

General questions

We are hearing about H5N1 spread to humans recently. Should we be concerned?

Previous H5 cases have occurred in people, but the cases have remained limited. For example, the first H5 influenza virus in humans was detected in the 1990s; in the small group of people infected, mortality was high. In 2003-2005, additional cases occurred with high mortality. In this current outbreak, there have been approximately 50 human cases.

A key reason why these outbreaks have not become widespread has to do with where the viruses replicate. Of the 16 types of hemagglutinin (HA), numbered 1-16, three cause frequent human disease and pandemics: HA 1, 2, and 3. These three types bind to receptors in our upper respiratory tract and multiply before moving to the lower respiratory tract to cause severe disease. On the other hand, influenza viruses with other hemagglutinins (H4-H16) have never caused widespread disease. This is because these types cannot bind to our upper respiratory tract, so they do not replicate there, and, as a result, they cannot easily spread between people. However, influenza viruses with H5 hemagglutinin can bind to cells in the lower respiratory tract, so if a person inhales a large quantity of virus, such as when working with infected animals on a farm, some virus can get into the lower respiratory tract, causing illness, but having limited ability to spread to others.

While it is critical to conduct surveillance and be prepared, the current virus does not have the ability to easily spread between people and cause a pandemic.

How should the public remain informed about topics like immunizations?

Immunizations continue to be the greatest public health achievement of the last century, particularly in reducing childhood illnesses and deaths. Misinformation and disinformation will impact everyone, but especially the most vulnerable among us, such as our country's children. Given that children and other vulnerable groups do not always have a voice, we must continue to advocate for them by sharing high quality science and continuing to work to understand where people are getting their information, so that accurate information can be shared in those venues as well.

Where can I obtain the slides for this presentation?

The slides are available in the "resources" section of the console when you watch the event or on the webinar archive page of our site, <https://www.chop.edu/pages/vaccine-webinar-archive>.

COVID origins questions

What is the source of the data that the early human cases were all around the live-animal market?

Michael Worobey and other evolutionary biologists, in concert with health officials on the ground in China, were able to go back and trace the earliest reported cases. The first two cases were the key. Both occurred in people who were working at one stall in the southwestern section of the Huanan Wholesale Seafood Market. (Refer to slide 16 in the presentation for the 2022 publication in *Science*.)

I do believe it was from the Wuhan Seafood Market, but I just saw, as recently as last night, Dr. Redfield stating that he believes the pandemic originated from a lab leak. How do we try to educate the public or answer questions from the public on pandemic origins?

Lessons from the early AIDS pandemic are helpful. In the early 1980's, many prominent scientists did not believe HIV was the virus that caused AIDS. Experts had to continually provide data to demonstrate the connection for scientists and clinicians, but they also needed to educate the public so that people could understand how to change behavior and what constituted risk. State and local health departments worked with community-based organizations to educate the public. Science-based guidance was translated into key messages. Media attention brought added understanding. There is not a single method for educating all people, but rather we need to meet people where they are and continue to share the science behind the origins of the pandemic.

Why do prominent officials and scientists continue to propagate the lab-leak hypothesis?

Novel disease outbreaks often bring out many theories on their origins prior to scientific data demonstrating the most likely (or definitive) theory. Our current political climate is one in which individuals may adhere to a given theory more because of their political affiliation than because of the scientific merit of a hypothesis. It is critical that we continue to share the data related to the origins of COVID-19, particularly as it relates to ongoing preparedness for a future pandemic.

Pandemic response

As the United States cannot govern other country's pandemic responses, what should be done differently during a next pandemic?

In 2024, member states of the World Health Organization (WHO) agreed to begin to draft and negotiate an international accord under the Constitution of the WHO to strengthen pandemic prevention, preparedness and response. This is an important first step in global collaboration. A key part of this work will be to ensure scientists and public health officials from different nations are collaborating in advance of a new threat so that a unified response can occur when threat arises.

Specifically, when a specific risk is identified, such as wet markets in China, countries need to be held accountable for mitigating these risks to protect the global population.

It will be important to ensure that this policy work continues to progress. Likewise, building relationships with other scientists and medical providers around the world can ensure that networks for communication are in place for sharing information and learning from one another in the event of another pandemic.

Information management

We are clearly headed into a time of even more conflicting information on a variety of public health issues. What do you think is the best way to prepare for and respond to inaccurate information in our current political environment, recognizing the public may not access a presentation such as this?

With politicization of science, we need to continue to present science to the public for what it is – a way of knowing about our world.

Experts should continue to publish in highly reputable, high-level publications, and we must help the public discern between different types and quality levels of scientific publications (For example, see this recent *Parents PACK* article, "[Going to the Source: Finding Out More About a Message That Includes Science.](#)").

We should also talk about ways to evaluate messages, so that people start to ask questions about the messages they are seeing, such as determining who is sharing a message and what their qualifications and motives are. The Vaccine Education Center has compiled an array of tools in the "[Evaluating Information](#)" section of the *Parents PACK* website.

Finally, we can remember that in the 1600's, Galileo was placed under house arrest by the Roman Inquisition after being found guilty of heresy for advocating that the Earth revolved around the sun. Despite his house arrest, the Earth continued to revolve around the sun. Even through political discord, true science will hold.