REPORT Q4 OCT-DECEMBER 2019 VETERINARY SURVEY PARTICIPATION: 54 VETERINARIANS (16 QUEBEC, 14 ONTARIO AND 24 WESTERN CANADA). REGIONAL NETWORKS ALSO CONTRIBUTE LABORATORY DATA.

Strep equi zooepidemicus – A Potential Emerging Disease Threat in North America

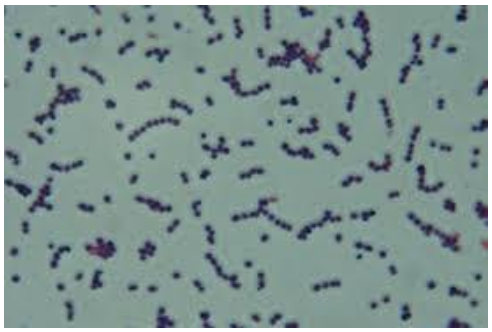


Photo: *Streptococcus equi zooepidemicus*
Source: www.vetbact.org

Case Update for Q4 2019

In Q4 of 2019, there was another breeding herd that was confirmed positive for this pathogen. This new case is connected to the previous cases, but how the pathogen was spread to this farm is unknown. Pigs produced from this farm will enter into the same system that was previously found to be *Strep zoo* positive, therefore no new sites will be infected with pig flow.

Take Home Messages

- If swine herds are experiencing sudden deaths, investigate to see if *Strep zoo* is the cause and rule out foreign animal diseases
- Hold pigs whenever possible until a diagnosis can be made. Do not ship pigs to other barns, assembly yards or processing plants
- *Strep zoo* has zoonotic potential like other more commonly isolated *Strep* e.g. *Strep suis*. **It is important to note that no transfer to humans has occurred to date**
- Communications with colleagues through the Swine Health Information Centre (SHIC) in the U.S. is ongoing to increase pathogen knowledge and comparisons with other strains
- Laboratory technologies allowing for whole genome sequencing has provided insight that this is a new isolate/clone of this pathogen never before detected in North America
- It is difficult to detect this pathogen on environmental samples, therefore more precedence needs to be put into test validation of different sample materials. For now it is recommended that early detection be based on detecting it in swine showing clinical signs
- Dr. Glen Duizer reported on a U.S. led research trial that was recently conducted in Iowa where sows were infected with either the swine (194) or equine strain of *Strep zoo*. This study revealed that the sows infected with the equine strain did not develop clinical signs of disease. The sows infected with the swine (194) strain all developed clinical signs of disease within 24 hours of infection. Within 48 hours 2 sows died and within 60 hours all sows had to be euthanized due to severe illness
- The above research trial did not evaluate if sows are able to recover and become carriers of the disease. Also it is unclear is the equine strain provided any immunity against the swine (194) strain.

Strep equi zooepidemicus: A Potential Emerging Threat in North America Continued…

Strep equi zooepidemicus (Strep zoo) has been identified as a potential emerging disease threat in North America. This bacterium is naturally present in the microbiome of the pig but one strain (clone) has recently been linked to cases of sudden death in pigs in Manitoba and the U.S. Midwest.

There appears to be differences in virulence between isolates of *Strep zoo* and preliminary sequencing results suggest that there is one isolate in North America that is linked to an increased number of sudden deaths. Whole genome sequencing has revealed that the recent isolate is identical to one found in China in 1976.

The first case was reported in March of 2019 on a farm in Manitoba. Since then *Strep zoo* has been confirmed at a provincial packing plant that had two incidents (3-5 days) of increased antemortem death/condemnations (5-10%) in sows, the first occurring in July and the second in October.

On farm, the affected age groups have primarily been late finisher/gilts and sows. In sows, the clinical signs included:

- Increased sow mortality (with lung pathology)
- Increased abortion rates
- Decreased 35-day pregnancy rate
- Decreased farrowing rates
- Enhancements to other diseases

Downstream effects include:

- Effects on piglets in farrowing rooms
- Nursery mortality increased by approx. 2-4% due to sudden death, lameness and respiratory disease
- Some batches from some of the positive finishers had a high processing plant condemn rates due to severe lung pathology at slaughter.

