National Academy of Sciences Committee on Federal Regulations and Reporting Requirements: A new framework for research universities in the 21st Century

Select Agents

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Select Agents Currently Registered for Research

HHS Select Agents and Toxins

- *Coxiella burnetii*
- Crimean-Congo hemorrhagic fever virus
- Eastern Equine Encephalitis virus
- Ebola virus
- *Francisella tularensis*
- Lassa fever virus
- Lujo virus
- Marburg virus
- Monkeypox virus
- Reconstructed 1918 Influenza virus
- *Rickettsia prowazekii*
- South American Haemorrhagic Fever viruses: Guanarito, Junin, Machupo, Sabia
- Tick-borne encephalitis complex (flavi) viruses: Far Eastern Tick-borne encephalitis, Tick-borne encephalitis (Siberian Subtype)
- Kyasanur Forest disease
- Omsk Hemorrhagic Feverr
- Yersinia pestis

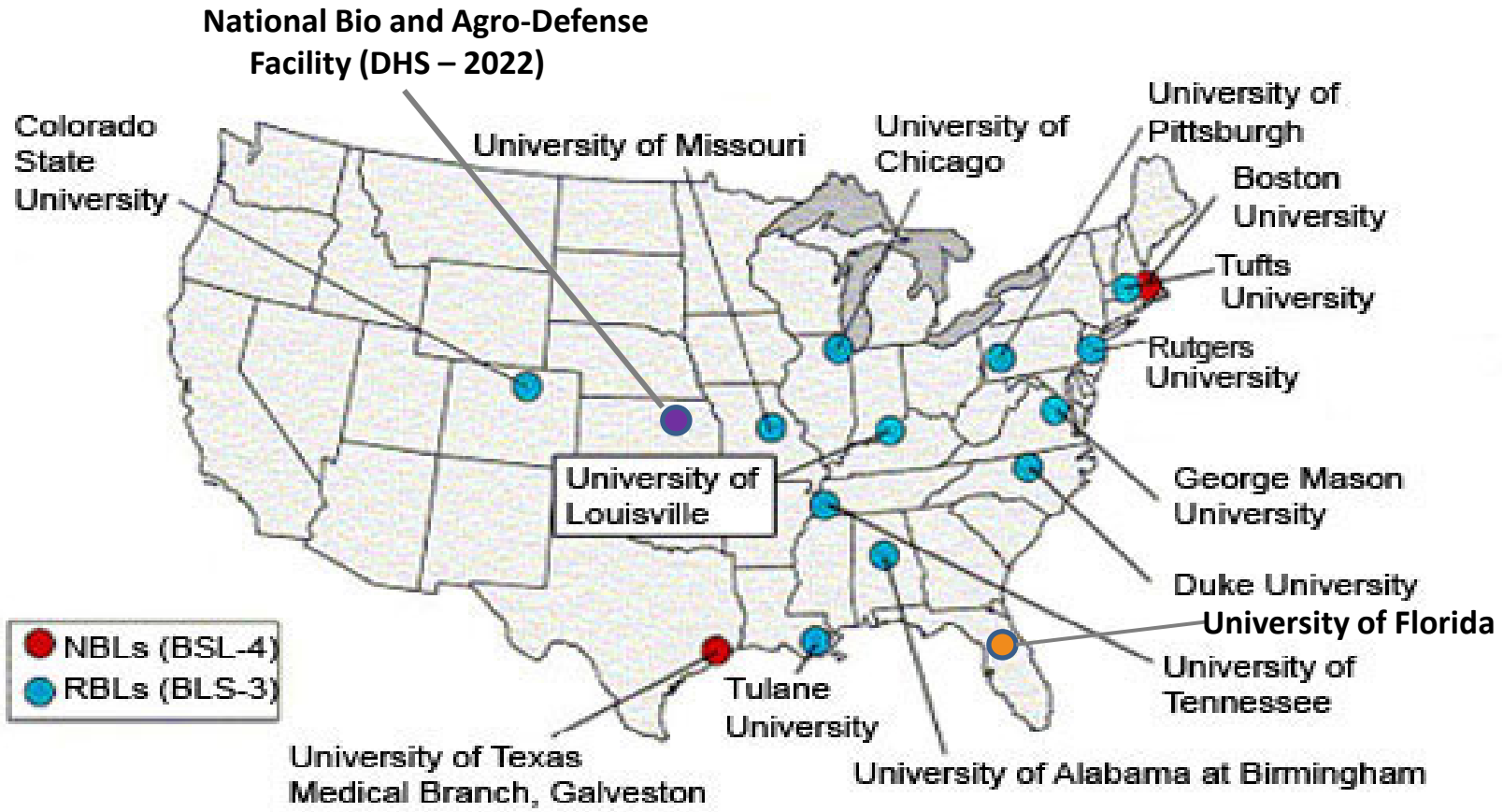
Overlap Select Agents and Toxins

- *Bacillus anthracis*
- *Bacillus anthracis Pasteur strain*
- *Brucella abortus*
- *Brucella melitensis*
- *Burkholderia mallei* (formerly *Pseudomonas mallei*)
- *Burkholderia pseudomallei* (formerly *Pseudomonas pseudomallei*)
- Hendra virus
- Nipah virus
- Rift Valley fever virus
- Venezuelan Equine Encephalitis virus

