



# Rhodococcus equi Pneumonia

## Control of *Rhodococcus equi* Pneumonia in Foals

### SPECIAL POINTS OF INTEREST:

- Decrease the number of mares and foals on individual pastures
- House foals in well-ventilated barns
- Place mares and foals on grassy pastures/paddocks
- Sprinkle water on pastures to reduce dusty conditions
- Remove feces from stalls and pastures daily
- Breed mares as early as possible to promote foaling in winter months.
- Early recognition of disease
- Every other week veterinary visits

*Rhodococcus equi* is one of the most important causes of pneumonia in foals between the ages of 1 and 6 months. Although most horse farms are likely to be infected, clinical disease is devastating on some farms while sporadic on others. This reflects differences in environmental (temperature, dust, soil pH, and soil type) and management conditions. On farms where the disease is widespread, it leads to significant financial loss due to the cost of therapy and occasional death of foals.

*Rhodococcus* is known to cause severe pneumonia in young foals. In addition, young foals may develop extra-pulmonary disease such as septic arthritis (joint infection), osteomyelitis (bone infection), neonatal diarrhea, inflammation of lymph nodes, abdominal and spinal cord abscesses, liver disease, and sudden death.

It is thought that *Rhodococcus*



Lung abscesses due to *Rhodococcus equi* pneumonia.

*equi* bacterium is present in soil and the feces of horses. It appears that it is actually concentrated in the feces. Foals are thought to become infected when they ingest or breathe in soil, dust, and fecal particles harboring the bacteria within the first few days of life. The bacteria then multiply inside white blood cells



Young foal on good grassy pastures

and become clinically apparent at 30-60 days of age or later. While most foals are exposed to the disease, not all foals develop the disease. We do not know why some develop it while others do not. It is most likely a combination of the foal's immune status, environmental factors, and farm management practices.

### Clinical Signs

The most common clinical signs of *Rhodococcus equi* pneumonia include a cough, thick yellow-green nasal discharge, high fever, lethargy, depression, weight loss or poor weight gain, and increased respiratory effort.

Presently the gold standard test for *Rhodococcus equi* includes bacterial culture or PCR and analysis of transtracheal aspirate. This involves passing a small plastic sterile tube down the trachea to the lungs and obtaining a sample. We can also make a tentative diagnosis of *Rhodococcus equi* pneumonia based on clinical signs and radiographic images or ultrasound images of the chest.

### Diagnosis

***Early diagnosis before development of clinical signs could reduce losses and decrease treatment related costs.***

We recommend every other week visits by the veterinarians to visually inspect the foals as well as collection of blood for fibrinogen measurements. We recommend ultrasound examinations in foals be performed every 2-4 weeks. This will allow us to identify subclinical cases of *Rhodococcus equi* pneumonia before they are clinically apparent. In addition the owner and farm managers can take daily temperature and respiratory rate recordings to identify affected foals.

### Treatment

Treatment of choice is to place all affected foals on long-term antibiotic therapy, typically 30-60 days. We can monitor blood work and thoracic images to determine when to stop therapy. There have been reports of antibiotic associated complications



Foal mares in disinfected stalls with concrete floors.

- Periodic ultrasound and radiographic examinations to identify horses prior to clinical disease.
- Every other week fibrinogen determination
- Daily temperature and respiratory rate recording
- Check the foals IgG after 24 hours of birth
- Administer hyperimmune plasma
- Vaccinate mare against respiratory viral pathogens
- Initiate an effective parasite control program

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such as hyperthermia (markedly elevated body temperature) and mild diarrhea. We highly recommend keeping the foals being treated out of the sun while on the medication.

### **Prevention**

The *Rhodococcus equi* bacterium is relatively difficult to control. There is no proven vaccination for prevention of the disease. However, we feel that adequate immunization of the mare pre-foaling will help reduce the incidence of viral respiratory pathogens in the foal, thereby reducing the incidence of respiratory compromise leading to opportunistic *Rhodococcus equi* infections. One of the key steps in determining adequate immunity is to run an IgG on all foals after 24 hours of birth to determine passive immunity. If the foal had failure of passive transfer then administration of hyperimmune plasma can be performed. The only proven

preventative is to administer *Rhodococcus equi* hyperimmune plasma to provide immunity to foals and reduce the incidence of pneumonia. A good, effective parasite program is also important in the prevention of respiratory disease in foals. The immature parasites have been documented to migrate through the lungs leading to damage and opportunistic infection with *Rhodococcus equi* bacterium.

Good farm management is pivotal to the control of *Rhodococcus pneumonia* on farms. We recommend foaling all mares in stalls without dirt floors. We also recommend picking the manure out of the stalls as often as possible thereby reducing the foals exposure to concentrated *Rhodococcus equi* bacterium. Once

the foals are several weeks old we recommend moving them to pasture with good grass, rather than dry, dusty paddocks to avoid ingestion or inhalation of the soil, dust, or fecal particles. Before another mare is placed in the stall, the stall should be stripped and adequately disinfected. Some farms place sprinklers in their pastures to reduce the dry dusty conditions.

***Rhodococcus equi infections can be successfully controlled by a management strategy that involves the practices listed above. Conscientiously applied, this will reduce the spread of infection and therefore the costs associated with the disease.***



2249 South 500 East  
Columbia City, Indiana 46725  
(877) 499-9909  
info@cfkequinehospital.com

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