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Ontario

Eliminating porcine epidemic diarrhea virus from persistently infected farms

Tim Blackwell, Veterinary Science & Policy Unit, OMAFRA, Elora, ON

Porcine epidemic diarrhea (PED) virus infected the first Ontario swine herd in January 2014 and spread slowly through the province over the next several months. Fortunately there has not been a report of a new herd infection in Ontario since mid-July. A number of herds initially infected have recently tested negative on repeated sampling and have been free of clinical signs for several months.

In herds that appear to have eliminated the virus, a variety of cleaning, disinfection, management and biosecurity strategies have been employed. It is difficult to identify one protocol that was clearly more effective than another with the exception of complete depopulation and repopulation of the herd with PED-free animals. Some herds appear to have eliminated the virus by using whole herd exposure to PED virus combined with routine cleaning and disinfection procedures. These herds likely "benefited" from the loss of several weeks of pig production. The loss of up to four to six weeks of pig production, as a result of near 100% pre-weaning mortality, meant there was additional time for cleaning, disinfecting and drying pens and rooms prior to moving in new pigs. This additional down-time allowed for residual virus that may have been left after cleaning and disinfecting to decay on its own. Piglets born to sows that had recently recovered from PED infection acquired optimal immunity in the milk, further depressing virus load on the farm. The new pigs moved into clean, dry, and most often virus-free, nurseries, and after six to seven weeks moved into clean, dry finishing pens in a finishing barn. The finishing barn was now 10 to 12 weeks post-exposure and therefore less likely to contain large concentrations of virulent virus. This combination of high immunity in suckling pigs and low to non-existent PED virus in the rooms these pigs subsequently moved into appears to have been adequate for virus elimination on some farrow to finish operations.

Other operations continue to have PED virus isolated from their pigs and premises. The reason for these persistent herd infections is not clear. They appear to be more frequent among farrow to finish operations. Infection may persist on farrow to finish farms because all-in/all-out pig flow by room or building is not standard practice nor always easy to achieve. Continuous flow decreases the chances of eliminating virus from a pen or room prior to adding naïve pigs. On these units it is common practice for stock people to work in multiple areas thus increasing the chances of

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moving virus from an infected to an uninfected area on the farm.

There are two basic components to any successful eradication program. Theoretically only one component is necessary to successfully eradicate virus, however farms should strive to employ both components to increase their chances of success. A basic understanding of PED virus ecology is useful and is represented diagrammatically below.

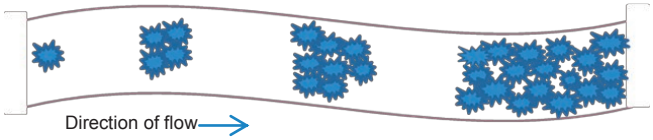

Figure 1. PED virus infects a naïve (fully susceptible) pig. Within hours to days of ingesting the virus, the virus multiplies in, and destroys, the cells lining the intestinal tract while creating billions of virus particles per mL of feces. Without a functional intestinal lining most infected suckling pigs die from dehydration and starvation. Older pigs (greater than 3 weeks of age) have more reserves and often survive long enough to rebuild their intestines.

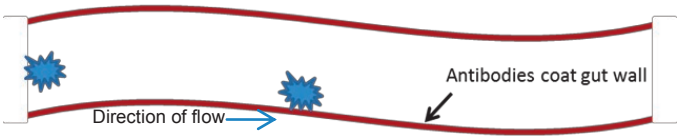

Figure 2. Two to four weeks after pregnant sows are exposed to PED virus, the sows produce antibodies in their milk which fully protect suckling pigs from infection and thereby prevent virus multiplication.

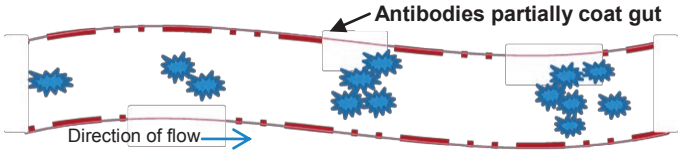

Figure 3. Two to four months after sows are initially infected with PED virus the concentration of PED antibodies in the milk may decline. As a result, the piglet's intestinal tract is no longer fully protected from PED virus. In this scenario, partial infection and replication of virus can occur if piglets contact the virus during the nursing period. Mortality and virus replication in this scenario is normally less than what occurred in the initial outbreak.

The three diagrams depict the progression of PED infection from the acute to chronic stages on a farm. Figure 1 depicts the initial infection in fully susceptible animals with massive amounts of virus produced. Figure 2 shows how the immunity which develops in recovered animals protects from further infection and viral replication, leading to a decrease in virus concentration on the farm. Suckling piglets are dependent on the sow to provide them with this immunity through the milk. Figure 3 demonstrates how the concentration of antibodies in the sow's milk declines several months after an outbreak and no longer provides full protection against infection and virus replication.

