Public Meeting of the National Institutes of Health on the Risk Assessment of the National Emerging Infectious Diseases Laboratories at Boston University Medical Campus

April 19, 2012

AGENDA

6:30 PM	Welcome and Opening Remarks
6:35 PM	Overview and Results of the Draft Supplementary Risk Assessment
6:50 PM	Public Comment
9:30 PM	Adjourn

National Emerging Infectious Diseases Laboratories Risk Assessment

NIH
Boston Community Meeting
April 19, 2012

TETRA TECH

Purpose of the Risk Assessment

- Evaluate the human health risks and impacts to the environment resulting from the loss of biological containment from a potential accident or malevolent action
- Determine if the risks would be different if the facility were at an alternate site

Questions Addressed

- What could go wrong?
- What are the probabilities?
- What would be the consequences?
- Risk considerations:
  - Laboratory workers
  - Members of the public
  - Site differences (urban, suburban, rural)

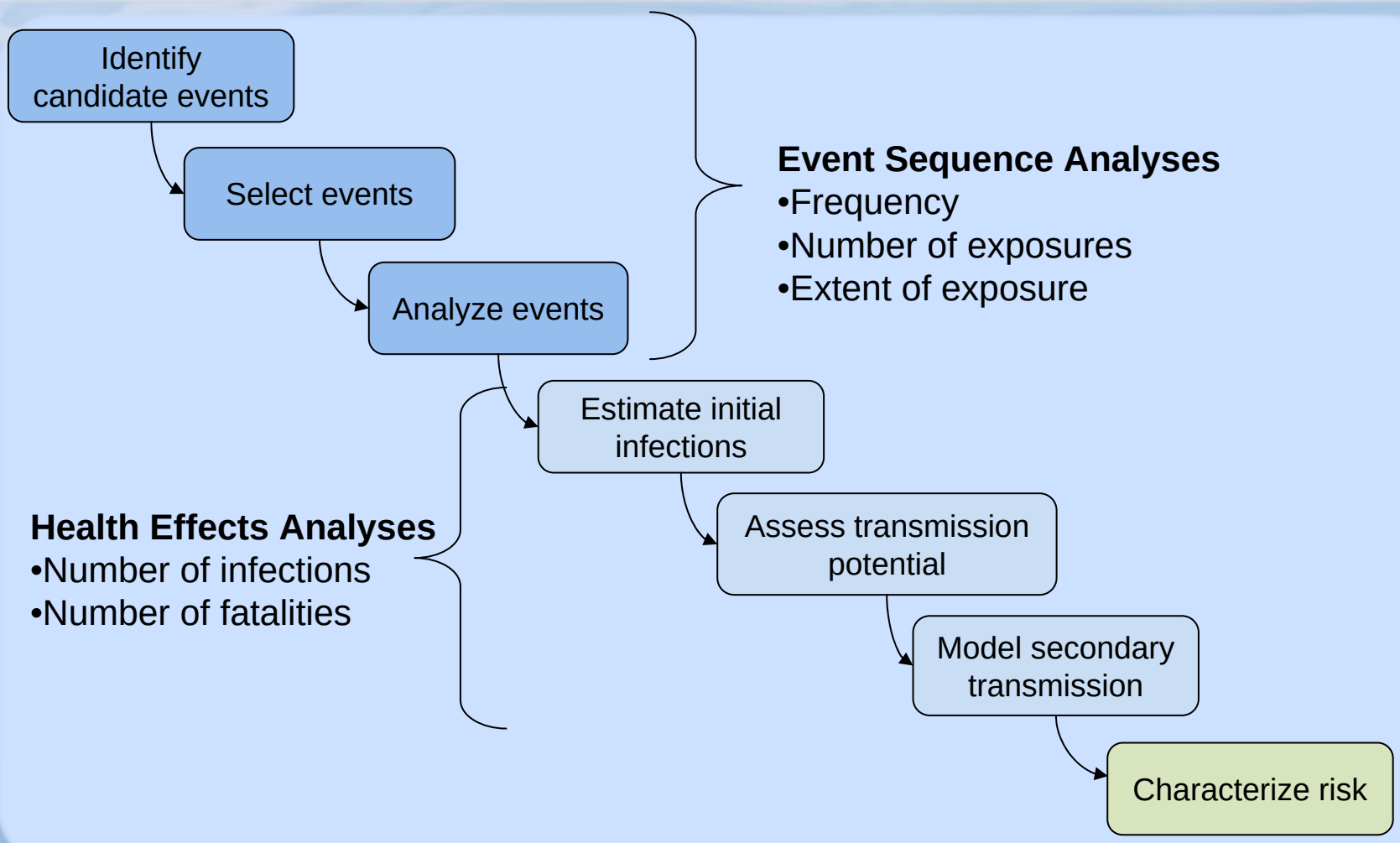
Methods Used

- Based on established procedures
  - Available data from the published literature
  - Supplemented with expert judgment
  - Conservative estimates were used
- Four essential principles followed
  - Transparency
  - Clarity
  - Consistency
  - Reasonableness

Methods Used

- Thirteen representative pathogens studied
  - 7 BSL-3 and 6 BSL-4 pathogens
- Four representative events analyzed
  - Needle stick
  - Centrifuge release
  - Earthquake
  - Transportation accidents
- Risk of exposure, infection and fatalities evaluated

Risk Assessment Process



Risk to Lab Workers

- Lab workers are at greatest risk of infection from NEIDL operations
- Needle stick event (undetected/unreported)
  - Risk of one or more infections: once in 100 years to once in 10,000 years for pathogens studied
- Centrifuge event (undetected/unreported)
  - No realistic events identified for BSL-4 pathogens
- Risk of infection only for BSL-3 pathogens
  - Highest for RVFV: once in 100 years
  - Lowest for *Y. pestis:* once in 5 million years

Risk to Public

- Greatest risk of infection is to close social contacts of infected lab worker
- Risk from secondary transmission
  - Risk of one or more infections: less than once in 500 years
    - SARS-CoV, 1918 H1N1V, *Y. pestis*, Ebola
  - Risk of 100 or more infections: less than once in 1400 years
    - SARS-CoV and 1918 H1N1V

Risk to Public

- From earthquake
  - Example of extreme natural disaster
