



# Animal Health Perspectives

## Changes in Animal Health Regulations

By: Betty Althouse, Chief Veterinary Officer, Saskatchewan

*“Adapt or perish, now as ever, is nature's inexorable imperative.”*

*“Change is good, Donkey.”*

Whether you prefer the words of H.G. Wells or Shrek, we do live in a changing world, and lately in the field of animal health, changes seem to be occurring at a faster pace. In the last year, and into the next, a number of important regulatory changes will require adaptation and change by livestock sectors and veterinarians.

Changes to antimicrobial access are led by the Veterinary Drug Directorate (VDD) of Health Canada and align with the Pan-Canadian Framework on Antimicrobial Resistance. Changes include: restrictions on Own-Use Imports, a more flexible regulatory environment for approval and import of Veterinary Health Products, increased oversight of import and use of Active Pharmaceutical Ingredients, removal of growth promotion claims for antimicrobials and a change of all medically important antimicrobials (MIA) to prescription status.

- Own Use Import allows producers to import animal health products for direct use on their own animals. Since November 2017, only low risk products on List B can be

imported. No antimicrobials are included in the list, which is primarily comprised of parasiticides.

- It is now easier to get approval for import and sale of low risk Veterinary Health Products that promote health and welfare of animals, but are not meant to prevent or treat disease.
- Beginning in May 2018, a Drug Establishment Licence will be needed for veterinarians or pharmacists to import an Active Pharmaceutical Ingredient for compounding. Good Manufacturing Practices must be followed. Producers will not be able to import APIs for direct use in food animals.
- Use of antimicrobials for growth promotion was voluntarily withdrawn by industry December 2017, to harmonize with United States implementation of the Veterinary Feed Directive. Label changes to clearly indicate prescription status for all MIA, and remove growth promotion claims, are currently being reviewed by VDD, and will be enforced

December 2018. In addition, changes to the Compendium of Medicated Ingredients Brochure are underway to include all approved in-feed drug uses, including those that will require prescriptions.

- All medically important antimicrobials (MIA) moved to the Prescription Drug List in February 2018, but will be allowed to be sold over-the-counter in lay outlets until December 1, 2018 to allow for label changes and for existing product inventory to be sold. After Dec 1, any MIA use will require a veterinary prescription. Prescriptions are based on a veterinary-client-patient relationship where the medical records of the practice contain sufficient evidence of relevant and timely interaction between the veterinarian, animal owner and animal patients.

Mandatory reporting of sales volumes by manufacturers and importers begins in 2019, and feed mills will need to collect data on in-feed MIA drug use. Some of the logistics of in-feed medications are still to be worked out, but feed mills will

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only be able to dispense MIA in feed, supplements or premixes, not as the drug itself. All feed products containing a MIA will only be able to be sold with a veterinary prescription.

Changes to federal traceability rules are also expected within the next year. Traceability is based on three pillars: animal identification and movement reporting. Full national traceability is in effect in the hog industry, and for commercial poultry. Animal identification (tagging) requirements have been in place for cattle, sheep and bison for many years. Premises identification has been a requirement in Saskatchewan since fall 2016. Any premises where livestock and poultry are grown, bred, kept, raised, displayed, assembled or disposed of should be registered, including veterinary clinics and assembly sites. Federal tagging requirements for goats and farmed cervids, along with movement reporting for cattle, sheep, goats, bison and cervids are coming. Under proposed federal regulations, operators

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will need to provide the premises identification number for the location where approved tags are applied to their animals. If animals are moved to a new location, outside of the farm operation, including to veterinary clinics, the premises identification number for the destination location will need to be provided. The proposed regulations are expected to be published in Part I of the Canada Gazette in 2018. Following the publication stakeholders will have 75 days to review and provide comment. These new regulations will impact many livestock sectors, so it is important that changes are understood and any impacts are recognized and planned for.

