



Biological Weapons Nonproliferation (BWNP)

Reynolds M. Salerno, Ph.D.

**US-Taiwan Nonproliferation and Confidence Building Measures
Workshop**

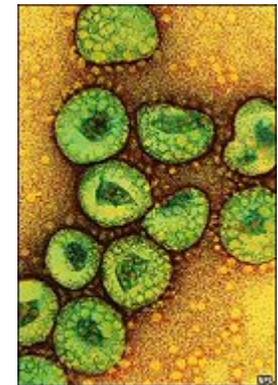
International Security Programs

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Evolution of the Biological Weapons Threat

- **Bioterrorism has emerged as a threat to international security**
 - 1984 Rajneeshee religious cult attacks
 - 1990s Aum Shinrikyo attempts
 - 2001 Anthrax attacks in the US
- **Recent natural outbreaks of highly infectious disease awakened the international community to the potential consequences of bioterrorism**
- **The rapid expansion of biotechnology has facilitated efforts to acquire, develop, and deploy biological weapons (BW)**



SARS virus

Today, BW proliferation is a global problem that requires global solutions



Biological Weapons Nonproliferation

- An international strategy designed to prevent the use of biological weapons
- Current international BWNP Programs:
 - Support the Biological Weapons Convention
 - Export Controls (e.g. Australia Group)
- Current programs address state based BW proliferation
 - In addition, a pressing need to counter BW proliferation by terrorists, globally



Francisella tularensis



Biodefense

- **Aims to improve the ability to respond to an outbreak of bioterrorism after it has occurred**
- **Biodefense activities include**
 - **Improving diagnostics and disease surveillance**
 - **Developing detection technologies**
 - **Strengthening emergency response capabilities**
 - **Enhancing decontamination and remediation technologies**
 - **Building public and agricultural health capacities**
 - **Increasing the effectiveness and availability of vaccines and therapies**



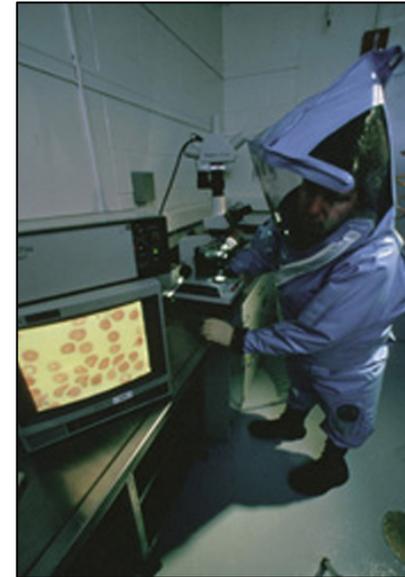
Smallpox vaccine





Challenges for BWNP

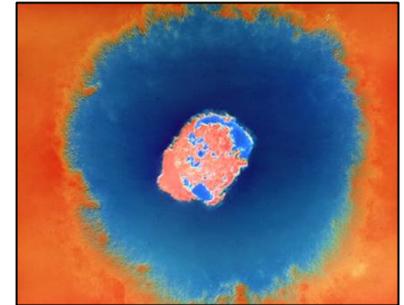
- **Terrorists no longer need sophisticated processing and dissemination systems to threaten international security**
- **Materials, technologies, and expertise are distributed among thousands of legitimate bioscience facilities worldwide**
- **Excessive controls on the biotechnology industry will jeopardize critical research without providing tangible security benefits**





Global Biological Materials Management

- Development of programs to secure *high risk agents* internationally
 - Implement systems and practices to promote the safe, secure, and responsible use of *high risk agents*



Smallpox virus

Elements of Global Biological Materials Management

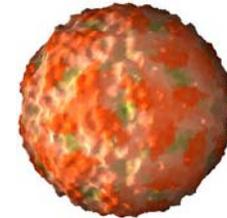
1. Agent Prioritization
2. Facility Biosecurity
3. Transport Biosecurity
4. Biosurveillance
5. International Outbreak Control



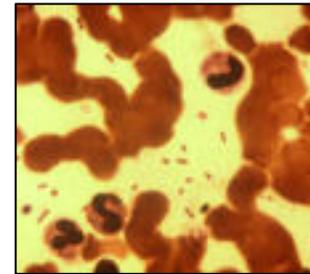


Biological Agent Prioritization

- Identifies *high risk agents* through scientific analysis that evaluates weaponization potential and consequences of use
 - How attractive or valuable the agent would be to an adversary
- Allows policymakers to focus on securing the *highest risk agents*
 - Optimizes allocation of resources



FMD virus



Yersinia pestis



Facility Biosecurity

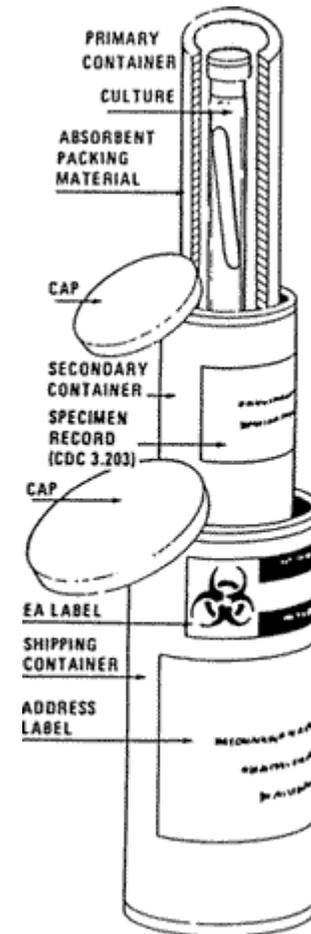
- Secures *high risk agents* in facilities where they are used and stored
 - Aims to prevent terrorists or proliferant states from stealing or sabotaging *high risk agents*
- *High risk agents* are housed in thousands of legitimate facilities worldwide, and the biotechnology industry continues to expand
- Critical to develop systems that balance security and research
- Imperative to develop global biosecurity standards for facilities





Transport Biosecurity

- Secures *high risk agents* during transport between facilities
 - Aims to prevent terrorists or proliferant states from acquiring biological agents through theft
 - Relies on chain of custody principles
 - Added benefit – protects against sabotage
- *High risk agents* are routinely shipped worldwide for diagnostic and research activities
 - A local, national, and international concern
- Need to develop a common standard, harmonize regulations for security





Biosurveillance

- Identifies international outbreaks of disease caused by *high risk agents*
 - Monitors human, animal, and plant populations for signs of an outbreak
- Current lack of effective international surveillance systems to track disease outbreaks caused by *high risk agents*
- Need to develop and network biosurveillance systems worldwide
 - Focus on regions prone to emerging disease outbreaks





International Outbreak Control

- Controls *high risk agents* from the site of outbreak through diagnostic and clinical environments using decontamination, biosecurity, and quarantine procedures
- During outbreaks of highly infectious disease, mitigating public health impacts is the main priority
 - Yet also critical to ensure that materials are secured against theft and diversion
 - Crucial to establish security measures for international outbreak control



Decontamination following an Ebola outbreak in Gabon



Conclusion

- **Bioterrorism is a problem of global proportions**
- **Collaborative efforts among the international community will be critical to achieve an effective response**
- **Global biological materials management can provide a critical supplement to existing BWNP and biodefense efforts designed to counter the overall BW threat**

