



## Glanders

**Disease Name:** Glanders, farcy, Malleus

**Disease Type:** Bacterial (*Burkholderia mallei*)

**Transmission:** Respiratory secretions and exudate from skin lesions are infectious. Spread can occur via direct physical contact with infected horses or indirectly through ingestion of contaminated food or water, contact with contaminated surfaces such as stalls, water buckets/troughs, feed buckets, tack, grooming equipment, and transport vehicles.

**Frequency:** The disease has been eradicated in North America, Australia and Europe and was never present in New Zealand. Glanders continues to be present in a number of Asian, African, Middle Eastern, and South American countries. Recent outbreaks in countries from which it was previously eradicated indicate that Glanders is no longer as geographically restricted in terms of its global distribution. Glanders is an OIE (World Organization of Animal Health) listed equine disease and a foreign disease (transboundary disease) in the United States. It is immediately reportable to the USDA and State Animal Health Officials in all 50 states and territories.

**Incubation period:** In natural infection, the incubation period can be weeks to months. The route, level of exposure, host and environmental factors can influence the incubation period. It is generally shortest in donkeys, followed by mules and then horses.

**Carrier status:** Infected equids are carriers and can transmit the disease to other horses, donkeys mules, other animals, and humans through direct contact or contamination of skin abrasions or inhalation of secretions.

**Shedding period:** Once an animal is infected the shedding period is lifelong. Affected animals that are not showing clinical signs can be carriers and can shed the bacteria.

**Latency:** The latent form is often found in the lungs with no clinical signs. The duration of the latent period is unclear as carriers are typically euthanized to stop the spread of the disease.

**Severity:** High. Acutely affected equid usually die within a few days to several weeks.

**Clinical signs and symptoms:** Glanders can present in several forms, nasal, pulmonary and cutaneous, depending on the location of the primary area of infection. The course of the disease may be acute or chronic.

Clinical signs associated with early infection or sub-clinically/asymptomatically infected carriers (**Occult Glanders**) can be non-specific or non-existent, emphasizing the importance of these horses as a source of infection.

### Nasal Form

- Begins with high fever, poor appetite, difficult breathing and coughing
- A highly infectious, thick, yellowish-green nasal discharge
- Thick crusty eye discharge
- Swellings in the nose, pharynx or trachea may produce visible ulceration and form scars
- Regional lymph nodes are enlarged



### **Pulmonary Form**

- Usually requires several months to develop; first manifests itself through fever, difficulty breathing, severe coughing episodes, or a persistent dry cough
- Diarrhea and increased urination may also occur; all leading to a progressive loss of condition

### **Cutaneous Form (farcy)**

- Develops slowly over an extended period.
- Initially coughing, difficulty breathing, fever, and enlarged and inflamed lymph nodes leading to weight loss and debilitation.
- Nodules develop under the skin along lymphatics of the face, legs, ribs or ventral abdomen. Nodules may rupture and ulcerate resulting in skin inflammation.

### **Occult Glanders**

- Horses which are sub-clinically/asymptotically infected

Donkeys and mules typically develop the acute and subacute forms of the disease while horses are more likely to develop occult glanders.

**Diagnoses:** All manipulations with potentially infectious material must be performed in a laboratory that meets the requirements for Containment Group 3 pathogens. USDA regional office or a state animal health official should be contacted immediately if a case of Glanders is suspected.

**Treatment:** There is no cure for Glanders. Antibiotic therapy does not appear to be effective in horses.

**Prognosis:** Glanders is incurable.

**Prevention:** There is no vaccine available for Glanders. Critical to effective prevention and control of glanders is prompt identification, euthanasia and appropriate disposal of all positive cases of the disease. *Burkholderia mallei* is killed by direct sunlight, desiccation and common disinfectants. Affected premises shall be quarantined and movement controls strictly enforced.

**Biosecurity:** Infected horses must be euthanized or quarantined under direction of the USDA and State Animal Health Officials with separation from non-infected horses by at least 200 yards to prevent spread of the disease.

**Zoonotic Risk:** Glanders is a zoonotic disease that is potentially life threatening. Humans can develop a chronic or acute form with nodules and abscessation similar to animals. Nodules may be seen on the face, legs, arms and nasal mucosa, progressing to pyemia, metastatic pneumonia, and not infrequently death. Without antibiotic treatment, disease in humans is fatal; untreated acute disease in humans has a 95% mortality rate within 3 weeks. With antibiotic treatment, the prognosis is more favorable.