Review

The World Trade Center Attack
Is critical care prepared for terrorism?

Vlad Kvetan

Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, New York, USA

Correspondence: Vlad Kvetan, VKvetan@aol.com

Published online: 6 November 2001
Critical Care 2001, **5**:321-322

Abstract

This commentary on the World Trade Center attack is written from the perspective of a New York City critical care service, with a long history of activity in disaster management, which is located at the Montefiore Medical Center/Albert Einstein College of Medicine. The paper describes some of the local concerns of the service in the first hours, the reality of dispersal of victims throughout the New York City hospital system, and some of the resources made available and their utilization. In general, the US Critical Care Medicine System receives massive resources in terms of gross national product expenditure when compared with other developed countries. A large capacity is subsequently in place to provide care to critically ill patients resulting from manmade as well as natural disasters. It was the nature of the World Trade Center attack in terms of the ratio of injured survivors to dead victims that did not allow the full capacity and capability of the system to engage.

Keywords critical care, disasters

The question of whether the US critical care system is ready to handle various types of disasters is mentioned periodically [1]. Intensivists do not usually receive in-depth instruction in disaster medicine, even though they have increasing roles in managing hospital resources. The practice of limiting the training of critical care physicians to geographically described intensive care units (ICUs) only is questionable.

At Montefiore Medical Center, our academic service has organized a number of missions and fielded functional specialized units for situations from earthquakes and burns disasters to mass military mobilization during the Gulf War [2,3]. Since disaster situations provide large experience in syndrome medicine (such as crush and blast injuries, inhalation burns, and toxicological threats), the state of the art in critical care response has been described elsewhere [4]. Critical care is clearly both flexible and interdisciplinary, and it adapts to many environments [5].

Over the past 15 years, there has been increased collaboration between intensivists from countries that see a large number of suicide bombing attacks, as well as with intensivists in the US uniformed services who are increasingly involved in disaster response, ranging from joint exercises to mixed field teams. Yet our preparedness, as a specialty, for a major terrorist incident remains limited.

Preparation, personnel, and presentations

Such an incident occurred on 11 September 2001 in New York City. Our team was notified during morning ICU rounds that the World Trade Center was under attack. An Incident Command Center was immediately established for the control of communication and authority. All ICU personnel at home were contacted and asked to report in for a staff meeting. The directors of critical care, emergency, and operating rooms immediately triaged all monitored beds and identified that 35 Level 1 ICU beds and 25 recovery room beds were available, in addition to the emergency room and operating room resources. No surgical cases were cancelled, other than major blood consuming operations, and no patients were discharged from ICUs.

ICU = intensive care unit.

While one of our ambulances and a 24-year-old emergency medical technician who rushed into the World Trade Center Tower just before collapse was lost at the World Trade Center, the other ambulances were available to provide transport to our designated helipads and for interhospital movement. Fortuitously, our Continuing Medical Education Department was running a Board Review course for 130 surgeons in a hotel very close to the World Trade Center; these physicians were immediately mobilized and moved to the disaster site. Critical care personnel living in Manhattan were immediately diverted to our affiliated hospitals to provide assistance, and small specialized teams of thoracic and burns surgeons were dispatched to the affected hospitals and major triage downtown areas, such as Chelsea Piers. Specialized resources, including the critical incident stress debriefing team, were activated. Security was effective and inobtrusive. Our hospital staff close to the site, including the Associate Medical Director of the Fire Department of New York, who was temporarily covered by debris, reported rapid drops in injured victims within the first few hours.

The critical care services at the hospitals close to the World Trade Center, such as Saint Vincent's in Greenwich Village, notified volunteer specialists of a reduced need for assistance. Preparations for potential secondary attacks directed at rescue workers, including hazardous material and bioterrorism, were reviewed by the emergency and critical care director with the hospital director. During the evening and night, the Emergency Room started receiving large numbers of uniformed workers including the Fire Department of New York and New York Police Department, many of whom had lost friends and colleagues at the site. Most of the physical injuries of the uniformed service officers were inhalational and ophthalmologic, and most were concerned with anthrax and asbestos inhalation. The question of bioterrorism arose very early in the response phase at the level of physicians; the concern of nonphysician responders close to Ground Zero was somewhat unexpected but not out of the ordinary given the New York City disaster drills over the past few years. Later in the week uniformed burn victims with respiratory failure were being admitted, mainly from New Jersey hospitals.