Some federal disease control changes are also occurring or

expected in 2018. The CFIA is changing their response to Chronic Wasting Disease (CWD) beginning April 1, 2018. An eradication policy has been in place since 2002; however it has proven to be ineffective in stopping the spread of CWD. Ninety of 95 farmed cervid cases of CWD in Canada have occurred in Saskatchewan, and CWD continues to be detected in wild cervids in new areas of the province. The new federal program is focused on protection of a "compartment". This is an OIE accepted disease control method where a sector of the livestock industry is recognized as "distinct" in disease risk, based primarily on biosecurity, and supported by surveillance. In this case, herds on the CWD Voluntary Herd Certification Program, with prescribed biosecurity

and surveillance requirements, are recognized as a lower risk compartment for CWD. CFIA will continue to offer full disease response, such as depopulation with compensation, to herds in the compartment. Herds not on the Program will not be subject to disease control measures beyond initial tracing to identify any links to herds in the compartment. Because positive CWD herds will no longer all be depopulated, Saskatchewan is developing provincial disease control options to control movement of animals from these premises to limit CWD spread through farmed cervid movements.

Additional CFIA consultations are expected this summer regarding proposed changes to the federal response to Equine Infectious Anemia. Consideration is being given to using Zoning to control the disease. Zoning is another OIE recognized disease

control measure where animal populations are recognized as having differing disease risks due to geographic location. Saskatchewan and Alberta, where most EIA cases have occurred in the past few years, would be zoned as higher risk and any animals moving out of the zone would require a negative EIA test. Over time, additional controls inside the Zone may be considered. Interested horse owners and veterinarians should watch for further information so they can learn more about the proposed changes and provide input.

Changes to regulations and policies may be made in response to changing disease conditions, changes in risk perception, changes in scientific knowledge or to shift the focus toward preparedness or prevention, rather than disease response. **Change is good; adapt or perish.**

# Modern Diagnostic Pathology and Companion Animal Medicine: Strengthening the Partnership

By: Steve Mills, Veterinary Pathologist, PDS Inc.

As a veterinary pathologist, these are exciting times indeed! I am quite certain my family and close friends could testify to my boundless enthusiasm for the field and the value it represents, both to those lucky enough to make a career out of it, and more importantly, to the greater veterinary profession. I can think of no other vocation that provides such a broad, vital suite of services that directly affect the well-being of such a wide range of species. With modern communications technology, backed by state-of-the-art laboratories and talented support staff, we can produce and distribute evidence-based interpretations more quickly and comprehensively than ever

before. Advancements in computing, biotechnology, science, and medicine are relentless. Their influence on the practice of veterinary pathology is, and will continue to be, immense, promising to improve deliverables to every stakeholder within our scope (no pun intended).

For the past several years, I also had the privilege to work in private, small animal practice, and to appreciate the view from that sphere. When I wear my primary practitioner's hat, the outlook is decidedly different. The perceived value (dare I say relevance) of the veterinary pathology complex, vis-a-vis the greater machine of companion animal medicine, varies significantly. For many primary

veterinarians, technicians, and the vast majority of the companion animal-owning populace, the role of the veterinary pathologist is poorly, or at least incompletely understood. There is a tendency to view pathology as an 'ivory tower' profession, populated by individuals who long ago eschewed any 'real world' interactions with patients or pet owners. Instead, preferring to be cloistered away with their textbooks and journal articles, adjudicating at arms-length with limited utility in a "real world" context.

As is usually the case when painting in broad strokes, this characterization is unfair and short-sighted, but it contains kernels of truth. It is also useful

in that it promotes introspection, and can serve as an impetus to continually improve the vital services only we can deliver, and the way we deliver them. With the proliferation of affordable "in-house" laboratory analyzers, high-quality CE, and numerous, readily available electronic information resources, to what extent can specialists in veterinary pathology continue to add value in a cost-effective way? I would argue that we represent a unique cache of gold-standard information and medicine within companion animal practice. I am also quite certain that our stakeholders want and need our services. But are we doing our best? Knowledge, truth,

technological advancement, rigorous application of the scientific method are all fundamentally useless unless they can be applied, made practical, and made accessible in the contemporary clinical environment. Put another way, **customer service is paramount**, and when executed effectively, all trails lead to gold-standard medicine and optimal patient care.

