



United States Department of Agriculture

Biorisk Management in a One Health World

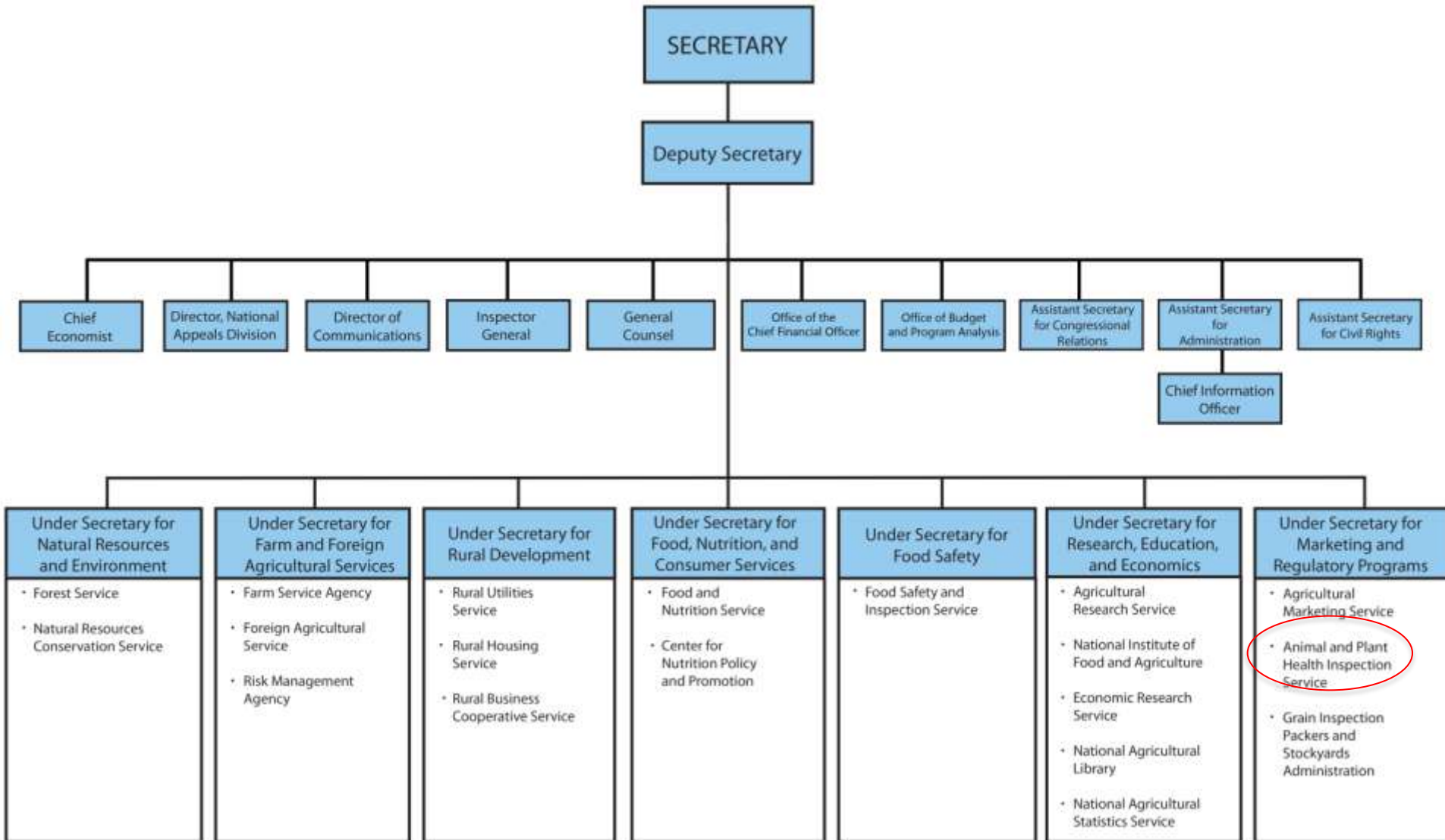
USDA APHIS One Health Initiative

Joseph F. Anelli, DVM, MS
One Health Coordination Center
U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services
February 3, 2015