Figure 3 depicts one method by which farrow to finish farms become chronically infected with PED virus, i.e. suckling pigs several months post-outbreak are exposed to PED virus while only partially protected by the sows' milk antibodies. There are two ways to prevent this type of cycling infection. One approach is to focus on cleaning, disinfection and biosecurity. If the sow's milk antibodies are no longer fully protective, then it is absolutely critical that PED virus is kept out of all farrowing rooms. This means crates are cleaned and disinfected and sows are washed prior to entering the farrowing room. It is recommended that crates be tested for PED virus after cleaning and disinfecting to ensure that these procedures have successfully eliminated virus. All barn workers subsequently entering the room must ensure they are not carrying PED into this highly susceptible population. The second approach involves boosting the antibody level in the milk of sows. There is inadequate data at this time to demonstrate how best to accomplish this although some farms have reported positive effects from the use of commercial vaccines in late pregnancy.

Once a farm is consistently controlling PED virus in the farrowing rooms, similar approaches to virus control should be directed at the nursery and grower areas on the farm. PED-free pigs at weaning must be placed into PED-free environments and moved from there to PED-free grow-finish rooms. To achieve this some farms may need to make a second break in production similar to what occurred at the time of the outbreak, i.e. a four to five week break, to allow for thorough cleaning, disinfecting and drying of the nursery, and subsequently, finishing pens. This may

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be done by creating a break in breeding, by selling weaned pigs, or by renting an offsite facility where one can move four to five weeks of production. In the weeks following an outbreak, herd immunity against PED virus is at its peak and greatly assists producer efforts to control infections. Several months post-outbreak, immunity (particularly that provided by the sows in their milk) declines and producers lose this advantage in controlling infection. Consequently they must concentrate more diligently on avoiding re-introduction of virus to susceptible animals by means of strict internal biosecurity and an emphasis on appropriate cleaning and disinfecting procedures.

At this time PED is being eliminated from infected herds much faster than infections are occurring in new herds. If this continues the prevalence of PED in Ontario will decrease dramatically, hopefully to zero. With every successful eradication, the risk of transmission to new farms declines. Swine producers and their veterinarians should be congratulated on all the successful eradications achieved to date.

Sudden death in a finishing hog, don't forget to look at the heart

Tony van Dreumel, Veterinary Pathology Consultant, Guelph
Kathy Zurbrigg, Veterinary Science & Policy Unit, OMAFRA, Elora, ON

Cardiac pathology in commercial pigs is likely more common than previously thought. Whether congenital or acquired, cardiac pathology may lead to heart failure in pigs and sows and should be considered when investigating sudden deaths. As part of a research investigation of hogs that die during transit to the abattoir, the heart from a late stage finishing hog which had died suddenly on the farm was collected. The heart was placed in 10% formalin grossly and selected sections were examined histologically. The goal was to compare any cardiac pathology observed in on-farm mortalities to those observed in hogs that die in transit. A full post-mortem of the carcass was not completed.

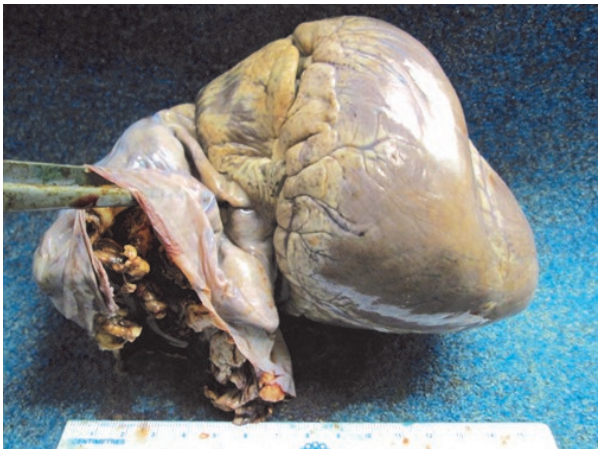

Figure 1. Intact heart with aneurysm of the pulmonary artery from a finishing pig

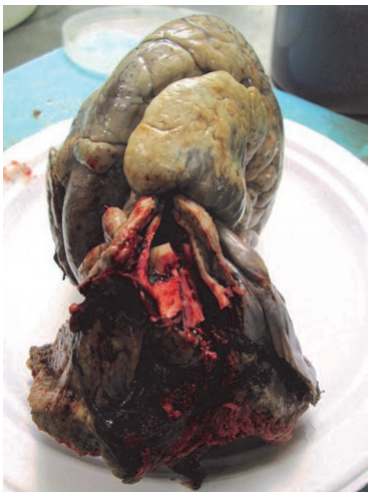

Figure 2. Aneurysm has been opened to determine the origin of pulmonary artery.

