

# Scientists investigate Mexican town's flu mystery

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In this photo taken April 27, 2009, Victor Calderon, General Director of Granjas Carroll de Mexico, stands next to pigs at one of the company's farms on the outskirts of Xicaltepec in Mexico's Veracruz state. Scientists are returning to La Gloria, a pig-farming village in the Veracruz mountains where Mexico's earliest confirmed case of swine flu was identified. They hope to learn where the epidemic began by taking fresh blood samples from villagers and pigs, and looking for antibodies that could suggest exposure to previous swine flu infections. (AP Photo/Alexandre Meneghini)

(AP) -- No one has identified ground zero in the swine flu epidemic. Just where or when the new strain of influenza first jumped from a pig and began infecting people is a scientific mystery - one that a group of flu detectives is determined to solve.

Scientists are returning next week to La Gloria, a pig-farming village in the Veracruz mountains where Mexico's earliest confirmed case of [swine flu](#) was identified. They hope to learn where the epidemic began by taking fresh blood samples from villagers and pigs, and looking for antibodies that could suggest exposure to previous swine flu infections.

Some experts say it's pointless to worry about what happened in La Gloria now that the swine flu

virus has spread around the world. But others argue that a thorough investigation could be key to preventing future epidemics.

And Mexico has another reason to care: If it can somehow rule out the possibility that La Gloria's pigs infected humans, then it can tell the world it wasn't to blame for the epidemic - that the never-before-seen H1N1 swine flu virus came from somewhere else.

More than half of La Gloria's 3,000 residents fell ill with [flu symptoms](#) weeks before the new virus was identified. Many found it hard to breathe, burned with fever and ached all over. About 450 of the sickest residents were diagnosed with acute respiratory infections and sent home with antibiotics and masks.

Mexican health officials initially downplayed the outbreak, saying the villagers suffered from regular flu. A 5-year-old boy was the only confirmed swine flu case among 43 villagers whose mucous samples were taken in early April. By then, most other villagers had recovered, and the virus was gone from their systems.

But some disease experts suspect swine flu was circulating more widely in La Gloria.

"I cannot understand it. I could almost bet that there were more infections related to this virus" in La Gloria, Dr. Carlos Arias told The Associated Press. Arias is leading a group of flu detectives from the Biotechnology Institute and the veterinary school of the National Autonomous University of Mexico back to the village at the invitation of the Veracruz state government.

Pigs - like people - get the flu, usually over the winter months. This new swine [flu virus](#) is unusual in that it also has infected humans and at this point has become a full-blown human flu.

La Gloria's villagers believe they were sickened by the surrounding commercial pig farms, which they accuse of polluting their air and water with pig waste. But the pork industry wants a closer look at pigs raised in the villagers' backyards, which may not have been vaccinated or cared for with swine flu-prevention in mind.

Arias said his team also will examine environmental and sanitary conditions in homes where pigs are raised, and make recommendations to the Veracruz government aimed at reducing the potential for human infections.

"It would be very interesting to look at the evolution of this virus and where or how easily the virus originates, reassorts and reassociates genes in an environment like La Gloria," he said. "But also maybe that would mean that we would have to change the conditions of farming animals."

Virginia-based Smithfield Foods, Inc., which jointly owns 72 farms in the surrounding La Gloria, said it carefully vaccinates its herd, and has found no signs or symptoms of any kind of swine flu in its herd or its employees anywhere in Mexico.

Enrique Sanchez, a top official in Mexico's Agriculture Department, which has defended the nation's pork exporters from swine flu-inspired trade bans, said no sign of the new strain was found in mucous samples taken April 30 from pigs at Smithfield's Mexican subsidiary, Granjas Carroll.

But those samples were taken weeks after most villagers had recovered from their infections - perhaps too late for the virus to show up. Even after a person or pig recovers, however, antibodies remain in their blood, evidence of the body's immune response to the infection. And if swine flu antibodies are teased out of pigs in La Gloria, it would suggest, though not definitely prove, that the virus jumped from swine to humans there, Arias said.

Other scientists believe the new strain could have been circulating in humans long before it reached La Gloria. The new strain's ancestry has ties to a pig farm in North Carolina where in 1998, scientists discovered that pig, bird and human viruses had

combined in pigs to form a new strain of swine flu that also infected a handful of humans.

Most of the current strain can be traced to that combination, about 10,000 generations of the virus ago. At some point along the way, it combined with other flu strains and jumped back into humans - just when and where exactly may never be known, CDC officials have said.

A federal government research team also plans to return to La Gloria, to review health records, interview residents and search for antibodies. The boy's positive test result "has to lead us to go back and look closer," said Dr. Ethel Palacios, deputy director of Mexico's swine flu monitoring effort.

Labs capable of testing for the new swine flu strain have focused on helping sick people rather than find scientific evidence pointing to the starting point of the epidemic, which has now sickened more than 10,000 people around the world and killed 80, mostly in Mexico.

At this point, learning the source won't change how the world must respond to this epidemic, said Dr. Sylvie Briand of the World Health Organization's global influenza program in Geneva.

Still, it rankles Mexico that some researchers have assumed La Gloria was a starting point, based on the unusual number of lung infections there just before swine flu was identified. In a Science journal study last week, the WHO Rapid Pandemic Assessment Collaboration made this assumption for mathematical models suggesting the epidemic had spread to thousands of people across Mexico before the virus had a name.

Co-author Christophe Fraser concedes his team has no evidence La Gloria was ground zero, but he finds Mexico's assertion that seasonal influenza was solely to blame unlikely.

"The attack rate in the outbreak (in La Gloria) is inconsistent with seasonal influenza," Fraser, a scientist with the Department of Infectious Disease Epidemiology at Imperial College London, wrote in an e-mail to AP. "It is not impossible, though, that multiple viruses were co-circulating."

Finding answers won't be easy: Time has passed and if people or pigs have been infected by similar flu strains in the past, their antibodies could lead to false positives, said Alfredo Torres, an assistant professor at the University of Texas Medical Branch.

"There may not be any footprints to look at," said Tom Ksiazek, director of the university's National Biodefense Training Center, who with Torres is serving as a consultant to the Veracruz state government. Ksiazek, who has investigated outbreaks of Ebola virus and SARS, suspects villagers were getting infected from each other, not pigs.

Meanwhile, Arias is frustrated that the government has not provided details about its tests on humans and pigs.

"The information is not been distributed freely," he said. "We cannot work with only assumptions and rumors. We need solid data."

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