

Infectious Diseases of Working Equids



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KEYWORDS

• Working • Equid • Infectious disease • Morbidity • Mortality

KEY POINTS

- Most of the world's 112 million equids are working equids, residing in low-income countries where they have an essential role in the livelihoods of their owners.
- Key infectious diseases affecting the health of working equids include African horse sickness (AHS), epizootic lymphangitis (EYL), equine infectious anemia (EIA), gastrointestinal nematodes, glanders, piroplasmosis, tetanus, and trypanosomosis.
- There are considerable technical, social-behavioral, and institutional impediments globally to reducing the burden of infectious diseases on working equids.

INTRODUCTION

Working equids (working horses, mules, and donkeys) have an essential role in the livelihoods of millions of people worldwide.^{1,2} These equids perform numerous activities on a daily basis, including the transportation of goods, people, and construction materials, as well as being used in agricultural and tourism activities.^{3,4} It is estimated that the total world equid population is approximately 112 million (approximately 58.5 million horses, 43.0 million donkeys, and 10.5 million mules), although this is very likely to be a gross underestimate.⁵ These equids are found across the globe: 46 million in the Americas, 7 million in Europe, 33 million in Asia, and 25 million in Africa. Most of the world's equids are working equids, many residing in low-income, net food-importing countries (more than one-third of all equids, and >50% of all donkeys).

Working equids have a role in reducing poverty, providing food security, enhancing rural development, and promoting gender equity across the globe. These animals are especially important to vulnerable groups, landless communities, and to women, where they can provide an effective entry point to income-generating activities.^{6,7} Working equids currently have a limited place within many animal health systems, and are largely absent from agricultural policy, research, and education programs.³ They are frequently not included in disease eradication and vaccination campaigns,

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and despite many equine diseases featured on the World Organisation for Animal Health's (OIE) notifiable disease list, these diseases are not often included in government disease surveillance systems.

Working equids suffer from low productivity as a result of prevalent infectious diseases, and diseases associated with poor management practices. The health and welfare of working equids is often compromised in many low-income countries as a result of the impoverished situations their owners live in, the challenging environmental and climatic conditions,⁸ the unavailability of appropriate medications and vaccines, and the widespread use of ineffective or harmful traditional therapies.

INFECTIOUS DISEASES OF WORKING EQUIDS

Infectious diseases are an important constraint to the health and productivity of working equids.^{9–18} However, there are often limited or no data quantifying the occurrence, prevalence, and distribution of many infectious diseases in working equids in low-income countries. Many countries known to have large populations of working equids do not have an OIE official status for certain diseases, and many countries have no reporting history regarding many infectious diseases. Numerous viral, bacterial, fungal, and parasitic diseases affect working equids. These diseases are widely distributed and cause considerable morbidity and mortality. Key infectious diseases of working equids are proposed in **Box 1**.

Although the reader is referred to other articles in this issue for additional comprehensive discussions of 2 of these diseases (see the articles equine infectious anemia by Issel et al and piroplasmiasis by Wise et al elsewhere in this issue), information with particular relevance to working equids is provided in the following sections.

AFRICAN HORSE SICKNESS

African horse sickness (AHS) is a noncontagious, infectious, insect-borne disease of equids caused by African horse sickness virus (AHSV). The course of the disease is usually peracute to acute and is associated with high morbidity and mortality in working equid populations in affected countries, causing significant economic losses for owners.

Etiology

AHSV is a member of the genus Orbivirus in the family Reoviridae. Nine antigenically distinct serotypes have been described, with some cross-relatedness between the

Box 1

Key infectious diseases of working equids (in alphabetical order)

- African horse sickness (AHS)
- Epizootic lymphangitis (EzL)
- Equine infectious anemia (EIA)
- Gastrointestinal nematodes
- Glanders
- Piroplasmiasis
- Tetanus
- Trypanosomiasis

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