National Animal Health Laboratory Network Strategic Plan 2022-2025

PREFACE

- The National Animal Health Laboratory Network (NAHLN) was developed in response to the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, and the Homeland Security Presidential Directive/HSPD-9 of 2004 to "develop nationwide laboratory networks for food, veterinary, plant health and water quality that integrate existing Federal and State laboratory resources, are interconnected, and utilize standardized diagnostic protocols and procedures".
- The NAHLN enables Federal and State laboratories to test for economically devastating and potentially zoonotic diseases such as foot-and-mouth disease, African swine fever, influenza in avian and swine species, and bovine spongiform encephalopathy (BSE) among other NAHLN scope diseases. It serves as our nation's most vital early warning system for emerging and foreign animal diseases.
- Adequate funding of the NAHLN directly addresses our nation's need for a safe, stable, and nutritious food supply, and enables preparation, prevention, diagnosis, response, and recovery from economically important and potentially zoonotic diseases.

VISION

The National Animal Health Laboratory Network (NAHLN): a network of animal disease diagnostic laboratories that works effectively as a team, provides ongoing disease surveillance, responds quickly to disease events, communicates diagnostic outcomes to decision makers in a timely manner, and has the capability and capacity to meet diagnostic needs during animal disease outbreaks.

MISSION

The NAHLN is a nationally coordinated network and partnership of Federal, State, and university-associated animal health laboratories. NAHLN laboratories provide animal health diagnostic testing, methods research and development, and expertise for education and extension to detect biological threats to the nation's animal agriculture, thus protecting animal health, public health, and the nation's food supply.

KEY Principles

The NAHLN will:

- Maintain the capability and capacity to provide nationwide laboratory services in support of early detection and response to foreign animal disease outbreaks or another adverse animal health events.
- Assess the health and well-being of the country's livestock population through active and passive diagnostic surveillance testing for exotic, emerging, and zoonotic diseases of animals.
- Operate within a quality management system that meets American Association of Veterinary Laboratory Diagnosticians (AAVLD), International Organization for Standardization (ISO) 17025, or equivalent standards.
- Use standardized protocols, reference materials, and equipment.
- Use facilities that maximize biosafety, biosecurity and physical security requisite for testing performed.

- Support the development, validation, and deployment of critical animal disease diagnostic testing methods through research and data exchange.
- Provide national animal disease diagnostic technical proficiency testing through the National Veterinary Laboratory Services (NVSL).
- Establish and maintain uniformly trained and competent animal disease diagnostic laboratory personnel.
- Provide national diagnostic laboratory quality management system training.
- Support the development of a system of "first detectors" through training of private veterinarians, extension educators, producers, and state and federal animal health officials.
- Establish and implement secure, rapid electronic communications systems to optimize reporting, alert, and epidemiological needs.
- Evaluate animal health emergency preparedness through scenario testing to identify and prioritize testing and communication gaps.
- Assess the need for optimized and flexible network capacity.

NAHLN Strategic Priorities for next 3 years

1. **Disease Detection, Outbreak Response and Surveillance-** The purpose of the NAHLN is to provide early detection, rapid response, and appropriate recovery from an adverse animal health event. Activities supporting the priority focus on identification of high-consequence pathogens including those that are transboundary/foreign animal diseases (FAD), endemic to the US or newly emerging diseases. The objectives within this priority are grouped based on their relevance to these three disease categories.

General activities
ο Continue to provide basic activities that support the purpose of NAHLN- early detection, rapid response, and appropriate recovery of a high-consequence animal disease.
ο Identify a second Vendor for all platforms and reagents.
ο Harmonize protocols within and across diseases as much as possible.
ο Engage the NAHLN Coordinating Council, laboratories, and others to develop a standard methodology to define and measure capacity.
ο Work with Vendors to develop enhanced access to materials needed during an outbreak.
ο Participate in drafting a POC testing policy for consideration based on the recommendations from the MTWG subgroup.
ο Participate in and support developing strategies to streamline and harmonize PTs utilizing the recommendations of the MTWG subgroup.
ο Provide guidance for incident management teams regarding the involvement of NAHLN laboratories in the ICS.
ο Exercise scenarios that incorporate specific response activities.
ο Support AMR surveillance as a permanent program based on funding assurance separate from that supporting disease surveillance and response.

Activities specific to Transboundary diseases (FAD)
- o Support the evaluation of aggregate sampling for FAD testing.