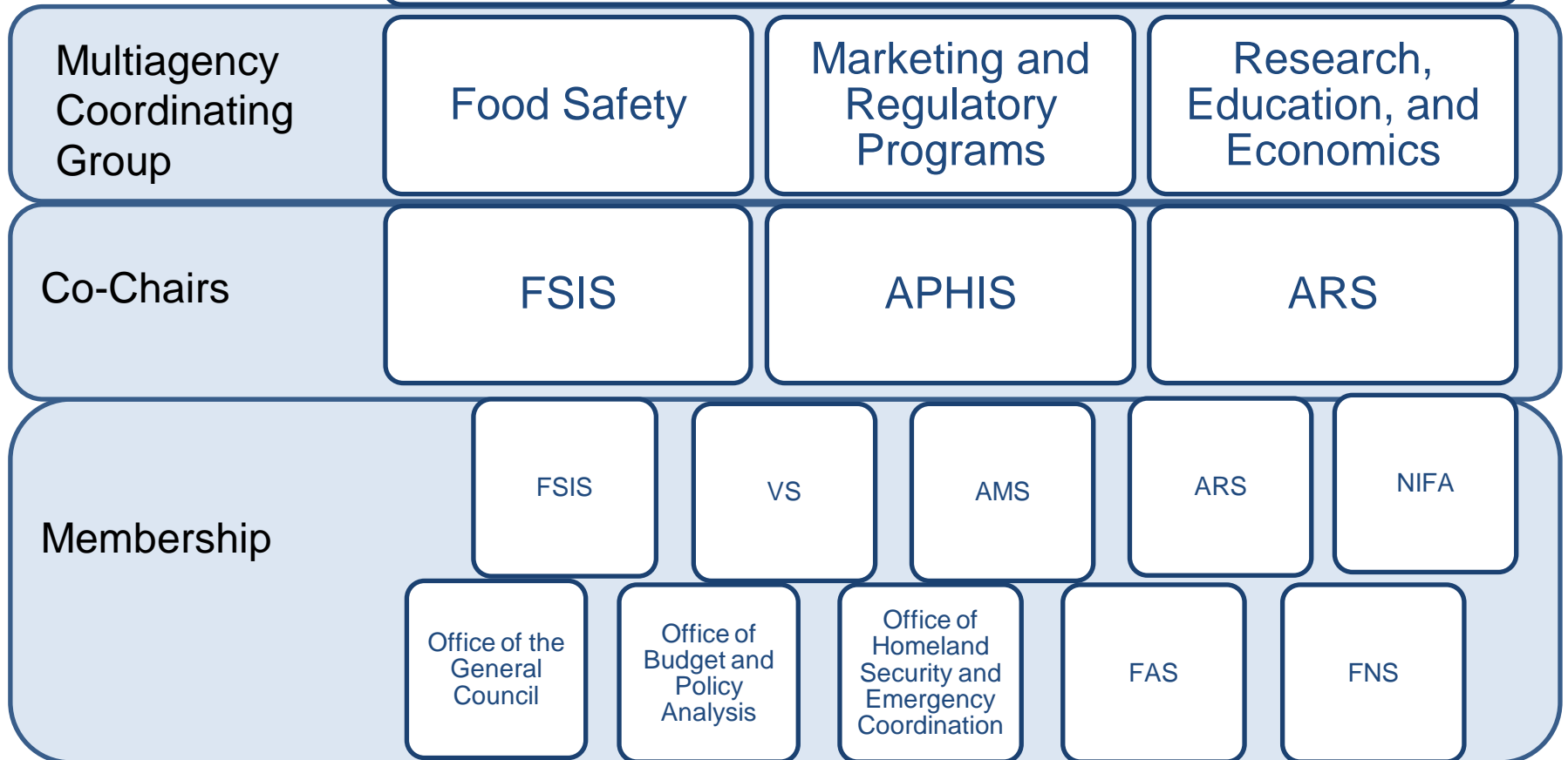




USDA Organizational Chart



USDA One Health Joint Working Group



USDA Joint One Health Working Group

- **Zoonotic Disease Engagement**
- Pre-harvest Food Safety
- Antimicrobial Resistance
- Animal and Pandemic Influenza Preparedness
- 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)

