

# Influenza in Horses

*Influenza is a highly contagious infection of the upper respiratory tract of horses*

## Overview

Equine influenza is a highly contagious upper respiratory tract infection caused by strains of the influenza virus type A. The common type of influenza A virus that currently circulates in horse populations is the subtype A2 (H3N8). An earlier subtype, A1 (H7N7) is now believed to be extinct in horses and is no longer recommended for equine influenza vaccines.<sup>1</sup>

Like other respiratory diseases of horses, influenza is a source of major economic loss to the equine industry due to lost training days and veterinary costs.<sup>2</sup> Furthermore, influenza A infections often occur as outbreaks that rapidly spread through susceptible horse populations (e.g., at high-traffic facilities such as racetracks).

Horses become infected by inhaling the influenza A virus that is shed by infected, coughing horses or via equipment such as feed buckets, tack, and grooming aids that were contaminated by an infected horse.<sup>1</sup> The virus then replicates in the lining (epithelial cells) of the upper respiratory tract. These infected cells die, and there is increased production of a watery discharge as well as swelling and inflammation of the respiratory tract.

## Clinical Signs of Influenza

The virus has a very short incubation period of only one to three days, and the clinical signs of influenza are obvious three to five days after initial exposure to the virus. Classic clinical signs associated with equine influenza include a sudden onset of a high fever (up to 106°F), coughing, a serous (clear, runny) nasal discharge, and sometimes mild swelling of the submandibular (under the jaw) lymph nodes. Rarely, veterinarians might note edema (swelling) of the distal limbs and trunk in horses with influenza, which is referred to as epizootic cellulitis.<sup>1,3</sup>

In some horses a secondary bacterial



One of the classic clinical signs associated with equine influenza is a serous (clear, runny) nasal discharge.

infection can develop, resulting in pneumonia. The nasal discharge in these horses usually changes from serous to mucoid (green, yellow, and thick), signifying a secondary bacterial pneumonia on the heels of the influenza, which can be fatal if untreated.

It is important to remember that the severity of clinical signs is highly variable depending on the immune status of the horse. Sometimes horses can be infected and contagious without showing any clinical signs of infection. These horses, in particular, risk circulating the virus throughout the horse population.

Since the clinical signs of influenza are nonspecific, distinguishing influenza from other causes of upper respiratory tract infections can be challenging based on presentation alone. Other diseases that influenza could be mistaken for include equine herpesvirus-1 and -4, rhinovirus,

*Streptococcus equi* infection (strangles), equine viral arteritis, bacterial pneumonia, chronic obstructive pulmonary disease, pharyngitis (inflammation of the throat), and a multitude of other less common conditions.<sup>1</sup>

Influenza is most commonly diagnosed in unvaccinated horses and in young horses between one and five years of age, especially those that frequent areas with large groups of transient horses (such as racetracks and show grounds).<sup>1,3</sup>

Older horses can also become infected with influenza, but they generally experience a milder disease than their younger counterparts.

## Diagnosis

A diagnosis of influenza A used to be presumed based on history, clinical presentation, and by ruling out other causes of fever, cough, and nasal discharge (i.e., strangles, bacterial pneumonia). Now experts recommend using the available technology to identify the exact cause of the infection. Accurately diagnosing the cause of respiratory disease is an important step in implementing proper management practices and controlling disease spread.<sup>4</sup> An accurate diagnosis also is important for the industry to determine efficacy of the existing vaccines.

Virus isolation, serology (determination of acute and convalescent antibody titers), and stall side immunoassay kits that detect the influenza A virus can be used to diagnose affected horses. At the 2010 American Association of Equine Practitioners' (AAEP) Annual Convention, researchers described the use of a polymerase chain reaction (PCR) test to diagnose equine influenza (as well as equine herpesviruses-1 and -4 and *Streptococcus equi* subsp *equi*). According to the study authors, the PCR test quickly (i.e., within 24 hours) and accurately diagnosed respiratory infections in 761 horses.<sup>4</sup>

## Treatment

Equine influenza infections are generally self-limiting, and no specific treatment exists. Owners should isolate affected horses from healthy horses and institute general supportive care. This includes encouraging the horse to eat and drink and administering non-steroidal anti-inflammatory drugs as prescribed by a veterinarian to control high fevers. Resting affected horses (typically one week for every day of fever) is imperative. Do not resume training until the horse's coughing has subsided completely.

If the fever persists for three or more days and the nasal discharge becomes mucopurulent (containing pus and mucus), then the horse should be reexamined for development of a bacterial pneumonia.

Horses with a suspected pneumonia are treated aggressively with antibiotics. Antibiotic selection is generally based on the culture and sensitivity results performed on a tracheal aspiration (a fluid sample collected from the trachea using a long, thin tube and saline).

## Prognosis

For uncomplicated cases, horses should

completely recover and return to exercise within three to six weeks of infection.<sup>1,3</sup> In more severe cases horses might require up to 100 days of rest.

Horses that develop secondary bacterial infections require longer recovery periods and have a more conservative prognosis for return to previous athletic function due to damage to the lung tissues.

## Prevention

Vaccination plays an important role in prevention of influenza A infections. The AAEP recommends vaccinating all at-risk horses.<sup>5</sup> Vaccination schedules vary depending on current vaccine status, age, broodmare status, and potential exposure.

For example, the AAEP recommends administering a series of three boosters to adult, unvaccinated horses followed by semi-annual vaccination. Discuss vaccination protocols with your veterinarian to develop a custom risk-based vaccine schedule most suitable for your horse.

Like all influenza viruses, equine influenza viruses mutate (change) over time, and the vaccines must periodically be updated to keep up with the changing viruses

in circulation. To accomplish this, surveillance and laboratory diagnosis of equine influenza cases is essential.

Management also is important in disease prevention. Quarantine new horses for 14 days prior to mixing them with resident horses to minimize the chance of introducing the influenza virus to your herd. Don't share equipment or supplies between horses, especially if one spikes a fever, has nasal discharge, or is coughing. 🐾

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*Further reading and free health e-newsletter: [www.TheHorse.com/influenza](http://www.TheHorse.com/influenza).*

*Authored by Stacey Oke, DVM, MSc; reviewed by Tom Chambers, PhD*



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