Activities specific to high-impact Endemic diseases
- o Support the development of protocols to handle look- alike disease testing.
- o Support collaborative activities to evaluate new technologies.

Activities specific to Emerging diseases
- o Review and implement minimum standards provided by NVSL reference laboratories for the evaluation of sequencing data.
- o Support and develop the NBAF Partnering Program to enhance regional response and interaction to better prepare for potential emerging pathogens.

2. **Coordinate the effort to determine resource needs for NAHLN-** among APHIS-VS, National Institute for Food and Agriculture (NIFA) and AAVLD partners through stakeholder input and communication.

General activities
- o Complete an annual Business Plan to identify specific activities to be accomplished and document contribution of NAHLN laboratories.
- o Continue interagency coordination of noncompetitive funding with NIFA for NAHLN laboratory infrastructure support.
  - Determine if there are options to provide funding from each Federal source (APHIS and NIFA) in a more consistent manner and with less of a burden on both agencies.
- o Assess effectiveness of current NAHLN structure including Level designations.
- o Complete an economic impact study for the NAHLN.
- o Determine prioritized list of activities based on strategic plan for consideration should additional funding become available.

Activities specific to NAHLN Laboratories
- o Identify ways to increase the value of NAHLN participation in non-monetary ways (e.g., collaborative laboratory/Federal efforts and opportunities to participate in technical projects).
- o Support 2018 Farm Bill efforts
  - Review deliverables for Farm Bill projects to determine how best to use results to benefit the network.
  - Develop long term priorities
- o Fully participate in ARP act- fulfill NAHLN Role in this opportunity

3. Standardized data capture and electronic messaging- continue to improve the capability of NAHLN laboratories to electronically message test results. Standardize the process of developing a message across diseases and integrate with other Federal systems, as well as key external systems.

General activities
- o Develop recommendations for stabilizing messaging based on a collaborative summit meeting including NAHLN, VS (commodity staff, CFI, CEAH, IMT), SAHO and others as appropriate.
- o Develop and communicate a messaging policy so the expectations surrounding messaging are understood.
- o Continue to collaborate with NVSL to increase messaging capabilities and integration with LMS and other systems including EMS.
- o Expand capability for USDA-APHIS Veterinary Services diseases to be messaged.
    - Integrate with other systems as required including CLSM and NLRAD
- o Develop a method(s) to monitor data quality in real-time using a blend of automated tools and human oversight.
    - Identify an approach that utilizes automation, to the extent that NAHLN Program Office, S&P, Center for Informatics; and, USDA, OCIO, CEC staff concur, to reduce the burden on VS staff to perform messaging quality control activities.

4. Integrate with and support animal health community long-term initiatives- including but not limited to: One Health approach to surveillance and response, the National Action Plan for Combating Antibiotic-Resistant Bacteria, business continuity plans for commodities and meats; comprehensive and integrated surveillance initiatives; participation in the Integrated Consortium of Laboratory Networks; and develop outreach materials to develop a better understanding of the role of NAHLN.

General activities
- o Participate in Secure Food Plans including defining and communicating the role of NAHLN labs in their implementation
- o As part of NVSL, support efforts to build Swine Health Improvement Plan
    - add to business plan- consider if similar programs for bovine, aquaculture
- o Support Antimicrobial Resistance studies utilizing NAHLN laboratories
    - Assure funding independent from NAHLN operational funds
    - Collaborate with other AMR groups- FDA (Vet-LIRN, NARMS, etc.)
- o Support current NPIP and interactions associated with Low-path IAV-A.
- o Continue working within the Integrated Consortium of Laboratory Networks (ICLN)
- o Support collaborations with other Federal Partners for a One Health approach.
- o Explore international collaborative opportunities
    - Individual networks in other countries
    - Initiate outreach to North American Animal Health Laboratory Network (NAAHLN) add to business plan

- o   Develop relevant information materials about NAHLN and provide to external stakeholders. Engage with and educate industry representatives and producers on the benefits of NAHLN in the event of an outbreak.

- **5. Continuation of codification activities –** develop 9CFR language; submit and complete codification process.

General activities
- o   Finalize program standards.
- o   Define and follow the current process for obtaining codification.

Determine what parts of NAHLN would benefit from a Rule and what parts do not need to be codified.

