

Proliferative Enteropathy

A Newly-Recognized, Emerging Threat of Colic and Diarrhea in Weanlings

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A newly-recognized bacterial infection that causes weight loss, diarrhea, and colic in weanling and yearling horses is on the rise. The bacterium is called *Lawsonia intracellularis*, and it is found in numerous wild animal reservoirs throughout Iowa. *Lawsonia* had previously been recognized as an economically devastating disease of young pigs, but now is recognized in numerous species including calves, ferrets, foxes, guinea pigs rabbits, mice, and now horses. *Lawsonia* typically affects foals shortly after weaning, between three and six months of age, but it has

occasionally been seen in horses as old as one year of age.

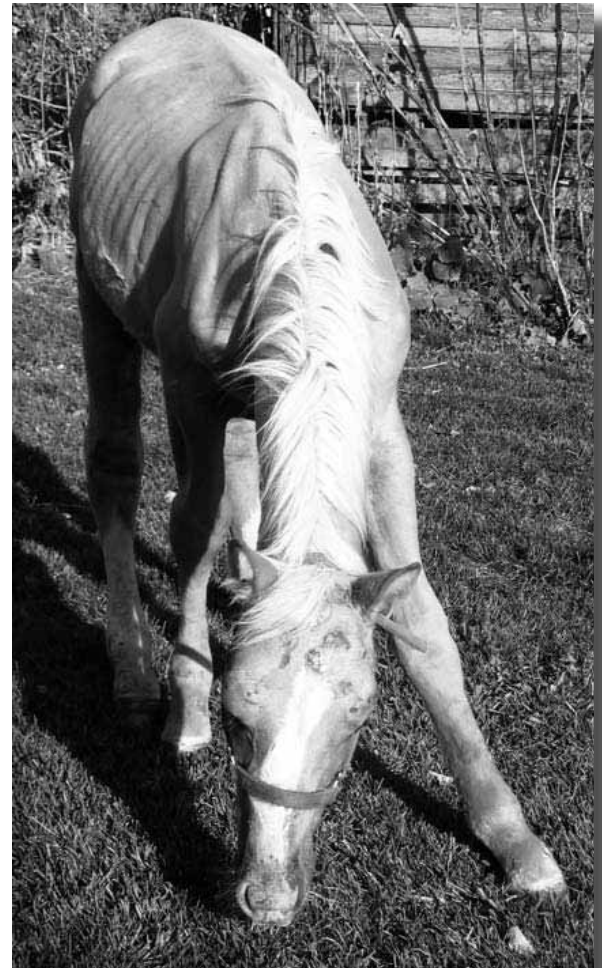
The disease is called proliferative enteropathy (PE) because the bacteria are able to get inside the cells that form the lining of the small intestine and cause uncontrolled replication. The small intestinal lining becomes extremely thickened, sometimes more than three times normal. This pronounced thickening alters the absorption of nutrients, proteins, and fluid and causes a variety of symptoms in affected foals including depression, pronounced weight loss, rough hair coat, pot-bellied appearance, diarrhea, subcutaneous edema (fluid build-up under the skin), and colic. More severe cases may have profound weakness and the inability to rise. If left untreated, the disease may lead to death in a few days or chronic growth retardation.

Oral-fecal ingestion of *Lawsonia* appears to be the most likely route of transmission in all species. As in pigs, weanling age foals are typically affected. A change in diet and intestinal flora (normal bacteria in the gastrointestinal tract) around the time of weaning, and immature immune system, and stress from weaning is thought to predispose young animals to infection. Animals typically show signs of disease 2-3 weeks after exposure. Outbreaks in multiple animals in the same herd have occurred, indicating that once infected, foals can serve as a reservoir of infection to other foals.

Diagnosis of the disease is based on the age of the foal, clinical presentation, intestinal ultrasonography (evidence of thickened portions of small intestine), and extreme hypoproteinemia (low protein) on blood work. Specialized tests, including fecal PCR and serology, allow a definitive diagnosis of a *Lawsonia intracellularis* infection.

Treatment consists of supportive care and long-term antibiotic therapy. Foals often require the administration of intravenous plasma and specialized fluids to combat extreme protein loss and dehydration. *Lawsonia intracellularis* has the unique ability to get inside the infected cells and alter the ability of the immune system to effectively recognize and eliminate the infection. Antibiotics with the ability to penetrate cells must be administered, and for a long treatment period, often 2-4 weeks. Commonly used antibiotics include tetracycline, doxycycline, erythromycin, and rifampin. The duration of treatment is most commonly based on improvement in clinical signs and resolution of protein loss on blood work. Prognosis for properly treated foals is good and growth retardation may occur in severe cases but is not common.

No vaccine currently exists for horses, but keeping foals in good condition and health, along with early recognition of clinical signs with prompt treatment, will allow for successful treatment of the disease.



4-month old foal affected with
Lawsonia intracellularis
Photo courtesy of Dr. David Wong, ISU CVM



The same foal as above, two months following treatment.
Photo courtesy of Dr. David Wong, ISU CVM

Careers in Equine Medicine

From the AAEP (American Association of Equine Practitioners) website · [http://www.aaep.org/careers_equine_medicine.htm]

Do you own or ride horses, or simply admire the beauty of the horse? Do you enjoy the biological sciences? If so, choosing a career as an equine veterinarian may be the most rewarding decision you ever make. No other profession provides such satisfying daily interaction with the horse while offering the unique opportunity to care for one of the world's most majestic animals.

Employment opportunities are endless for the equine veterinarian [www.aaep.org/career_as_equine_practitioner.htm].

Most practitioners are employed in private practice, where they may run a solo practice or be on staff at a multi-doctor surgical or referral hospital. Many private practitioners make farm calls to visit their patients. Especially in rural areas, an equine veterinarian's office may truly be his or her veterinary vehicle, as much of the workday is spent traveling from client to client.

Equine veterinarians in private practice can expect to work a five to six-day week. Just like all medical professionals, long hours are often required to care for each patient and provide after-hours emergency treatment.

Other career paths for the equine veterinarian include teaching and research, regulatory medicine, public health, or military service. Technical sales and services, agribusiness and pharmaceutical companies also provide opportunities for practitioners to use their veterinary training.

Veterinarians employed in research at universities, colleges and governmental agencies or in industry positions are dedicated to finding new ways to prevent and treat equine health disorders.



Veterinarians also serve as epidemiologists in city, county, state and federal agencies investigating animal and human disease outbreaks such as influenza, rabies, Lyme disease and West Nile virus.

The United States Department of Agriculture and its veterinarians within the Animal and Plant Health Inspection Service (APHIS) monitor the testing and development of new vaccines and are also responsible for enforcing humane laws for the treatment of animals.

On line resources:

American Veterinary Medical Association
www.avma.org

United States Department of Agriculture-Animal and Plant Inspection Service
www.aphis.usda.gov

Association of American Veterinary Medical Colleges
www.aavmc.org

