

# Field

# REPORT

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## New Flu Strains Spark Outbreaks

### Vaccinated herds reporting SIV from new rH1N1

**O**utbreaks of swine influenza virus (SIV) continue to increase in vaccinated herds as the new variant strain known as reassortant H1N1 gains ground in U.S. swine herds, often appearing with its older cousin, classical H1N1, or the dreaded H3N2 strain.

“We began to suspect something new was at work when several vaccinated herds in our practice started showing signs of SIV in the finishers,” notes Dr. Mark Wagner, Fairmont Veterinary Clinic, Fairmont, Minn.

And apparently he’s not alone. According to Dr. Marie Gramer, Veterinary Diagnostic Laboratory, University of Minnesota, many herds vaccinated for SIV are documenting cases of flu outbreaks. “Their current vaccine didn’t necessarily fail, it just didn’t cover new strains circulating within the herd,” she explains.

### More severe symptoms

**N**ot only were these herds breaking with SIV, but the flu symptoms seemed to be more severe. “The pigs exhibited more lethargy and elevated fevers with a mild to moderate cough,” reports Wagner. “On post-mortem, we saw red, wet, heavy lungs with tremendous congestion. The pigs were literally suffocating.”

According to Wagner, they felt a new flu strain was at work when they encountered the more severe clinical presentations. From different finishing sites and owners, the

diagnostic results showed nine new reassortant H1N1 isolates (with internal avian components) and three H3N2 isolates.

“These new H1N1 isolates are the product of genetic reassortment, which occurs when a single cell is infected by two different influenza viruses,” explains Dr. Robyn Fleck, a technical services veterinarian at Schering-Plough Animal Health Corporation. “The result is a ‘progeny virus’ containing genetic material from both ‘parents.’ In other words, the outside of the reassortant H1N1 looks like a classical swine H1N1, but its internal genes are derived from human and avian viruses.”

Across southern Minnesota and Iowa, the majority of all newly diagnosed flu isolates have been reported as reassortant H1N1, or rH1N1, over the past year.

“I would say that Dr. Wagner’s ratio of rH1N1 to H3N2 is a representative ratio for SIV isolates in southern Minnesota at this time,” agrees Gramer. To identify multiple strains present in a herd, the lab must do genetic sequencing of the virus, in addition to performing serotyping. Many veterinarians opt to play it safe and now recommend using an SIV vaccine with broad protection against the different H1N1 and H3N2 strains.

Similar trends are being seen in Iowa and other major pork-producing states. “The SIV samples we’ve looked at from 2002 and 2003 nearly all appear to be the new rH1N1 rather than classic H1N1,” notes Dr. Bruce Janke, Veterinary Diagnostic Laboratory, Iowa State University.

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## Economic impact

**W**agner points out that in the past, swine operations experienced an average of 14 days with mild flu symptoms, including coughing and an average death loss of 1%.

“Herds hit with rH1N1 are seeing sicker pigs with mortality rates up to 3%,” he says. “We’re also urging more supportive measures to reduce symptoms and keep the pigs up and eating.”

“The rH1N1 strain has picked up a lot of power and persisted in southern Minnesota,” adds Gramer. “Any new isolate entering a herd presents more severe symptoms than previously seen, because the pigs lack immunity to the new strain. [The new] rH1N1 is no exception.”

## Steps toward SIV control

**A**ccording to Wagner, one of the most important steps in SIV control is identifying the strains circulating in individual herds. “We do a lot of surveillance and sequencing for our clients — not only for SIV but PRRS and *Haemophilus* as well,” he notes. “All the information is entered into a database by farm and geographic area, making it easier to see trends and disease development.”

One of the newest weapons in the fight against SIV is MaxiVac® Excell™ 3, offering protection against classical H1N1, reassortant H1N1 and the two major clusters of H3N2. In addition, the antigens used in the new vaccine have been shown to cross protect against H1N2, a less prevalent virus seen on some farms.

According to Fleck, the bottom line in optimum herd protection is using a vaccine with proven efficacy against circulating viruses.

“The vaccinated herds experiencing new SIV outbreaks related to rH1N1 will be changing their vaccination programs in order to achieve broader control of these emerging isolates,” acknowledges Wagner.

## Recognizing and Responding to rH1N1 Outbreaks

Most swine producers recognize swine flu outbreaks by persistent coughing in the barns. Symptoms travel quickly throughout the herd and last about 14 days with pigs off-feed and mortality rates of around 1%.

“The new SIV outbreaks we’re seeing are much more severe than what we’ve experienced in the past,” says Fairmont’s Dr. Mark Wagner. “Pigs are sicker and mortality rates are higher—often up to 3%.”

He thinks early intervention is more important with the more severe flu symptoms than it was in the past. “We need to address the fever and congestion associated with these flu outbreaks quickly and try to get those pigs perked up and back on feed.”

### CLINICAL SYMPTOMS

- Pigs showing increased levels of lethargy
- Elevated fevers of 103° F or higher
- Mild to moderate cough
- Increased cases of pneumonia

### POST-MORTEM

- Tremendous congestion
- Edema in lungs
- Red, wet, heavy lungs
- Pigs appear to suffocate

### INTERVENTION STRATEGIES

- Aspirin use
- Water-soluble electrolytes
- Water-soluble vitamins A, C and E
- Antibiotic use for bacterial lung infections
- Vaccination of susceptible pigs

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