Use of Classical Environmental Risk Paradigms in the Context of Assessing Risk from Bio-Agents

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Abstract

The human health risk from primary exposure to deliberately released infectious bioagents can be assessed using the classical environmental risk paradigm, as first elucidated in 1983, with more recent modifications made for microbial risk. The key analysis elements are:

- Exposure assessment – quantitatively determining the frequency, spatial and temporal distribution, and concentration of microbial agents. The principles of making such estimates have been well established.
- Dose response assessment – relating the exposure of an agent to an individual (organisms inhaled, ingested, etc.) to the likelihood of experiencing an adverse effect. Concepts of microbial dose-response have been developed over several decades.

In this talk, the general paradigm for risk assessment will be reviewed. We will discuss several dose response relationships that we have developed (from literature data) for bio-agents (amongst those may include *Bacillus anthracis*, Lassavirus, Variola, and Yersina pestis). Issues of animal to human extrapolation and information needed for validation will also be covered, as will directions for future dose response modeling and data needs.