USDA Select Agents and Toxins

- Avian influenza virus (highly pathogenic
- Newcastle disease virus
- Vesicular stomatitis virus (exotic): Indiana subtypes VSV-IN2, VSV-IN3
- Virulent Newcastle disease virus

Biocontainment Laboratories at U.S. Universities



Source: National Institutes of Health

NBL-RBL Network

Programmatic Costs to the University

- Physical plant construction costs
- Recurrent operations costs to ensure proper safety and security
- Security costs—guards, cameras, locks, 24/7 coverage, enhanced IT security structure
- Personnel screening costs—background/medical
- Costs of providing investigator biosafety training
- Time required for biosafety training
- Tier 1 enhanced access control

Personnel Challenges

- Background Checks
  - UTMB background check
  - DSAT background check
- Medical clearance for BSL4 workers and Tier 1 workers
- Personal Reliability Program for all Tier 1 workers
- Lack of mechanism to allow an individual to contest a failed background check

Inspections

- Frequency of inspections; (we average about 3/year)
- Impact on staff time to host inspection team
  - preparation for the visit-review inventories (1 week)
  - during the visit, including entrance and exit interviews (1 to 2 weeks)
  - cost of PPE (typically supplied by us)
  - responding to findings—agent inventories
- Questionable quality (experience) of inspectors
- Inspections by both CDC and USDA

Inventory Maintenance & Record-Keeping

- Replicating agents: thus entire premise of counting vials is flawed
- Repeated freeze-thaw cycles impacts specimen viability
- Cost of creating and maintaining inventories (individual log books or automated systems)
- Unintended consequences of counting vials: risk of vials sticking to gloves and loss. (We had the inspectors do this on last visit)
- Negative perception in community when record errors are found and made public
- Questionable value of follow-up investigations by campus police and FBI
- Recent expansion to include animal tissues, carcasses and other “working stocks”

We should be held accountable for the safe and secure handling of select agents, but we should not be counting vials.

Ebola Sample Is Mishandled at C.D.C. Lab in Latest Error

Error in lab may have exposed CDC technician to Ebola

CDC: Smallpox found in NIH storage room is alive

Smallpox vials, decades old, found in storage room at NIH campus in Bethesda

Live anthrax inadvertently shipped by U.S. military

Missing virus vial raises concerns at UTMB facility

Vial of Potentially Deadly Guanarito Virus 'Misplaced' by University of Texas Medical Branch in Galveston

utmb Health
Galveston National Laboratory

OOPS: UTMB MISPLACES A VIAL OF DEADLY VIRUS

Reports and Formal Communications

- Delay in receiving inspection reports (months), but entity response to reports is required within 2 weeks
- Delays in CDC/USDA response to requests for approval for individuals to handle select agents (months)
- Impact on our ability to conduct funded research in a timely manner
    - ***Adequate staffing levels at CDC & USDA?***

Specimen Shipment

- Administrative burden associated with shipping and receiving, especially internationally
- Lack of approved carriers after the Dugway anthrax incident→***FEDEX will no longer ship select agents***
- Only one experienced U.S. carrier, with limited distribution network and *significantly* increased costs

Export Control Regulations on Biological Items

- Commerce Control List of viruses and bacteria of public health and agricultural importance
- Controls export internationally
- The list is different from select agents list
- Agents determined by the Australia Group of 41 countries to maintain a list of biological agents that could be used in biological warfare
- Serious repercussions for failure to get approvals—Dengue example

Unintended Consequences

- Limited work being done on critical pathogens of Public Health and national security importance
- Investigators use surrogates rather than actual pathogens
- Many highly qualified researchers leave the field or refuse to work on select agents
- Collaborations more challenging, especially internationally
- Exchange of specimens very difficult, leading to isolation of US investigators from international outbreaks/investigations
- ***→Negative impact on national security and public health preparedness:—we are isolating ourselves from the world***

→Risk of existing facilities closing select agent programs due to operational costs

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COMMENTARY

Implementing the Select Agent Legislation: Perfect Record or Wrong Metric?

David R. Franz

"…the Division of Select Agents and Toxins employs more than 150 people. In FY2015, the select agent program received an estimated $16.6 million, not including working capital fund expenses and other associated costs. For 2016, the program will ask for an additional $10 million "to improve and increase regulation and oversight of select agents and toxins," and plans to increase the number of annual inspections and surprise visits for what are termed "high risk facilities" by 25%. Will expanding this program make us safer or more secure? Or will it further slow progress in domestic infectious disease research?"