The Chemical and Biological Defense Program (CBDP)

Advance Planning Briefing for Industry (APBI)

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Chemical and Biological Defense Program Overview

Threat and Future Challenges

Key Objectives and Focus Areas

Medical Countermeasures Development

Partnerships
The CBDP supports comprehensive DoD efforts to:

- Research, develop, and acquire capabilities for a layered, integrated defense focused on CB threats
- Better understand potential threats
  - Further develop capabilities to respond to current and traditional threats
  - Respond to natural and emerging infectious diseases
  - Counter advanced threats (engineered pathogens, Non-traditional agents, etc.)
- Secure and reduce dangerous materials whenever possible
  - Support the Cooperative Threat Reduction and Cooperative Biological Engagement program efforts
  - Provide guidance and support on DoD biosecurity and biosafety
- Leverage industry and interagency partnerships

DoD has unique operational requirements, a global presence, and significant current and emerging threats
CBDP Vision and Mission

**Vision**
A Department of Defense (DoD) that addresses CBRN threats and minimizes their effects

**Mission**
Enable the Warfighter to deter, prevent, protect against, mitigate, respond to, and recover from CBRN threats and effects as part of a layered, integrated defense

*The CBDP is a key part of a comprehensive national strategy to prevent, protect, and respond to an evolving spectrum of 21st Century CBRN threats*
Global Security Environment

Threats
- Pervasive impact
- Conflict engagement
- Regional prevalence
- Asymmetric warfare (WMD)
- Adaptive / emergent

Major Challenges
- Traditional / non-traditional threats
- Irregular warfare
- Catastrophic consequences
- Disruptive economic impact

Stakeholders
- Joint Forces
- Interagency Partners
- International Collaborators

These issues must be addressed with the right mix of resources to improve Warfighter CBRN defense capabilities and enhance the nation’s security

PRIORITY – IMPROVE WARFIGHTER CBRN DEFENSE CAPABILITIES AND ENHANCE HOMELAND DEFENSE
## Biological

### Traditional Threats
- Bacterial pathogens (anthrax, plague)
- Viral pathogens (VEE, WEE)
- Toxins (botulinum, ricin)

### Emerging Threats
- Current and emerging diseases
  - Influenza
  - Melioidosis
  - Brucellosis
  - Cholera

### Enhanced Threats
- Strains enhanced for environmental survivability
- Selection or creation of hypervirulent strains and pathogens with increased resistance to preventatives and treatments

### Advanced Threats
- Pathogens with altered targets or symptoms to confound diagnosis and treatment
- Creating viruses *de novo*

## Chemical

### Traditional Threats
- Chemical warfare agents (nerve, blood, and blister)
- Agents designed for military operations/applications
- Toxic Industrial Materials (TIMs)/Toxic Industrial Chemicals (TICs)

### Advanced Threats
- Non-traditional Agents (NTA)
- Asymmetric applications and/or engagements
Defense Strategic Guidance: Climate and imperative to refresh DoD strategy

Anticipating and Meeting Future Challenges

Today’s Wars

President’s Priorities for 21st Century Defense

Future Challenges

Impetus for Reassessment

- Draw down from extended operations in Iraq and Afghanistan
- Protect our nation’s economic vitality and operate within changing fiscal circumstances
- Guard our interests in a world of accelerating change
- Meet changing geopolitical environment

Addressing Current and Future Challenges

- Maintain active approach to countering violent extremists
- Rebalance toward the Asia-Pacific region
- Continue presence in and support for the Middle East
- Assure access to and use of air, sea, space, and cyberspace
- Develop innovative, low-cost, small-footprint approaches
- Act with domestic and foreign partners to prevent proliferation WMD

Chemical and Biological Defense

Key Objectives

- Establish medical countermeasures (MCM) pipeline from requirements definition, through Research, Development, Test and Evaluation (RDT&E) and FDA approval, to manufacturing and distribution.

- Develop synergistic, technologically advanced environmental surveillance and point-of-need diagnostic capabilities against CBRN threats to enable force protection decisions.

- Provide CBRN defense capabilities to support biosurveillance efforts and enable the warfighter to achieve information dominance in the CBRN domain.

- Integrate Non-Traditional Agent (NTA) defense capabilities in future CBD systems.

- Develop and field suitable, effective, and affordable broad-spectrum CB detection capabilities to detect current and emerging CB hazards.

- Maintain critical capabilities and competencies, aligned with RDA priorities, to rapidly develop, test, and field CBRN defensive capabilities to the warfighter.

