VS SURVEILLANCE AND INTEGRATION SYSTEMS UPDATE

AAVLD/USAHA SURVEILLANCE AND INFORMATION SYSTEMS COMMITTEE

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STRATEGY AND POLICY
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Topics

Data Integration Services
Swine Reporting
Improvements to Lab Messaging
Mapping Services for Events
The goal of the **VS Data Integration Services** is to integrate, analyze, and visualize information across multiple VS data sources in order to capitalize on the data VS processes and align with VS’ strategic direction.
Using one **Data Integration Services** platform for more efficient animal health response.

<table>
<thead>
<tr>
<th>VS Strategic Direction</th>
<th>VS Data Integration Services</th>
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<tbody>
<tr>
<td>Modernize VS Services</td>
<td>✔</td>
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<tr>
<td>Invest in science and technology</td>
<td>✔</td>
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<tr>
<td>Provider of animal health information and analysis for the U.S.</td>
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<td>Emergency response and preparedness</td>
<td>✔</td>
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<td>Comprehensive and integrated surveillance</td>
<td>✔</td>
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<tr>
<td>Emerging Diseases</td>
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</table>
Integrated data from across VS into a central platform with full data lineage and provide comprehensive views of information (e.g., premises, test results, animals)
Strong access controls to enforce privacy restrictions

Improved data quality through integration and standardization

Self-service capabilities for faster analysis

Comprehensive view of Premises with associated animals and test results

VS Data Integration Services
Powered by Palantir

Timeline

EVENTS TIMELINE GRAPH
- Clinical Observations
- Positive Test Results
- Trace Segments

Exposure Unknown
Trace into Positive Herd
Trace out of Positive Flock
Trace out of Positive Herd

06/27/2009 2:14:15 AM
08/18/2010 1:24:05 PM

EVENTS TIMELINE LIST
- Trace from Ashley / Bailey Dairy on 07/23/10
- Trace Segments

Trace Type: Exposure Unknown

Showing 13 of 114 events (clear selection)
Communicate and share surveillance information with a tool that is:

- User friendly
- Self querying
- Visually engaging
- Provides ability to customize reports

Technology

- Tableau Server
- Robust security controls
- Highly reliable and scalable platform

Scope

Demonstrate use of dashboards to communicate surveillance information for two VS programs

Determine National Assembly surveillance needs and identify ways to customize surveillance reports

Define level of data sharing

Collaborate with States in identifying surveillance targets for system design
Executive Summary of Classical Swine Fever Surveillance: Geographic Distribution of Sampling
Annual Summary Report for Fiscal Year 2015

Objectives and Populations

Rapid Detection
Sick pig submissions to diagnostic laboratories

FAD investigations/suspect case reporting

Demonstration of Disease Freedom
Slaughter swine with higher probability of classical swine fever (CSF) exposure

On-farm surveillance of swine with higher probability of CSF exposure than the general population

Monitoring feral swine populations for disease introduction
Feral swine

Sick pig submissions

Targeted on-farm testing

Slaughter swine sampling

Feral swine testing

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Rapid Detection for Classical Swine Fever: Sick Pig Specimens Submitted to Veterinary Diagnostic Labs
Annual Summary Report for Fiscal Year 2015

Geographic distribution of sick pig submissions
Hover on a state to see number of herds tested. Click on a state to highlight information on dashboard. Push the escape key to deselect and include all states.

Objective: Rapid Detection
- Sick pig submissions to diagnostic laboratories
- FAD investigations/suspect case reporting

This involves RT-PCR testing of tissues (tonsil, tonsil scraping, or nasal swab) from sick pigs submitted to VDL in States with higher risk of introduction.

Twenty-nine States are targeted, including the territory of Puerto Rico; the complete list can be found in the 2007 CSF Surveillance Plan. Sick pig samples are selected by VDL personnel from samples submitted that meet selection criteria. More specifically, samples from Iowa and Minnesota are to be tested when cases meet additional criteria, i.e. dramatic acute septicemias, abortions, dermatitis or nephritis, undiagnosed central nervous system (CNS) cases, or other cases a pathologist identifies.

Specimens are tested in NAHLN laboratories by RT-PCR and all non-negative samples are sent to the FAD Diagnostic Laboratory (FADDL) for confirmatory testing.

