

Pandemic preparedness



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The COVID-19 pandemic is not over, and already its cost is staggering. The disease could have contributed to around 17 million deaths. And, by 2024, the hit to the global economy could reach US\$12.5 trillion. Everyone has experienced an extraordinary few years that few people would want to repeat. If the world is to avoid a similar or worse event in the future, countries must ensure that they are better prepared to deal with pandemics.

The response to the SARS-CoV-2 virus is far from perfect. High points, such as the speed at which effective vaccines were developed, contrast with low points, such as the unequal distribution of those vaccines around the world. The pandemic can teach us many valuable lessons that, if acted on, will put the world in a much better position to respond to future threats (see page S50).

Many eyes are on viruses that jump from animals to people – most pandemics in recent decades have emerged in this way (S41). Machine learning could help to predict what the next pandemic-causing pathogen will be, or where it might first infect people (S42). Climate modelling could also inform plans for infectious-disease outbreaks (S45).

Such work will at most reduce the frequency of pandemics. When an outbreak inevitably strikes, health-care professionals must have the tools and training to spot it and take action to limit its spread (S38). Delaying transmission is crucial to fighting infectious diseases, which, as history tells us, are very difficult to eradicate after they have gone global (S48). Some strategies that could help to achieve this can operate in the background – far-ultraviolet lamps, for instance, could disinfect the air in public spaces (S46). But many others require public buy-in, and the sometimes confused messaging around COVID-19 revealed weaknesses in how public-health authorities communicate health advice (S34).

Researchers have laid a path to better pandemic preparedness. Leaders of governments and industry must now follow it (S37).

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Richard Hodson

Senior supplements editor

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**On the cover**

A scientist rolls away a virus, revealing a brighter world.
Credit: Sam Falconer

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