

## Management of a National Blood Inventory in Peace and Disasters: The Israeli Experience

Eilat Shinar, MD;<sup>1</sup> Vered Yabalom, MD;<sup>1</sup>

Daniel Laor, MD;<sup>2</sup> Barbara G. Silverman, MD, MPH<sup>3</sup>

1. Magen David Adom National Blood Services, Israel
2. The Emergency Division of the Ministry of Health, Israel
3. Maccabi Healthcare Services, Israel

Blood services must be prepared to meet surges in demand for blood during domestic disasters and acts of terrorism. This review summarizes the extensive experience of Israel's national blood service, operated by Magen David Adom (MDA) in blood collection and supply during military operations and multi-casualty events (MCEs).

During 1982–2006, a total of 10,077 victims were implicated in military operations and MCEs, of whom 1,856 (18.5%) were moderately to severely injured and required blood transfusions. Most of the casualties, 7,497 victims (85% civilians), were injured in 1,645 terrorist attacks (MCEs) that occurred in 2000–2005.

The demands for blood units and components differed according to the characteristics of the event. During the two military operations (1982 and 2006) requests for blood averaged 2.8 blood units per casualty, or 8.0 blood units per severe and moderately injured victims, while for the MCEs, the needs were 1.3 blood units per every casualty, or 6.7 units per severe and moderately injured. Requests for blood components have increased noticeably throughout the years. While an average of 1–1.5 components per every casualty or 4.5 components per severe and moderately injured were ordered in both military operations and the MCEs in 1982–2005, requests in 2006 have doubled, reaching three components per casualty and 9.7 per severe and moderately injured victim. This trend can be attributed to the new standard operating procedures for the treatment of hemorrhage in severe trauma, adopted following publications of the American experience in Iraq and Afghanistan. Public appeals for blood donations were managed centrally, so as to match supply and demand and prevent wastage.

This experience illustrates the advantages of a comprehensive program for managing blood operations during emergencies. A coordinated national program can stabilize in-hospital inventories during routine activities, ensure instant access to precisely defined inventories, facilitate sufficient supply in times of disasters, and minimize outdated and wastage.

**Keywords:** blood; injury; inventory; management; multi-casualty event; surge

*Prehosp Disaster Med*

## Optimistic and Resilience-Oriented Beliefs Mitigate Vicarious Traumatization and Increase Post-Traumatic Growth following Secondary Exposure to Politically Motivated Violence

Shimon Shiri, MA;<sup>1,2</sup> Isaiah D. Wexler, MD, PhD;<sup>3</sup> Shulamith Kreitler, PhD<sup>1,4</sup>

1. Department of Psychology, Tel Aviv University, Tel Aviv, Israel
2. Department of Physical and Medical Rehabilitation, Hadassah University Hospital, Mount Scopus Campus, Jerusalem, Israel
3. Department of Pediatrics, Hadassah University Hospital, Mount Scopus Campus, Jerusalem, Israel
4. Research Center of Psycho-Oncology, Sheba Medical Center, Tel Hashomer, Israel

**Background:** Rescuers and healthcare personnel treating victims of politically motivated violence are at risk for vicarious traumatization. Few studies have assessed post-traumatic growth following exposure to politically motivated violence.

**Methods:** The participants were healthcare personnel and rescuers who treated victims of politically motivated violence during 2000–2005. Five groups of participants were sampled: 70 physicians, 31 psychotherapists, 37 nurses, 38 rescuers, and 31 rehabilitation workers. Post-traumatic growth was assessed by the Post-Traumatic Growth Inventory and vicarious traumatization was assessed by the Revised PTSD Inventory. The Cognitive Orientation-PTG tool was utilized to identify beliefs orienting motivationally toward post-traumatic growth. Subjects included rescuers, physicians, nurses, rehabilitation workers, and psychotherapists.

**Results:** Positive psychological impact was noted among all professions. Vicarious traumatization predicted post-traumatic growth, and there was a curvilinear relationship between vicarious traumatization and post-traumatic growth. Beliefs associated with resilience were associated with less vicarious traumatization and greater post-traumatic growth.

**Conclusions:** Rescuers and hospital-based healthcare providers treating victims of politically motivated violence experience both positive and negative psychological impact. Individuals who are more traumatized by their experience are more likely to experience post-traumatic growth. The levels of vicarious traumatization and post-traumatic growth are determined to a significant degree by their cognitive orientation.

**Keywords:** post-traumatic growth; politically motivated violence; rescuers; resilience; vicarious traumatization

*Prehosp Disaster Med*

## Meeting the Information Needs for Event Detection and Response: The US Approach to Biosurveillance

Daniel M. Sosin

Acting Director, Coordinating Office for Terrorism Preparedness and Emergency Response Centers for Disease Control and Prevention  
Atlanta, Georgia USA

**Introduction:** The threat of terrorism and global pandemics has elevated the demand on public health to detect early and rapidly characterize outbreaks of previously unknown and high priority threats. Since 2008, the United States aggressively has pursued a strategy to establish timely situation awareness for urgent threats to human health: