

Researchers suggest local manufacturing to increase vaccine supply in Canada before next pandemic

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COVID-19 has put a spotlight on Canada's pandemic preparedness, and led some experts and leaders to call for a new public agency that would be in charge of domestic vaccine production to increase self-sufficiency.

But Paul Grootendorst, an associate professor at the University of Toronto's Leslie Dan Faculty of Pharmacy, says creating such an agency would be more trouble than it's worth. In a paper titled "Home Remedies: How Should Canada Acquire Vaccines for the Next Pandemic?" recently published by the C.D. Howe Institute, Grootendorst and his co-authors explore other ways Canada could boost [vaccine production](#) more efficiently ahead of the next [pandemic](#).

Grootendorst wrote the article with Michael Schunk and Robert Van Exan, both independent consultants in the vaccine industry, and Javad Moradpour, a post-doctoral fellow in the Leslie Dan Faculty of Pharmacy.

"Vaccine production is very complicated and requires a lot of lead time. Moreover, different vaccines require different production platforms and it is unclear which platform will be required for the next pandemic vaccine," Grootendorst says. "In this analysis, we wanted to add a different perspective that highlighted the complexity of the issue."

The researchers describe how the high failure rates of vaccine candidates and the logistics involved in a large clinical trial, especially one that needs to be done quickly, would make vaccine development an expensive endeavor for a public agency—with a significant risk that no viable vaccine candidate would emerge.

Even if the agency focused only on licensing and producing a pandemic vaccine developed elsewhere, keeping a dedicated pandemic vaccine facility ready for production with the required expertise and supply lines would be challenging, the authors say.

"You can't switch on a [production facility](#) at will, and it's hard to quickly pivot to producing vaccines," says Grootendorst. "If you want to play the game and be a vaccine producer, you have to have a fair amount of

experience or initiative in doing commercial-scale production and be able to do clinical testing."

Instead, the researchers suggest contracting with "academic and commercial players" that already possess the expertise and have the technical capacity to produce vaccines on a large scale. Canada could acquire reserve capacity in domestic production facilities, and then ask these vaccine makers to switch to producing pandemic vaccine. Domestic suppliers would maintain a stockpile of the vaccines they normally make in case of emergency.

Grootendorst and his co-authors also say the Canadian government could build modular manufacturing facilities that could be quickly adapted to make vaccine for a new virus. These facilities "would be located on the grounds of an established vaccine producer and would tap into the producer's sterile water, gas, steam, ventilation, [waste disposal](#) and other utilities/infrastructure," the paper says.

Although newer variants of the COVID-19 pandemic continue to circulate, Grootendorst says it's important to begin preparing for the next pandemic immediately, since vaccine production requires long lead times—and viral epidemics appear to be becoming more frequent.

Between 1918 and 2000, there were four major epidemics and pandemics, the researchers note; since 2000, there have already been six "major viral outbreaks."

"We need to think about amping up [vaccine](#) production globally so that we can immunize as many people as possible as quickly as possible," Grootendorst says. "When large swaths of the population of other countries are unvaccinated, that's a [breeding ground](#) for variants, so we need to make sure that people everywhere can be vaccinated. This is one of the major global issues we are facing."

More information: Home Remedies: How Should Canada Acquire Vaccines for the Next Pandemic? www.cdhowe.org/public-policy-research-articles/vaccines-next-pandemic

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