

PDCoV Monitoring

- There were 0 breaks this week with 24 of 26 systems reporting.
- There were 0 additional retrospective herd breaks.

Seneca Virus A Case Report Part 3 of 3: Shedding Study

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Introduction:

This week we conclude our discussion of a recent Seneca Virus A (SVA) outbreak on a sow farm in Minnesota. Given the paucity of information regarding the shedding patterns of this virus in populations of sows, this provided an opportunity to increase our understanding of the virus. This study was funded by the Swine Health Information Center (SHIC) and the University of Minnesota Veterinary Diagnostic Laboratory (UMVDL).

Materials and methods:

- 3 most recently filled wean to finish barns identified
 - 10 serum, and ropes
- 34 individual sows in gestation were conveniently selected based on the presence of vesicular lesions on the snouts and feet
 - Mixed parity, various stages of gestation
- 30 piglets in farrowing from sows with vesicular lesions were conveniently selected and tagged
 - Comingled with 30 conveniently selected and tagged piglets from site 2 (non-affected sow farm) at weaning
- Samples included
 - Serum, tonsil/oropharyngeal swab, rectal swab, lesion swabs
 - Collected on day 0, 3, 7, 14, 21, 28, 42 and 63
 - Shipped next day to UMVDL for processing, storage and diagnostics (RT-PCR)

Results:

Sows

- Short viremic stage lasting about 7 days
 - 32% never viremic
- Virus present in laryngeal and rectal swabs up to 6 weeks post break
 - 2-5% never shed
- Lesion swabs negative after ~7 days
 - Average CT value = 12.4

Wean to Finish Barns

- Site filled the week prior to onset of clinical signs at sow farm tested positive
 - 9/10 serum and 1 rope PCR positive
 - No obvious clinical signs

Piglets

- Piglets born viremic, or infected soon after birth and negative by weaning
 - 23% never viremic
- Virus present in laryngeal and fecal swabs up to 6 weeks post wean
 - 2% never shed, or had only 1 positive sample
- Little evidence to suggest transmission to comingled piglets from site 2
 - No viremia, shedding, or clinical signs

Discussion:

Of particular concern is the realization that SVA positive weaned pigs were being weaned for at least one week prior to the onset of clinical signs at the sow farm, and with no obvious signs amongst the piglets. Additionally, preliminary antibody testing (data not shown) suggests that some sows had already developed an immune response, suggesting infection had already occurred some time ago.

The implication of this finding is the potential to have spread SVA, through weaned pig movements, without realization. Therefore, it is imperative that any future epidemiological investigations on sow farm outbreaks includes a thorough network analysis that includes all pig movements, to the level of the specific trailers and trucks used. This will help identify the potential magnitude of virus spread from the sow farm.

The vesicular lesions of sows have incredible amounts of virus; however, it is only present for a very short period of time. This is important, because the state/federal veterinarians that will conduct the Foreign Animal Disease (FAD) investigation are trained to primarily look for and collect vesicles and vesicular fluid. Ruptured vesicles, and dried skin tags are not quality diagnostic samples. When un-ruptured vesicles are not available for sampling, these data would suggest tonsil scrapings/swabs/oral fluids, or even rectal swabs should be collected and submitted for diagnostics.

There appeared to be little transmission of virus to piglets from the non-affected sow farm (site 2). This suggests, perhaps, the potential for some underlying immunity that prevented infection. Antibody tests are currently under development at several diagnostic laboratories, and may hopefully shed light on this observation.

Future studies:

- Discern the viability of the virus detected, especially in the later stages of the outbreak
 - Better inform veterinarians working on eliminating SVA from affected sow farms
- Identify the most efficient route of exposure in the field as it relates to elimination plans
- Sero-prevalence study to better understand the penetration of this virus into the US sow herd
 - Better inform state and federal planning for future FAD investigation needs

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