What We Know About the U.S. Bird Flu Outbreak and its Chronic Disease Risk

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Key points you should know:

- The U.S. leads the global tally of H5N1 cases.
- Two new, separate spillovers into dairy cows have been detected in Nevada and Arizona in recent weeks, indicating that the outbreak is not under control and is now endemic in cows.
- Not all infections among people are being detected, raising the risk of co-infection with seasonal flu variants that could result in a more dangerous strain.
- Flu has been linked to chronic diseases like myalgic encephalomyelitis (ME).
- Learning to evaluate official and unofficial sources of information will be a key skill for understanding this outbreak.
- Many of the same precautions, like masking, that work against COVID-19 also work well to prevent the flu – and contacting your state-level politicians and officials could help bring attention to the risks of bird flu.

When a new version of H5N1 first landed in North America, borne on the wings of migratory birds blown off course from Europe in late 2021, Seema Lakdawala followed the developments closely, but she wasn't overly worried about it leading to a pandemic in humans yet.

There were still a few steps the highly pathogenic avian influenza needed to take before it rose the rungs of her worry scale, she told me in early 2023: it would need to spread to new animals and then on to people; it would need to start mutating to become more transmissible or virulent among people; and it would need to start making more people pretty sick.

Now, all of those things have happened.

“I think we’re there,” said Lakdawala, an influenza virologist and co-director of the Center for Transmission of Airborne Pathogens at Emory School of Medicine. “Now is when people should be concerned and take it seriously.”

And she has a new concern: People might wait to take it seriously until there’s widespread transmission among humans. But by then, it would be too late to prevent a pandemic.

“It really doesn’t seem like there’s any control over this,” said Thomas Peacock, a virologist at the Pirbright Institute in the United Kingdom. The virus continues to rip through American poultry and dairy farms, with at least 995 herds affected in 17 states and more than 168 million poultry culled since the outbreak began.

Some 70 people, almost all farm workers, have tested positive for H5N1 in the past year, in addition to probable cases and people who later had evidence of past infection in serological studies.

And H5N1 isn’t the only type of bird flu scientists and officials are watching closely. In March, highly pathogenic H7N9 was detected in Mississippi – the first appearance of that variant in U.S. commercial poultry since 2017.

Ironically, H5N1 isn’t the virus Peacock usually worries about when it comes to causing a pandemic, as the original strain in wild birds is not biologically equipped to spread well between humans. “But if you were trying to cause a pandemic with this virus, this is the sort of thing [you would do] – you would passage it through farm animals [to people],” he said.

“It just seems a no-brainer that you’d want to get this under control,” Peacock said.

“Am I concerned that someone’s going to go to the grocery store or on the bus and get H5? No, I’m not. We’re not at that level of transmission or exposure to the general public,” Lakdawala said. But we do need to take this very seriously before we get to that level, she added.

Taking it seriously involves individual, collective, and government action, including understanding the risks and asking state officials and politicians to take steps to control or end the outbreak.

Where we stand on the U.S. outbreak and the science

The United States is the biggest bird flu hotspot in the world, with 66 out of 80 of the known cases detected among people last year. In mid-February, Arizona announced the detection of H5N1

among dairy cows, marking the third known spillover from birds to cows.

The news followed the second detection in Nevada cows. A dairy worker in Nevada also became sick after working with affected cows, and genomic sequencing showed a concerning mutation that could increase transmissibility.

The new spillovers are caused by a different variant from the strain that's been circulating in cows for over a year. The D1.1 variant is becoming the predominant strain of H5N1, especially among birds, and it was also responsible for the protracted illness of a teenager in British Columbia and the death of a man in Louisiana. Both people showed worrying viral mutations that seemed to occur over the course of their illnesses.

The spillovers also seem to indicate that bird flu is now an endemic, rather than one-off, threat to livestock. "Endemic" means that a virus circulates regularly in a place or population.

While most cases have come after close contact with animals, two people – in Missouri and California – had no known contact.

There are also plenty of human infections that aren't being detected. A study conducted among farm workers in Colorado and Michigan found that seven percent had antibodies to bird flu, meaning they had been previously infected – and many didn't even know they'd had contact with sick animals.

Another study on veterinarians found that three out of 150 had recent antibodies to H5N1 without realizing they'd been sick. One was in a state without known cases among cows, and the two others didn't realize they'd had contact with an H5-positive animal.

This is particularly troubling given rates of seasonal influenza, which reached record rates this winter. The surge is not related to H5N1, according to regular flu monitoring by public health agencies and wastewater surveillance organizations.

But there are two dangers of a seasonal surge: one, there are likely too many cases of all types of flu to be able to detect every rare occurrence of bird flu, and two, if someone has H5N1 and another flu variant, they could combine in a process called reassortment to make a new, more dangerous variant.

"As we know from the [COVID-19] pandemic, you don't mess around with RNA viruses," Peacock said. "They famously, especially coronaviruses and influenza viruses, evolve and jump species really, really easily and really quickly. You're really playing with fire, exposing so many people to these, exposing so many mammals in particular."