My interest in this topic was kindled after reading an article by Newman et al. (2014). Their study investigated an apparent disconnect between specialists (pathologists) and non-specialists (primary veterinarians) with respect to red blood cell morphology results. It revealed not only differences in interpretation (and thus understanding) of the findings between the two groups, but also material communication deficiencies that impacted medical decision-making. Though the study was small and ostensibly limited in its applicability, I believe these issues have broad implications for the practicing diagnostic pathologist. In that spirit, and with a view to better appreciate the services our primary stakeholders in companion animal medicine require, I will now indulge in a short examination of their unique perspectives, priorities, and interests:

**1.** The primary small animal veterinarian is responsible for and typically has direct involvement in all aspects of clinic function including customer service, preventative care, medicine, diagnostics, dental procedures, and surgery. They are sometimes practice owners, but much more often, busy associates; they may have been trained in Canada or internationally. Veterinary decision-making is driven by two inexorable mandates: positive patient outcomes and profitability. Massive industry consolidation, the proliferation of small animals clinics (especially in urban centers), and the recent

economic downturn have all contributed a challenging macroenvironment. As a result, to variable extent, success (professional and financial) tends to accrue to those veterinarians who are also good salespeople. Notwithstanding a predisposition to high-quality care and compassion, gravity is therefore tilted towards recommending higher-margin services such as dental procedures, diagnostics, specialty surgeries, and hospitalization. Timely, real-time assistance with diagnoses and treatment plans most often involves 'consulting with' internet resources such as Google, YouTube, Veterinary Information Network (VIN) or Vetfolio where available. Asking an associate or less often, reviewing a textbook may also be pursued. Veterinarians working in emergency/specialty practice bear brief mention here. These tend to be larger, more corporate practices with higher fees. Gold-standard medicine is practiced, and larger teams are present with better-equipped facilities. Patients within this setting arrive previously assessed and referred, or are suspected to be ill. Diagnostics are more frequently and extensively performed, and hospitalization and/or surgery are more commonplace; answers are needed quickly. Specialists work in these settings, often requiring more frequent and/or advanced diagnostics and follow-up care.

**2.** The veterinary technician carries out a diverse set of supportive roles. Often, all clinic activities outside the realm of diagnosis, interpretation of diagnostic tests, treatment orders, medical procedures, and surgery can and are carried out by a technician. To the extent that pathology can be practiced in-clinic, it is usually carried out by technicians, with necropsy being the exception. If desired, blood smears, cytology, CBC, Chemistry, Endocrine testing, SNAP testing, culture and more

can all be completed in clinic, though appropriate quality control and accurate interpretation are often sub-optimal. Veterinary technicians are akin to nurses, working very closely with patients and often representing their strongest advocates in-clinic.

**3.** Companion animal owners are a very diverse group difficult to describe concisely or with generalities. So-called millennials (aged 26-38) now arguably comprise the largest segment of the companion animal-owning population. According to The Pet Owner Paths 2017 study (sponsored by Merck, Unfenced, and Kynotec), modern pet owners are willing to invest more time and money into their pets when a trusting bond exists with the care provider, prefer a preventative (and increasingly 'natural') approach to veterinary care, and want timely, expert advice from veterinarians as part of a collaborative approach to decision making about the health care of their pet. Animals are thought of as family members. Borrowing a line from Hill's Pet Nutrition Inc., pet owners want their pets to be happy, healthy, pain free, and to live as long as possible.