On gross examination the heart had a large (8cm) aneurysm of the pulmonary artery that appeared to be ruptured (Figure 1). The aneurysm contained a large amount of fibrin. There was hemorrhage at the rupture site and in the surrounding connective tissue. The heart was slightly globose with dilation of the aorta and marked dilation of the right ventricle. There was moderate thickening of both ventricles and the interventricular septum. The heart to body weight ratio, gross and microscopic lesions were compatible with hypertrophic cardiomyopathy.

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Pulmonary arterial aneuryms are rare in humans and livestock. No published articles were found describing this condition in swine. Suggested causes are acquired (trauma, infection) or congenital and commonly result increate pulmonary arterial hypertension. As a full post-mortem was not completed, it was not possible to determine the etiology in this case.

Strangles: diagnostic testing for outbreak control

Alison Moore, Veterinary Science & Policy Unit, OMAFRA, Guelph, ON

Detecting *Streptococcus equi subsp. equi* in horses can be an obstacle to controlling Strangles. Culture with biochemical identification is no longer considered the gold standard for confirming the presence of *S. equi*. It does, however, remain a useful supportive test and confirms active infection. The Polymerase Chain Reaction (PCR) test has become the test of choice for outbreak control. PCR performed on nasopharyngeal lavage (NPL) is considered the best method to detect *S. equi*. In a recent paper by Lindahl et al, culture of NPL samples detected S. equi only 39% of the time, whereas PCR performed on NPL positively detected *S. equi* 84% of the time. A combination of PCR on both NPL and a nasal swab performed concurrently yielded *S. equi* 91% of the time.

When to use a culture:

Samples obtained from a draining abscess, aspirate of a developing abscess and/or from thick nasal discharge are suitable samples for culture. PCR on an NPL performed at the same time will increase the likelihood of isolating *S. equi*. Cultures may be negative early in a disease outbreak when bacterial shedding is low or when other bacteria such as *Streptococcus zooepidemicus* and *Streptococcus dysgalactiae* subsp. *equisimilis* are present.

When to use PCR testing on NPLs:

PCR testing on NPL's is useful to identify exposed horses, those early in the disease process, those with an atypical clinical presentation, and to identify a carrier with subclinical guttural pouch infection. NPL PCR can also be used to screen new horse additions to a stable and to identify a horse as uninfected for transport. A PCR performed on either NPL or nasal lavage (NL), and on a nasal swab at the same time, increases the likelihood of *S. equi* detection. Potential causes of false negatives include polymerase inhibitors found within a mucoid sample or produced by large numbers of *S. equi* bacteria. NPL is considered a better method for obtaining a sample than nasopharyngeal swabs for detection of *S. equi* because it samples a greater surface area within the nasopharyngeal cavity.

A horse with clinical signs due to *S. equi* infection should be retested no sooner than 30 days after the clinical signs have subsided (e.g. healing of the abscess has occurred) to determine if shedding of *S. equi* is likely. PCR testing of a sample obtained by NPL/NL performed three times at one week intervals is the preferred protocol. If samples continue to test positive, guttural pouch endoscopy with lavage and PCR testing should be performed to identify carriers. If the guttural pouches appear normal and the horse continues to test positive, the sinuses should be the suspected site of infection.

A horse without clinical signs but which is PCR positive on either lavage sample should be retested twice more at weekly intervals. Again, if samples remain positive, the guttural pouches should be assessed for *S. equi* presence.

Horses that have been vaccinated with the modified live intranasal *Strep. equi* vaccine cannot be assessed by PCR on lavage fluid for at least 30 days following vaccination as false positive tests are likely to occur.

When to use serology:

The serologic test is an ELISA-based test that detects antibodies to the SeM protein of *Streptococcus equi* subsp. *equi*. It does not distinguish between vaccination and infection response. Post-exposure or after vaccination, serum titers peak in about five weeks and remain high for at least six months. Given the length of time required for peak titre, serology is of limited value in managing an outbreak situation. It can assist in determining whether a horse is a hyper-

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responder (titres >1:1600) and at risk of purpura hemorrhagica post-vaccination. It may also be useful for diagnosing active purpura hemorrhagica and internal abscessation due to *Strep equi* (titres >1:6400).