A coordinated national response

During this time, the national system ranging from the Federal Emergency Management Agency to the Department of Health and Human Services provided a number of experienced Urban Search and Rescue teams, five Disaster Medical Assistance teams (including one specializing in hazardous material), seven Disaster Mortuary teams, and a number of Centers for Disease Control Epidemic Intelligence service officers. The Emergency Support Function #8 (health and medical) was activated [5] and the National Pharmaceutical Stockpile was mobilized. The three Level 1 trauma centers and three burn centers in New York City reported an uneven and frustrating lack of victims. In general, New York City underwent heightened preparation and evaluation during the year 2000 medical disaster preparedness. The year 2000 preparations most publicized were in the areas of electronic and computer security, but hospitals did go through routine disaster preparedness reviews [6]. While the general disaster planning was reasonable for accreditation purposes, only a minority of hospitals had fully adequate preparations for chemical or biological disaster scenarios, and many Emergency Room directors were not confident in their ability to handle this scenario [7].

The World Trade Center disaster showed that New York City's medical systems and its personnel, as well as the general population and elected officials, absorbed the blow well. Unfortunately, major stress was placed on the mortuary and biohazard resources. The Internet has disseminated information about bioterrorism to a very significant level of sophistication, including the depressing result of the 'Dark Winter' [8] bioterrorism exercise held at the Andrew's Airforce Base on 22–23 June 2001, and comprehensive files on consensus statements and guidelines for managing outbreaks from anthrax to smallpox [6].

The Montefiore Medical Center Critical Care Service has been involved in disaster management since 1988, when it deployed a fully equipped ICU team to the earthquake in Armenia. Since then, the team has participated in clinical responses to a number of other catastrophic events, and provided organizational and academic expertise ranging from helping with national guidelines for specialized disaster response to running exercises. VK chaired the Committee on Disasters and Critical Care for the Society of Citical Care Medicine; one of the larger projects included organizing a volunteer database and 42 teams with some 2000 physician and nursing members for the Gulf War.

Competing interests

None declared.

Acknowledgement

This article, and the series it is part of, is dedicated to the first responders – fire, police and medical personnel – who attended the World Trade Center disaster of 11 September 2001. They did not hesitate to place themselves in harm's way to rescue the innocent, and without their efforts many more would have perished. They will not be forgotten.

References

1. Kvetan V: **Critical care medicine, terrorism and disasters: Are we ready?** *Crit Care Med* 1999, **27(5)**:873-874.
2. Pesola G, Bayshtok V, Kvetan V: **American critical care team at a foreign disaster site: The Armenian Experience.** *Crit Care Med* 1989, **17(6)**:582-584.
3. Kvetan V: **Operation Desert Storm: Task Force on Disasters and Critical Care.** *Crit Care Med* 1991, **19(7)**:854-856.
4. Kvetan V (Ed): **Disaster management.** *Crit Care Clin* 1991, **7(2)**.
5. Angus DC, Kvetan V: **Organization and management of critical care systems in unconventional situations. Critical Care Unit Management.** Edited by Fein IA. *Crit Care Clin* 1993, **9(3)**:114-125.
6. Silber SH, Oster N, Simmons B, Garrett C: **Y2K medical disaster preparedness in New York City: confidence of emergency department directors in their ability to respond.** *Prehosp Disaster Med* 2001, **16(2)**:88-94; discussion, 94-95.
7. Wetter DC, Daniell WE, Treser CD: **Hospital preparedness for victims of chemical or biological terrorism.** *Am J Public Health* 2001, **91(5)**:710-716.
8. The Johns Hopkins Center for Civilian Biodefense Studies: *Dark Winter.* Andrews Airforce Base, 22-23 June 2001.