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Swine influenza: Field experience in the US with the new strain

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Introduction

Beginning November 1998, sow herds in the practice area I work were swept by swine influenza of epidemic proportions. Duration of this lasted approximately two months and involved over 10,000 sows. Prior to this, a few subtle signs of swine influenza were evident in individual herds involving portions of sows, nursery, or finisher animals, but not of this severity. This case study will focus on sow herds.

Clinical picture

- Severe lethargy
- Fevers often over 104°F; some approaching 107°F
- Anorexia
- Labored breathing
- Nasal discharge
- Abortions
- Sporadic barking cough
- Sow mortalities

Temperature conditions during period

See **Table 1** for regional temperature data during November and December 1998.

Diagnoses

Preliminary

Clinical signs were suggestive of swine influenza, but this severe of a syndrome in adult sows had not previously been seen.

Table 1: Averages and ranges for high and low temperatures during swine influenza outbreak.

Month	Average High	Average Low	Range for High	Range for Low
November	45.6 F	29.6 F	72 F to 33 F	40 F to 17 F
December	35.5 F	16.6 F	67 F to 4 F	42 F to -9 F

Definitive

Nasal swabs and serum samples were taken from affected febrile sows. Tissues were also submitted from acute dead or sacrificed sows. See **Table 2** for the results of examinations. **Table 3** shows serology results for H1N1.

General background of SIV (H1N1 strain)

- Until recently the H1N1 strain has been the most important and most recognized strain in the United States.
- It is speculated this stability is due to constant supply of susceptible animals in the population.
- SIV was first described in 1918. Virus was isolated in 1930.
- This strain previously affected primary finisher animals during the fall and spring. Today it can affect all ages of pigs throughout the year.
- Strain tends to be low mortality, but can have high morbidity leading to significant economic losses in the herd.
- Clinical signs include deep chested barking cough, sneezing, labored breathing, anorexia, lethargy, fever, severe nasal discharge, conjunctivitis.
- Recovery can occur in seven to ten days pending the absence of secondary invaders.

Treatment strategies used on clinical affected herds with H3N2

- Many herds previously mass vaccinated with commercial SIV vaccine or a prefarrow vaccine
- Mass treatment with water antibiotics
- Individual treatment with injectable antibiotics and anti-inflammatory agents
- Re-booster sow herd with SIV vaccine
- Mass treatment with feed grade antibiotics

Afterwards: Retrospective outcome

- Overview of area and affected sow herds

Table 2: Pathology of acute dead or sacrificed sows.

Examination	Observations
Gross examination	• Lungs characterized as firm, red, wet, and heavy.
Histology	• Lung revealed acute pneumonia with alveoli flooded with edema fluid and perivascular and interstitial accumulation of lymphocytes. Focal accumulations of neutrophils and fibrin in some airways. • Lung revealed bronchiole epithelium is necrotic and lumens are filled with cell debris and neutrophils. Alveoli and interlobular spaces are dilated with edema fluid.
Bacteriology	• Either no bacteria isolated or <i>Pasteurella multocida</i> in some cases.
Virology	• Positive results from Directigen Flu A test on nasal swabs and lung tissue. • Virus isolated from lung tissue and nasal swabs: Strain A H3N2.
Serology	• Affected animals bled; see Table 3 for H1N1 values.

Table 3: Serology results for H1N1.

Herd #	Average titre	Range in titre
Herd 1	112	10 - 320
Herd 2	330	10 - 640
Herd 3	160	80 - 320
Herd 7	112	40 - 320

- Serology in herds today

I selected eight herds with confirmed clinical SIV and compared production in 1997 and 1998 during same time frame as the 1998 swine influenza outbreak.

Variable effects for entire herd during clinical outbreak

Depending on the farm, an increase or decrease was noted in the following:

- Percent repeat animals
- Percent stillborns
- Percent abortions

Variable effects for individual groups bred prior to and during clinical SIV

Again, depending on farm, an increase or decrease was noted in the following.

- Total born
- Low viability pigs
- Deformed piglets

Where to go from here

- Provide good acclimation
- Vaccines

References

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