

Researchers warn G7 leaders on disease preparedness

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In an [article in the official publication for the G7 meeting](#) at Schloss Elmau, Germany, this weekend, Professor Peter Horby, who leads the Epidemic Research Group Oxford (ERGO), and Professor Adrian Hill, director of vaccine research centre the Jenner Institute, warn that it is vital to get ahead of the next outbreak.

While Adrian Hill has been working on vaccines and Peter Horby on treatments for Ebola, the two say that their areas faced similar problems when the outbreak began: very few potential vaccines or treatments with little known about their safety or efficacy, and very few doses of each with no way of scaling up production quickly. While clinical trials were established extremely quickly compared to normal timescales, these were still too late to make a significant difference to the outbreak.

In the article, Professor Hill says: 'We know there will be more outbreaks. There are more people, especially in Africa, living in bigger cities where transmission is easier. There is more [long distance travel](#), allowing diseases to spread rapidly. Many viruses are lurking, and then there are going to be new viruses like SARS was when it appeared.'

Professor Horby says that the lessons from Ebola can be applied to range of diseases. ERGO's work on how epidemics spread show that understanding the effects of people's different behaviour and customs can be as important as knowing the way in which the disease itself replicates and affects the body.

Professor Horby says: 'We should identify all the major gaps and bottlenecks in the Ebola response, and replicate that process across a range of potentially dangerous infections. The skills and technologies to do this exist, but the key is to do it in a systematic and integrated way, and then to share the burden of rectifying the deficiencies.'

'The process should be used as a mechanism to build capacity in countries that are most vulnerable, by matching and twinning research and development projects based on a technology transfer model.'

Professor Hill proposes developing vaccines for around 15 major epidemic diseases to a point where they could be pre-approved for emergency use. Large-scale [clinical trials](#) could then start swiftly in an outbreak. The cost could be around £450 million using a common vaccine technology, but this compares favourably to the cost of Ebola in the three most affected countries – over a billion pounds in 2015 alone.

'In an outbreak, we could rapidly deploy a vaccine, check that it works and then scale up production. Because you have done the work on developing a manufacturing process to get those stockpiles, getting full production going is much more straightforward,' says Hill.

Underlying the whole issue is the need to embed research in the emergency response process. While the scientists recognise that health professionals and governments will be focussed on the immediate response, they warn G7 leaders that we must be better prepared for the next [outbreak](#).

Provided by Oxford University

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