

Australia's flu season has US health officials bracing for a bad winter, and wishing for a new vaccine

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The flu season is just getting underway in North America, but if

Australia's experience with influenza is any guide, we're in for a miserable winter.

Dr. Anthony Fauci, the director of the National Institute of Allergy and Infectious Diseases, warned Wednesday that the United States could experience a "relatively severe influenza [season](#)." If so, it would extend a run of bad luck that began in 2014, when the available flu vaccines proved to be a poor match for the most common viruses in circulation.

In the land down under, where the 2017 flu season is now a wrap, public health officials reported record-high rates of flu, as well as above-average numbers of hospitalizations and deaths. The most common flu strain there was the influenza A virus known as H3N2, and the [vaccine](#) given to Australians had an effectiveness of only 10 percent, according to preliminary estimates.

The vaccine now being administered to Americans uses the same formulation. Even worse, nearly three-quarters of the 1,544 laboratory-confirmed cases of flu seen in the U.S. since Oct. 1 were of the H3N2 variety, according to the Centers for Disease Control and Prevention.

Last flu season's vaccines were found to be 34 percent effective against H3N2 in the U.S., leading to widespread misery. The situation in Australia suggests this flu season could be even worse.

That's not a reason for Americans to skip the [flu shot](#) this year, Fauci said. Even a vaccine with limited effectiveness will protect some people from getting the flu. And many of those who do get it will have a shorter course of illness, he said.

But a string of bad flu seasons is a reason for the world's scientific establishment to step up efforts to develop a [universal flu vaccine](#), Fauci wrote Wednesday in the *New England Journal of Medicine*.

Between 2005 and 2014, flu vaccines averted 40,000 deaths in the United States alone.

"Yet, we can do better," Fauci wrote, along with his Australian counterpart and two World Health Organization officials.

Universal flu vaccines could make the yearly flu shot - not to mention the yearly guessing game about which viral strains to match - a thing of the past. While still in development, the candidate vaccines would train the human immune system to recognize components of the virus that are common to all influenza strains and don't change from year to year as they crisscross the globe.

"As we prepare for a potentially severe influenza season, we must consider whether our current vaccines can be improved," Fauci and his coauthors wrote.

The high prevalence of influenza A viruses in recent years is a particular problem for the current generation of vaccines, Fauci and his colleagues wrote. A pair of studies published this year have turned up strong evidence that when vaccine makers use eggs as a medium for the propagation of viruses - the dominant production method, and one that has changed little in decades - mutations are introduced that reduce the vaccine's effectiveness.

In Australia this past [flu season](#), the problem did not appear to be a mismatch between the [flu strains](#) that were circulating and those that the available vaccine protected against, Fauci said. Instead, it seemed to be the mutant proteins introduced as the vaccines were being produced in eggs.

"The very process of how we make the vaccine creates an unanticipated, almost accidental mismatch, which is what happened in Australia this

year," Fauci said in an interview.

The production of universal vaccines entails no such risk. The viral pieces used in these vaccines are not living organisms but genetically engineered proteins that can be grown and propagated in bacteria, making the use of eggs unnecessary.

The most advanced universal [flu vaccine](#) candidate is only in the earliest stages of human clinical trials, and others are still being tested in animals. They could be several flu seasons off, but Fauci said he has "made this a high priority" in a budget that the Trump administration has targeted for 21 percent budget cut.

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