

**Project 11: Assuring Essential Services during a Bioterrorism Attack (Lave)**

This project will conduct a cost-effectiveness analysis of alternative means to provide essential services to the US population after a major bioterrorism attack.

**Modeling Area:** Economic Analysis

**Case Studies Supported:** Bioterrorism

**Principal Investigator:** Lester Lave

**Institution:** Carnegie Mellon University

**Other Investigators:** TBD

**Student Investigators:** TBD

**Brief Description:**

This project consists of an investigation of how to assure the continuation of essential social services in the event of a bioterrorism or other attack or natural disaster. We differentiate an attack using a communicable infectious disease, such as small pox, from a bioterrorism attack that uses a non-communicable infectious disease, such as anthrax, or a toxic substance, such as Ricin. The former case is more difficult since all those potentially exposed, including health care professionals, would be at risk from the infection and could infect others. Once the risk of infecting others is controlled, the two cases would be similar: Victims would need to be identified and treated, while their crucial roles were filled by others, e.g., police, firemen, EMTs.

Each type of attack, natural disaster, or mishap would have its own precipitating events and immediate interventions. However, after the first few intervention steps, all or almost all of the precipitating events would lead to the same set of interventions needed to continue vital social services. The basic services needed for public health and safety are the same: The population needs to have water, food, shelter, and protection from criminals during a period when normal operations have been disrupted or even destroyed. The basic issues investigated for a bioterrorism attack will give solutions helpful to a wide range of disruptions.

**Objectives**

To assure that basic social services during a bioterrorism attack are delivered cost-effectively.

**Technical Approach:**

1. Characterize the range of services that a city of several hundred thousand needs to keep its residents healthy and safe, while preserving private and social assets, when normal operations are interrupted by illness or death of a proportion of the population, or the destruction or disruption one or more essential services, such as electricity.
2. Examine the points of vulnerability of residents and assets these challenges.
3. Characterize ways in which the essential services, public and private, could be continued in the face of such an attack or natural hazard.
4. Evaluate these approaches for effectiveness and cost.
5. Evaluate these approaches for their ability to continue services under a wide range of attacks and natural hazards.
6. Given the occurrence probabilities of the non-terror challenges, what would have to be the frequency and scale of terror attacks to create net benefits for each of the interventions found to be effective in step 4?
7. Present briefings at the midpoint and conclusion of the analysis.
8. Present progress reports at the midpoint of the project and a manuscript detailing the results of the analysis.

**Interfaces to other CREATE Projects:**

This project will collaborate closely with the risk analysis projects and with the bioterrorism case study.

**Interfaces to non-CREATE Projects:**

Collaboration with the National Biodefense Analysis and Countermeasure Center and the staff of the DHS Chem-Bio Portfolio.

**Major Products and Customers:**

DHS S&T, NBACC, local and regional health agencies.

**Major Milestones and Dates:**

TBD