

Origins Of The Swine Flu Remain Unclear

It took a perfect storm of circumstances for the latest influenza outbreak to occur, said a Texas AgriLife Research scientist.

There's nothing new about H1N1 influenza, said Dr. Jason Osterstock, an AgriLife Research infectious disease epidemiologist.

In fact, the latest human flu vaccine and most all flu vaccines for humans and swine include a strain of H1N1, which is considered the most common of the human and swine influenzas.

It just wasn't the right H1N1. It couldn't have been, because this combination of H1N1, when broken down to its very core - the nucleic acids that make up the virus - has never been identified before, Osterstock said. Viruses can be ribonucleic acid (RNA) or deoxyribonucleic acid (DNA) based, he said.

Those that are RNA-based, like influenza, may change or mutate rapidly and swap genetic material, as is the case of this latest outbreak.

The differences in the genetic make-up of the virus are what make flu viruses differ in terms of what species they affect, how severe the symptoms are and how effectively they may be spread, Osterstock said.

This latest virus has been identified as having gene segments from human, swine and

avian virus strains, he said.

One way to determine if a person exhibiting flu-like symptoms has the latest flu of concern is to look at specific gene sequences and match them to other cases, Osterstock said.

There are basically three steps to doing that, he said.

Influenza is broken into three broad groups: A, B and C, based on the molecular properties.

Typically, types A and B are both found in humans, while pigs only have type A; type C is much less common in both species.

These determinations can be and are made at the local doctor or clinic level using rapid flu tests.

This influenza is a type A, but within type A are a lot of possible strains (or subtypes), because it includes combinations of two proteins: hemagglutinin and neuraminidase, Osterstock said.

There are 16 different hemagglutinin and nine different neuraminidase proteins, he said.

This is where the H1N1 designation is made, depending on which hemagglutinin (H) and neuraminidase (N) proteins are contained in the virus.

That is determined by an official state laboratory.

But to determine if it is a positive match for the latest "pandemic-like" flu, another step has to be taken, looking at the gene

sequence, Osterstock said.

This is primarily done by the Centers for Disease Control and Prevention, and a positive match will verify that the virus matches the human, swine and avian combination strain of concern.

"I want to emphasize that we need to understand when we call it H1N1 or influenza A, we're still talking about a lot of viral strains that make up those classifications," he said.

"We hear the use of the singular name, such as swine flu, obviously because it is easy, but it's not really the whole story."

While H1N1 is the most common of swine influenzas, Osterstock said, swine also have H1N2, H3N2 and H3N1 types. And humans have H1N1 influenzas.

Importantly, influenza viruses can be transmitted from humans to swine or from swine to humans, fostering scenarios where genes from different strains can mix.

"So when you see a strange new flu virus, it is possible somewhere it had a pig as a host, particularly if genes consistent with a pig strain are present," he said.

"The question of when this combination took place, however, would be a very difficult one to answer."

"It could have been four years ago or four days before the outbreak."

And it would not have likely

involved just one pig, one bird and one human, Osterstock said. It would have involved infections within and among populations of each of these species when the crossing or shifting of the genes took place.

"After it entered the human population, it could have changed several times before becoming the virus we observe today, able to be transferred between people with, apparently, some efficiency," he said.

"That's why it would be hard to ever track it back to an exact source."

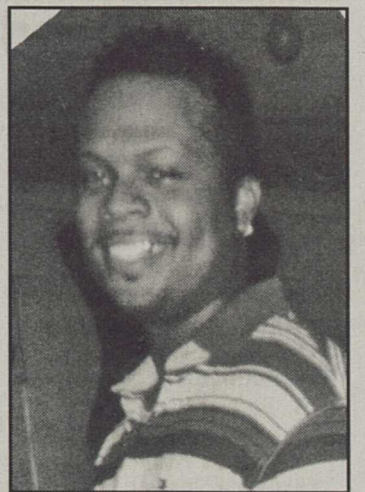
Osterstock said it was a perfect storm of situations: it had to have the right combinations of genes, cause sufficient disease and symptoms to spread, contact had to overlap - a lot of things had to fall in place for this situation to occur.

"Although there are some things we do know about this virus, such as the fact that you cannot get infected by eating pork or that symptoms and preventive measures are similar to seasonal flu, there is still a lot to learn," Osterstock said.

The flurry of research activity worldwide associated with this influenza strain will help to address important issues regarding whether it can infect swine or other animals, development of effective vaccines and details regarding its evolution, he said.

