

2019 Vesicular Stomatitis Field Procedures April 2019

NOTE: Vesicular Stomatitis Virus (VSV) response procedures were modified in 2015 due to changes in international reporting of VSV. VSV in any species remains reportable to state and federal animal health officials in the United States.

Key Response Changes Implemented Since 2015:

- The quarantine period for premises with suspect or confirmed VSV cases was reduced to 14 days from the onset of lesions in the last affected animal on the premises (instead of 21 days after lesions have healed). This more closely correlates with the known time period for viral shed from lesioned animals.
- After confirmation of the first VSV case in a state, equids with suspected lesions on subsequent premises are not required to be tested, but the premises will be quarantined for the time period stated above.
- Accredited veterinarians may be used to collect samples and monitor premises with suspected equine VSV cases at the discretion of the state animal health official (SAHO) after the index case in a state is confirmed or in situations where limited state/federal resources are available.
- National Animal Health Laboratory Network (NAHLN) laboratories that currently hold a “VSV-approved” status may request to be activated after the first case in a state is confirmed. Activated NAHLN laboratories may test clinical equids only from the state in which the laboratory is located.
- The National Veterinary Services Laboratories (NVSL) is still available to test any clinical equids in a VSV-positive state at the discretion of the SAHO and will do so as non-billable testing with a Foreign Animal Disease (FAD) number assigned to indicate approval of the SAHO and Area Veterinarian in Charge (AVIC).
- A foreign animal disease diagnostician (FADD) will still be dispatched on all suspect cases involving ruminants or swine with lesions, an FAD number will be assigned, and samples will be collected and submitted to FADDL as per current version VSG 12001 “Investigation of Potential FADs and EDIs”.

VS Memorandum 555.17 “Vesicular Stomatitis Control Strategy” is in the process of being revised to reflect the response changes above.

2019 Index Case: Once the 2019 “Index Case for the United States” (case definition on page 2) is met, the procedures in this document will apply to all VSV suspect investigations in any state during the outbreak year. The VSV Situation Unit Leader (SUL) position will be activated to provide epidemiology support and national level situation reporting across states as needed. Communication on suspected VSV cases should include the SAHO, the AVIC, the SUL and back-up SUL, and the points of contact for the appropriate NVSL laboratory if samples are collected. See “Points of Contact” section of this document for current contact information.

2019 Case Definitions

NOTE: All case definitions first require the presence of lesions. These case definitions replace those currently listed in VS Memo 555.17.

Index Case for the United States

The index case for the country requires compatible clinical signs and laboratory confirmation at NVSL, including one or more of the following:

- a. Virus isolation of VSV
- b. Four-fold change in complement fixation (CF) titer in paired sera collected at least 7 days apart.
- c. Four-fold increase in virus neutralization (VN) titer in paired sera collected at least 7 days apart.

Index Case for Subsequent States

Once the index case for the nation is identified, index cases for additional States are determined based on compatible clinical signs and laboratory confirmation at NVSL, including one or more of the following:

- a. Virus isolation of VSV
- b. Four-fold change in complement fixation (CF) titer in paired sera collected at least 7 days apart.
- c. Four-fold increase in virus neutralization (VN) titer in paired sera collected at least 7 days apart.
- d. A positive CF titer of $\geq 1:40$.

Subsequent Confirmed Cases in a VSV-Positive State

In a VSV case-positive state, subsequent cases are determined based on compatible clinical signs and laboratory confirmation either at NVSL or a VSV-approved and activated NAHLN laboratory, including one or more of the following:

- a. Virus isolation of VSV
- b. Real-time RT-PCR detection of VSV
- c. Four-fold increase in VN titer in paired sera collected at least 7 days apart.
- d. A positive CF titer $\geq 1:5$.

Suspect Cases in a VSV-Positive State

In a VSV case-positive state, equine cases may be classified as “suspect” cases based only on the presence of compatible clinical signs without laboratory confirmation. Suspect cases must be quarantined for the same time period as confirmed cases. See section below entitled “Quarantines”.

