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DEVELOPMENT OF THE OXFORD ASTRAZENECA COVID VACCINE

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The 2014 outbreak of Ebola virus disease in West Africa, chiefly in Guinea, Sierra Leone, and Liberia, but with cases spreading to other countries highlighted the lack of preparedness for combating infectious disease outbreaks. The virus was first identified in 1976, but vaccine development had proceeded slowly and no candidate vaccines had progressed further than phase I trials. In 2014 two new candidate vaccines entered rapid clinical development with encouraging early results, but efficacy trials were slow to start. Ebola is only one of many known viruses with the potential to cause outbreaks, and with the support of the WHO in identifying a list of priority pathogens, and the formation of the Coalition for Epidemic Preparedness (CEPI) to provide funding, vaccine development was initiated with the aim of having vaccines available in readiness for future disease outbreaks.

The last pathogen to be added to the list was 'Disease X', to represent a disease caused by a previously unknown pathogen, which would require rapid response employing a well characterised platform technology. In the first days of 2020, the first 'Disease X' outbreak, caused by a virus later named SARS-CoV-2 occurred. Vaccine developers found ourselves attempting to put into place plans that were at an early stage of development, had not been funded and had not therefore been tested. Rather than working to produce a vaccine which could then be deployed in the 'outbreak area' we found ourselves attempting to develop a vaccine against a novel pathogen that was causing a pandemic whilst we ourselves were in the grip of that pandemic with every aspect of our work affected.