  - Scenario: Severe enough earthquake that would demolish the building
  - Potential for direct exposure & infection
  - Risk of infection: less than once 10,000 years to less than once in 1 million years for the 13 pathogens

Risk to Public

- From malevolent actions
  - Potential exists for pathogen to be released as a result of malevolent acts
  - A number of scenarios were considered
  - None produced greater consequences than the earthquake scenario

Risk to Public

- From transportation accidents
  - NEIDL operations call for special packaging for shipping and receiving pathogens
  - The inner packaging is expected to withstand any credible vehicle crash
  - Risk of one or more infections: once in more than 1 million years

Site Differences

- No difference in risk to lab workers at 3 sites
- Differences in risk from earthquake event
  - Risk of one or more infections in public: less than 1 in 1 million years at 3 sites
  - For RVFV at urban site: less than once in 10,000 years
- No substantial difference in overall secondary infections among public at 3 sites

Environmental Justice (EJ)

- EJ communities were identified near the urban and suburban sites
- Direct exposure risk
  - EJ communities may be exposed as a result of direct release of pathogen due to an earthquake event at the urban site
- Secondary transmission risk
  - Secondary transmission may occur in EJ communities from close contact with infected lab worker
- Risk of exposure would be similar for all persons at all sites

Medically Vulnerable Sub-Populations

- The following categories were analyzed
  - Below age 5, Over age 65, Diabetes, HIV/AIDS, Pregnancy
- Risk of infection and secondary transmission
  - Analysis did not show any substantial difference in risk at the community level
- Asthma was also considered
  - No known association with increased susceptibility to pathogens studied

Summary

- The risk assessment was conducted using established methods
- Available data were used and reasonable assumptions were made as needed
- The lab workers are considered to have the greatest risk from NEIDL operations
- The greatest risk to the public is secondary infections from an infected lab worker
- Overall no substantial risk differences identified at three alternate sites

Comments

- Documents Available At:

  http://nihblueribbonpanel-bumc-neidl.od.nih.gov

- Written Comments May Be Sent To:

  Email: NIH_BRP@od.nih.gov

  NIH Blue Ribbon Panel

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