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Does the speedy development of a vaccine make it less safe?

The Press · 14 May 2021 · 16 · Hannah Martin Helen Petousis-Harris provided expert advice in the preparation of this article.

Before Covid-19, the fastest development of a vaccine – for mumps – took four years. Understandably, the speedy development of several Covid-19 vaccines has made some people nervous about receiving one. But the shorter timeframe doesn't mean dangerous shortcuts have been taken.

While Sars-CoV-2, the coronavirus which causes Covid-19, is relatively new to the world, coronaviruses aren't. Neither are the efforts to find vaccines for these viruses.

Before Covid-19 appeared, researchers had already done vaccine trials in people on similar coronaviruses: Sars (severe acute respiratory syndrome) and Mers (Middle East respiratory syndrome). But when cases of those viruses tapered off, the research slowed too.

Clinical trials, which test that a treatment is both safe and effective, are divided into three phases, each taking longer and involving more people than the one before. Phase 1 establishes whether the vaccine or treatment is safe to test. Phases 2 and 3 then test how effective the vaccine is, the side effects, and overall safety; in hundreds and then thousands of patients.

Given the traditional process is so time-intensive, it was not fit-forpurpose for a new disease.

Scientists and governments knew this before Covid-19 emerged, prompting the 2017 formation of the Coalition for Epidemic Preparedness Innovation: a global alliance for financing and co-ordinating the development of vaccines for emerging diseases.

When Covid-19 appeared, the groundwork to do things differently was already there.

The virus prompted a rapid joint effort using public and private resources, with big pharma and small biotech companies working around the clock, around the world.

Funding came quickly. People were motivated to join studies, the existing science and technology allowed the process to be more streamlined, and reviews of the data from trials were prioritised.

The sheer number of cases means studies have accumulated data faster, pushing them across the line sooner.

Steps which typically take place one at a time, over years, have been carried out simultaneously.

And while mRNA vaccines are new, work on mRNA technology – the backbone of the Pfizer vaccine – has been going on for decades.

Though the timeline was shorter,

Covid-19 vaccines were still held to the same safety standards as all vaccines at each step along the way, involving tens of thousands of people in clinical trials.

New Zealand vaccinologist Helen Petousis-Harris has said that if anything, trials have been more stringent and transparent because the world is watching.

Real-world results are also now rolling out, as more than 800 million people worldwide have received at least one dose of vaccine.

Data from Israel, which has vaccinated 60 per cent of its population, is showing the realworld results for the Pfizer vaccine are as good as randomised trials – reducing Covid-19 cases by 94 per cent.

No medicine or vaccine can ever be completely risk-free or 100 per cent effective, but the speed at which

Covid-19 vaccines were developed was because scientists had a headstart, unprecedented funding, and global support – not because safety has been compromised.

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