How to perform a nasopharyngeal lavage (NPL):

Supplies required:

- Saline or lactated ringers solution (LRS) warmed to body temperature (particularly important in the winter)
- Tubing of small diameter, long enough to pass up the nose to the level of the nasopharynx or medial canthus of the eye (see below). Nasolacrimal tubing, tracheal aspirate tubing, male dog urinary catheters, and small animal/foal enteral feeding tubes are examples of commonly used tubing.
- 30 or 60 ml syringe
- Clean container, such as a Dixie cup, Styrofoam cup or similar, for catching the fluid. If a sterile urinary cup is used then transferring it to a red top tube will be unnecessary.
- Red top tube
- Disposable gloves
- Disinfectant e.g accelerated hydrogen peroxide

NPL technique:

1. Veterinarians and technicians/assistants should wear disposable gloves.
2. Have an assistant restrain the horse. For a sensible horse, a halter and lead rope will suffice. A hand twitch or rope/chain twitch can be used on those mildly resentful. Sedation is reserved for the belligerent. The larger the tubing, the greater the resentment.
3. Advance the tubing intra-nasally and along the ventral meatus to the nasopharyngeal region.
4. Attach the syringe and slowly infuse 30 to 50 ml of warm saline or LRS.
5. Catch the fluid as it exits both nostrils.
6. Transfer the fluid to a red top tube for lab shipment. If the fluid is caught in a sterile urinary cup then submit the capped urinary cup.
7. Remove gloves and discard tubing. Disinfect twitch if used.

Nasal Lavage (NL):

If catching the fluid from both nostrils is challenging, or if the tube placement is such that the horse continuously swallows the fluid, NL can be performed instead of NPL. The procedure is the same as above except:

3. Advance the tubing along the ventral meatus to the level of the medial canthus of the eye.
4. Attach the syringe and slowly infuse 15 to 30 ml of warm saline or LRS
5. Catch the fluid as it exits the nostril
6. Repeat the process up the other nostril

Veterinary letters accompanying animals to abattoirs for slaughter

Alexandra Reid, Veterinary Inspection & Audit, Food Inspection Branch, OMAFRA, Guelph, ON

Veterinarians occasionally write letters to accompany their client's animals to the abattoir. These letters usually explain either a recent illness or injury and the suitability of the animal for slaughter despite abnormality. While we understand the purpose of these letters is to facilitate your client's needs, the inspectors at a plant cannot make dispositions about abnormal animals on their own. The inspector generally refers these letters to a veterinarian employed by OMAFRA.

There are a few points that can make these letters extremely useful in evaluating the suitability of animals for slaughter.

First, it is important to recognize that a letter from a veterinarian, no matter how well intentioned, cannot exempt an animal from either the Health of Animals Act regarding transportation of compromised animals or OMAFRA's policies on injured or compromised animals at abattoirs. This includes letters written by Food Safety and Quality Act appointed veterinarians. Animals should not be shipped to slaughter unless they can bear weight fairly well on all limbs. Casts should be removed as they may act as a fulcrum for another fracture. Animals with severe illnesses or other weakened states may become worse with transportation and are not generally suitable candidates for slaughter. For individual cases with a non-painful but non-weight bearing lameness, or other compromised animals you feel may be acceptable for slaughter but questionable for transport, you should contact the local CFIA veterinarian about suitability for transport to slaughter. If permission is granted by CFIA veterinarians for transport with special provisions then contact the closest provincial abattoir to ensure slaughter can be carried out in a timely manner. A current listing of the regulations for this Act can be found at http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._296/

Drugs used in food animals should conform to the standards set in Health Canada's Veterinary Drug Directorate. While therapeutic drug use is appropriate and justified in food animals with infectious or painful conditions, off-label usage without suitable withholding times is not allowed in animals intended for human consumption. Many drugs given outside of the scope of infectious disease treatment (such as epidurals, sedatives, etc.) have residue limits and withdrawal periods are important for these drugs. If a drug does not have a stated withdrawal period, it means any residue detected is violative. It does not mean that there is no withdrawal period for that medication. Many times, letters from herd veterinarians simply state "drug x was given." If a letter accompanies an animal to slaughter, please state the drug name (brand and generic name), dosage, route of administration and duration of treatment, along with withdrawal period followed. This helps us interpret if the animal is fit for slaughter and human consumption or if more time should be allowed before slaughter. More information about the Veterinary Drug Directorate can be found at http://www.hc-sc.gc.ca/dhp-mps/vet/index-eng.php

OMAFRA offers several programs to assist producers getting ill or injured animals to slaughter humanely and efficiently. One such program is the emergency slaughter program, designed for all injured, escaped or dangerous food animals. In this case, suitable animals are eligible to be stunned and bled on farm and then transported to a nearby abattoir with veterinary oversight. This removes concerns about pain and suffering during transport and avoids the need for pain control, particularly in animals that are injured near the end of their production cycle.