USDA One Health Priorities



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

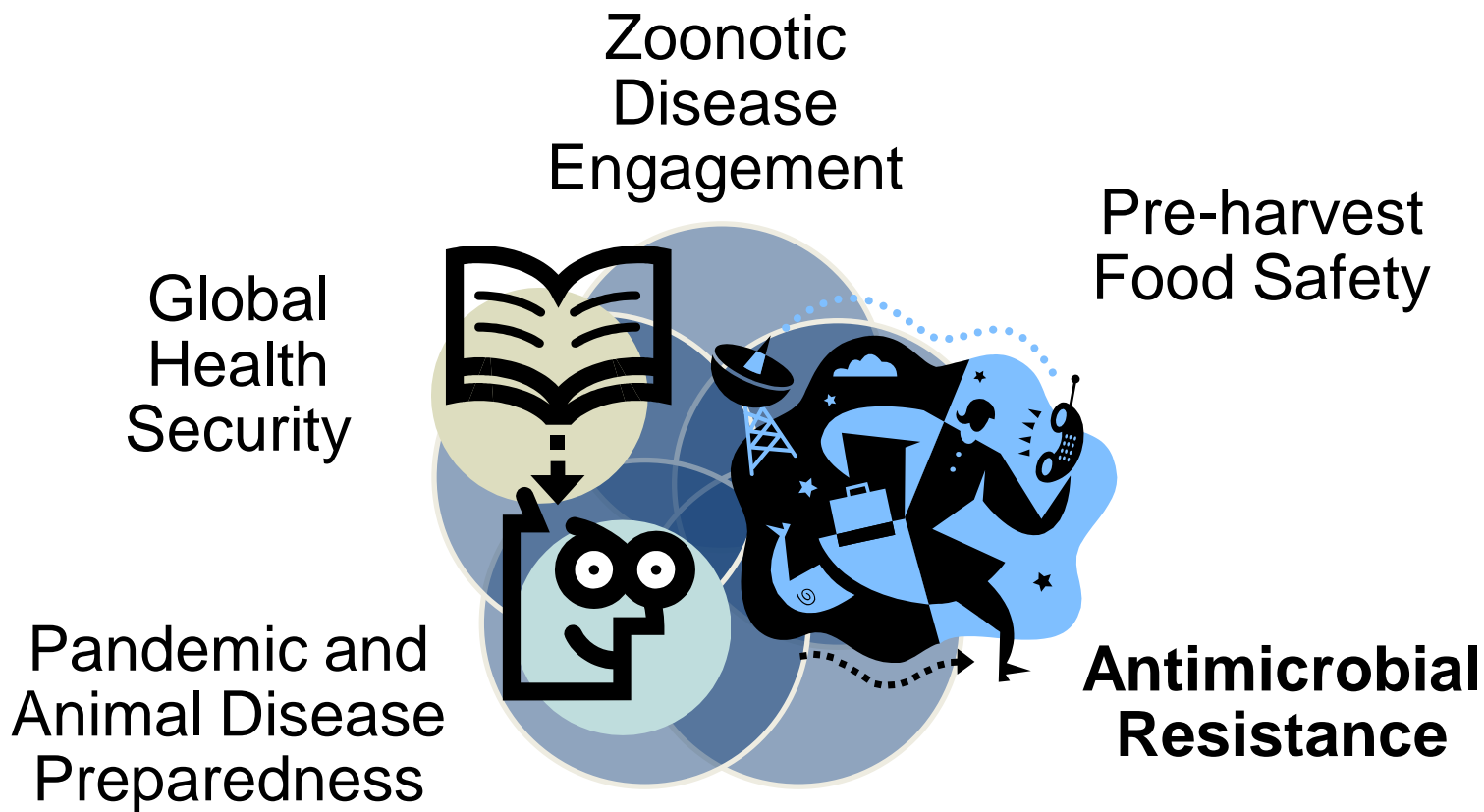
Preharvest Food Safety

- 2009 – CVB conditionally licensed an *E. coli* O157 vaccine to reduce shedding in cattle
- 2011 - NVSL began offering a *Salmonella enteritidis* rule out serotyping test to assist compliance with the FDA egg rule

