



Original paper

## Structuring Uncertainty and Conflicting Objectives for Life or Death Decisions Following an Urban Biological Catastrophe

Heather Rosoff<sup>1</sup>, Richard John<sup>2</sup>, William J. Burns<sup>3</sup>, and Robert Siko<sup>2</sup>

Received: 01/10/2011 / Accepted: 30/06/2012 / Published online: 04/09/2012

**Abstract** A large-scale biological terrorist attack would likely result in mass casualties and have major economic consequences for the affected area, and potentially for the nation as a whole. The extent to which an impacted area recovers from such losses depends in large part on the decision making of local residents. In this study we utilize scenario simulation, a methodology that uses video simulation of a news report to immerse respondents in the details and consequences of a biological terrorist attack. Specifically, we explore the decision-making of local residents to a large-scale terrorist attack using weaponized anthrax in the Seattle, Washington area. The scenario was based on one of the U.S. Department of Homeland Security's National Planning Scenarios. This study focuses on structuring a decision model around the objectives and motivations that shape local residents' decisions to act during recovery from an anthrax attack. The relevant uncertainties and objectives that drive residents' decisions during response and recovery from the anthrax attack were developed using group scenario simulations with various stakeholders in Seattle. In the beginning stages of the crisis concerns about health predominate. Later concerns about financial security emerge. Throughout it appears that residents weigh their concerns for safety with the collective costs of leaving the Seattle area. The decision model produces several key insights that are critical to the development and implementation of recovery policies. A causal loop diagram is also presented that depicts the dynamic nature of this decision process.

**Key words:** Terrorism; value focused thinking; objectives hierarchy; system dynamics modelling

### INTRODUCTION

Of the perceived bioterrorism threats, the U.S. Department of Homeland Security has indicated that anthrax and smallpox are the two agents with the greatest potential for mass casualties and civil disruption (Kortepeter and Parker 1999). As evidenced by the 2001 Anthrax incidents in the U.S., these attacks caused widespread anxiety and required lengthy and costly remediation for contained, indoor areas. If left

<sup>1</sup> Sol Price School of Public Policy & CREATE, University of Southern California, USA, rosoff@usc.edu

<sup>2</sup> Dept. of Psychology & CREATE, University of Southern California, USA, richardj@usc.edu & siko@usc.edu

<sup>3</sup> Decision Research, Eugene, OR, California State University, San Marcos, USA, william\_burns@sbcglobal.net











