APPENDIX A-- Strengths, Weaknesses, Opportunities and Threats

Strengths

- Demonstrates success as a State/Federal partnership for over ten years
- Nationally coordinated network of almost all publicly funded animal disease diagnostic laboratories
- Coordinating Council made up of Federal and State partners
- Standardized and regularly audited quality system requirements in NAHLN laboratories
- Laboratory facilities with significant BSL-2 and BSL-3 capabilities and capacities
- Secure communications for data reporting and alert notifications
- Developed and implemented NAHLN IT system for HL7 messaging
- Unmatched national resource of expertise in animal disease diagnostics and facilities
- Standardized, practical assays deployed for fourteen important infectious animal diseases
- Laboratory staff that is proficiency trained and tested for use of deployed assays
- Demonstrated competence in national animal disease surveillance efforts
- Productive alliances established with other national laboratory networks through the integrated consortium of laboratory networks (ICLN)
- Name recognition in important parts of the Executive Branch, Congress, and industry
- Partnering with AAVLD accreditation program to provide maximum effectiveness, economy, and efficiency
- NAHLN Methods Technical Working Group provides essential and effective network-wide input into test development and validation
- NAHLN Exercises and Drills Working Group develops and/or supports the participation of NAHLN laboratories in local, regional, and National exercises and drills to increase preparedness
- Network laboratories have diagnostic expertise and testing capabilities to diagnose known and emerging infectious and non-infectious diseases.

Weaknesses

- Based on disease and its route of incursion, there may potentially be inadequate resource availability
- Lack of trained personnel
- Efficient and timely data collection and electronic messaging not standardized across laboratories due to range of available expertise and resources
- Decreased on-going surveillance programs due to reduced Federal funding
- Inability to secure adequate funding despite significant lobbying efforts

Opportunities

- Potential for increased Federal funding for laboratory infrastructure and all NAHLN activities through Federal appropriations and other Federal and non-Federal sources including the Farm Bill
- Potential for enhanced communications and alliances with other State and Federal partners and industry
- Partner with Federal and non-federal partners for utilizing NAHLN infrastructure and data with the integration into on-going national scale efforts such as swine comprehensive surveillance development, business continuity planning, enhanced passive surveillance, etc.
- Enhance functionality and partnering with the Integrated Consortium of Laboratory Networks

Threats

- Level or decreased Federal funding of surveillance programs, directed testing, and laboratory infrastructure enhancements
- Continued decreased level of State funding for support of laboratories and infrastructure
- Outbreak of significant disease for which the NAHLN is not prepared, either through lack of capability (i.e., lack of diagnostics for known diseases) or lack of capacity (i.e., surge)
- Lack of trained diagnosticians
- Emergence of significant disease for which there are not developed or validated assays
- Potential lack of cooperation between states, and between states and the federal government in the face of a significant disease event

APPENDIX B—Abbreviations

AAVLD	American Association of Veterinary Laboratory Diagnosticians
AMR	Antimicrobial Resistance Monitoring
APHIS	Animal and Plant Health Inspection Service
ARP Act	American Rescue Plan Act
ASF	African Swine Fever
BSE	Bovine Spongiform Encephalopathy
BSL	Biological Safety Levels
CEAH	Center for Epidemiology and Animal Health
CEC	Client Experience Center
CFI	Center for Informatics
CLSM	Comprehensive Lab Submission Module
EDWG	Exercises and Drills Working Group
EMS	Enterprise Messaging Services
FAD	Foreign Animal Disease(s)
FMD	Foot-and-Mouth Disease
ICLN	Integrated Consortium of Laboratory Networks
IMT	Incident Management Team
ISO	International Organization for Standardization
LMS	Laboratory Messaging Services
MTWG	Methods Technical Working Group
NAAHLN	North American Animal Health Laboratory Network
NAHLN	National Animal Health Laboratory Network
NARMS	National Antimicrobial Resistance Monitoring System
NBAF	National Bio and Agro-Defense Facility
NIFA	National Institute for Food and Agriculture
NLRAD	National List of Reportable Animal Diseases
NPIP	National Poultry Improvement Plan
NVSL	National Veterinary Laboratory Services
OCIO	Office of the Chief Information Officer
POC	Point of Care
PT	Proficiency Test
S&P	Strategy & Policy
SAHO	State Animal Health Official(s)
SHIP	Swine Health Improvement Plan
Vet-LIRN	Veterinary Laboratory Investigation and Response Network
VS	Veterinary Services