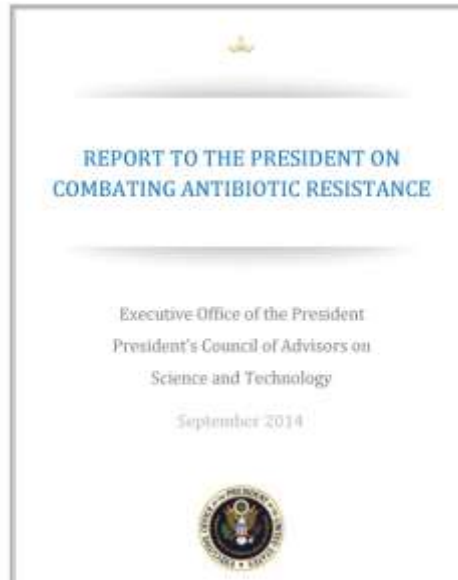
APHIS Veterinary Services' Activities and Role in Food Safety

- VS will assess root causes of foodborne-related illnesses (by conducting on-farm epi investigations)
- Estimate on-farm prevalence and identify risk factors associated with shedding of potential foodborne pathogens on U.S. livestock and poultry operations, e.g., NAHMS
- Describe on-farm antimicrobial usage and resistance

Advancing One Health Priorities...



Antimicrobial Resistance



AMR Goals:

1. Slow the Emergence of and Prevent the Spread of Resistant Infections
2. Strengthen National One-Health Surveillance Efforts to Combat Resistance
3. Advance Development and Use of Rapid and Innovative Diagnostic Tests for Identification and Characterization of Resistant Bacteria
4. Accelerate Basic and Applied Research and Development for New Antibiotics, Other Therapeutics, and Vaccines
5. Improve International Collaboration and Capacities for Antibiotic Resistance Prevention, Surveillance, Control, and Antibiotic Research and Development

USDA Joint One Health Working Group

- Zoonotic Disease Engagement
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- Antimicrobial Resistance
- **Animal and Pandemic Influenza Preparedness**
- Global Health Security

Pandemic and Animal Disease Preparedness

Avian-Origin



H5N1

H7N9

Encourage a multi-sector cooperative approach

North American Plan
For Animal and Pandemic
Influenza

Released on April 2, 2012

Swine Origin



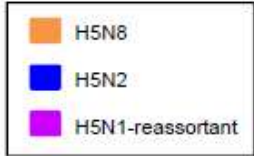
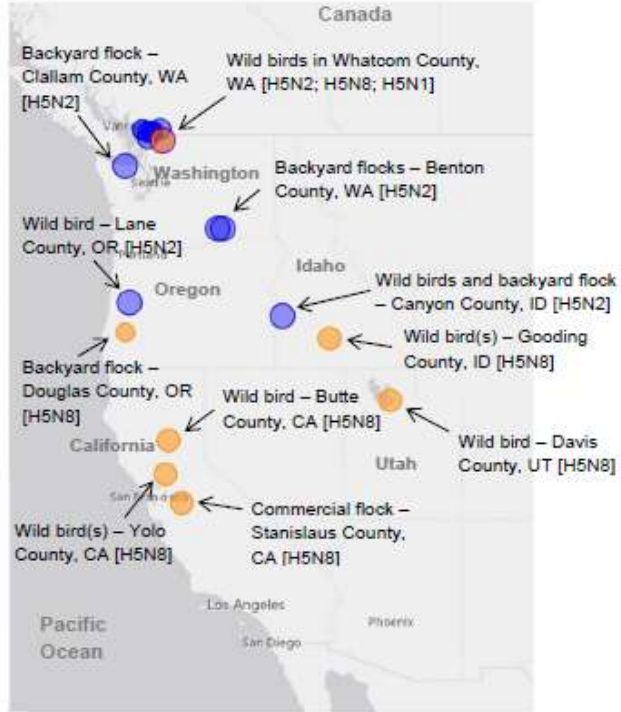
H1N1

H1N2

H3N2

H3N1

Biosurveillance Event Report
Public Health
Federal Edition



Critical information Requirement(s):

- 1) Anomalous levels of disease
- 2) High visibility biological event

Significant Features:

Detection of a potentially dangerous foreign animal disease in the U.S.

