Case Definitions for Equine Diseases

Developed by the CAHSS Equine Network
Last updated August 2024

Section 1: Federally Reportable and Immediately Notifiable Diseases

This section provides case definitions for equine diseases that are reportable or immediately notifiable to the Canadian Food Inspection Agency (CFIA). Case definitions are aligned with those used by the CFIA.

Table 1.1 Regulatory status at federal and provincial levels

Disease	CFIA regulatory code*	Provincial regulatory codes*
Equine Infectious anemia (EIA)	R	BC (R), MB (R), NL (R), ON (IN), QC (R), YT (R)
Eastern equine encephalitis (EEE)	IN	BC (R), MB (R), NL (R), ON (IN), QC (IN)
Western equine encephalitis (WEE)	IN	BC (R), MB (R), NL (R), ON (IN), QC (IN)
West Nile virus (WNV)	IN	AB (N), BC (N), MB (R), NL (R), ON (IN), QC (IN), SK (N)

*R Reportable, IN Immediately notifiable, N Notifiable

Table 1.2 Case Definitions

Disease	Case Definition
Equine infectious anemia (EIA)	An equine animal that receives an EIA-AGID positive result from the EIA national reference laboratory and is >6 months of age OR <6 months of age and not born to a positive mare.
Eastern and western equine encephalitis (EEE/WEE)	Clinical signs consistent with EEE/WEE which may include but are not limited to: fever, depression/somnolence, inappetence, dysphagia, head pressing, circling, blindness, seizures, rapid behaviour change (hyperexcitability, mania, self-mutilation) cranial neuropathy (nystagmus, facial nerve paralysis and weakness of the tongue), coma, death; AND one of the following: • Detection of EEE/WEE virus in brain or nervous tissue by reverse-transcriptase-PCR, virus isolation or immunohistochemistry, • Detection of IgM antibody to EEE/WEE by IgM capture ELISA. Vaccination may lead to a low IgM response and vaccine history must be taken into account. • Demonstration of a 4-fold or higher increase in serum antibody titre (e.g. Complement fixation (CF), Plaque Reduction Neutralization Test (PRNT) or hemagglutination inhibition (HI)), in samples collected 10-14 days apart and tested by the same laboratory at the same time.

West Nile virus (WNV) encephalomyelitis	Clinical signs that must include ataxia (including stumbling, staggering, wobbly gait, or incoordination) or at least two of the following: circling, hind limb weakness, inability to stand, multiple limb paralysis, muscle fasciculation, proprioceptive deficits, blindness, lip droop/paralysis, teeth grinding, fever, acute death; AND one of the following: • Isolation of West Nile Virus from tissues (brain or spinal cord are preferred but tissues may include blood or CSF), • A positive polymerase chain reaction (PCR) to WNV genomic sequences in tissues and appropriate histological changes, • A positive immunohistochemistry (IHC) for WNV antigen in tissue and appropriate histological changes, • Detection of IgM antibody to WNV by ELISA testing in serum or cerebrospinal fluid. Vaccination may lead to a low serum IgM response and vaccine history must be taken into account. • A four-fold or higher increase in IgG ELISA testing or serum neutralization test antibody titre to WNV in samples taken >10-14 days apart and tested by the same laboratory at the same time.

Section 2: Equine diseases that are not federally regulated

This section of the document provides working case definitions for equine diseases of high importance in Canada that are not reportable or immediately notifiable to the Canadian Food Inspection Agency.

Because case reporting for equine diseases included in this document differs across provinces and territories, ***regions with more complete reporting will incorrectly appear to have higher case counts***. As such, absence of reported cases of non-regulated diseases should not be taken to mean a region is actually disease free. While keeping this important limitation in mind, moving ahead with reporting for priority diseases does provide equine health stakeholders with useful information, and builds reporting capacity over time.

Table 2.1 Regulatory status at federal and provincial levels

Disease	CFIA regulatory code*	Provincial regulatory codes*
Equine herpesvirus-1 (EHV-1)	Not regulated	ON (IN)
Equine herpesvirus myeloencephalopathy (EHM)	M	BC (N), SK (N), QC (IN)
Neurotrophic equine herpesvirus type 1	M	AB (N)
Equine herpesvirus type 1 abortion	Not regulated	SK (N)
Equine herpesvirus clinical case	Not regulated	SK (N)
Equine herpesvirus rhinopneumonitis	AN	BC (N), SK (N)
Equine influenza	AN	ON (IN)
Equine salmonellosis	AN	BC (N), AB (N), ON (IN), QC (IN), NL (R), YT (R)
Equine viral arteritis (EVA)	AN	ON (PN)
Potomac horse fever (PHF) or Equine neorickettsiosis	Not regulated	ON (PN)
Strangles (*Streptococcus equi subsp. equi*)	AN	ON (IN)

* R Reportable, IN Immediately notifiable, AN Annually notifiable, PN Periodically notifiable, N Notifiable, M Monitored

