Enabling Comprehensive Integrated Animal Health Surveillance

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CIS: The concept

- Comprehensive = multi-disease
- Integrated = Multiple surveillance streams
- Scalable: emergency readiness
- Efficient = Constantly evaluated
- Surveillance stream-centric

Approach
The 5 Rs we need to target

- Representative
- Reliable: Accurate information
- Real-Time: Now
- Resourceful: Efficient
- Risk-Based
Comprehensive and Integrated Surveillance System structure

- **Trade support**
- **DZ control/eradication**
- **Stakeholder demands**
- **Planning/budgeting**

**Indicators**

- **Industry**
  - Private practitioners
  - State AHOs
  - Academia

- **Data systems**
  - LMS
  - SCS
  - AHSM
  - VSLS
  - EMR S2
  - PREM ID
  - MIM
  - EPS apps
  - NSD

- **Laboratories**
- **Slaughter**
- **Certification programs**
- **Historical surveillance**

- **Syndromic surveillance**
- **Import-export data**
- **Livestock markets**
- **Human health SS**
- **On-farm**

- **Rapid detection of emerging or foreign disease**
- **Outbreak response**
- **Identifying areas for more intense surveillance**
- **Substantiating Disease Status**
- **Identifying changes in disease prevalence or distribution**
- **Evaluation of control measures**
- **Supporting continuity of business**

**Decision level**

**Partner interaction**

**Sources of surveillance information**

**Objectives**
What do we have today?

Different levels of development in each commodity
Integrated view, non integrated data sources

- Trade support
- DZ control/eradication
- Stakeholder demand
- Planning & budgeting

- Industry
  - LMS
  - SCS
  - AHSM
  - VSL
  - EMRS2
  - NSD1
  - NSD2
  - NSD3

- Diagnostic stream
- High-risk swine
- FSIS condemn monitoring
- Historical surveillance

- Market swine slaughter
- Suspect cases
- Import/export data
- High-risk on-farm sampling

- Decision level
- Partner interaction
- Data systems
- Sources of surveillance information

Objectives:
- Rapid detection of emerging or foreign disease
- Outbreak response
- Identifying areas for more intense surveillance
- Substantiating Disease Status
- Supporting claims of disease freedom
- Identifying changes in disease prevalence or distribution
- Evaluation of control measures
- Supporting continuity of business
## What we have

- Highly engaged stakeholders
  - Fast moving, high demands

- Laboratory network capable of testing for FADs and endemic diseases—scalable system
  - CSF, ASF, FMD, PRV, SB, SECD

- Surveillance streams already identified and operable
  - D-labs, high risk slaughter (sow boars, market swine, roaster), feral swine, high risk farms (garbage feeders)

- Variety of data sources and levels of standardization
  - Over a dozen different sources

- Limited geographic and population strata representation and risk characterization
  - PIN /AID + methods to rapidly select samples. Undersampling or oversampling? Inefficiencies?
Swine surveillance data sources trivia

12 sources of information, of which 6 are not standardized (NS)
What is missing

• Data standardization
• Data connectivity
• Once PINs widespread used
• Better use of our CA’s with states
• Validated diagnostics
• Capacity!

Limitations to growth driven by data management deficiencies, diagnostic limitations and capacity
Cattle Health CIS
Non integrated solid surveillance streams

- **Trade support**
- **Disease control & eradication**
- **Stakeholder demands**
- **Planning/ budgeting**

**Sources of surveillance information**
- VSLs
- AHSM
- EMRS2
- SCS
- NSDs

**Data systems**
- Renderers
- Trace-out testing
- FSIS- inspected plants
- Diagnostic labs

**Decision level**
- 3D-4D
- On-farm sampling
- Public health labs
- State testing
- Cull slaughter

**Objectives**
- Rapid detection of emerging or foreign disease
- Outbreak response
- Identifying areas for more intense surveillance
- Disease modeling

- Identifying changes in disease prevalence or distribution
- Evaluation of control measures
- Supporting continuity of business

**Industry**

**Private practitioners**

**State AHOs**

**Public health labs**

**FSIS- inspected plants**

**Diagnostic labs**

**Industry**
What we have

• Several strong, but separate, disease surveillance programs

• Partnerships with States and resource agencies

• Laboratory diagnostics

• One functioning data management system for one disease

• Decision support in a number of key areas

We have some solid structures on which to build CIS for cattle...now we need to integrate
What’s missing?