- Implement risk-based planning and decision-making processes within the Enterprise.
CBDP Focus Areas
Detection and Protection

- **Detection**
  - Provide actionable information to allow commanders to mitigate the effects of CB events with minimal impacts to the force.
  - Pursue common technologies for diagnostics and environmental detection.
  - Ensure development and fielding of enhanced capabilities able to detect and identify emerging threats.
  - Ensure adequate capability exists in the field to detect and identify known threats.
  - Ensure critical information provided by sensors is capable of rapid integration into BSV and information systems that provide critical information to decision-makers.

- **Protection**
  - Focus long term individual and collective protection efforts on integrating CBRN protection within materials used for field structures and uniforms.
  - Accept risk by limiting procurement to economical order quantities.
  - Continue modernization of the force with the Joint Service General Purpose Mask (JSGPM) but at minimum levels IAW FPC.
CBDP Focus Areas
Info Systems, CM, and Rad/Nuke Defense

- **Information Systems**
  - Continue development of networked sensors (diagnostics and environmental) and information systems in support of Biosurveillance, GCAS, and tactical common operating picture systems.
  - Standardize data requirements to allow data sharing with interagency and internationally developed updates.

- **Consequence Management**
  - Equip multi-mission forces and specialized units with CBR defense equipment to enable assistance to state and local governments in response to and recovery from the effects of a CBRN event.

- **Radiological/Nuclear Defense**
  - Develop radiological / nuclear defense medical therapeutic efforts for radiological exposure.
**CBDP Focus Areas**

**MCM and Biosurveillance**

- **Medical Countermeasures**
  - Fund S&T efforts to develop the next-generation of manufacturing systems and regulatory science technologies.
  - Provide a dedicated, cost-effective, reliable, and sustainable advanced development and manufacturing capability.
  - Enhance the MCM S&T pipeline and advanced development portfolio to address priority threats.

- **Biosurveillance**
  - Capabilities to prevent or reduce the impact of biological threats and risks:
    - Provides early detection of biological events of concern.
    - Strengthens decision-making and force health protection by informing overall biological situational awareness with integrated health and environmental data.
Diagnostics

- Resource a robust portfolio that provides capabilities to:
  - Identify threats in both permissible and non-permissible environments by autonomous individuals or teams with limited to no infrastructure support, e.g., a small team deployed to the third world.
  - Diagnose the causative agent and survey for the presence of disease to anticipate, detect, identify, and quantify, disease-causing organisms with limited supporting infrastructure.

Non-Traditional Agent (NTA) Defense (Countering Advanced Threats)

- Develop technologies that address existing and emerging NTAs in the near, mid, and far-term.
- Strengthen and integrate capabilities that provide warning of attack, barrier protections, and both pre-treatments/prophylaxes and post-exposure treatments.
- Expand interim NTA defense capabilities to additional DoD response forces.
DoD Medical Countermeasure Strategy

Core Science and Technology and Core Advanced Development Programs

MCMI
Revolutionize advanced development and manufacturing

Licensed Product (12-15 years)

Discovery

Refinement

Advanced Development

One drug/
One bug
Unsustainable in meeting 21st Century Threats

Advanced
development

Licensed Product (reduced timeframe)

<12-15 years

Discovery

Refinement

One drug/
Many bugs

Licensed Product

Biosurveillance
Biosurveillance Components

- Data Fusion, Analysis, And Reporting
- Infrastructure
- Guiding and Organizing Documentation
- Data Acquisition and Transmission
- Technologies
- Partnerships

Health Event

Biosurveillance
DoD Diagnostics

Diagnostic
Environmental
Infectious Disease
CBRN Defense
Host-Response Biomarkers
Chemical & Radiological Exposures

NGDS Family of Systems

Far Forward
Deployable Lab
Fixed Facilities

NGDS Increment 1
NGDS Increment 2
24 Month Challenge
Early Detection Improves Response

Effectiveness of Countermeasures

Window of Diagnosis

Exposure  Pre symptomatic  Symptoms

Biosurveillance

Window of Treatment
Vision: A DoD that addresses CBRN threats and minimizes their effects

Mission: Enable the Warfighter to deter, prevent, protect against, mitigate, respond to, and recover from CBRN threats and effects as part of a layered, integrated defense

1. Equip the Force
to successfully conduct military operations to prevent, protect, and respond to CBRN threats and effects

2. Prevent Surprise
by anticipating CBRN threats and developing new capabilities for the Warfighter to counter emerging threats

3. Maintain Infrastructure
to meet and adapt current and future needs for personnel, equipment, and facilities within funding constraints

4. Lead the Enterprise
to integrate and align activities to fulfill the CBDP mission

The CBDP must continue to lead the Nation's efforts to prevent, protect against, and respond to CBRN threats into the future.
Strategic Partnerships are Key

Department of Defense

Interagency

International

Coordination

Cooperation

Integration

Industry and Academia

Logos from Official Websites
Questions?