**4.** Ultimately we serve companion animals, and aim to improve their health and healthcare. Their perspective can be best appreciated by considering the Five Freedoms, developed in the 1960's in response to livestock husbandry practices. They have since come to represent the fundamental aspects of animal welfare under human control. Among them is Freedom from Pain, Injury, or Disease. This is the component veterinary pathology becomes relevant, where we have immense opportunity to affect lives positively. At the end of the day, this is the core of our motivation and the inspiration for this article.

The practicing diagnostic

veterinary pathologist traditionally communicates (provides their 'service' to stakeholders) through emailed or faxed, typewritten reports including test results +/- description, interpretation, and/or comments. In a small minority of cases, this may be complemented with telephone conversations, almost always with the primary veterinarian. These interactions represent the primary means by which pathologists can inform, educate, and collaborate on a case. Continuing Education events or publications (such as this one) are other examples of opportunities where the worlds of veterinary pathology and small animal practice can come together, learn from one another, and better align their common energy and goals.

There can be no doubt that referral laboratories offer superior value in terms of diagnostic yield, accuracy, precision, and interpretive guidance. These are essential elements of gold-standard care, and can have direct effects on patient management and outcomes. That being said, diagnostic laboratories provide the best results to those who know how to use their resources effectively. It is incumbent on practitioners (and to a lesser extent technicians) to investigate the best diagnostic and treatment plan(s) given a particular circumstance. At the same time, a diagnostic pathologist is performing at his or her best when all lanes of communication are open and actively utilized. Only by understanding the needs and context of all of our stakeholders can we meet the challenge of providing exceptional diagnostic services, so as to improve the lives of companion animals and the people who love them.

Newman AW, Rishniw M and E Behling-Kelly. 2014. Reporting and interpreting red blood cell morphology: is there discordance between clinical pathologists and clinicians. *Vet Clin Pathol* 43/4; 487-495.

# Kitten colitis associated with *Clostridium piliforme*

By: Yanyun Huang, Veterinary Pathologist, PDS Inc. and Jolanda Verhoef, Department of Veterinary Pathology, WCVU

Tyzzler's disease (causative agent: *Clostridium piliforme*) affects many mammalian species and is usually a fatal disease. *C. piliforme* first infects the intestinal epithelium; then enters the blood stream and a hepatitis, with intracellular bacterial colonization, ensues. Tyzzler's disease is typically recognized histologically by its hepatic lesions, with intracellular characteristic bacteria. Cats had been reported to be susceptible to *C. piliforme* and most of the reported feline cases are the typical form which includes hepatic lesions. However, an atypical form of this disease, associated with mortality of young kittens, with only colitis but no hepatitis has been rarely reported.<sup>1, 2</sup> Despite these sporadic reports, most clinicians and pathologists are not aware of this atypical presentation. Here we report a diagnostic investigation aiming to further characterize this clinical entity.

During 2013 to 2017, 9 cases of atypical Tyzzler's disease were diagnosed in PDS. The median age of 7 kittens was 7 weeks (4 to 7.5 weeks). Gender was not consistently provided, but there was at least 1 male and 1 female kitten. The most common clinical presentations were death without premonitory signs; diarrhea and weight loss. Lethargy, weakness, ataxia, vomiting, inappetence and pale mucous membranes were also reported. Gross post-mortem examinations revealed either no

significant findings or evidence of diarrhea. Eight of these kittens were originally from rescue facilities.