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Ferral Hogs Not Tied To Flu Says TPWD

The Texas Parks and Wildlife Department reminds hunters and trappers there is no indication of a human-animal disease

relationship with swine flu and to continue to use common sense when handling feral hogs.

While there is no known threat

of contracting swine flu from feral hogs, they do carry other potential hazards.

Due to the danger of contract-

ing swine brucellosis, the Texas Animal Health Commission urges hunters and trappers to always wear a mask or bandana and gloves when handling feral swine during processing.

Trappers or any producers who have pigs that are ill with respiratory infections should contact their veterinarians.

Trappers or hunters that become ill should seek medical attention and inform their doctors they have been around pigs.

Safeguards for Hunters

-Wear gloves when dressing out hogs and dispose of gloves properly.

-No eating/drinking/smoking while doing so.

-Wear eye protection if there is risk of eye splashed with blood/other fluids.

-Wear coveralls over clothes or promptly change into fresh clothes after dressing animals.

-Wash hands and equipment thoroughly with hot, soapy water.

-Practice good handling/storage procedures with the meat.

-Properly cook the meat.

April 27 Ag Summary Given

The Texas Field Office released the following report regarding Texas agriculture for the week of April 27 to May 3.

Agricultural Summary

The central and northern part of the state received up to 10 inches of rainfall, while the rest of the state received moderate amounts of moisture.

Wheat has improved in the High Plains due to the recent rainfall.

Producers were ready to harvest wheat and oats in South Texas.

Cotton field preparation continued in parts of the Plains.

Most of the cotton crop has emerged in the Edwards Plateau.

Corn was being planted in the Northern High Plains and has begun to tassel in South Texas.

Cabbage harvest continued this past week, while producers have begun to harvest green beans and potatoes.

Pecan trees bloomed in the Trans-Pecos.

Range and pasture conditions improved across the state due to the recent rainfall.

Topsoil moisture was mostly very short to adequate across the state.

Field Crops Report

Wheat has improved in the High Plains due to the recent rainfall.

Freeze and drought damage to the wheat crop across the state was becoming more evident as the crop matured.

Producers in the Cross Timbers were near completion of baling wheat hay before the recent rainfall. Producers were ready to harvest wheat and oats in South Texas.

Statewide, wheat condition was mostly very poor to poor, and oat condition was mostly very poor to poor.

In the High Plains, producers of cotton were waiting for an additional rainfall to continue planting. Recent rainfall in the Northern Low Plains has prompted producers to begin planting. Most of the crop had emerged in the Edwards Plateau due to improved soil moisture.

Corn was being planted in the Northern High Plains, but the recent rainfall had caused delays.

Warmer weather has improved growing conditions in the Blacklands.

Wind caused damage in the Edwards Plateau.

Corn has begun to tassel in South Texas.

Corn condition was mostly fair to good statewide.

Planted grain sorghum was progressing well in the Northern Low Plains.

Moisture was needed in the Coastal Bend for planting.

Sorghum was under stress in South Texas due to lack of moisture.

Sorghum condition was mostly very poor to fair statewide.

Rice condition was mostly fair to good statewide.

Soybean condition was mostly fair to good statewide.

Fruit, Vegetable and Specialty Crop Report

Pumpkin field preparation took place in the Northern High Plains.

Sunflower planting continued in the Southern High Plains.

Cabbage harvest continued this past week, while producers have begun to harvest green beans and potatoes.

Pecan trees suffered from the recent hail damage in the Blacklands.

Trees bloomed in the Trans-Pecos.

Nut case bearer traps were out in the Edwards Plateau and the Blacklands.

Livestock, Pasture and Range Report

Supplemental feeding of livestock continued in parts of the state.

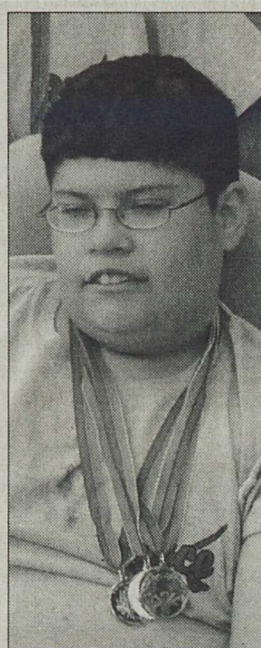
Spring calving also continued.

Most producers have completed spring branding in the Trans-Pecos.

Range and pasture conditions improved across the state due to the recent rainfall.

Range and pasture condition was mostly fair to good statewide.

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