Re-Visioning Biological Defense as a Strategic Enabler for Health Protection

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Domestic Emergency Continuum

Most Likely | Probability | Least Likely

Greatest

Impact

Least

STATE & LOCAL | FEDERAL

-- Aircraft Accident

Civil Demo --

Severe T-Storm --

HAZMAT --

Civil Disturbance --

HURRICANNE

WMD

MAJOR FLOODING

-- IBD

IED --

ICD --

IND --

IED = Improvised Explosive Device

ICD = Improvised Chemical Device

IBD = Improvised Biological Device

IND = Improvised Nuclear Device
“...one of the most pressing and disturbing issues of our time -- the threat of germ weapons used by terrorists. That threat is real. Although the threat has low probability, I would argue strongly that there is an increasing probability -- with huge consequences.”

• Senator Bill Frist, M.D., (R – TN), Statement to the Subcommittee on Labor, Health and Human Services, Education and Related Issues; October 3, 2001
Purpose

• Provide a brief overview and analysis of current military biodefense.

• Discuss potential implications of “re-visioning” biodefense.
Current Doctrine

- Contamination Avoidance
- Protection
- Restoration (Decontamination)
A New Vision?

- Sense – Situational Awareness
- Shape – Shape the Battlefield
- Shield – Soldier Protection
- Sustain – Maintain, restore military operations

*An Operational Concept for Biological Defense (Institute for Defense Analysis, 2002)*
Sensing: Th

- Joint Biological Point Detection System (JBPDS)
- Joint Biological Standoff Detection System (JBSDS)
- Joint Service Lightweight Nuclear, Biological, Chemical Reconnaissance System (JSLNBCRS)
- WMD Civil Support Teams (Homeland Defense)
Broadening th

*Early* warning systems that define and discriminate threats in order to proactively protect.
Sensing: Th

- “Smart Dust”
- Medical Surveillance Systems (ESSENCE)
- Dispersion modeling
Sensing: Th

- Medical Provider Training
  - Medical Management of Biological and Chemical Casualties Course (U.S. Army)
  - National Environmental Education and Training Foundation initiative

- Biomarkers
  - Measure human response to threat agent
  - Predict survivability
  - Monitor long term health effects
  - Establish baseline health of the force
  - Track potential exposures
Sh Battlespace

- Joint Warning and Reporting Network (JWARN)
- National Strategy to Combat Weapons of Mass Destruction
  -- Counterproliferation
  -- Nonproliferation
  -- Consequence management
Shape the **threat** as well as the **battlespace** to minimize potential impact and effects.
 Threat assessments
  --Agent
  --Capabilities
  --Nation/Terrorists
  --Technology

 International laws
  --1972 Biological and Toxin Weapons Convention
  --Limitations on scientific research publications
Sh

- Joint Service Lightweight Integrated Suit Technology (JSLIST)
- Joint Service General Protection Mask (JSGPM)
- Chemical Biological Protective Shelter (CBPS)
- Vehicular collective protection
Develop modalities designed to protect the soldier from the toxin rather than protecting the soldier from the environment.
Immunomodulation strategies
Toxin neutralization
Toxin sponges
Medical prophylaxis: Vaccines, pre-treatments
Sustaining: Restoring Capabilities

- Sorbent decontamination
- Bucket/brush brigade
- Modular Decontamination System (MDS)
- Medical countermeasures
Design strategies that not only sustain individual and unit capabilities but also promote and improve capabilities.
Sustaining: Promoting Capabilities

- Eliminate decontamination requirement
  -- disposable equipment, “soldiers”
  -- impregnated strips on equipment
  -- radiative strategies

- Eliminate barrier protection requirement
  -- Pre-exposure pills/vaccines
  -- Soldier internal medication pumps

- Medical surveilling
“In the wake of Sept. 11th, there are questions about how prepared our nation is to respond to a biological attack, and rightfully so. Let me characterize our status this way: We are prepared to respond. But there is more we can do – and must do – to strengthen our response.”

– Opening statement made by HHS Secretary Tommy Thompson before the Senate Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies; October 3, 2001

“I would be confident that (our soldiers) are trained, that they’ve got the right equipment at the right place at the right time, and they have the confidence to complete their mission.”

– Closing statement by BG Steve Reeves, Program Executive Officer for Chemical and Biological Defense at a media briefing on Chemical and Biological Defense Readiness; March 3, 2003
Conclusion

This outbreak may be harder to contain.
References

Soldier Biological and Chemical Defense Command
http://www.sbccom.army.mil

Chemical and Biological Arms Control Institute
http://www.cbaci.org

Briefing on Chemical and Biological Defense Readiness; March 3, 2003
http://www.defenselink.mil
Questions?

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