On histologic examination, significant changes were confined to the large intestines. The lesions consisted mostly of a mild catarrhal colitis. The surface epithelial cells of the large intestines were swollen and sloughed into the lumen (See Figure 1)

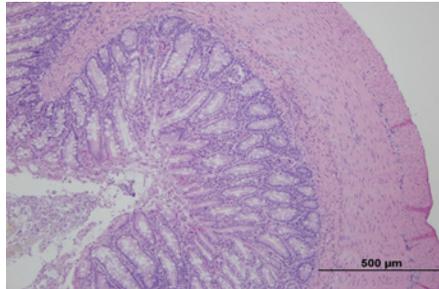


Figure 1. Colon. Surface epithelium are sloughed into the lumen, a lesion that can be easily mistaken as autolysis. H&E stain.

mimicking post-mortem autolysis. Characteristic, intracellular, long, rod-shaped bacteria, which sometimes formed "hay stack" patterns, were occasionally observed in the epithelial cells. These bacteria could be seen with H&E staining, but were better demonstrated by a silver stain method (See Figure 2). In more severe cases, there was neutrophilic infiltration in the lamina propria and the intestinal crypts. Immunohistochemistry for parvovirus was negative for 6 of the kittens. Histologic Lesions consistent with a parvoviral enteritis were also not observed in any of the kittens.

A conventional PCR assay for *C. piliforme* was developed. DNA

was extracted from six, formalin-fixed, paraffin-embedded (FFPE) tissues. The presence of *C. piliforme* was confirmed, using this PCR assay, in 2 samples.

The sensitivity of a PCR assay is reduced in FFPE tissues, thus the negative results from the other 4 kittens were not considered a rule-out, especially when the histological lesions of all kittens were similar. It should also be noted that the conventional PCR assay is not fully validated and was used for research purposes only.

Our findings indicate that *C. piliforme* is associated with colitis in kittens. There is a characteristic clinical presentation that we observed during this investigation. **1) Affected kittens are young (median: 7 weeks).** In our experience, feline parvovirus infection and feline infectious peritonitis (FIP) are not common at this age. We were also able to reasonably rule out parvovirus and FIP. However, co-infection of feline panleukopenia virus and *C. piliforme* has been reported. **2) Clinical signs are non-specific, but most frequently include death, diarrhea and weight loss.** **3) Affected kittens were mostly from rescue facilities.** We encourage clinicians to include atypical Tyzzler's disease as a differential etiology when encountering similar clinical cases.

In conclusion, catarrhal colitis associated with *C. piliforme* is associated

with severe and often, fatal disease in young kittens. Careful histological examination for intracellular bacteria is needed when investigating kittens with similar clinical presentations. Both clinicians and pathologists need to work together in order to establish this diagnosis.

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#### References:

1. Wilkie, JS Nimmo, and I. K. Barker. "Colitis Due to *Bacillus piliformis* in Two Kittens." *Veterinary Pathology Online* 22.6 (1985): 649-650.
2. Neto, Rachel T., et al. "Coinfection with *Clostridium piliforme* and Feline herpesvirus 1 in a kitten." *Journal of Veterinary Diagnostic Investigation* 27.4 (2015): 547-551.
3. Ikegami, T., et al. "Enterocolitis associated with dual infection by *Clostridium piliforme* and feline panleukopenia virus in three kittens." *Veterinary pathology* 36.6 (1999): 613-615.

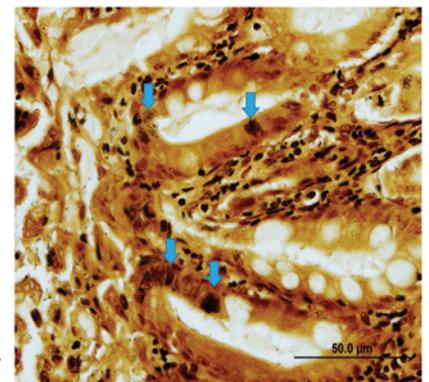


Figure 2. Colon. Typical intracellular long rod bacteria arranging in "hay stack" patterns, consistent with *Clostridium piliforme*. Warthin Faulkner silver stain.

## READERS' FEEDBACK

The **Animal Health Perspectives** editorial team (Dr. Moira Kerr, Brian Zwaan and Kathryn Tonita) invite readers' comment on material published in the newsletter or questions on material submitted by contributors.

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