

# 2012

## “Civil - Military Health coordination in major disasters .The case of Haiti”



*Athens University Medical School, Greece*

**Ilias Vlassis MD**

*Supervisor: Rosenberg T. (Ass. Prof.  
University of Athens, Medical School)*

10/5/2012

# **“Civil - Military Health coordination in major disasters .The case of Haiti”**

*Athens University Medical School, Greece*  
**Ilias Vlassis MD**

*Supervisor: Rosenberg T. (Ass. Prof. University of Athens, Medical School)*

## **“Civil - Military Health coordination in major disasters .The case of Haiti”**

**Keywords: Major disasters, Haiti, coordination, collaboration, Civil-military health**

**Vlassis Ilias**

Athens University Medical School, Greece

E-mail: arkturos@hotmail.com

## ***Abstract***

Military and humanitarian organizations share common roots in war and in peacetime. Effective emergency alertness requires mutual efforts by governmental and non-governmental agencies to proactive unity and cooperative action in emergency. Coordination and collaboration are separate approaches used by organizations involved with the planning for preparedness and response to major disasters. When compared to collaboration, *coordination* is less effective because planning focuses on organizational needs and institutional control of their respective resources. Conversely, *collaboration* is the art of constructive dialogue and requires initial planning so that organizations mutually agree to share their resources and to render control to the most capable agencies.

Natural disasters affect millions of people worldwide each year. A disaster, as defined by the International Federation of Red Cross and Red Crescent Societies, is an event negatively impacting 100 or more people, 10 or more deaths, or an appeal for external aid. Disasters overwhelm the resources of the community in which they occur. When large-scale disasters affect non industrialized countries like Haiti, these developing countries do not have reserves to respond to the pursuing devastation. Recent events such as Hurricane Katrina remind us that even developed countries, like the US, are not immune to such tragedy.

On January 12, 2010, an earthquake measuring 7.0 on the Richter scale hit the island nation of Haiti. Military US forces and multinational volunteer physicians, predominantly from NGO's and universities, arrived and worked side by side to bring order to patient flow. The military collaboration in major disasters is essential also for the security; the same was valid in Haiti with five thousand prisoners escaped from the National Penitentiary, which was a short distance from the clinic.

Interaction and communication with other U.S. government and military units, foreign military forces, nongovernmental organizations (NGOs), and local physicians and representatives from the Haitian health care system were imperative to provide the best care possible.

Typical of most large scale emergency responses, the multitude of actors in the Haitian earthquake response placed huge challenges on the humanitarian leadership and coordination mechanisms.

As conclusion the major problems in the case Haiti were:

1. Scarcity of support from both the Haitian government and medical community.
2. Complete absence of coordination and logistic organization on the ground.
3. Lack of any security presence at the hospital.
4. The withdrawal of the military team left the Haitian government and the NGO's alone to organize the day after and the rehabilitation.

The successful response to disasters such as the Haiti earthquake requires leadership, organization, and advanced logistic and security support. There must be clear involvement, approval, and support of the military and recognized emergency response agencies from the very beginning.

Disasters like Haiti need to be run like a military campaign with a clear strategy and logistics and with the ability to call upon prearranged groups of physicians and nurses capable of responding at a moment's notice. Currently existing disaster programs and protocols clearly are not prepared to deal with crises in areas where lack of infrastructure and security are issues.

Military and civilian health professionals responding to any hazard event are faced with difficult odds. Medical decisions must be made instantly and under challenging circumstances. Collaborative training and education is necessary between civilian and military clinicians for planning, preparedness, and responses to any major disaster.