Control and prevention measures applied on farm to date

- Autogenous *Strep equi zooepidemicus* vaccination of the herd including all incoming gilts
- Intermittent mass treatments with water soluble antibiotics in gestation have been helpful to stabilize the animals when the disease starts to flare up
- All culls from the positive farms will continue to be marketed directly to slaughter – avoiding all assembly yards

Influenza A

OAHN (Ontario)

Influenza A has continued to be a common disease reported by vet practitioners in Ontario. OAHN reported that 64% of responding veterinarians saw an increase in Influenza A cases in Q4 over Q3. The dashboard completed by Dr. Tim

Pasma also supported this trend in that 2 separate signals in December were generated from samples that were being submitted to the Animal Health Lab with similar syndromes to what Influenza A generates. The most common subtype of Influenza A reported in Ontario in 2019 was H1N1 with 48% of isolates, H3N2 at 32% followed by H1N2 at 23**%. It is worthwhile noting that in Q4 only 2 cases of H1N2 were isolated. There were only 2 previous quarters where the numbers of H1N2 isolates were reported to be this low.** The plan will be to see if this trend continues into 2020. The Animal Health Lab (AHL) reported an even split of both pandemic and classical forms of H1N1 isolated.

RAIZO (Quebec)

Similar Influenza trends were reported in Quebec matching with the Ontario update. In Quebec 69% of responding practitioners to the vet clinical impression survey reported seeing an increase in Influenza A activity. Influenza A is one of the biggest swine health issues in Quebec. The majority of isolates detected were classical H1N1 and H3N2. **There was only 1 positive isolate of pandemic H1N1 in Q4, compared to 24 positive isolates of classical H1N1.** Dr. Egan Brockhoff reported that Health Canada made the statement that pandemic H1N1 Influenza has been detected in humans all across Canada. It is interesting that these trends are differing in swine. Dr. Susan Detmer reported that pandemic H1N1 is being detected in Ontario and Quebec, but it is harder to isolate than classical H1N1 strains.

There were only 4 positive lab submissions of H1N2. This type of Influenza is not being detected commonly in Quebec anymore.

CWSHIN (Western Provinces)

Dr. Jette Christensen reported that CWSHIN has completely revamped their clinical impression survey and can now compare different syndromes. Respiratory syndromes were the second most common reported by veterinarians. All data sources showed signals for respiratory syndromes. There was an increase in both lab submissions and positive lab cases.

Dr. Susan Detmer reported 8 isolates were detected of pandemic H1N1 in Q4 in the western provinces**. The most dominant Influenza strain in Q4 was H3N2 in the west**. Her lab still does find a mixture of all subtypes though.

Salmonellosis

RAIZO (Quebec)

RAIZO provided a review of a human *Salmonella* Litchfield outbreak that occurred in Ontario and Québec in 2019 and was directly related to consuming ground pork and sausages from Ontario and Quebec. Whole genome sequencing revealed that the human isolates were identical to swine strains isolated from farms in 2018. **Even if the positive farms were not involved in the 2019 human outbreak, this case serves as a reminder of the importance of controlling Salmonella strains that can be zoonotic on swine farms.**

A veterinarian in Quebec reported many cases of Salmonella in different swine operations. All occurred after a long use (3-4 weeks) of antibiotics in the family of macrolides in the feed during the weaning period. The thought was that the antibiotic treatment caused a change in the microbiota in the gastrointestinal tract. Salmonella was no longer isolated when the pigs were transferred to the finishing barn and stopped the use of that antibiotic. **This case serves as a reminder of the importance of choosing antibiotic treatment durations whenever possible and following up on cases.**

Two veterinarians in Quebec reported cases of *Salmonella* Typhimurium monophasic in Q4. These cases are often multi-resistant to antibiotics and can be zoonotic. Dr. Martine Denicourt reported that both cases of the first veterinarian were in finishing pigs and the infected pigs were showing clinical signs of brown diarrhea and poor performance in the beginning of the growing phase. The first group came from Ontario and were vaccinated at entry and had no antibiotics in the feed. The second group came from a new barn in Quebec and had no antibiotics in the feed. Both barns were thoroughly cleaned and disinfected at the end of the batch and the first veterinarian used flavomycin in the feed for the next 3 batches of pigs.

Sapelovirus *First detection in Ontario*

OAHN (Ontario)

Dr. George Charbonneau reported that Ontario confirmed its first detection of Sapelovirus with 2 cases being reported in Q4 of 2019. Two veterinarians were involved in these 2 cases and this pathogen was listed as an emerging threat on the OAHN Q4 veterinary clinical impression survey. Both cases occurred in nursery pigs and were associated with a low morbidity and mortality rate of 10%. Both nurseries were also reported to be PRRS positive. The clinical signs seen could easily be confused with meningitis and *Strep suis*. In both cases pigs clinically appeared to be upright and walking on their elbows which is a classic presentation of this virus. One of these cases was also positive for Teschovirus and triggered a CFIA investigation that yielded no foreign animal diseases being detected.

The Swine Health Information Center (SHIC) reported that there were 60 confirmed cases of Sapelovirus reported in the USA since the year 2016.

