The Application of NAHLN Principles to International Animal Health Efforts

Workshop on Global Capacity for Sustainable Surveillance of Emerging Zoonoses

Session IV: Laboratory and Epidemiological Capacity

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NAHLN- A State and Federal Partnership to Safeguard Animal Health
National Animal Health Laboratory Network

• Partnership
  − USDA
    o Animal and Plant Health Inspection Service
    o Cooperative State Research Education and Extension Service
  − American Association of Veterinary Laboratory Diagnosticians
• Purpose
  − Early detection
    o Targeted surveillance based on population density & risk
  − Rapid response
    o Surge capacity to test outbreak samples
  − Appropriate recovery
    o Large numbers of samples tested to show freedom
Founding Principles and Features of NAHLN

• Standardized, rapid diagnostic techniques
• Trained personnel, modern equipment
• Quality standards, proficiency testing
• Secure communication, alert, reporting system
• Adequate facility biosafety/biosecurity levels
• Scenario testing
Standardized, Rapid Diagnostic Techniques

- All NAHLN laboratories use the same assay
- Validation
  - OIE standards
  - Assays deployed - CSF, AI, END
  - Personnel trained and proficiency tested - FMD
  - Assays in process - Rinderpest, ASF, CBPP
- NAHLN Methods Technical Working Group
  - Implemented dossier review and assay approval processes
  - Assay performance characteristics summary sheets
  - Continual performance assessment of assays
Trained Personnel, Modern Equipment

- Development and implementation of standardized training processes using modern equipment
- Train the Trainer programs

Quality Standards & Proficiency Testing

- Reference panel development, evaluation, and release
- Proficiency testing processes
Secure Communication, Alert, & Reporting System

- Established a system with data and messaging standards to ensure accurate and consistent diagnostic information is quickly and securely transmitted.

- NAHLN Information Technology Committee
Adequate Facility Biosafety/Biosecurity Levels

- Procedures conducted at BSL recommended in BMBL
- Modeling
  - Purposes
    - Identify gaps in appropriate BSL space
    - Prioritize needs for additional BSL-2 and/or BSL-3 space
    - Contingency plan if adequate space is not available
  - Inputs
    - Diagnostic testing capacity
      - Laboratory space, trained personnel, equipment
    - Animal population density
    - Risk
Scenario Testing

• Facilitated Tabletops
  – Focusing on laboratory issues with field input
  – Training and reusable tabletop exercise will be provided to each NAHLN lab
  – Regional presentations - 2008
    • NAHLN labs
    • State Vets and State animal health officials
    • VS Field Staff and AVICS
    • Other interested groups

• NAHLN Exercises and Drills Working Group
Laboratory Approval Process

- NAHLN review and approval processes based on AAVLD processes
- AAVLD accreditation
  - Equivalency to OIE Standard
    - ISO 17025 based
    - Quality System
Successes of the NAHLN

• Partnerships are key to the success of NAHLN!
• Strategically combined the infrastructure and expertise in the state veterinary diagnostic laboratories and the National Veterinary Services Laboratories.
• Established the animal health laboratory backbone of the United States emergency response and recovery program.
• Implemented national, standardized surveillance for high priority diseases.
• Increased levels of coordination and collaboration
Avian Influenza Wildbird Surveillance

- 45 laboratories participating
- Conducting surveillance for Wildlife Services
- Risk based surveillance plan
  - National Surveillance Unit
- Inter and intra-agency coordination, communication and training
- Real time PCR
  - 2006 - 80,000 pooled samples
  - 2007 – 50,000 samples from individual birds
International Training

• Avian influenza
• FMD
• Brucellosis
• Objective
  – Develop diagnostic expertise
• Joint efforts involving
  – Iowa State University
  – USDA’s Agricultural Research Service
  – USDA’s Animal and Plant Health Inspection Service- NVSL
  – Foreign Agricultural Service
  – Department of Defense
  – United States Agency for International Development
Successes of Assistance to Resource-Constrained Countries

• Training programs increased knowledge
  – Technical proficiency to conduct assays
  – Development of in country reference standards
    • Controls and proficiency testing panels for brucellosis
• Implementation of train the trainer program
• Provided reference materials
• Increased communications within and outside countries involved
• Local ownership
Challenges of Assistance to Resource-Constrained Countries

- Reference laboratory support
- Samples
  - Availability and quality
- Sustainability
  - Resources to continue efforts
- Biosafety and biosecurity
- Linkages with animal health professionals
- Development of inclusive, coordinated programs
Developing Sustainable International Laboratory Capacity

• NAHLN standards have ensured that the US has quality laboratories doing quality work.
• Can the NAHLN be used as a model in resource constrained countries?
  – Practical, stepwise approach to building sustainable laboratory capacity
  – Achieving the goal requires commitment and resources