



Case Definition

Classical Swine Fever (CSF) (Notifiable)

December 2023

1. Disease Information

1.1 General Disease and Pathogen Information: Classical swine fever (CSF) is a highly contagious and economically significant infectious disease of both domestic and wild pigs¹ caused by the CSF virus (CSFV). CSFV is a small, enveloped ribonucleic acid (RNA) virus of the family *Flaviviridae* and genus *Pestivirus*. Transmission is by direct or indirect contact and occurs through oral, oronasal, genital, in-utero, or percutaneous routes. Aerosol transmission has been demonstrated experimentally. The incubation period is typically 7 to 10 days, though it can range from 2 to 15 days. CSF has several clinical presentations (acute, chronic, and congenital infection) that are dependent on previous exposure to the virus, viral virulence (high, moderate, and low), and host factors such as age and nutritional status. Young animals are usually affected more severely than older animals and mortality rates may reach 100 percent. In older breeding pigs, the course of the infection is often mild or even subclinical. Naïve populations tend to be more severely affected and are more likely to present with the classical acute presentation; however, the classical acute presentation is now rarely seen during outbreaks. Instead, more moderate forms and presentations of the disease predominate. Prevailing strains of CSFV exhibit moderate to low virulence, making clinical diagnosis difficult especially in older animals. Low virulence strains usually give rise to a mild disease or subclinical infection that can remain undetected for long periods of time. Leukopenia is a consistent clinical laboratory finding, except with low virulence strains. CSFV is endemic in certain parts of Asia, South and Central America, and the Caribbean. CSFV prevalence in Africa is unknown due to limited surveillance. CSFV is present in wild boar in parts of Europe. There is no known risk of human infection.

1.2 Clinical Signs:

1.2.1 Acute: Illness, usually seen with more virulent strains or in weaned suckling pigs less than 12 weeks of age, is characterized by fever, severe depression, huddling, skin hyperemia or hemorrhage, enlarged lymph nodes, conjunctivitis, cyanosis of extremities, and ataxia. These are followed by posterior paresis, abortion (rare), and/or vomiting and diarrhea. Death typically occurs 1-4 weeks post-infection and mortality in young swine can reach 100%.

1.2.2 Chronic: Pigs recovered from acute infection may progress into a chronic infection during which they experience anorexia, fever, diarrhea, and/or dermatitis, and which may result in the occurrence of runts in the herd. Chronic disease is characterized by subdued acute infection followed by a brief recovery

¹ The pig (*Sus scrofa*, both domestic and wild) is the only natural host for classical swine fever virus.



before relapse of fever, anorexia leading to wasting, and death 1-3 months after onset.

1.2.3 Congenital infection: Infection of sows during gestation can result in reduced reproductive performance and/or abortions/stillbirths. Weak piglets may be the only indication of disease in a herd. Pigs born to sows infected prior to day 50-70 of gestation may abort or give birth to stillbirths, mummies, or pigs with congenital defects. Pigs born to sows infected after day 50-70 of gestation may be born with congenital tremors or be persistently infected and appear normal for several months before dying. Survival periods of 11 months after birth have been observed.

2. Laboratory Criteria

2.1 Agent Isolation and Identification: Collect whole blood (ethylenediamine tetraacetic acid (EDTA) tubes), tonsils, spleen, and lymph nodes. Keep samples as cold as possible without freezing. Tests include reverse transcriptase real-time polymerase chain reaction (PCR), genomic sequencing, and virus isolation.

2.2 Agent Characterization: Genome sequencing is critical for strain determination and differentiating wild type CSFV from vaccine strains known to occasionally persist in vaccinated animals.

2.3 Serology: Enzyme-linked immunosorbent assay (ELISA) is used for antibody (Ab) detection in serum followed by the immunoperoxidase test (IPT) and/or immunoperoxidase virus neutralization test (IP-VN) for confirmation of inconclusive or non-negative results. Due to immunosuppression with virulent strains, antibodies are not reliably detectable before 21 days post infection and last at least several years. With chronic infections, antibodies are potentially briefly detectable at the end of the first month but if present, quickly disappear. Congenitally infected pigs are persistently viremic and seldom produce specific antibodies. The more sensitive ELISA assays recommended for screening are known to cross react with bovine viral diarrhea virus (BVD). Antibody tests are not able to differentiate vaccinated animals from those naturally infected.

3. Case Classification

3.1 Suspect Case: a pig having

3.1.1 clinical signs consistent with CSF; **OR**

3.1.2 an epidemiologic link to CSFV; **OR**

3.1.3 a non-negative result in an unvaccinated animal by a serologic antibody screening assay conducted as part of a national surveillance activity.

3.2 Presumptive Positive Case: a suspect case with a non-negative test result for CSFV PCR, excluding amplification of nucleic acid specific to CSFV vaccine strains, from a NAHLN or other APHIS-approved screening laboratory.



3.3 Confirmed Positive Case:

3.3.1 CSF virus, excluding vaccine strains, has been isolated and sequenced at the National Veterinary Services Laboratories (NVSL); **OR**

3.3.2 A pig with clinical signs or pathologic lesions suggestive of CSF **or** an epidemiologic link to a case of CSFV **or** cause for suspicion of previous association or contact with CSFV; **AND**

3.3.2.1 a CSFV PCR positive result, excluding amplification of nucleic acid specific to CSFV vaccine strains, with genomic sequencing at NVSL; **OR**

3.3.2.2 antibodies specific to CSFV that are not a consequence of vaccination or infection with other pestiviruses are identified by Ab ELISA and confirmed by IPT and IP-VN at NVSL.

4. **Reporting Criteria:** CSF is a U.S. foreign animal disease (FAD) that is immediately reportable under the APHIS [National List of Reportable Animal Diseases \(NLRAD\)](#).

4.1 NLRAD reporting in accordance with the [NLRAD Standards](#) for notifiable diseases; and by APHIS to the [World Organisation for Animal Health \(WOAH\)](#); **AND**

4.2 For FAD or Emerging Disease Incidents (EDI) also follow standard procedures according to the [Policy for the Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents](#).