RAIZO (Quebec)

Dr. Claudia Gagné-Fortin reported that Quebec has confirmed cases of Sapelovirus before. At the last AVIA meeting a swine practitioner reported several related cases of this virus where pigs were seen to be walking on their elbows.

CWSHIN (Western Provinces)

Dr. Susan Detmer reported that she has detected a case of this virus in the western provinces as well. This specific case was Teschovirus negative, but Sapelovirus positive.

Porcine Epidemic Diarrhea Virus (PEDV) & Porcine Deltacoronavirus (PDCoV)

CWSHIN (Western Provinces)

Dr. Glen Duizer reported on a study that was completed in Manitoba studying PED virus survivability in manure lagoons. Three PED positive farms including a sow, nursery and finishing operation, participated in this study that started in 2017 and ran until 2019. All lagoons were agitated and emptied on these farms after PED negative status was confirmed. Minimum weak positive PCR tests were obtained for PED, however none of the piglets reintroduced to these barns became positive for PED. Manitoba used nutrient management protocols to sample lagoons for this study with the goal of obtaining a representative sample leading to improved accuracy of results. This study concluded that you need to

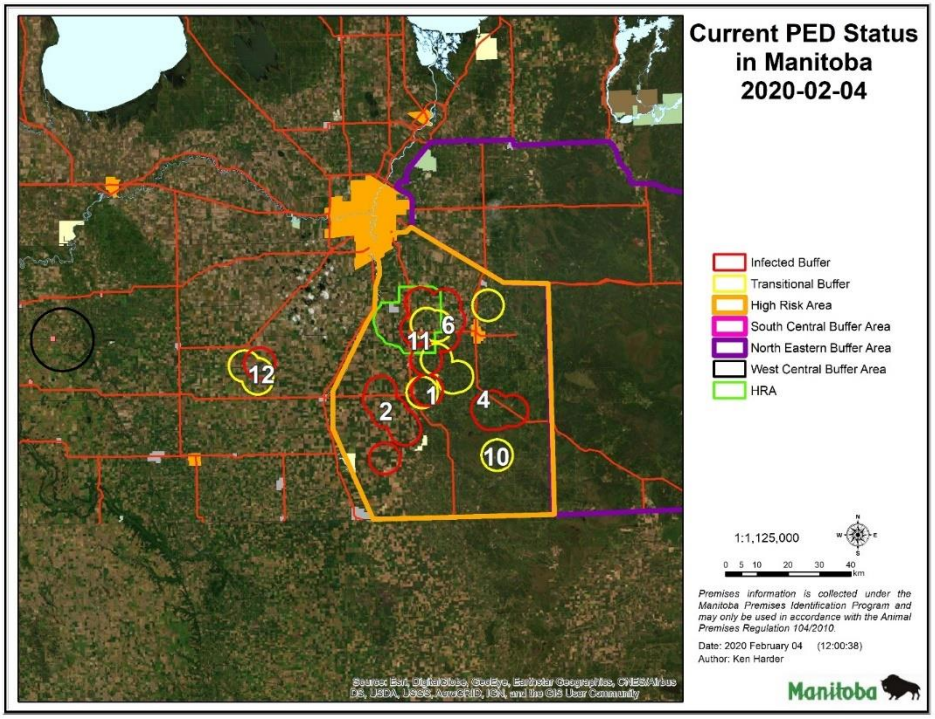
wait a minimum of a year after PED negative status has been confirmed, with seasonal application of manure and associated agitation, for lagoons to not be considered a possible virus source.

Dr. Jette Christensen reported that all 4 farms in Alberta have confirmed negative PED status. CSHIN would like to congratulate Alberta on their successes with eliminating PED!

A weak positive PED test result was obtained from a processing dock in western Canada. This surveillance sample through traceback led back to a finishing farm in Ontario. These pigs, unknowingly, had recently been infected with PED virus. The clinical signs of PED were extremely hard to detect. **It is important to note that PED in finishing pigs can be difficult to detect due to mild clinical signs.** This traceback also led to important information that CSHIN would like to communicate. **All points of assembly need to be considered PED positive until proven otherwise and should be considered high risk sites. Enhanced biosecurity measures need to be taken with transport exposure to any high-risk site to prevent possible spread of disease. It was noted in this discussion that there would be value in working on how pigs flow through assembly sites with the goal to decrease the risk of disease transmission.**

No new cases of PED have been detected in Manitoba since November of 2019. At the time of the MB government Situation Report 41 (with 5 Feb 2020 updates) there is 82 premises that have been confirmed positive for PED in Manitoba:

- 28 premises are still considered infected
- 8 have achieved transitional status
- 46 have achieved presumptive negative status



Adjacent Pic Source: MB Situation Report #41

RAIZO (Quebec)

RAIZO reported their first case of PDCoV in a farrowing operation in Quebec. This herd was batch-farrowing every 4 weeks. The first clinical sign was diarrhea in the sows at a time when there were no piglets in the farm (between two batches). There was a delay in the producer notifying the veterinarian in this case. The diarrhea appeared in the piglets born in the next batch and there was a 60% mortality rate on those animals associated with this outbreak. The piglets that were able to recover did extremely well. Overall, the herd returned to normal rapidly. All piglets were sold outside of Quebec, so no further sites were contaminated with PDCoV. The next batch of pigs has been born and no clinical signs of disease has been seen. **Take home message is for producers to report diarrhea in sows to their herd veterinarian right away. Diagnostic testing must be completed to rule out PDCoV and PED.**

RAIZO also provided an update that they maintained their PED negative status during Q4 2019.

OAHN (Ontario)

OAHN reported one new PED positive site and no new PDCoV sites in Q4. It is important to note that Ontario Pork reported 7 new PED positive sites thus far in Q1. **The same number of PED positive sites were seen corresponding to this time period in Q1 of 2019. Several of these sites are connected through transport contact with an assembly site and with the use of a common truck wash station.** Tracebacks have been completed for each of these new sites.

Dr. Christa Arsenault recapped that as of March 31, 2020 the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) will no longer be involved in new Ontario PED site traceback investigations. Since the initial detection of PED in Ontario we now know a lot about this pathogen including; virus characteristics, vectors of disease transmission, how to prevent infection and how to eliminate this virus from swine herds. Swine veterinarians have been leading PED traceback investigations in Ontario and are providing the above information to their clients. The Ontario swine industry is well positioned to lead this file moving forward. OMAFRA is working with both Ontario Pork and Swine Health Ontario to complete a transition strategy. Once this strategy is completed communications will be sent out to Ontario swine veterinarians and producers.

Tracheitis

RAIZO (Quebec)

Twenty-five percent of responding veterinarians to the clinical impression survey reported an increase in tracheitis during Q4. Quebec was wondering if other regions also saw an increase in tracheitis?

Ontario reported that 6/98 pathology cases seen at the Animal Health Laboratory (AHL) in Q4 were found to have tracheitis. Two of these cases were associated with Influenza A, two with a bacterial etiology and two were classified as idiopathic. Forty-five percent of responding veterinarians reported never seeing tracheitis and 55% reported seeing it rarely.

Dr. Susan Detmer from CWSHIN also reported that they see cases of tracheitis in the western provinces too.

Coronavirus in Humans

The CSHIN network discussed Coronavirus in humans and would like to communicate the following:

- There is a lot of news on this topic that is circulating that is inaccurate information. Veterinarians have an important role in directing people towards reputable information sources
- Referral should be made to the World Health Organization (WHO) and the Public Health Agency of Canada (PHAC) as a reputable sources of information: https://www.who.int/emergencies/diseases/novel-coronavirus-2019, https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html
- **To date there is no evidence that pigs are susceptible to this coronavirus.**

CSHIN Manager Note

Dr. Christa Arsenault CSHIN manager wanted to provide an update on a few events that CSHIN and its associated regional networks have or will be participating in the near future.

- The regional networks were asked to send representation to contribute to the CFIA led working group on African Swine Fever (ASF) surveillance
- The goal of this working group was to document current surveillance initiatives and to further identify how they could be enhanced to detect ASF more rapidly if it was to come to Canada.

The working group is now focused on the technical aspects of implementing such a surveillance plan in order to encourage veterinary and swine producer compliance. Once available more information will be shared on this topic through future CSHIN reports.

The Canadian Pork Council and the Canadian Association of Swine Veterinarians-Association Canadienne de Vétérinaires Porcins (CASV-ACVP) jointly support the reporting activities of the Canadian Swine Health Intelligence Network. If you are a Canadian veterinarian and not a member of CASV-ACVP consider joining. Membership includes those in private practice, industry, academia, government, and students. Contact the CASV-ACVP office for further membership details. – susan.tfio@bell.net or 519-669-3350.

This information is a professional communication for swine veterinarians. The information was obtained from a survey of the clinical impressions of participating practising veterinarians with input from other swine health professionals. This information is not validated and may not reflect the entire clinical situation. Your professional judgment is required in the interpretation and use of it. It is the intent of CSHIN to improve the health of the national swine herd. CSHIN is funded jointly by the Canadian Association of Swine Veterinarians (CASV) and Canadian Pork Council (CPC).

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