- Shift to comprehensive mind frame
- Resource limitations affect data entry into existing systems
- Gaps in access to data contained in existing systems
- Lack of population representativeness (geographic and strata specific)
- Under-utilization of contextual data to support testing data

Integration of different industry sectors, surveillance sources of information, and data.
DATA MANAGEMENT STRATEGIES: HAVING YOUR CAKE AND EATING IT TOO
How are data requirements defined during the surveillance planning process, transformed into information technology solutions, collected and recorded in the field, and finally submitted to centralized databases for various types of reporting and analytical needs.
How do we effectively use unique identifiers for lab submission, premises identification, and animal identification that are integral for merging surveillance and laboratory result records.
Animal health program reporting routinely occurs using disparate intergovernmental and external data sources requiring analysts to spend too much time acquiring and preparing data in favor of time spent on program or scientific analysis. Data preparation procedures currently used need to be closely examined to streamline data management processes using electronic data processing and to define data warehouse opportunities.

This report provides information on confirmed SECD-infected premises and SECD laboratory testing results data related to USDA since the Federal Order was initiated on June 8, 2015. USDA-NRVT veterinary officials continue to update the diseases and report outbreaks and results according to the official case definitions. These reports are available on the official NRVT website at www.aphis.usda.gov/animal_health/animal_healthpio. The site provides additional SECD information including reports on SECD laboratory testing prior to the federal order.

SECD Positive Premises

Table 1. SECD Positive Premises This Week and

Vet Management (Mon, 9-14-2015)

- New Confirmed Positive Premises Per Week
- New Confirmed Positive Premises Per Year
- Cumulative January 1, 2015 - Present

<table>
<thead>
<tr>
<th>State/County</th>
<th>Backyard Pigs</th>
<th>Backyard Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan</td>
<td>40</td>
<td>8,000</td>
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<tr>
<td>Illinois</td>
<td>10</td>
<td>2,000</td>
</tr>
<tr>
<td>Ohio</td>
<td>5</td>
<td>500</td>
</tr>
</tbody>
</table>

**WEEKLY SITUATION REPORT**

Highly Pathogenic Avian Influenza

**DATE TRANSMITTED:** April 2, 2015 (data reported through 10:00 AM ET)

**PREPARED BY:** Veterinary Services HPAI Incoordination Coordination Group

**CONTACT INFORMATION:** Send questions or comments to US SPRS, Feedback@aphis.usda.gov.

**A. Status of HPAI-Infected Commercial and Backyard Flocks**

Detections in new States/Counties are highlighted in gold.

### States and Counties Currently Affected

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<th>Backyard Pigs</th>
<th>Backyard Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minnesota</td>
<td>100,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Idaho</td>
<td>10,000</td>
<td>500</td>
</tr>
<tr>
<td>Kansas</td>
<td>500</td>
<td>50</td>
</tr>
</tbody>
</table>

**2015 Vesicular Stomatitis Virus (VSV) Situation Report – December 18, 2015**

**Critical New Information**

- On December 18, 2015, the National Veterinary Services Laboratories in Ames and New York confirmed an outbreak of vesicular stomatitis virus (VSV) in Vermont. The disease is not considered a threat to human health.
- In addition to the new positive premises in Texas, a new "quarantine in place" has been established in the state.

**New VSV-confirmed premises in New Jersey**

- "New Jersey confirmed (New Jersey Department of Environmental Protection)".