Points of Contact

Role	Contact	Office Phone	Cell Phone	Email
Situation Unit Leader (SUL)	Angela Pelzel-McCluskey	970-494-7391	970-217-7852	Angela.M.Pelzel-McCluskey@usda.gov
Backup SUL	Rory Carolan	301-851-3558		Rory.O.Carolan@usda.gov
NVSL-Ames Primary	Rachel Tell	515-337-7551	After hours: 515-337-7266	NVSL.DVL.BPA@aphis.usda.gov
NVSL-Ames Backup	Dawn Sturtz	515-337-7551	After hours: 515-337-7266	NVSL.DVL.BPA@aphis.usda.gov
FADDL	Tracy Sturgill	631-323-3256 (business hours, 8:30 am – 4:00 pm Eastern)	After hours and weekends: 631-375-5314	FAD.Submissions@aphis.usda.gov
FADDL	Acting DSS Head	631-323-3256 (business hours, 8:30 am – 4:00 pm Eastern)	After hours and weekends: 631-405-0218 ONLY if an Acting has been designated	FAD.Submissions@aphis.usda.gov

Initiation of VSV Investigation in Cattle and Other Ruminants (for swine with vesicular lesions, follow current version VSG 7406 “Recommendations for Swine with Potential Vesicular Disease”)

1. Assign an FAD number and dispatch an FADD per current version VS Guidance Document 12001 Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents.
2. Ensure the SAHO, AVIC, SUL, and back-up SUL are notified of the VSV investigation initiation.
3. Follow current version VSG 12001 for site visit, exam, and sample collection. This includes completing a VS 10-4 submission form and sending it with the FedEx tracking number, FAD number, and priority to FAD.Submissions@aphis.usda.gov the same day as shipping. Call FADDL should you have any questions or concerns regarding sample collection or shipping.
4. Complete 2019 VSV Investigation Worksheet and scan/email completed worksheet and copy of 10-4 submission form to the SAHO, AVIC, District Epi, SUL, and back-up SUL.

5. Enter investigation data into EMRS 2.0. FADDs should either enter their information into EMRS directly or make arrangements with their AVIC for assistance with EMRS data entry within 24 hours of investigation completion:
 - a. For current VSV-negative states – enter investigation into FAD module of EMRS 2.0 by selecting “FAD” from dropdown in “Select Incident for this Investigation”.
 - b. For current VSV-positive states – enter investigation into the VSV Tracking module of EMRS 2.0 by selecting “VSV” from the dropdown in “Select Incident for this Investigation”.

Initiation of Equine VSV Investigation in a Currently VSV-Negative State

1. For a suspected equine vesicular case in a currently VSV-negative state, assign an FAD number, ensure the SAHO, AVIC, SUL, and back-up SUL are notified of the investigation initiation, and arrange for collection of samples from lesioned equids.
2. Site visit, exam, and sample collection in lesioned equids may be conducted either by an accredited veterinarian or an FADD at the discretion of the SAHO and AVIC. Samples collected should include both serum and swabs for submission to NVSL-Ames.
3. Complete 2019 VSV Investigation Worksheet and VS Form 10-4. Scan/email completed forms to the state veterinarian, AVIC, District Epi, SUL, back-up SUL, and NVSL-Ames contacts.
4. Enter investigation data into EMRS 2.0. FADDs should either enter their information into EMRS directly or make arrangements with their AVIC for assistance with EMRS data entry:
 - a. For current VSV-negative states – enter investigation into FAD module of EMRS 2.0 by selecting “FAD” from dropdown in “Select Incident for this Investigation”.
 - c. If the results from NVSL meet VSV-positive case definition for a newly affected state - enter investigation into the VSV Tracking module of EMRS 2.0 by selecting “VSV” from the dropdown in “Select Incident for this Investigation”.

