

# Gaps and Priorities in US Contributions to Global Disease Challenges

## *Bioterrorism and Pandemic Threats*

Tara O'Toole. MD, MPH

July 7, 2008

IOM Working Group Meeting

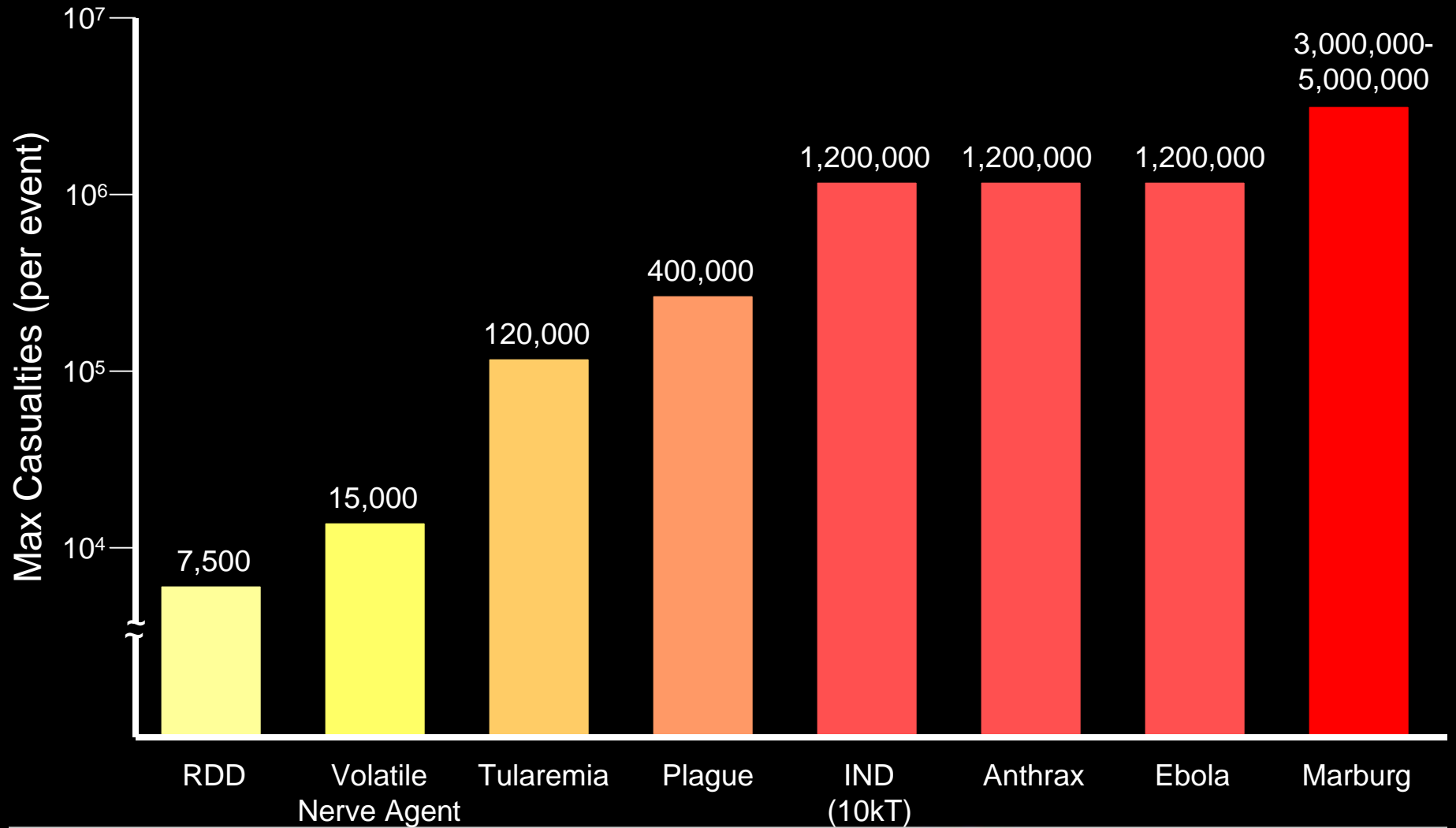
# Bioterror/Pan Flu: Commonalities

- Potentially highly lethal, disruptive
  - National security threats with global effects
- Interdiction/prevention extremely difficult
  - Emphasis on defense, mitigation
- Mitigation requires
  - Adequate situational awareness
  - Lots of Medical Countermeasures (MCMs), effective distribution
  - High level international cooperation, coordination
- Precise weapons agent or flu strain may be unanticipated

# Biological Weapons: Strategic International Security Threat

- ***“Our greatest concern is that terrorists might acquire biological agents, or less likely, a nuclear device, either of which could cause mass casualties.”***
  - *Mapping the Global Future: Report of the National Intelligence Council’s 2020 Project; January 2005*
- Excellent asymmetric weapons
  - Prevention, interdiction, attribution very difficult
  - Lethality comparable to nukes
  - No technical barriers to building, disseminating powerful bioweapon – *Defense Science Board, 2000*
- Advances in bioscience will increase potency, diversity of possible bioweapons and make them more difficult to detect or defend against – *National Intelligence Council, 2005*

# Relative Consequence of CBRN Threats



**Center for Biosecurity**



**UPMC** | University of Pittsburgh  
Medical Center

# What's Needed

- Stockpiles of MCMs, flu vaccine
- Capacity for cheap, rapid, large-scale manufacture of MCMs
  - Flu pandemic: global MCM needs
  - BT: vax entire population post attack? Share stockpiles?
- Surveillance capacity: detect early cases and maintain situational awareness in crisis
- International guidelines, agreements to save lives and minimize social, economic disruption
  - Containment of contagious disease
  - Information sharing, transparency, real-time learning

# Priorities

- US commitment to significantly decrease risk, cost, time of MCM development, manufacture
  - Good progress in flu vax
  - Possible US/UK collaboration in biodefense MCMs
  - Free or near-free MCMs for developing countries, neglected diseases
- Surveillance: US needs coherent strategy
  - Greater emphasis on POS diagnostics
  - More low tech, field friendly IT technologies
- International cooperation, collaborations
  - Establish mitigation of epidemics as top security priority
  - Create binding treaties, agreements, norms

# Grand Challenge

***Eliminate large, lethal epidemics of infectious disease – deliberate and naturally occurring – in our lifetime***

- Leverage ongoing revolution in bioscience, biotechnology
- Establish use of disease as weapon a crime against humanity

# Return on Investment

- Powerful tools to save lives, boost economic development abroad
- Broader, more cost-effective platforms for drug and vaccine R&D&P
- Improved US economic competitiveness in bioscience, biotech
- Improved US standing overseas