It is important to recognise that the suitability of a live animal for slaughter following ante mortem inspection is different from approving the carcass for food. There is no way any veterinarian can assess a live animal and be assured that there is no pathology on post mortem inspection that may result in condemnation. Your client must have clear understanding that an animal that passes ante mortem inspection simply means that the animal is suitable to move to post mortem inspection. Suitability of the carcass for food is determined upon completion of post

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mortem inspection. A small percentage of animals will fail to pass post mortem inspection, and in a compromised animal the risk may be slightly greater.

If you have questions or concerns about whether a client's animal is suitable for slaughter, please don't hesitate to contact OMAFRA veterinarians. Centrally, you can contact the Veterinary Scientist, Dr. Alexandra Reid, by paging by name at 1-866-395-8957 or by email at alexandra.reid@ontario.ca. A provincial abattoir may refer you to their Regional Veterinarian.

Monitoring udder health in robotic and conventionally milked herds

Ann Godkin, Veterinary Science and Policy, OMAFRA, Elora, ON

Robotic milking adds greater precision to dairy cow management. Not only does it add precision to what we do, it adds precision to how we think, including how we think about mastitis.

Assessing bacterial invasion of the udder by testing for inflammation in the milk has been done for over 30 years by performing Somatic Cell Counts (SCCs) in cow milk samples. Newer technologies have arrived with robots but they do not replace the information we get from established SCC programs. The new technologies do highlight the need to know what questions we want to answer with our mastitis tests.

Although producers would like to have one test that answers all their mastitis questions that is unlikely to happen. Not all mastitis is the same, nor are the problems with mastitis the same from farm to farm. As we hone our approaches to deal with a variety of mastitis issues, the tests we need are those that:

- Detect clinical mastitis so that proper intervention can occur for affected cows and so abnormal milk is kept out of the bulk tank.
- Detect cows with high SCCs so that their milk can be diverted from the bulk tank, so milk sold will have low SCCs.
- Identify patterns of mastitis so that we can take preventive action and be able to tell if it worked.
- Clinical Mastitis (CM) is visible mastitis meaning changes in the milk or the cow occur. Regulation requires that abnormal milk not be sold for human consumption. Two systems can detect CM. Traditionally, CM has been diagnosed through observation of the cows and their milk at milking time. With robotically milked herds, people are not involved at milking time – these systems must incorporate CM detection technology such as electrical conductivity , colour change or metabolic changes (eg LDH analyser) to replace the observation of the stock people. These technologies have not been completely satisfactory. Comparisons of electrical conductivity systems (algorithms are used to combine test results and cow history) to standard tests for CM shows that the test sensitivity ranges from 50 to 90%. Unfortunately the trade-off for tests with a higher detection rate is a higher false positive rate, sometimes up to 50% of signals. The high false positive rate is a frustration on many farms, especially if the farm has mostly mild mastitis cases that rarely require therapy. However detecting CM is important. Either people must do this or successful automated systems must be developed. Whether detected by people or by inline systems, cases found need to be recorded so patterns of CM can be determined. Currently on many farms, while detection of CM may occur, recording of cases or storing of results is inadequate, greatly limiting the decision-making value of this data.

Subclinical Mastitis (SCM), where inflammation is present but there are no visible changes in milk or the cow, is far more economically important on most farms than clinical mastitis. SCM causes significant reductions in milk production without a producer's knowledge and thus prevention of future cases does not occur. As cases accumulate the bulk

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tank milk SCC rises and the quality of the milk sold is reduced. Since there is no visible warning to trigger sampling for testing, detection of SCM requires routine SCC testing, as provided by a monthly Dairy Herd Iimprovement (DHI) program. While it may be possible for detection systems in robots to detect some SCM cases there is little evidence of this currently – to date most research has focused on its value in screening for CM. Typically, if a mastitis alert is given by an inline system most producers evaluate the cow for CM by checking for visible changes in the milk or cow. Finding none in a SCM, the alert is often considered a false positive and ignored. As a result an unacceptably high accumulation of cows with SCM has occurred on some robotically milked farms. Appropriate testing for SCM is currently lacking in robotically milked herds not enrolled in DHI SCC testing. For most if not all of these herds, monitoring and responding to SCM should be a high priority.

Monthly SCC testing has proven to be a cost-effective way of screening for SCM. Cows with CM have high SCCs but because the DHI testing occurs at monthly intervals not all cows with CM will be detected. Detecting CM is not the objective of the DHI SCC system. The DHI SCC testing monitors SCM, those cases where cows have high SCCs that last from weeks to months but show no visible signs.

What adds value to the DHI SCC system is the ability to track udder health over time – the ability to see the herd's mastitis prevalence this month compared to last month, last season, or even last year at the same time. Collating and summarizing the data over time to evaluate cows grouped by lactation stages, age or by other risk factors in the herd is where the value lies. When changes are made to management, milking procedures or to housing to improve udder health, it's the cow SCC results summarized at the herd level that show whether or not success has occurred.