Table 2.2 Case Definitions

Disease	Working Case Definition
Equine herpesvirus myeloencephalopathy (EHM)	Clinical signs of central neurological disease (esp. posterior paresis, ataxia, weakness, recumbency or bladder atony); **AND one of the following:** • Identification of EHV in nervous tissue through immunohistochemistry or PCR, • Detection of EHV-1 from nasal swabs or blood (buffy coat) by virus isolation or PCR, • Identification of a 4-fold or greater increase in serum neutralization or complement fixation titre in samples collected 10-14 d apart and tested by the same laboratory at the same time.
Equine herpesvirus type 1 abortion	Abortion at any stage in pregnancy; **AND one of the following:** • Detection of EHV-1 by PCR, virus isolation or immunohistochemistry from fetal tissues or placenta, • Identification of a 4-fold or greater increase in serum neutralization or complement fixation or ELISA titre in samples collected from the mare at the time of abortion and 10-14 d later, and tested by the same laboratory at the same time.
Equine herpesvirus clinical case/ Equine herpesvirus rhinopneumonitis	Some of the clinical signs consistent with EHV infection but not included in the other definitions; these may include fever (rectal temperature greater than 101.5 degrees Fahrenheit (38.6 degrees Celsius)), limb edema, or nasal discharge; **AND one of the following:** • Detection of EHV-1 or EHV-4 from blood or nasal swabs by virus isolation or PCR, • Identification of a 4-fold or greater increase in serum neutralization or complement fixation titre in samples collected 10-14 d apart and tested by the same laboratory at the same time.
Equine influenza	Clinical signs include fever, depression, dry harsh cough, nasal discharge (serous to mucopurulent), muscle pain; **AND one of the following:** • Detection of the virus from nasopharyngeal swabs using virus isolation or real-time PCR (will only detect certain strains). • Acute and convalescent serum samples taken 14 days apart.

Equine salmonellosis	Clinical signs include fever, soft to watery diarrhea (sometimes bloody) although, less frequently horses may have normal manure, colic, anorexia, focal infection (e.g. joint or brain), sepsis; Foals - signs of septicemia such as fever, pneumonia, meningitis, joint infection **AND** Detection of Salmonella sp. in biological samples using culture and/or qPCR. An enrichment step should be used in the laboratory.
Equine viral arteritis (EVA)	Laboratory diagnosis is necessary to identify horses with EVA due to inconsistent clinical signs and a high frequency of horses without obvious or specific clinical signs. Possible clinical signs may include fever, peripheral edema, abortion, stallion sub-fertility, and/or upper or lower respiratory signs. **Laboratory diagnosis is based on** Detection of EVA from nasopharyngeal washings/swabs, EDTA, citrated whole blood (no heparin), serum, or semen by RT-PCR and/or viral isolation. **OR** Detection of EVA from fetal membranes or aborted fetal tissues (lung, liver, kidney, spleen, thymus), or adult tissues (lung, thymus) by RT-PCR and/or viral isolation. **OR** Identification of a 4-fold or greater increase in serum neutralization in samples collected 14-28 d apart, and tested by the same laboratory at the same time.
Potomac horse fever (PHF) or Equine neorickettsiosis	Clinical signs include one or more of fever greater than 39°C, anorexia, depression, diarrhea (absent to severe), colic, edema of the limbs/ventral abdomen, laminitis, abortion; **AND** Positive PCR test on whole blood, feces or aborted fetus for *N. risticii*
Strangles (*Streptococcus equi subsp. equi*)	Clinical signs consistent with strangles, i.e. fever, mucopurulent nasal discharge, swelling and abscessation of the lymph nodes of the head (submandibular) and upper neck (retropharyngeal, parotid, cranial cervical); *Additional clinical signs may include inappetence, lethargy, extended neck, dysphagia, upper airway stridor.* **AND** Detection of *Streptococcus equi* subsp. *equi* from **nasopharyngeal** washes or swabs, guttural pouch washes or directly from pus (e.g. draining lymph node) by bacterial culture or PCR. Nasal swabs should only be used if there is obvious mucopurulent debris in the nasal passage to be sampled. More than one type of sample (e.g. swab and wash) along with more than one test (PCR and culture) will increase the likelihood of *S. equi* detection. Bacterial culture of the organism is considered the gold standard for diagnosis *(Sweeney et al. Streptococcus equi infection in horses: Guidelines for treatment, control, and prevention of strangles. JVIM 2005; 19: 123-134).*

	Other manifestations of S. equi subsp equi infection Identification of *Streptococcus equi* subsp. *equi* in a horse with clinical signs suggesting a complication from strangles (e.g. purpura hemorrhagica, metastatic abscessation, chondroid formation in the guttural pouches, myopathies) also leads to a diagnosis of strangles. **Carrier State** Identification of *Streptococcus equi* subsp. *equi* from the guttural pouch with or without purulent debris or chondroids, in an asymptomatic horse, indicates a subclinical carrier state.