EXECUTIVE SUMMARY

The U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), U.S. Geological Survey (USGS) National Wildlife Health Center (NWHC), and state departments of agriculture have announced several detections of highly pathogenic avian influenza (HPAI) H5N8, H5N2, and novel H5N1-reassortant in avian species along the Pacific Flyway in counties in Washington, Oregon, California, Utah, and Idaho in December 2014 and January 2015. The primary concern with avian influenza (AI), especially HPAI, is the potential for human infection and economic consequence from infection in domestic poultry, particularly commercial flocks. AI is zoonotic, though, no human infections have been recognized in association with this outbreak and there is no immediate human public health concern. All previous detections of HPAI have been in wild birds or backyard poultry; however, on 24 January 2015, the USDA-APHIS announced the confirmation of HPAI H5N8 in a commercial turkey flock in Stanislaus County, California. The export market for poultry products contributes billions of dollars to the U.S. economy annually. Even before HPAI was detected in a commercial poultry flock, several countries worldwide had imposed import restrictions on U.S. poultry, thus impacting trade and international commerce. HPAI is recognized by the USDA-APHIS as a foreign animal disease (FAD) to the U.S. USDA- APHIS works with federal, state, and local partners to safeguard the U.S poultry industry against HPAI infection.



USDA One Health Priorities



1. Zoonotic Disease
Engagement, Investigation,
and Response
2. Pre-harvest Food Safety
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4. Pandemic and Animal
Disease Preparedness
5. **Global Health Security**

Global Health Security



Origins of the GHSA

- Previous Administration's International health programs were:

Bilateral and program specific

- **PEPFAR** – President's Emergency Plan for AIDS Relief
- **PMI** – President's Malaria Initiative
- **GBT** - Global Tuberculosis Program
- **NTD** - Global Neglected Tropical Diseases
- **NPAPI** – National Plan for Avian and Pandemic Influenza
- **MCH** - Maternal and Child Health
- **FTF** - Nutrition (Feed the Future)
- Family Planning and Reproductive Health

- Current Administration looked at these and saw duplication and competition and wanted a:

Coordinated integrated approach

- **Global Health Initiative** called a "whole of Government approach"
- **Countering Biological Threats** demonstrated critical role the "Security" sector played in global health
- **Global Health Security Agenda (GHSA)** emerged to coordinate the efforts of the security and health sectors in one overall Agenda that was multilateral and country driven.
- **One Health** concept became evident throughout the plan.

Outbreaks of H7N9 avian influenza, novel coronavirus (MERS) of camel origin and Ebola have exposed gaps in the global system for managing emerging infectious disease threats and demonstrate the need for enhanced U.S. leadership to **strengthen global threat detection, preparedness, and response capacity.**

Action Packages*:

Making the goals and objective understandable and operational required the development of 11 action packages with input from multiple countries at 3 international meetings (Helsinki, the Hague and Jakarta).

- Antimicrobial Resistance Action Package
- Zoonotic Disease Action Package
- Biosafety and Biosecurity Action Package
- Immunization Action Package
- National Laboratory System Action Package
- Real-Time Surveillance Action Package
- Reporting Action Package
- Workforce Development Action Package
- Emergency Operations Centers Action Package
- Linkages and Multisectoral Rapid Response Action
- Medical Countermeasures and Personnel Deployment Action Package

USDA Roles and Responsibilities in Action Packages most important from a USDA perspective:

- Prevent 1: Antimicrobial Resistance Action Package
- Prevent 2: Zoonotic Disease Action Package
- Prevent 3: Biosafety and Biosecurity Action Package
- Detect 1: National Laboratory System Action Package
- Detect 2/3: Real-Time Surveillance Action Package
- Detect 4: Reporting Action Package
- Respond 1: Emergency Operations Centers Action Package

Next Steps: Develop an Implementation Plan narrative with budget requirements as necessary

* See GHSA Action Packages 26 September 2014

USDA APHIS

Veterinary Services Mission

As the recognized animal health leader and trusted partner, Veterinary Services safeguards the health of animals, people, and the environment.



In Summary

OIE
FAO
Academia
Industry
WHO
USDA
FDA and CDC



Extension
State Wildlife
Producers
Private Practitioners
Tribal Nations
State Public Health
State Veterinarians

Networks

Face-to-Face Collaborations

Virtual Connections

Partnerships



United States Department of Agriculture

Questions?