Cow side tests to detect CM can't replace DHI monthly SCC as an ongoing monitor of SCM and herd udder health. Recognition of the difference in information that the two systems provide is important to producers, herd advisors and the milking equipment industry. When seeking to reduce bulk milk SCCs, evaluating the herd SCC history to identify problem areas is the first step towards timely and cost-effective intervention.

With greater knowledge we can fine-tune our mastitis questions and our detection systems. For robotically milked herds, to detect CM, continuous (daily) cow-side testing is a good practice. For conventionally milked herds, examination of the cow and milk at every milking works well. For both kinds of herds, recording of CM data is important for proper treatment and prevention decisions. For detecting SCM, routine testing of all cows using the only validated system we have, the monthly DHI SCC testing, is essential for both robotic and conventionally milked herds. All farms need both systems to be assured of adequately monitoring mastitis rates and ensuring good milk quality and cow health.

Guidelines for submission of live animals for post mortem to the Animal Health Laboratory

Jim Fairles, Client Services Veterinarian, Animal Health Laboratory, Guelph, ON

Some questions have arisen recently about Animal Health Laboratory's (AHL's) policy for submission of live animals for postmortem.

Submission of live animals for immediate euthanasia and postmortem is encouraged to ensure a high rate of diagnostic accuracy in poultry cases, and in outbreaks of diarrhea in young pigs and ruminants. AHL euthanasia fees can range from $10 to $40 for these submissions. We encourage on-farm euthanasia and immediate transport for all other classes of livestock. Adult animal euthanasia is not available at AHL Kemptville. At AHL Guelph, submission of larger live animals will incur additional handling and euthanasia fees that can range from $40 to $100.

Please contact the AHL in advance for ALL live animal submissions with an estimated arrival time to fa-

cilitate preparations. A consultation can be arranged with the pathologist on duty to maximize diagnostic potential, and an estimated quotation will be provided for euthanasia and postmortem charges.

Live animals must be transported humanely. AHL veterinarians are required by law (Ontario Society for the Protection of Cruelty to Animal Act) to report all suspected cases of animal abuse, and an OSPCA inspector will be contacted if animals are transported in containers or by restraint methods that are considered inhumane.

Examples of inappropriate restraint and transportation methods include:

- hog-tying calves, adult sheep or goats;
- baby pigs or chickens placed in sealed plastic tubs or Styrofoam containers;
- pigs or chickens submitted in tied feed sacks.

Examples of acceptable transport containers include:

- dog or cat kennels for small pigs;
- cardboard boxes of appropriate size with ventilation holes for baby pigs or chickens;
- poultry crates;
- large dog kennels or bedded truck cabs for larger pigs, calves, small ruminants.

All containers should be of sufficient size to avoid crowding or smothering, and animals should be protected from extreme temperatures.

Please contact AHL in advance at:

AHL Guelph – 519-824-4120 ext 54530

AHL Kemptville - 613-258-8320

Email - ahlinfo@uoguelph.ca

Jim Fairles, Client Services Veterinarian, AHL, 519-824-4120 ext 54611. jfairles@uoguelph.ca

Deadstock removal – acceptable veterinary practices

Ann Godkin, Veterinary Science and Policy, OMAFRA, Elora, ON

Carcasses removed from farms without proper preparation can spread disease-causing pathogens and may be in violation of the regulations around transportation and handling of deadstock.

The Ontario Nutrient Management Act requires producers putting dead animals out for removal do so in a manner that prevents leakage of liquids from the animals to the soil, protects carcasses from scavenging, rodents and insects, and conceals them from public view. Deadstock collectors are required to remove carcasses in a vehicle designed and equipped to prevent leakage or escape of (liquids) materials being transported, according to the provincial Food Safety and Quality Act.

Veterinarians occasionally do post-mortem exams on dead animals on farms, leaving behind carcasses that will be removed by deadstock collectors or buried on the farm. Several veterinarians have relayed how they prepare carcasses after post-mortem for their clients for deadstock removal. Most attempt to close the abdomen and thoracic cavities, and do so successfully and easily using baler twine passed through punctures in the hide of the animal made with scalpel blades or knives. One vet reported that he removes viscera and has producers bury it on the farm. This facilitates carcass closure and also removes most of the liquid from the carcass prior to movement.

Deadstock operators have instructed their drivers not to remove carcasses not adequately prepared for transport. A telephone survey of the three major collectors indicates that compliance with this closure requirement is generally high, although some problem areas do exist. Having a producer unexpectedly left with a carcass because deadstock cannot remove it is a nuisance for everyone involved. Post-mortems provide useful information and are encouraged but should not prevent carcass removal by deadstock services.

