Veterinary Services

One Health Collaboration Activities for Diagnostic Labs and Veterinarians

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U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services
SPRS, One Health Coordination Center
October 18, 2014
Overview

• APHIS/VS One Health Coordination Center
  – VS One Health Priorities

• NVSL/NAHLN One Health Collaboration and Support Activities

• VS Epidemiologic Delivery System
As the recognized animal health leader and trusted partner, Veterinary Services safeguards the health of animals, people, and the environment.
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One Health Priorities for APHIS VS

1. Zoonotic Disease Engagement, Investigation, and Response
2. Preharvest Food Safety
3. Antimicrobial Resistance
4. Pandemic and Animal Disease Preparedness
5. Global Health Security
Zoonotic Disease Engagement

• Influenza A virus – Swine
  – VS collaboration with NAHLN labs, ARS, CDC, and State public and animal health regarding H3N2/H1N2/H1N1 influenza virus in humans and animals related to public exhibitions
  – Whole genome sequencing analysis performed on isolates related to these public exhibitions shared with CDC
Zoonotic Disease Engagement

- *Salmonella* and Bearded Dragons
  - CDC/VS joint investigation, multi-State outbreak
    - Feb. – Aug. 2014
    - 166 people, 36 states
  - *Salmonella* serotypes Cotham, Kisarawe
  - VS-NVSL provided sample testing and genotyping of environmental samples and animal isolates from pet stores and breeders
Zoonotic Disease Engagement

• *Mycobacterium marinum* –
  – Investigated a cluster of skin granuloma lesions in humans, associated with visiting seafood markets
  – Collaborative investigation between NYC Dept of Public Health, CDC, VS/NVSL
Zoonotic Disease Engagement

• VS One Health Engagement Field Guide
  – Aligned with:
    • VS epi investigation procedures
    • FAD investigations

• One Health Collaborations Methods Course (OH-SMART)
Preharvest Food Safety

• 2009 – CVB conditionally licensed an *E. coli* O157 vaccine to reduce shedding in cattle

• 2011 - NVSL began offering a *Salmonella enteriditis* rule out serotyping test to assist compliance with the FDA egg rule
Antimicrobial Resistance

National Strategy on Combating Antimicrobial Resistance for Bacteria (CARB)

• GOAL 1: Slow the emergence and prevent the spread of resistant bacteria
• GOAL 2: Strengthen national One-Health surveillance efforts
• GOAL 3: Advance the development and use of innovative diagnostic tests
• GOAL 4: Accelerate basic and applied research and development on new antibiotics, other therapeutics, and vaccines
• GOAL 5: Improve international collaboration

The USDA AMR action plan outlines USDA’s current activities and proposes a voluntary comprehensive, integrated approach for future surveillance; research and development; and education, extension, and outreach activities.
Pandemic and Animal Disease Preparedness: Influenza

• Encourage a cooperative approach among trading partners
Pandemic and Animal Disease Preparedness Activities

• Avian Influenza
  – Validation of pan-H7 multiplex PCR

• Influenza in swine
  – Ongoing surveillance through NAHLN labs
  – Collaboration and coordination with ARS for bio-informatics, monitoring changes in the virus
  – Collaboration and info sharing with CDC

** Need people trained in bio-informatics and next generation diagnostic techniques
Pandemic and Animal Disease Preparedness

• 2013 – Influenza A virus H7N9 in humans and birds in China
  – APHIS – provided laboratory coordination and analysis, surveillance support, subject matter expertise
  – ARS-SEPRL and APHIS–NVSL – collaborated to conduct assay evaluation and pathogenicity and transmission studies.
  – NAHLN and NVSL – confirmed the deployed matrix assay could detect all subtypes of avian influenza from China. To complement the H7 assay used in the NAHLN and NVSL, a Eurasian H7 assay is under development for implementation to the NAHLN.
The Global Health Security Agenda

- The GHSA is an effort by nations, international organizations, and civil society to accelerate progress toward a world safe and secure from infectious disease threats; to promote global health security as an international priority; and to spur progress toward full implementation of the WHO IHRs, OIE PVS pathway, and other relevant global health security frameworks.