Specimen types of sick animals submitted to NAHLN laboratories

- Tonsil: 1,452
- Nasal Swab: 30
- Tonsil Scraping: 2

Submission reasons for sick animals submitted to NAHLN laboratories

- General Submission: 2,678
- Central Nervous System: 175
- Septicemia: 126
- Abortion: 15

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Disease Freedom for Classical Swine Fever: Slaughter Swine With High Probability of CSF Exposure
Annual Summary Report for Fiscal Year 2015

Geographic distribution of slaughter swine sampling
Hover on a state to see number of herds tested. Click on a state to highlight information on dashboard. Push the escape key to deselect and include all states.

This includes testing swine condemned at slaughter with clinical signs similar to CSF-like erysipelas or septicemia, swine with a higher probability of CSF exposure, and/or unthrifty poor-doing swine diverted from regular slaughter channels collected by USDA or contract employees.

Nineteen States are designated for this component (see the 2007 Surveillance Plan).

NAHLN laboratories use rRT-PCR to test these specimens and non-negative samples are sent to FADDL for confirmatory testing.

Submission reasons for slaughter swine with high probability of CSF exposure

<table>
<thead>
<tr>
<th>Reason</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Random</td>
<td></td>
</tr>
<tr>
<td>Septicemia</td>
<td></td>
</tr>
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</table>

Number of animals tested for CSF

<table>
<thead>
<tr>
<th>State</th>
<th>Facility</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>Facility 1</td>
<td>173</td>
</tr>
<tr>
<td></td>
<td>Facility 2</td>
<td>114</td>
</tr>
<tr>
<td>Illinois</td>
<td>Facility 3</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Facility 4</td>
<td>107</td>
</tr>
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<td></td>
<td>Facility 5</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Facility 6</td>
<td>36</td>
</tr>
<tr>
<td>Indiana</td>
<td>Facility 7</td>
<td>321</td>
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<tr>
<td>Iowa</td>
<td>Facility 8</td>
<td>1,144</td>
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<td>Facility 9</td>
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<td>Facility 10</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Facility 11</td>
<td>49</td>
</tr>
<tr>
<td>Kentucky</td>
<td>Facility 12</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Facility 13</td>
<td>20</td>
</tr>
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<td></td>
<td>Facility 14</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Facility 15</td>
<td>15</td>
</tr>
</tbody>
</table>

Monthly trend of animals tested for CSF from slaughter swine with high probability of CSF exposure
Hover over the line to see actual counts for that month.

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Disease Freedom for Classical Swine Fever: On-Farm Surveillance of Swine With Higher Probability of CSF Exposure
Annual Summary Report for Fiscal Year 2015

Geographic distribution of on-farm testing
Hover on a state to see number of samples tested. Click on a state to highlight information on dashboard. Push the escape key to deselect and include all states.

This targets populations with higher risk of exposure to CSF than commercial swine including populations like waste-feeding operations and active on-farm surveillance of backyard or free-roaming swine in Florida, Texas, and Puerto Rico.

Serological tests performed on swine blood samples collected at waste-feeding operations in eight high-risk States and Puerto Rico.

Additionally, in Florida and Texas, five slaughter plants are designated for random CSF testing from blood samples, based on risk factors including location, feral swine exposure, or pigs from transitional herds. Further, in Puerto Rico, random CSF testing is conducted on all swine, particularly those fed waste or exposed to illegal immigrants who arrive via illegal boat landings (yolos).

All serology samples are tested at FADDL and any non-negative samples undergo confirmatory testing to verify negative status.

Number of specimens tested

4,050

Collection site type

- Waster feeder: 1,442
- Auction: 1,312
- Slaughter: 1,075
- On-farm: 79
- Not reported: 38

Number of samples by state or territory

- Texas: 1,414
- Florida: 1,270
- Puerto Rico: 1,004
- Hawaii: 122
- North Carolina: 60

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Improving Lab Messaging
• AI Reporting
• Multipurpose Messaging

Goals
• Improving efficiency
• Reduce duplicate data entry
• Standardize routing for incoming data
• Improved communications
Mapping Services
Emergency Response

Map products developed in different formats

Interactive (web-based, dynamic, near real time updates)

Static (PDFs, printable)

Customers

National Incident Coordination Group - Situational awareness

Incident Management Teams - Operational support

National Import and Export Services - Trade Reporting

Epidemiologists, Others
Mapping products serve many purposes and support several other animal disease events in the United States.

**Longhorned Tick**

**African Swine Fever**

**Low Pathogenic Avian Influenza**
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