Small ruminant adult mortality project

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Maria Spinato, Animal Health Laboratory, University of Guelph, ON
Paula Menzies and Andria Jones-Bitton, Dept. Population Medicine, Ontario Veterinary College

The Animal Health Laboratory (AHL), the Ontario Veterinary College (OVC) and OMAFRA will jointly conduct a study that will improve on-farm post-mortems of small ruminants and share information among producers, veterinarians and pathologists. The title of the project is "Distance support for on-farm investigation of adult small ruminant mortalities". Post-mortems and sampling will begin in the spring/summer of 2015 and end in the fall of 2016.

The study will:

1. improve surveillance (detection and monitoring) of diseases of adult sheep and goats on Ontario farms;
2. develop a distance-support system for transfer and sharing of information from post-mortem findings and,
3. provide producers and their veterinarians with flock disease information so they can improve flock/herd health and biosecurity plans.

Funding for the project comes from the OMAFRA-University of Guelph Partnership KTT (Knowledge Translation and Transfer) Program

Updates on the project will be shared via the Small Ruminant Veterinarians of Ontario (SRVO) listserv.

Veterinary Practitioner Updates 2014: OMAFRA/DFO/OVC/ OABP/CWDHI Joint Meetings

Ann Godkin, Veterinary Science and Policy Unit, OMAFRA, Elora, ON

Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Dairy Farmers of Ontario (DFO), Ontario Veterinary College (OVC), Ontario Association of Bovine Practitioners (OABP) and CanWest Dairy Herd Improvement (DHI) will hold joint Veterinary Practitioner Update meetings across the province in December. The meetings will provide bovine veterinarians with timely information on upcoming dairy industry initiatives and current "hot button" topics. The meetings will also provide veterinarians with an opportunity to give input that may shape the veterinary profession's role in future programs in Ontario.

Topics (order may vary with location):

⇒ The Potential Veterinary Role in ProAction (CQM, Animal Care, Biosecurity) – Options and Opportunities
Dr. Kelly Barratt, Heartland Veterinary Services and Dairy Farmers of Ontario.

⇒ Improving Milk Quality (Changes to SCC and BSN penalties) - Opportunity for Vets.
Dr. David Kelton, Ontario Veterinary College, University of Guelph.

⇒ Cull Dairy Cows at Auction Marts – A Problem that Needs a Solution.
Dr. Todd Duffield, Ontario Veterinary College, University of Guelph.

⇒ Introduction of βHB testing for Herd Screening.
Richard Cantin, CanWest DHI, Guelph.

⇒ Johne's – Veterinarians Motivating Change. 2nd Video from the Johne's Focus Farm Project, by Steven Roche.

Meeting dates, times and locations:

Meeting #1: Mon. Dec 15th, 7 to 10 pm,
South Mountain, Mountain Agric. Hall, 2967 Lough Rd, K0E 1W0.

Meeting #2: Tues. Dec 16th, 1 to 4 pm,
Cobourg, Best Western,
930 Burnham St, K9A 2X9.

Meeting #3: Wed. Dec 17th, 2 to 5 pm,
Listowel, Listowel Golf Course,
8380 Fairlane Rd, N4W 3G6.

(Continued on page 12)

Meeting #4: Thurs. Dec 18th, 7 to 10 pm, Woodstock, OMAFRA, Unit A, 401 Lakeview Drive, N4T 1W2.

There is no fee to attend. Please let us know 5 days ahead if you plan to come so we know how many attendees to expect. We encourage multiple participants per practice. Please email or telephone your intentions to Mary Van den Borre (OMAFRA, Elora) mary.vandenborre@ontario.ca or 519 846 0941. Any questions or concerns please contact Ann Godkin (OMAFRA, Elora) at ann.godkin@ontario.ca

Good air for calves – Dairyland Ventilation Workshop in Ontario

From the Ontario Association of Bovine Practitioners Continuing Education Committee

Managing air quality for young calves is tricky – they need clean air, but provided in a way that doesn't cause drafts or chilling. Veterinarians in Wisconsin have demonstrated that poor air contains high levels of bacteria and molds that make calves sick. Farms with poor air quality for calves struggle every year with calf pneumonia. And heifers who deal with pneumonia as calves don't reach their full production potential even though they appear to recover.

The "indoor" season, when we are tempted to close up calf barns and rooms to keep calves warm, is a good time to install a ventilation system that give calves good air. Positive pressure tube ventilation (PPTV) systems installed correctly have fixed calf pneumonia problems on many farms. But not just any tube for ventilation will work. Done correctly, tube systems work – done incorrectly they don't.