- The United States will work with partner countries and other stakeholders in a collaborative effort to achieve specific objectives which are based on the underlying Prevent-Detect-Respond framework.
NAHLN activities to support global health security

Quality Management System Trainings

- Training based on AAVLD, ISO 17025/OIE standards
  - 10 trainings have been conducted since 2010:
    - 6 NAHLN / International courses
    - 2 courses for PPQ
    - 2 one-on-one sessions (1 NAHLN Quality Manager and 1 international guest)
  - 358 participants from:
    - All current NAHLN labs; former NAHLN labs; and prospective labs
    - 28 International countries:
      - Russia, Kazakhstan, Ukraine, Tanzania, Pakistan, Tajikistan, Cambodia, Egypt, Laos, Trinidad/Tobago, Vietnam, Philippines, Taiwan, Canada, Barbados, Brazil, India, Jamaica, Kenya, Mexico, Morocco, Nigeria, South Africa, South Korea, Thailand, Tunisia, Uganda, Yemen
  - August 2014 Training Course
    - 26 NAHLN Laboratories and 14 International Laboratories were represented

- 3 ½ days of classroom training
  - Document control, records, internal auditing, management review, corrective actions, root cause analysis, equipment

- Interactive learning environment
  - Workshops: Root cause analysis, SOP and associated document development, QMS Jeopardy game
  - Mock audit: Application of skills- auditing, reporting, responding
NAHLN activities to support global health security

• On-going animal health surveillance using standardized diagnostic methods:
  – BSE, scrapie, IAV-S, avian influenza, swine foreign animal diseases – CSF, ASF, FMD
  – Swine enteric coronavirus disease (SECD) response

** Need skilled technicians adaptable to new diagnostic techniques
NAHLN activities to support global health security

• Participation in the Integrated Consortium of Laboratory Networks (ICLN)
  – Work closely with human, environmental, plant and defense lab networks and DHS to ensure coordination of response and communication in large-scale disease outbreak/emergency.

**Need people with a OH approach and communication/collaboration skills**
NAHLN activities to support global health security

• IT infrastructure improvements
  – Standardized, electronic messaging for secure interconnection between laboratories
    ** Need IT-trained workforce to support these systems and people trained in standards and informatics

• Continued exercises and drills – to prepare laboratories in planning, execution and communication
  ** Allows for new and old personnel to be prepared to respond to an emergency - big or small.
Open to all of VS!

Learn the 9 steps to an epidemiologic outbreak investigation through self-study modules on AgLearn and a series of webinars.

1. Verify an outbreak is occurring
2. Confirm the diagnosis
3. Define and identify cases
4. Describe and orient data in terms of space, time, and animal
5. Develop hypothesis
6. Evaluate hypotheses
7. Implement preliminary control and prevention measures
8. Communicate findings
9. Establish disease monitoring/surveillance

NOTE: Completion of these modules is a prerequisite for the Outbreak Investigations classroom workshop in September. Registration for the classroom course is a commitment for the entire course, including all webinars.

Outbreak Investigations: Webinars

AgLearn modules:
Available now!

Webinar schedule:
June 18: Modules 1, 2-3
July 16: Modules 4-5
August 6: Modules 6-7
August 27: Modules 8-9

Outbreak Investigations: Workshop

Classroom workshop
Fort Collins, Colorado:
September 9-11

Limited to 20. You must have completed all self-study modules and webinars to attend the Outbreak Investigations course.

Put what you learned into practice by working through several in-depth outbreak scenarios using the 9 steps covered in the online courses and webinars!

Registration:
Summary

• VS continues to support our mission of safeguarding the health of animals, people and the environment

• This includes continued assessment to improve our national veterinary and animal health laboratory workforce to effectively continue protecting the nation’s animal and public health
  – Lab: training in bio-informatics, next generation diagnostics, QMS
  – Field: training in epidemiology and One Health core competencies
Acknowledgements

- NVSL – Beth Harris
- NAHLN – Sarah Tomlinson, Christie Loiacono
- SPRS – Brian McCluskey, OHCC
Questions?