

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



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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



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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



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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



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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



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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



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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**



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Laboratory Approval Process

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



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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



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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



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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



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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



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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



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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



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