In the current status quo of isolated spillover events, Lakdawala expects to see some reports of one-off spread between people, especially in shared households or at medical facilities. But the next, worrying phase would be widespread human-to-human transmission over long ranges, which would likely sweep the globe in a matter of weeks.

Severity and long-term symptoms

Most of the known cases of H5N1 among people in the U.S. haven't involved severe illness. But that doesn't mean everyone will have an easy time with the virus, Lakdawala said. "The Louisiana case was fatal, so we really do need to stop saying that it's mild, because it's not going to be mild in everybody."

There is also the potential for developing long-term sequelae after influenza.

"My worry is that people will be like, 'it's just a flu, so it's fine,'" said Jaime Seltzer, the scientific director at the myalgic encephalomyelitis (ME) advocacy organization, #MEAction.

Yet there is a "more than two-fold increased risk" of developing ME after infection with H1N1 flu compared to patients who got the flu vaccine, one study found in 2015.

That tracks with reports over more than a century indicating a rise in chronic symptoms following flu cases, Seltzer said. "We've seen an ME/CFS-like syndrome develop after a wide variety of infections," including influenza variants, she said.

But if bird flu were to become more prevalent, an accompanying rise in ME "would not be as big as we saw with COVID, I think," Seltzer said. From her experiences talking to people with ME, more cases have come from coronavirus and herpes viruses than from the flu.

That being said, many people who develop ME don't know specifically which virus precipitated the onset of the condition, so it's possible more cases stem from influenza. The "era of Long COVID" is unique in that people with this disease can trace their symptoms directly back to SARS-CoV-2, Seltzer said.

Another key difference: unlike with SARS-CoV-2, it's unusual to see viral persistence after influenza infections, Lakdawala said – which could make chronic risks less likely. Viral persistence is thought to be a major cause of long COVID.

There's also mounting evidence that other infections, COVID-19 or otherwise, can make long COVID worse, which means all types of influenza could pose risks for people living with Long COVID.

How to find and evaluate information as the outbreak evolves

The Trump administration has made tracking the bird flu outbreak much more complicated. From laying off or forcing out bird flu experts at the U.S. Centers for Disease Control and Prevention (CDC) and U.S. Department of Agriculture (USDA) to mulling new plans that rely on not containing the virus at all, the administration does not seem to be taking the bird flu threat seriously — and that could increase the chances of the outbreak reaching a crisis point.

Officials also temporarily froze communications and delayed publication of the Morbidity and

Mortality Weekly Report, a highly respected epidemiological report, for weeks.

Experts recommend saving any resources from government sites – studies, fact sheets, and so on – in case they are taken down or modified.

With uncertainty in the timeliness and accuracy of official publications, other sources will need to fill the gaps.

“Not everybody can be an expert in everything, so you do have to find someone you can trust, or some entity you can trust, because there’s no way that you can manage the information ecosystem on your own,” Seltzer said. “You do have to know the basics, or you can be very easily misled.”

That means triangulating data points – making sure multiple sources report the same thing. It means listening to experts who have a demonstrated background in what they’re talking about. It means being wary of social media users who post sensationalist content without adequate sourcing.

And it means pushing against your own inclinations and suspicions.

“Anything that deeply appeals to your already held biases and seems to lean into them pretty hard – beware of that,” Seltzer said. “You have to doubt not just what other people say, but what you want to believe.”

The Sick Times is following the bird flu outbreak with stories like this one, but other publications may be helpful for breaking news and incremental updates. Publications like STAT News, Reuters, Scientific American, Teen Vogue, and Self do a great job of communicating science accurately, especially around chronic illnesses like ME, Seltzer said.

“The teens and women’s magazines have really been stepping up to the plate, because they know women who have been affected,” she said.

What you can do

Keeping yourself safe:

- Mask: High-quality respirators work very well to prevent all types of influenza infection.

- Avoid contact with wild birds and animals; if you have backyard chickens, try to bring them inside and wear a mask while cleaning their litter. Cook your food fully – including eggs, poultry, and ground beef. Don’t drink unpasteurized milk, and don’t feed raw meat or milk to your pets.

- Keep your cats indoors, and make sure your dogs don't play with dead animals or go swimming in the local goose pond.

To make a bigger difference, you can make more noise.

"Contact your state," Lakdawala said. "This is what I've realized: it's really up to the states." Contact your governor and state or local agriculture department, telling them why you're concerned, noting any herds or flocks in the area that have tested positive, and talking about health conditions that might make illness more severe for you. Ask them what they're doing to slow or stop the spread.

There is still time to stop H5N1 or to lessen its blows. And if it does evolve into a pandemic, it would likely look different from COVID-19, Lakdawala said.

We are more prepared for a flu pandemic than we were for the coronavirus, she said: "We've got lots of antivirals that are already licensed, that we know work effectively. We know how to treat influenza viruses and we know how to make vaccines."

But, Lakdawala added: "I just don't want it to get there."

Melody Schreiber is a freelance health and science journalist, and the editor of "What We Didn't Expect: Personal Stories About Premature Birth."

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