2014 Vesicular Stomatitis Outbreak in Colorado and Texas

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Vesicular Stomatitis (VS)

- **Vesicular Stomatitis Virus** – New Jersey or Indiana-1 serotypes in the U.S.
- Mostly affects **horses, cattle, and swine**, but sheep, goats, and camelids (llamas, alpacas) are also susceptible
- **Formation of vesicles**: tongue, lips, around the mouth or nose, on the udder or sheath, or along the coronary bands
- **Vesicles rupture and contain VSV**; no viremic stage in horses or cattle
- **Zoonotic via contact with lesions**
Transmission of VSV

• Main routes of transmission
  ➢ Vectors – biting flies
    ➢ Black flies
    ➢ Sand flies
    ➢ Culicoides (biting midges)
  ➢ Direct contact with the ruptured vesicles (lesions) of affected animals
  ➢ Contact with areas/objects recently contaminated with virus from lesions
    ➢ Shared water troughs
    ➢ Feed buckets
    ➢ Other contaminated surfaces
**Vesicular Stomatitis**

- **VSV circulates year-round in southern Mexico; only occasionally moves north** (climatic factors that favor vector population)
- Natural movement of infected vectors tends to **follow waterways** (black fly hatch)
- **# infected vectors increases by co-feeding**
- Infected flies transmit virus to their eggs
- While up to **70% of the herd on an affected premises will have titers indicative of exposure**, only **10% or less of the herd will develop lesions**
- Exposed animals maintain **titers for years** (cELISA and VN)
# Outbreaks of VS in Recent History

<table>
<thead>
<tr>
<th>Year</th>
<th># States Affected</th>
<th>States</th>
<th># Infected Premises</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>3</td>
<td>CO, NM, TX</td>
<td>294</td>
</tr>
<tr>
<td>2005</td>
<td>9</td>
<td>AZ, CO, ID, MT, NE, NM, TX, UT, WY</td>
<td>445</td>
</tr>
<tr>
<td>2006</td>
<td>1</td>
<td>WY</td>
<td>13</td>
</tr>
<tr>
<td>2009</td>
<td>2</td>
<td>NM, TX</td>
<td>5</td>
</tr>
<tr>
<td>2010</td>
<td>1</td>
<td>AZ</td>
<td>2</td>
</tr>
<tr>
<td>2012</td>
<td>2</td>
<td>CO, NM</td>
<td>36</td>
</tr>
</tbody>
</table>
VSV 2014 – Texas, Colorado

• As of Oct. 15, 2014 sitrep:
  ➢ Total of 388 VSV-positive premises identified
    ➢ 326 premises in 14 Colorado counties
    ➢ 62 premises in 13 Texas counties
  ➢ 370 equine premises, 16 bovine premises, 2 eq/bov prems
  ➢ 538 infected horses, 32 infected cattle
  ➢ Over 11,600 total susceptible animals quarantined
  ➢ All premises released in TX; 261 premises released in CO

• OIE has officially delisted VSV, although the requirements to report are still in place until Jan. 1, 2015
Weekly VSV Situation Reports, Maps, and disease information available on the USDA-APHIS website

State-specific updates available at the Texas Animal Health Commission and Colorado Department of Agriculture websites
Photos by Dr. Brian Bohl (VS) and Dr. Brodie Miller (TAHC)
Photos by: Dr. Brian Bohl (VS-TX) and Dr. Susan Culp (TAHC)
Photo by Skip Aaroe, courtesy of Dr. Richanne Lomkin (VS-CO)
VSV Response

• Passive surveillance by private practitioners
• Quarantine/hold order on suspect premises
• FADD sample collection on lesioned animals only
  – Collect serum, swabs, tissue tags
  – Equine samples to NVSL-Ames; ruminants/pig samples to FADDL
• Zoonotic potential – wear gloves, take care to avoid animals sneezing/coughing in your face
• Premises that meet case definition remain quarantined for 21-days after lesions have healed (covered with new epithelium)
• Re-examine at release date to confirm lesion healing and no new cases, then release
VSV Response

• Education and outreach
  ➢ Recommendations to owners of affected premises on mitigations to reduce within herd spread
  ➢ Information on USDA-APHIS, TAHC, CDA websites
  ➢ News announcements and facebook updates made available by TAHC and CDA

• Research Opportunities
  ➢ Virus isolation from many premises
  ➢ Epidemiology questionnaire administered for premises risk factors
  ➢ CEAH case-control study for horse-level risk factors
VSV After Action

• After Action Reviews planned
  ➢ Evaluate field-level responses in Texas and Colorado
  ➢ Bring issues from field-level AAR to national level AAR
  ➢ National level AAR will include state and federal personnel from historically affected states, NVSL/FADDL, NAHLN laboratories, other stakeholders to provide input on future response to VSV in light of OIE delisting

• USAHA discussions among the states
  ➢ Movement restrictions between states during VSV outbreaks
Acknowledgments

- Texas Animal Health Commission
- APHIS-VS-Texas
- Colorado Department of Agriculture
- APHIS-VS-Colorado
- NVSL-Ames, Iowa
- NVSL – FADDL
- APHIS-VS Districts 4 and 6
- Gold and Green Incident Mgmt. Teams
- State and Federal VMO’s from other states