We've seen both situations here in Ontario. Each year the Dairyland Initiative in Wisconsin holds workshops to train veterinarians, contractors, builders and producers to design, install and operate successful PPTV systems for calf housing. The Wisconsin system has very particular parameters that lead to success. This year the one day workshop is offered here in Ontario, January 14th in Elora. The Workshop and the Dairyland instructors, Dr. Ken Nordlund and Dr. Rebecca Brotzman, are sponsored by the Continuing Education committee of the Ontario Association of Bovine Practitioners (OABP).

Ontario veterinarians, builders, contractors, producers, agricultural engineers and lenders interested in attending should contact Ruth Cudmore (oabpruth@bell.net) for fee information and to register. Deadline for registration is Dec 12th, 2014.

Correction

Canadian Quality Milk – The impact of training in Ontario

Ann Godkin, Veterinary Science and Policy, OMAFRA, ON

CQM Training as of April 2014

Producer's training level	All Farms		Producers recommended for approval on 1st CQM validation visit (no follow-up required)	
	Number	% of farms visited for CQM validation	Number	% of farms at this training level
Enlisted no training	552	19.0%	210	38.0%
On farm session only	919	31.7%	599	65.2%
Classroom session only	427	14.7%	252	59.0%
Full training (Class and farm sessions)	1,003	34.6%	777	77.5%
TOTAL:	**2,901**	**100.0%**	**1,838**	**63.4%**

Continuing Education/Coming Events

December 1, 2014	Automated Calf Feeding Workshop, Pre-conference Workshop, Dairy and Veal Healthy Calf Conference, Arden Park Hotel, Stratford, Phone: 519-824-2942 Email: *kkeels@livestockalliance.ca*
December 1, 2014	Vet Night, Dairy and Veal Healthy Calf Conference 2014, Arden Park Hotel, Stratford Phone: 519-824-2942 Email: *kkeels@livestockalliance.ca*
December 2, 2014	Healthy Calf Conference, Arden Park Hotel, Stratford, ON (remote link to Northern Ontario) *www.calfcare.ca*
December 4, 2014	Healthy Calf Conference, Maxville & District Sports Complex, Maxville, ON *www.calfcare.ca*
December 5 & 6, 2014	2014 North American PRRS Symposium and PED Update, InterContinental Hotel, Chicago, Illinois. Email: *vmce@vet.k-state.edu www.prrssymposium.org/*
December 6-13, 2014	American Association of Equine Practitioners 60th Annual Convention, Salt Palace Convention Centre, Salt Lake City, Utah. *www.aaep.org/info/annual-convention-318*
December 10 & 11, 2014	Calf and Heifer Congress 2014 "Birth to Breeding", RIT Inn and Conference Centre, Rochester NY http://nwnyteam.cce.cornell.edu/event.php?id=141
December 15, 2014	Veterinary Practitioner Updates 2014, 7:00 to 10:00 pm, Mountain Agric. Hall, 2967 Lough Rd, South Mountain
December 16, 2014	Veterinary Practitioner Updates 2014, 1:00 to 4:00 pm, Best Western, 930 Burnham St, Cobourg
December 17, 2014	Veterinary Practitioner Updates 2014, 2:00 to 5:00 pm, Listowel Golf Course, 8380 Fairlane Rd, Listowel
December 18, 2014	Veterinary Practitioner Updates 2014, 7:00 to 10:00 pm, OMAFRA, Unit A, 401 Lakeview Drive, Woodstock
January 14, 2014	Positive Pressure Ventilation for Calves Workshop, Elora *wp.oabp.ca*
February 1-3, 2015	National Mastitis Council 54nd Annual Meeting, Memphis, Tennessee. *www.nmconline.org*
February/March	On-line Milking Equipment Evaluation, Online Course in Milking Equipment Evaluation *www.cvm.umn.edu/vetmedce/events/MilkingEquipmentEvaluation/home.html*
February 25 & 26	2015 Dairy Housing Course, Kemptville Legion
February 28-March 3,	46th Annual Meeting of the American Association of Swine Veterinarians, Buena Vista Palace Hotel 2015 and Spa, Orlando, Florida. *www.aasv.org/annmtg*
March 4 & 5	2015 Dairy Housing Course, Woodstock OMAFRA Boardroom
June 24-25	Precision Dairy 2015, Rochester MN
July 29-31	2015 Dairy Environmental Systems & Climate Adaptation Conference and Tour, The Statler Hotel, Ithaca, NY *prodairy.cals.cornell.edu/dairysystemsconference/index.html*
June 21-23, 2016	Conference on Precision Dairy Farming, Leeuwarden, Netherlands *www.precisiondairyfarming.com/2016/*

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Tel.:(519) 846-0965 Fax: (519) 846-8178 E-mail: mary.vandenborre@ontario.ca

Comments: .....

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Ontario

Ministry of Agriculture Food and Rural Affairs

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