### VESICULAR EXANTHEMA OF SWINE/SAN MIGUEL SEA LION VIRUS

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<th>Animal Group(s) Affected</th>
<th>Transmission</th>
<th>Clinical Signs</th>
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<td>Swine, various marine mammals</td>
<td>Direct – contact with infected animal. Indirect - feeding uncooked infected products, fomites</td>
<td>Pyrexia, anorexia, lameness, vesicles progressing to erosions (coronary bands, snout, lips, oral cavity, teats)</td>
<td>Moderately contagious. Moderate to high morbidity. Very low mortality.</td>
<td>None</td>
<td>Do not feed uncooked fish to swine</td>
<td>No</td>
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**Fact Sheet compiled by:** Cora Singleton  
**Sheet completed on:** 1 January 2011, updated 31 October 2012  
**Fact Sheet Reviewed by:** Pat Morris, Alex Ramirez

**Susceptible animal groups:** swine, various marine mammals  
**Causative organism:** Vesicular exanthema of swine (VES) and San Miguel sea lion virus (SMSV) are caliciviruses in the Caliciviridae family.  
**Zoonotic potential:** No  
**Distribution:** VES has been eradicated worldwide. SMSV is found on Pacific coast of North America.  
**Incubation period:** 1-5 days  

**Clinical signs:**  
Swine – Pyrexia, anorexia, lameness, vesicles progressing to erosions (coronary bands, snout, lips, oral cavity, teats). Clinically indistinguishable from foot and mouth disease, vesicular stomatitis, and swine vesicular disease.  
Pinnipeds – Abortion; vesicles progressing to erosions on flippers.  

**Post mortem, gross, or histologic findings:** Vesicles on coronary bands, snout, lips, oral cavity, teats. Hydropic degeneration and edema of stratum spinosum of the affected epidermis, followed by ballooning degeneration of keratinocytes that then float into the vesicular fluid. Stratum basale may be disrupted.  

**Diagnosis:** Virus culture, antigen detection, or serology.  

**Material required for laboratory analysis:** Vesicular fluid, epithelium covering a vesicle, heparinized whole blood, serum, tissues in formalin.  

**Relevant diagnostic laboratories:** Foreign Animal Disease Diagnostic Laboratory, Plum Island, New York. Since vesicular diseases cannot be distinguished clinically, contact the proper authorities prior to sample collection and shipment.  

**Treatment:** No effective treatment. Supportive care and treatment of secondary problems.  

**Prevention and control:** VES is thought to have emerged from feeding uncooked fish and marine mammal tissues containing SMSV to pigs. Strict enforcement of cooking of feed in conjunction with a slaughter program lead to eradication of the disease in swine in 1959. Early diagnosis and eradication by test and slaughter are important if VES were to recur. SMSV is endemic in pinnipeds along the western coast of the United States.  

**Suggested disinfectant for housing facilities:** Phenols, sodium hydroxide, formalin, sodium carbonate, ionic and non-ionic detergents, strong iodophors in phosphoric acid, chloroform.
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<tr>
<th><strong>Notification:</strong></th>
<th>VES is not reportable to USDA/APHIS or OIE. However, this disease is considered eradicated and is clinically indistinguishable from other vesicular diseases that are reportable.</th>
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<tr>
<td><strong>Measures required under the Animal Disease Surveillance Plan:</strong></td>
<td>None specifically but due to similar appearance to other reportable vesicular diseases.</td>
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<td><strong>Measures required for introducing animals to infected animal:</strong></td>
<td>Not recommended.</td>
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<tr>
<td><strong>Conditions for restoring disease-free status after an outbreak:</strong></td>
<td>Consult USDA/APHIS.</td>
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<td><strong>Experts who may be consulted:</strong></td>
<td>USDA State Veterinarians or federal Area Veterinarians in Charge</td>
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