Initiation of Equine VSV Investigations in a Currently VSV-Positive State

1. After confirmation of the first VSV case in a state, equids with suspected lesions on subsequent premises are not required to be tested, but the premises will be quarantined.
2. If a VSV-approved NAHLN laboratory is located in the affected state, the laboratory may request activation to test lesioned equines at owner expense from that state only.
3. Follow the state-specific guidance from the SAHO’s office on the process for notification and tracking of un-tested and NAHLN-tested suspect equine premises.
4. The SAHO’s office will be requested to provide regular updates to the SUL and back-up SUL on the number of suspect un-tested and NAHLN-tested equine premises under quarantine in each county for situation reporting purposes.
5. Notify the SUL immediately of NAHLN-positive equine cases identified in a new county.
6. NVSL will continue to provide testing of suspect equine samples if a VSV-approved NAHLN laboratory is not located in the affected state or if the SAHO requests non-billable testing on any equine sample (examples: potential confirmation of a new infected county, evaluation of epidemiologically-linked premises, premises with mixed species present including affected equine, or other situations in which the state requests non-billable testing support).

- a. If non-billable testing of an equine sample at NVSL is requested, assign an FAD number to the premises, notify the SUL, and enter the investigation into the VSV Tracking module of EMRS 2.0.

Quarantines

As a change to the procedures in VS Memo 555.17, the quarantine period for premises with suspect or confirmed VSV cases has been reduced to 14 days from the onset of lesions in the last affected animal on the premises (instead of 21 days after lesions have healed). This more closely correlates with the known time period for viral shed from lesioned animals, but it may also mean that premises could be released prior to lesions being completely healed. For cattle cases, FADDs will need to restart the quarantine period countdown if newly affected cattle have presented with lesions subsequent to the initially affected animals. For equine cases, state or federal animal health officials will need to work closely with accredited veterinarians (if used in the response) or owners to determine whether new horses have presented with lesions since the original onset, thereby needing to restart the 14 day countdown. States may choose to prolong the quarantine period in certain cases to avoid interstate movement of animals with unhealed lesions.

Sample Collection

NOTE: If there are questions related to sample collection or which samples are best for diagnostic testing, please call the appropriate NVSL laboratory.

1. **Collect diagnostic specimens ONLY from animals with lesions.**
2. Specimens to collect (all species):
 - a. Vesicular fluid (from unruptured vesicles) – place in screw-cap tube. If a screw-cap tube is not available, place in plastic serum tube (“snapcap”) and tape (electrical) or parafilm the lid to prevent leakage. **DO NOT** submit in a syringe.
 - b. Vesicular tissue (epithelium) – place in screw-cap tube with a **maximum of 3 mL** of tris-buffered tryptose broth (TBTB). Enough media to cover the tissue is sufficient.
 - c. Sterile swabs – (Dacron/polyester with a plastic shaft) of lesions placed in a screw-cap tube with a **maximum of 3 mL** TBTB media.
 - d. Serum – at least 2 mL, preferably separated from the clot (CF test can be negatively impacted if serum is not separated from the clot)
3. Additional specimens to collect from ruminants and swine:
 - a. Esophageal-pharyngeal (OP) fluid – collected by probang and placed in TBTB medium (50:50) in a wide-mouth screw-cap tube.
 - b. Whole blood – 10 mL each in heparin and EDTA
 - c. Complete set of tissues – especially lymph nodes from dead animals

Sample Submission to NVSL-Ames and NVSL-FADDL

1. Use most recent version of VS Form 10-4 submission form available at: https://www.aphis.usda.gov/library/forms/pdf/VS_Form10_4.pdf
2. Fill 10-4 form out completely with the FAD number in the referral control number box.
3. Mode of Shipment:

- a. All samples for virus isolation and PCR (swabs, tissue, vesicular fluid) must be shipped overnight for arrival at the laboratory as soon as possible after collection. For samples collected on a Friday, contact the SUL or the destination laboratory for assistance in making special arrangements for Saturday delivery. Ship samples with frozen ice packs, but protect samples from cold source so freezing of the specimen does not occur.
 - b. For serum samples only - If it is impractical to ship for arrival within 24 hours of collection, refrigerate serum (DO NOT freeze) and ship as soon as possible by overnight service with frozen ice packs.
4. To Which Laboratory Do I Ship – NVSL-Ames or FADDL?
- a. For premises with horses only or premises with clinical horses and non-clinical ruminants or swine:
 - i. Send all samples to **NVSL-Ames**.
 - ii. Send an email to NVSL.DVL.BPA@aphis.usda.gov notifying the NVSL that the samples are coming and include arrival date, courier name, and tracking number, at minimum. Alternatively, call 515-337-7551 and leave a message with the same information.
 - iii. Ship overnight to:

National Veterinary Services Laboratories
1920 Dayton Avenue
Ames, IA 50010

- b. For premises with ruminants and/or swine with vesicular lesions:
 - i. Send all samples from lesioned susceptible species, including horses, to **FADDL**.
 - ii. Email the “APHIS FADDL FAD Submissions” group at FAD.Submissions@aphis.usda.gov to notify the laboratory of the incoming samples, the referral number, the priority, the FedEx package tracking number, and provide a copy of the 10-4 submission form.
 - iii. Ship overnight by FedEx to:

FAD Priority (then whatever priority number has been assigned)
USDA/APHIS/FADDL
Orient Point Warehouse, 40550 Rte 25
579 Edwards Ave, Calverton, NY 11933
Orient Point, NY 11957

- iv. For Priority 2 packages, on the FedEx shipping form, check the “HOLD Weekday” box to the right of the address if shipped Monday-Thursday.
- v. Do not ship to FADDL on a Saturday for Priority 2 or 3 cases as the packages will sit unrefrigerated on Sunday in transit. Shipping Friday with Saturday delivery is appropriate. Must check the “SATURDAY Delivery” box in section 6 to assure that the package makes it to the Calverton FedEx facility where it will be held refrigerated until it is picked up on Monday.

For any issues related to FedEx electronic package address completion for packages being shipped to FADDL, please contact FADDL for guidance.

Coordination with Non-Activated NAHLN Laboratories Conducting Movement Testing

1. Laboratories that are not VSV-approved and/or not activated can conduct movement testing (interstate, export) on **clinically normal animals only** (excluding those from a VSV-positive or suspect premises). Assays available for use are the VN (SN) and the CFT. Most laboratories utilize the VN.
2. If a sample for movement testing at a laboratory tests presumptive POSITIVE for VSV antibodies:
 - a. The laboratory should notify the AVIC of the positive test
 - b. AVIC should contact the submitting veterinarian.
 - c. AVIC must confirm that the animal with positive serology does NOT have vesicular lesions either through communication with the submitting veterinarian or by dispatching an FADD (cattle) or accredited veterinarian (equine) to examine the animal. (Note: Previously exposed animals can test positive on the VN and cELISA for years after exposure.)
 - d. **If the test positive animal has lesions:** initiate an investigation, collect new samples, and have the original samples forwarded to NVSL-Ames or FADDL as appropriate. Assign an FAD number to both the forwarded samples and the newly collected samples. Notify the SUL/back-up SUL and the laboratory.
 - e. **If the test positive animal does NOT have lesions:** no further action is required by the AVIC, although the animal may not be able to move to its intended destination given the positive serology. The presumptive positive samples may still be forwarded by the laboratory to NVSL-Ames (regardless of species) for confirmation testing in accordance with normal laboratory protocols.

Results Reporting from NVSL and FADDL

1. Please do NOT call the laboratory for preliminary verbal test results or confirmation of sample receipt. If you need information on the status of your submission, contact the SUL.
2. Partial results and final results will be reported by email as tests are completed through the NVSL LabWare system to the District Office, SAHO, the SUL, and the submitter.
3. The AVIC should share all results reports with appropriate State counterparts if they are not currently receiving NVSL results distribution emails.

Management of VSV Suspect and Confirmed Positive Premises

1. Quarantine suspect and confirmed VSV premises in accordance with the quarantine protocol above.
2. Provide owners, farm/ranch managers, and private practitioners with recommendations on VSV vector control strategies, biosecurity, and mitigation of direct and fomite spread from lesioned animals as per VS Memo 555.17.
3. Be sure to instruct owners, farm/ranch managers, and private practitioners of the zoonotic potential of VSV and provide guidance on the use of personal protective measures when handling lesioned animals.

For additional questions regarding 2019 VSV procedures, please contact:

Dr. Angela Pelzel-McCluskey

Angela.M.Pelzel-McCluskey@usda.gov

970-494-7391 office

970-217-7852 cell