

Scientists struggle to understand swine flu virus

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Lead scientist Lupe Garbalena handles a sample while testing for swine flu at the Houston Department of Health and Human Services Wednesday, April 29, 2009 in Houston. A Mexico City toddler who traveled to Texas with family to visit relatives is the first confirmed death in the U.S. from swine flu. (AP Photo/David J. Phillip)

(AP) -- Mexico's health secretary may have thought he was allaying fears about swine flu when he suggested that the nation's swine flu death rate was 6 or 7 percent. In reality, that would mean a monstrous killer virus - and no experts are close to saying that. The secretary's comment reflects

how much remains unknown about the new flu virus - most notably how lethal it is and why it seems so much deadlier in Mexico than anywhere else.

American health officials believe they are getting closer to answering those questions, or, at least, to ruling out wrong-headed theories.

"We've begun to knock off hypotheses," said Dr. Scott F. Dowell, director of global disease detection with the U.S. Centers for Disease Control and Prevention.

Among the factors disease detectives have discounted are Mexico's air pollution, secondary infections and poor health care. But they still do not know why so many Mexicans have died, although it could be because many more people actually have had the virus than health officials realize.

In Mexico, the virus is suspected of killing more than 150 people and sickening more than 2,400. Recent information suggests swine flu-related hospital admissions and deaths may have peaked and are declining, but no other country has shown any numbers close to those seen in Mexico.

The only other country to report a swine flu death is the United States, and that involved a toddler from Mexico who was visiting Texas with his family.

The leading theory remains that the virus itself is not significantly different in Mexico, but that the outbreak has for some reason just hit harder there, infecting more people overall. The more people who are infected, the more likely there will be severe cases and even deaths.

When the Mexican health secretary spoke this week about a 6 or 7

percent death rate, his figures were based on the number of deaths divided by the number of suspected infections. But authorities cannot be certain how many people have been infected, especially those who suffered only mild symptoms.

Mexican authorities have not tried to count mild cases, focusing instead on the severely ill and the dead. So the death rate may be much lower than 6 or 7 percent - and probably is, according to some experts.

A 6 to 7 percent death rate would make the Mexican swine flu nearly three times deadlier than the worst flu pandemic in the last 100 years - the 1918 Spanish flu, which killed an estimated 20 million to 50 million people worldwide.

That seems unbelievably high for this new virus, said Richard Webby, a flu researcher at St. Jude Children's Research Hospital in Memphis.

Webby and others do not believe the swine flu in Mexico is different from what's been seen in U.S. patients. The virus samples in both countries match.

The CDC sent four epidemiologists and one lab scientist to Mexico over the weekend to investigate the disease there, and the agency expects to send a half-dozen more people this week, said Dowell, of the CDC.

Among the hypotheses being ruled out as explanations for Mexico's higher death rate:

- A second infection complicating the flu cases. A common danger in flu is that the patient is co-infected with pneumonia or other bacteria, which can lead to death. But lab tests of 33 Mexican patients, including seven who died, did not find that problem.

- Low-quality health care. CDC investigators have not seen any obvious problem. They have found capable doctors and well-equipped, high-quality hospitals, Dowell said.

- A medicine is compounding the problem. Investigators have looked into whether patients who got sick had taken some over-the-counter medicine or folk remedy that actually made things worse.

Such a problem has sometimes occurs in children recovering from flu who are given aspirin - a severe illness called Reye's syndrome, which causes vomiting, lethargy and even seizures. But there's no evidence of something like that in Mexico, Dowell said.

- Altitude or air pollution: Mexico City's altitude and its infamous air pollution have raised speculation that those factors may have made people more susceptible to the virus. But severe cases are being reported over much of Mexico, including coastal communities and places with cleaner air, making that theory unlikely.

The CDC has also been investigating when the swine flu first hit Mexico.

Some have wondered whether it's possible people have been getting sick with the virus for months, but the illness went undetected because special swine flu tests were not used to diagnose patients.

But CDC officials say no, the flu probably did not hit Mexico until March at the earliest. An analysis of hundreds of samples from Mexico that were collected from January to March never turned up the [swine flu](#) virus, Dowell said.

There's also the question of where it started - a standard inquiry of public health investigations since at least the mid-19th century.

One of the heroes of public health history is John Snow, a London physician who helped end an 1854 cholera outbreak by determining that cases were clustered around a water pump and that the disease was spread through water. The pump handle was removed, and the cholera deaths subsided.

But flu is different because it's spread by human-to-human contact. Scientists know it's more difficult to pin down the origin of a novel strain of influenza to a specific country, let alone a village or pig farm.

Knowledge of the origin is also less useful than in a cholera outbreak.

"Flu, unlike cholera, spreads around the world in a matter of weeks. You can't remove the pump handle" to stop the epidemic, said Dr. Andrew Pavia, a University of Utah pediatrics professor who leads the Infectious Diseases Society of America's pandemic flu task force.

A current theory is that the outbreak started in the town of La Gloria on the eastern coast of Mexico, because a 5-year-old boy was the first known case. He first suffered flu-like symptoms in late March. However, Mexican health officials have downplayed claims the outbreak started in La Gloria, because mucous samples of other patients from there found nothing.

Dowell said the place of origin is a secondary concern at the moment.

"That probably will be useful in the long term. But for the present, our team in the field is focused on things that will make the most difference for mitigation" of the outbreak, he said.

Associated Press Writer Olga R. Rodriguez in Mexico contributed to this

report.

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