Biodefense Research

Secrecy, Safety and Risk
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May 21, 2004
Secrecy: Pros and Cons

• Pros: Protect National Security. Keep pathogens from would-be terrorists. Select Agent Legislation of 1996 was passed in response to Larry Wayne Harris’ attempt to purchase Yersinia pestis from American Type Culture Collection in 1995. This law tightened regulatory controls on transfer and packaging of pathogens. All labs transferring select agents must be registered with CDC.

• Cons: Invites misinterpretation of intentions. Biodefense research at DOE labs are particularly problematic. Secrecy interferes with access to information relevant to public health and safety. Access to select agent registry is restricted.

• Question: How concerned should we be with the proliferation of labs doing biodefense research? What is the risk of these pathogens infecting the public? Infecting the researchers?
Public Health Risk

• **Public Health (Population) Risk:** Depends upon type of research.

• *Offensive* open-air testing of pathogens poses considerable risk. Example: Smallpox outbreak at Aralsk, Kazakhstan in 1971. Required vaccinating over 36,000 people.

• *Defensive* research poses minimal risk under normal circumstances. However, as of April 22, 2004, an outbreak of SARS in China is believed to have originated from a graduate student working at a research laboratory at the National Institute of Virology in Beijing. 2 confirmed cases of SARS; 6 are suspected. One case (the mother of the index case) has died. 500 people are under quarantine.
Occupational Risk

• Occupational (Individual) Risk: A researcher’s risk for a laboratory-acquired infection is considerable depending upon the type of organism studied. Extensive number of case reports in the literature. Example: Case of glanders in USAMRIID researcher in 2000.
Laboratory-acquired Infections (LAI)

- Found: Total of 1267 cases and 22 deaths (5 were aborted fetuses) from LAI.
- Ten most common pathogens were: MTb, Q fever, hantavirus, arboviruses, Hep B, Brucella sp., Salmonella sp., Shigella sp., Hep. non-A, non B, Cryptosporidium.
- Research laboratories accounted for approximately half (644/1267) of labs where LAI’s were acquired.
- Only a small proportion of LAI were acquired from actual accidents. Most LAI’s were acquired by simply working in the lab.
Additional Challenges

• Exact frequency of LAI is not known since there is no national surveillance system to monitor them.
• Accurately quantifying these infections would be difficult because there is “an indifference to and, frequently, and unwillingness to report these incidents.”
• Without a knowledge of the total population at risk nor the total number of infections, it will be extremely difficult to know if the increase in biodefense research labs will increase the risk of severe LAI’s. Secrecy of select agent registry hinders collecting this information.
• Safety record of laboratories doing biodefense research should be reviewed and monitored. Labs with poor safety records should not be allowed to do this research.