DHS Office of Health Affairs
Chem/Bio Capability Gap Development

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The IPT Process & the Office of Health Affairs

- What is DHS’ Office of Health Affairs (OHA) and what do we do?
- What is OHA’s role in the IPT process?
- How does OHA go about identifying requirements for S&T?
- What are some representative technology needs?
OHA Primary Goals

- Serve as the *principal medical authority* for the Department of Homeland Security
- Lead the Department's *biodefense* responsibilities
  - End-to-end leadership for implementation of HSPD-9 (Ag/Food Defense) and HSPD-10 (biodefense), including early threat detection and biosurveillance integration
- Lead a coordinated *National architecture for Weapons of Mass Destruction (WMD) planning and catastrophic incident management*
  - Ensure planning and mitigation strategies for biological threats are coordinated across the Interagency
  - Serve as DHS POC for state, local, tribal, and private sector partners for health preparedness
- Ensure DHS employees are supported by effective *occupational health and safety* programs
  - Standardize and direct a Departmental occupational health and safety program
  - Provide medical oversight for health delivery throughout the Department
National Biodefense Pillars (HSPD-10)

“Biodefense for the 21st Century”

**THREAT AWARENESS**
- Intelligence
- Assessments
- Anticipate Future Threats

**PREVENT & PROTECT**
- Diplomacy
- Interdiction
- Critical Infrastructure Protection

**SURVEILLANCE & DETECTION**
- Attack Warning
- Attribution

**RESPOND & RECOVER**
- Response Planning
- Risk Communications
- Medical Countermeasures
- Mass Casualty Care
- Decontamination

The Four Pillars of the National Biodefense Program
Threat Awareness

Bioterrorism Risk Assessment (BTRA) & CTra

Current: 40 biological threat agents, fatalities, illnesses, economic impacts

Future: Emerging and enhanced agents, prototype desktop tool, improved consequence and intelligent adversary modeling
Surveillance & Detection
BioWatch National Network

• Operates continuously in more than 30 major population centers
• Detects attacks against our Nation’s cities and other high value assets
• Poised to:
  – Enable early detection
  – Provide situational understanding to guide response
  – Share information among partners
  – Integrate into the national networks of reference laboratories
  – Serve as critical element in a national capacity to respond rapidly to bioterrorism events
Time is Critical

Days

DELAY in Detection

Hours

Shorter (1-2 Days)

DURATION of CAMPAIGN

Longer (4+ Days)

Fewer

Lives Lost

MORE

Courtesy CDC
BioWatch Event to Detection Timeline

Event-to-Detection and Confirmation

- **24 hours**
  - Aerosol Collection Cycle

- **Up to 4 Hours**
  - Filter Recovery

- **6 Hours**
  - Primary Screening

- **2 Hours**
  - Full Agent-Specific Test Panel

- **10 - 34 hours from exposure to discovery**

- **Reactive**

- **BAR**
BioWatch Event to Detection Timeline

Aerosol Collection Cycle Continuous

4 Hours 2 hrs

Gen 3 Event-to-Detection and Confirmation
4-6 hours from exposure to discovery

Delivery of SNS

Local response

Begin PEP

0 Reactive BAR Confirm

Homeland Security
Surveillance & Detection

Representative Technology Needs (Biodetection):

- An automated, fully integrated “lab-in-a-box” that is capable of aerosol collection, molecular analysis and identification, and reporting of results with networking capability for real-time control of the entire sensor system.

- An automated sampler compatible with lab analysis, sealed for safe handling of potential positives, preservation of sample viability for 1-3 days; flexible, remotely programmable; and relatively low acquisition, operation and maintenance costs.

- Technologies and systems to identify unknown and emerging threats.

- Testing, validation, and guidance for Hand-Held Assays to elicit response from public safety and health communities.
Surveillance and Detection
National Biosurveillance Integration Center (NBIC)

Analysis/Alerts

- Identify and characterize biological events of national concern in as close to real-time as is practicable
- Provide information to populate a Biological Common Operating Picture (BCOP)
- Alert senior leadership, member agencies, and public health agencies of state, local, and tribal governments regarding any incident that could develop into a biological event of national concern
Surveillance & Detection

Representative Technology Needs (Biosurveillance):

- Biological event effects forecasting and analysis modeling tools to determine the likely cause or source of the contamination
- Development of rapid analytics for biological and biosurveillance information data streams from across domains and from non-traditional sources
- Development of visual analytics to support rapid information absorption of bio-situational awareness information by leaders with limited viewing windows
- Explore integration of information from private sector databases

Homeland Security
Response & Recovery
Biodefense Architecture

Federal Direction – Identify the National Architecture
Provides Interoperability for two-way Information Sharing
State/local/tribal Create Solutions Specific to their Unique Needs
Food, Agriculture, & Veterinary Defense

Representative Technology Needs:

• Agro-screening tools and protocols to detect and mitigate animal disease outbreaks

• “Trade-friendly” FMD vaccines, as well as vaccines for RVF, CSF, and other foreign animal diseases

• High throughput diagnostics

• Agriculture & food vulnerability assessments

• Modeling tools to support policy and decision makers in evaluating intervention strategies to control outbreaks

• Modeling & training tools to support state and local planning and operations
DHS Health Affairs Integration

- HHS: Preparedness & Response
- DOS: Democracy & Global Affairs
- USDA: Food Safety Research, Ed. & Economics Marketing & Regulatory Prgms
- Private Sector Partners: Critical Infrastructure Healthcare Systems EMS
- OHA (DHS): WMD Biodefense Medical Readiness Worker Health & Safety
- VA: U/S Health
- DOD: Health Affairs Homeland Defense
- Critical Infrastructure Healthcare Systems EMS
- Emergency Managers
Taking Threats Off the Table

What can you do?

– Provide feedback to DHS
– Deliver near-term improvements, as well as develop innovative tools and technological solutions in the mid- to long-term
– Enhance our scientific knowledge base

What can we do?

– Develop a Strategic Plan for biological events
– Establish partnerships at all levels of government, with the private sector, and with non-governmental organizations
– Identify gaps and work with our partners to address them