Case Definition

Classical Swine Fever (CSF)
(Notifiable)

February 2022

1. **Disease Information**

1.1 General Disease and Pathogen Information: Classical swine fever (CSF) is an infectious disease of both domestic and wild pigs caused by the CSF virus (CSFV). CSFV is a small, enveloped ribonucleic acid (RNA) virus of the family Flaviviridae and genus *Pestivirus.* 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 up to 90 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. Instead, more moderate forms and presentations of the disease predominate. Prevailing strains of CSF virus 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 fairly consistent clinical laboratory finding, except with low virulence strains.

1.2 Clinical Signs:

1.2.1 Acute: Illness, usually seen in weaned suckling pigs less than 12 weeks of age, is unresponsive to antibiotics and characterized by fever, severe depression, skin hyperemia, conjunctivitis, and staggering gaits followed by posterior paresis, abortion (rare), and/or diarrhea.

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

1.2.3 Congenital infection: Congenital infection 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 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. (Sows infected prior to day 50-70 of gestation may abort or give birth to stillbirths, mummies, or pigs with congenital defects).

2. Laboratory Criteria

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

2.2 Agent Characterization: Genome sequencing is critical to differentiate vaccinated strains, known to occasionally persist in vaccinated animals, from wild type CSF virus.

2.3 Serology: Antibody (Ab) detection in serum is evaluated by enzyme-linked immunosorbent assay (ELISA), typically followed by the immunoperoxidase virus neutralization test (IP-VN) and/or immunoperoxidase test (IPT) for confirmation of inconclusive or non-negative results. Due to immunosuppression with virulent strains, antibodies are not detectable before 18 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).

3. Case Definition and Reporting Criteria

3.1 Suspect Case: an animal having

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

3.1.2 an epidemiologic link to CSFV.

3.2 Presumptive Positive Case: a suspect case with a non-negative screening laboratory test result for CSFV (RT-qPCR, Ab ELISA)

3.3 Confirmed Positive Case:

3.3.1 an animal from which an approved lab has isolated CSF virus; **OR**

3.3.2 otherwise identified by at least two different tests[1]

3.3.2.1 one antigen AND one antibody assay, especially in the case of subacute or chronic cases; **OR**

3.3.2.2 two antigen assays

[1] Under unique conditions, after confirming a negative vaccine status, animal health officials may consider multiple non-negative ELISAs supported by positive IPTs as confirmed positive cases.