

What is *Lawsonia intracellularis*?

- *Lawsonia intracellularis* is a bacterium that can cause severe **intestinal disease in foals**.
 - Affected foals are usually **4 to 7 months old**. It does not affect adult horses.
 - These animals may also be a reservoir of *Lawsonia* bacteria, but very little is known about how *Lawsonia* circulates and how it is transmitted in the horse population.
- *Lawsonia* was only identified as an important cause of disease in horses in the 1990s.
 - The disease has now been reported in horses in multiple regions in Canada, the USA, Europe and Australia.
 - This bacterium is also a well-recognized cause of a **similar disease in pigs**, and has been found in a few other animal species.



What Happens When A Foal Gets *Lawsonia*?

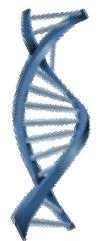
The primary source and means of transmission of *Lawsonia* to foals is still **unknown**. Foals most likely become **infected by swallowing *Lawsonia*** that they find in the environment, possibly in the manure of other horses infected by or carrying *Lawsonia* in their intestinal tracts. Often **multiple foals** on the farm are affected.



- After being swallowed, the bacteria invade the cells lining the small intestine, which causes the cells to grow abnormally. The resulting condition is called **equine proliferative enteropathy (EPE)**.
 - The excessive growth of the intestinal lining interferes with absorption of nutrients, and results in blood protein being lost into the intestine.
 - Affected foals gradually **lose weight** and their **blood protein levels drop** dramatically. They may also be more quiet than normal, have a “pot-bellied” appearance and a poor hair coat.
 - *Lawsonia* does not affect the large intestine, which controls the water content of manure, so even with severe small intestinal disease, foals may have **normal manure**. However, some foals may develop **diarrhea** due to secondary infections or altered intestinal motility.
- Sometimes infected foals can be caught early when they start to lose weight, but often foals are not noticed to be sick until the disease is advanced, weight loss is marked, and their blood protein levels are dangerously low.
 - Some foals develop **edema** (cool swelling) of their lower legs, throatlatch, sheath, or along the bottom of the abdomen because of the very low blood protein levels.

How Is *Lawsonia* Infection Diagnosed?

- Clinical signs including a severely low blood protein level with little or no diarrhea and poor body condition in a 4 to 7-month-old foal are very suggestive of *Lawsonia* infection.
- Ultrasound examination of the abdomen can sometimes identify thickening of the wall of the small intestine, however this is not always detectable.
- Specific tests available for *L. intracellularis* include a blood test for antibodies against the bacterium, and PCR test which is performed on a manure sample to detect *L. intracellularis* DNA.
- Unlike most other bacteria that cause disease in horses, *Lawsonia* cannot be grown in a laboratory, so culture of manure (which is performed for pathogens like *Salmonella*) is not useful for *Lawsonia*.



How Is *Lawsonia* Infection Treated?



- The treatment required depends on the severity of disease in each foal. Your veterinarian will determine the best treatment approach.
 - **Antibiotics** are usually used to kill the *Lawsonia* in the small intestine. Erythromycin (often combined with rifampin) is most commonly prescribed. Sometimes other drugs such as oxytetracycline or chloramphenicol might be used. *Never treat a sick foal with antibiotics without consulting your veterinarian first*, or you may do more harm than good.
 - **Follow all of your veterinarian's recommendations**, especially in terms of medication. Stopping treatment too early could result in a relapse due to failure to eliminate *Lawsonia* from the intestine.
- **Very sick foals** may require additional kinds of treatments, or even **referral** to an equine hospital. In particular, foals with very low blood protein levels often need **plasma transfusions**.



- Infected foals should be **isolated** as a precaution, because it is unknown if they pose a risk to other horses.
 - Sometimes foals with *Lawsonia* are also infected by other dangerous bacteria like *Salmonella*, particularly if they have diarrhea. **Testing for other intestinal pathogens** may be needed.
- If there is **one foal** on a farm with *Lawsonia* infection, there is a good chance that **other foals** are affected.
 - It is very important to **closely monitor all other foals** on the property, so that any foals that become ill are detected as early as possible. Close attention should be paid to **body condition**. Blood protein levels can be checked on all foals (or all thin foals) to detect decreases early. Testing of all foals for *Lawsonia* infection with either the blood test or PCR can also be performed. Your veterinarian can help you determine the best approach.

Can Foals Infected With *Lawsonia* Grow Up To Be Normal Horses?



- With appropriate diagnosis and treatment, most foals that are not severely affected by the infection will recover.
- Foals with advanced disease (severe weight loss, extremely low blood protein levels) are more likely to die, but can survive with aggressive (and often expensive) treatment.
- It may take **several months for foals to return to normal**, because it takes a long time for the small intestine to heal, and for the foal's body to replenish the protein lost from the blood.
- In general, **foals that survive do not appear to have any particular long-term problems.**

How Can I Prevent My Foal From Getting *Lawsonia*?

- It is difficult to make recommendations about how to prevent *Lawsonia* in horses, because there is still so much about this bacterium and its transmission that remain unknown.
- Currently there is still **no vaccine** available for *Lawsonia*.
- *Lawsonia intracellularis* is also a problem in pigs, but it is unclear whether there is any link between *Lawsonia* in pigs and *Lawsonia* in horses. It is a reasonable precaution to **avoid spreading pig manure on horse pastures**, but it is unknown whether this is beneficial.

I Had A Foal With *Lawsonia* This Year.

Will My Foals Get Sick Next Year Too?

- **Maybe.** Sometimes farms will have affected foals for several years, however this does not always happen.
- If there has been a foal with *Lawsonia* infection on the farm previously, pay close attention to foals in subsequent years, particularly the body condition of foals 4 to 7 months of age.

