pandemic peak SARS-CoV-2 infection and seroconversion rates in London frontline health-care workers
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