

Enhanced Surveillance for Classical Swine Fever

Still endemic in much of the world, classical swine fever (CSF) is a highly contagious viral septicemia. In the last decade, the European Union (EU) has experienced several major CSF outbreaks, particularly in Belgium, Germany, and The Netherlands. Germany alone had 424 outbreaks of CSF in domestic pigs between 1990 and 1998. CSF also reemerged in Cuba in 1993, Haiti in 1996, and the Dominican Republic in 1997. Because this pestivirus can survive in pork for many months, importing contaminated pork is a real possibility and presents a clear risk to the CSF-free status the U.S. pork industry has enjoyed since 1976. Also, because it takes most CSF-free countries 6 to 9 weeks to detect and confirm a new CSF case, CSF-exposed pigs may be imported unwittingly during this high risk period.

The National Surveillance Unit (NSU) has assembled a team responsible for designing a national surveillance plan for CSF. The foremost objective of the surveillance plan is to ensure the timely detection of CSF, should it be introduced into the U.S. swine population. Five surveillance programs will be designed to meet this objective:

1. Population-based passive reporting of suspicious CSF cases,
2. Laboratory-based surveillance of serum and tissue from sick pigs,
3. VMO/AHT-based active surveillance of registered waste feeders for CSF,
4. Slaughter-based active surveillance of samples collected from plants in Texas, Florida, and Puerto Rico, and
5. Population-based active surveillance of high risk herds, e.g. herds importing swine genetic material or near pork-meat disposal areas.

The first program (population-based passive reporting of suspicious CSF cases) relies on producers and practitioners to note and report suspect CSF cases. A case definition¹ has been developed to aid in this passive reporting system. CSF-suspected herds should be reported immediately to the State Area Veterinarian in Charge to initiate a foreign animal disease (FAD) investigation. The FAD diagnostician should necropsy five pigs and collect the following tissues: tonsil, lymph nodes, spleen, kidney, and distal ileum. The Emergency Management Response System will be used to capture data and results regarding suspect herds. As explained in the CSF case definition (below), the clinical picture may be in apparent or nondescript. In addition, many producers in the less swine-populated States do not have ready access to a veterinarian. Therefore, additional surveillance is required to rapidly detect the first CSF case.

The second program is laboratory-based surveillance of serum and tissue from sick pigs. Sick-pig samples will be obtained from veterinary diagnostic laboratories and slaughter plants. Any and all swine samples submitted to a veterinary diagnostic lab that have one or more of the following lesions will be set aside for enhanced CSF surveillance:

- Dramatic acute septicemias
- Abortions, particularly with congenital deformities
- Dermatopathy or Nephritis
- Undiagnosed central nervous system cases (especially congenital tremors & nonsuppurative encephalitis)
- Other undefined cases that are suspicious to the pathologist

Additionally, in States deemed to be “high-risk” for CSF, tissues from sick pigs will be obtained from each State’s largest (swine) slaughter plant. States are deemed high-risk based on the number of licensed garbage feeders, swine population, and the numbers of international travelers. Tissues will be set aside for enhanced CSF surveillance on any and all condemnations that result from one or more of the following dispositions: erysipelas, septicemia, pyrexia, miscellaneous infection disorders, or any swine suspected of having an FAD. Tonsils should be collected from all eligible carcasses.

The CSF surveillance plan will be expanded in spring 2005 to incorporate the plan’s other three programs. In addition, future versions of the comprehensive plan will address other surveillance objectives such as monitoring for the risk of CSF introduction and conducting surveillance to facilitate trade.

ⁱ **Case definition for Classical Swine Fever**

Clinical description (in an area where CSF is not known to be present):

Swine affected with a septicemia characterized by persistent fever, skin discoloration, conjunctivitis, and diarrhea that is unresponsive to antibiotics. Leucopenia is a consistent clinical laboratory finding. Severity is variable.

Three forms are seen:

- Acute – illness in weaned pigs under 12 weeks of age that is unresponsive to antibiotics and characterized by fever, skin discoloration, conjunctivitis, hind-limb weakness, and diarrhea.
- Chronic – characterized by subdued acute infection followed by brief recovery before returned onset of fever and anorexia, leading to wasting and death 1 to 3 months after onset.
- Late onset – sows infected prior to day 50 to 70 of gestation will abort; sows infected after day 50 to 70 give birth to pigs that are normal for several months before dying or have congenital tremors.

Clinical case definition

A herd exhibiting one or more of the following clinical features:

- A herd with clinically compatible cases
- A herd with clinically compatible cases with necropsy examination demonstrating splenic infarcts, internal hemorrhages of the kidney, bladder, lymph nodes, larynx, or other evidence of septicemia.
- A herd with clinically compatible cases that in the previous 3 months had either imported genetic material from a foreign country, fed waste to swine, or had a person on-site who was recently on a farm in a foreign country.

Laboratory criteria for diagnosis

- PCR-positive result

- IP stain on cell culture inoculated with whole blood
- ABC positive sample confirmed by PCR-positive test
- Virus isolation

Case classification:

Suspected: A herd that meets the clinical case definition.

Probable: A clinically compatible case that meets any one of the following laboratory criteria:

- Positive reading on PCR
- IP stain on cell culture
- ABC positive sample confirmed by either PCR-positive test

Confirmed: A clinically compatible case that meets the laboratory criteria for a probable case from which virus is isolated at FADDL.

Comments:

CSF suspect herds should be reported immediately to the State AVIC. The AVIC's responsibilities to take action are detailed in VS Memorandum 580.4 and result in a timely investigation of the suspected herd by an FADD.