

New partnership with The Alan Turing Institute and Royal Statistical Society to support Joint Biosecurity Centre COVID-19 response

- new partnership with The Alan Turing Institute and Royal Statistical Society (RSS) will bolster the Joint Biosecurity Centre (JBC) data analysis capabilities
- world-class statistical, machine learning and mathematical modelling expertise will provide even more granular detail to the JBC's statistical modelling of how the virus is spreading across the country
- partnership will support the government's COVID-19 response, improving the evidence base towards faster, more targeted interventions

The Alan Turing Institute and Royal Statistical Society will partner with the Department of Health and Social Care's (DHSC) Joint Biosecurity Centre to provide further independent statistical modelling and machine learning expertise to support the government's response to COVID-19.

The partnership will bolster existing capabilities within the JBC, which has been a key arm in the UK's fight against COVID-19, working with Public Health England (PHE) colleagues to support the NHS Test and Trace programme in breaking chains of COVID-19 transmission.

The Alan Turing Institute and RSS will provide independent insight and analysis of NHS Test and Trace data by setting up a new statistical modelling and machine learning laboratory to grant the JBC deeper understanding of how the virus is spreading across the country and the epidemiological consequences. Statistical modelling helps data scientists to predict what the virus might do next, based on what is understood about it already.

This extra support for statistical modelling will be brought together with the data science and public health expertise of the JBC to support COVID-19 decision-making at local and national levels.

Head of the JBC, Director General Dr Clare Gardiner, said:

We've been working tirelessly, alongside PHE colleagues, to provide the government and local authorities with independent, real-time analysis about infection outbreaks to national and local decision-makers.

From the beginning, we've been keen to build close partnerships with the academic and scientific community to ensure our work is underpinned by the best thinking and innovation. Throughout, we've sought regular guidance from experts across the UK, including the Alan Turing Institute and Royal Statistical Society, for our continual work on mathematical and statistical modelling to inform the insights we give.

By formalising this partnership, we will better support NHS Test and Trace in breaking the chains of transmission of the virus, bolstering our readiness for this winter and beyond.

The JBC will work with the Alan Turing Institute and RSS to establish a virtual statistical modelling and machine learning laboratory. The work done in the lab will formalise the Turing's existing work with the JBC, adding capacity and further enhancing the depth and breadth of analysis done by the JBC, including:

- helping to shape the JBC's estimates of the current rate of spread in different areas and forecasting the future rate of spread. This means identifying more quickly where the virus is spreading and, in turn, lead to faster responses to control the spread
- increasing the depth of the JBC's analysis of which factors appear to have the largest effect on the number of cases. This will support better forecasting of how the virus will likely spread around hotspots and greater insights into how we can control it
- further examination of the effects of the different interventions. This will build on our understanding of the effect and impact of our responses so far and in the future

Health Minister Lord Bethell said:

The expertise of the Joint Biosecurity Centre is a vital part of our strategy to break the chains of transmission and suppress this virus.

This new partnership with the Alan Turing Institute and Royal Statistical Society is fantastic news. It will give local and national decision makers access to the very best scientific analysis. This information will also be at the fingertips of the wider public.

This virtual lab will openly publish research focused on areas of national priority, including statistical methodologies, both as research papers and blog posts, and in the form of open source computer code, in line with a commitment to open science and transparency.

The Alan Turing Institute is the UK's national institute for data science, providing evidence-based and independent analysis. The Royal Statistical Society is a professional body for statisticians and a charity which promotes

statistics, data and evidence for the public good. Statistical and mathematical models are a crucial component in understanding how the virus is spreading and providing insight into how we can break the chain of transmission.

Chris Holmes, The Alan Turing Institute's Programme Director of Health and Medical Science, and Professor of Biostatistics at Oxford University, said:

The Turing is delighted to be playing a pivotal role in supporting the JBC by working to build an alliance with the RSS and academic experts to provide new insights in the evolving fight against COVID-19. In doing so, we will strengthen knowledge across the wider public health ecosystem.

Through independent, open science, rigorous modelling and analysis we will provide further understanding of this issue to the public and wider scientific community.

Professor Sylvia Richardson, RSS President-Elect and co-chair of the RSS COVID-19 Task Force, said:

We are pleased to partner with the Alan Turing Institute to offer our statistical expertise to the Joint Biosecurity Centre in its efforts to provide the most up-to-date analysis of the pandemic. Statistical modelling has a key role to play in giving us an insight into the spread of the virus, so we as statisticians can assist decision-makers with the policy decisions that affect us all.

The Royal Statistical Society, along with the Alan Turing Institute, will be able to work transparently and independently in providing the research that is needed at both local and national level.

Joint Biosecurity Centre

The Joint Biosecurity Centre is part of DHSC, and was established in May 2020 to bring additional and complementary analytical capacity to build on that already in place at a local and regional level across the UK. It provides evidence-based, independent analysis to inform local and national decision-making in response to COVID-19 outbreaks. This includes:

- helping to direct action on testing, contact tracing and local outbreak management in England
- informing an assessment of the risks to UK public health from inbound international travel
- advising on the COVID-19 alert level

The JBC is an integral part of the NHS Test and Trace service within DHSC.

Working in partnership with PHE, it is an important element of an evolving and strengthening health protection ecosystem in the UK. In the immediate term, the JBC's objectives are to break the chains of COVID transmission to protect the public's health.

The Alan Turing Institute

The Alan Turing Institute, headquartered in the British Library, London, is the national institute for data science and artificial intelligence. They undertake research which tackles some of the biggest challenges in science, society and the economy, and collaborate with universities, businesses and public and third sector organisations to apply this research. In recent months, researchers from the Alan Turing Institute have been working to provide independent advice to the NHS Test and Trace Team in support of the NHS COVID-19 app.

The Royal Statistical Society

The [Royal Statistical Society](#), founded in 1834, is one of the world's most distinguished and renowned statistical societies. It is a learned society for statistics, a professional body for statisticians and a charity which promotes statistics, data and evidence for the public good. Today the RSS has around 10,000 members around the world.