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University of Oxford designs computer simulations to guide future vaccine trials

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PRESTO project will bring together mathematical modellers, ethicists, regulators, vaccine manufacturers and field teams



University of Oxford scientists are launching new computer simulations that will model how we can strengthen the world's response to some of the viruses most likely to cause the next pandemic.

Their work, known as the '*PREpare using Simulated Trial Optimisation (PRESTO)*' research project, will generate important insights for vaccine developers and public health officials on what vaccine clinical trial designs could help stop the spread of an emerging outbreak.

With up to $2.4 million funding from Norway-based Coalition for Epidemic Preparedness Innovations (CEPI), researchers at the University of Oxford's Pandemic Sciences Institute will simulate real-life scenarios of deadly disease outbreaks in order to model how possible vaccine clinical trials could run and what outcomes they could produce.

The infectious threats that will be tested are Nipah, Chikungunya, Lassa, Rift Valley fever, Ebola and related viruses, Coronaviruses and a new or as-yet-identified 'Disease X'. These diseases are prioritised by CEPI and recognised on the WHO R&D Blueprint.

Data from existing CEPI-funded research will be fed into the computer model alongside evidence from previous outbreaks to create hypothetical scenarios looking at how a selected virus could spread, who it could impact and its potential severity.

Findings from these scenarios will be used to produce analysis sheets that rank the suitability of different clinical trial options measuring the efficacy or real-world effectiveness of vaccines against each selected infectious disease.