## Περίληψη

Ο στρατός και οι ανθρωπιστικές οργανώσεις έχουν αρκετούς κοινούς στόχους τόσο στον πόλεμο όσο και σε καιρό ειρήνης. Η αποτελεσματική εγρήγορση σε καταστάσεις έκτακτης ανάγκης, απαιτεί αμοιβαίες προσπάθειες από κυβερνητικούς και μη κυβερνητικούς φορείς ώστε να προαχθεί η ενότητα και η συλλογικότητα της δράσης. Ο συντονισμός και η συνεργασία, είναι ξεχωριστές προσεγγίσεις που χρησιμοποιούνται από τους οργανισμούς που ασχολούνται με το σχεδιασμό ετοιμότητας και δράσης σε μείζονες καταστροφές. Σε σύγκριση με τη συνεργασία, ο συντονισμός είναι λιγότερο αποτελεσματικός, επειδή ο σχεδιασμός εστιάζει στις ανάγκες οργάνωσης και θεσμικού ελέγχου των αντίστοιχων πόρων. Αντίθετα, η συνεργασία είναι η τέχνη του εποικοδομητικού διαλόγου και απαιτεί αρχικό σχεδιασμό, έτσι ώστε οι οργανώσεις να συμφωνούν από κοινού στο διαμοιρασμό των πόρων τους ώστε να δώσουν τον έλεγχο τους στους πιο ικανούς οργανισμούς.

Οι φυσικές καταστροφές επηρεάζουν εκατομμύρια ανθρώπους σε όλο τον κόσμο κάθε χρόνο. Μια καταστροφή, όπως ορίζεται από την Διεθνή Ομοσπονδία του Ερυθρού Σταυρού και της Ερυθράς Ημισελήνου, είναι ένα γεγονός που επηρεάζει αρνητικά 100 ή περισσότερα άτομα, επιφέρει 10 ή περισσότερους θανάτους, ή το πληγέν κράτος να κάνει έκκληση για εξωτερική βοήθεια. Οι καταστροφές εκμηδενίζουν τους πόρους της κοινότητας την οποία πλήττουν. Όταν μεγάλης κλίμακας καταστροφές επηρεάζουν μη βιομηχανοποιημένες χώρες όπως η Αϊτή, αυτές οι αναπτυσσόμενες χώρες δεν διαθέτουν αποθέματα για την αντιμετώπιση τέτοιων καταστροφών. Πρόσφατα γεγονότα, όπως ο τυφώνας Katrina μας υπενθυμίζουν πως ακόμα και ανεπτυγμένες χώρες, όπως οι ΗΠΑ, δεν έχουν ανοσία σε τέτοιες τραγωδίες.

Στις 12 Ιανουαρίου 2010, ένας σεισμός μεγέθους 7,0 βαθμών της κλίμακας Ρίχτερ έπληξε την Αϊτή. Οι στρατιωτικές δυνάμεις των ΗΠΑ και γιατροί εθελοντές από πολλά κράτη, κυρίως από πανεπιστήμια και ΜΚΟ, έφτασαν και εργάστηκαν πλάι-πλάι για να «βάλουν τάξη» στη διαχείριση των ασθενών. Η στρατιωτική συνεργασία στις μαζικές καταστροφές είναι απαραίτητη και για την ασφάλεια: το ίδιο ίσχυε και στην Αϊτή με πέντε χιλιάδες κρατούμενους να έχουν δραπετεύσει από τις Φυλακές.

Η αλληλεπίδραση και επικοινωνία των κυβερνητικών και στρατιωτικών μονάδων των ΗΠΑ, με ξένες στρατιωτικές δυνάμεις, με τις μη κυβερνητικές οργανώσεις (ΜΚΟ) και τους τοπικούς γιατρούς και εκπρόσωπους του συστήματος υγειονομικής περίθαλψης της Αϊτής, ήταν επιτακτική ανάγκη ώστε να παρασχεθεί η καλύτερη δυνατή φροντίδα.

Συμπερασματικά, τα μείζονα προβλήματα στην περίπτωση της Αϊτής ήταν:

1. Η έλλειψη υποστήριξης τόσο από την κυβέρνηση της Αϊτής όσο και από την ιατρική κοινότητα.
2. Η παντελής απουσία συντονισμού και οργάνωσης εφοδιασμού στο πεδίο.
3. Η έλλειψη οποιασδήποτε παρουσίας ασφαλείας στο νοσοκομείο.
4. Η αποχώρηση των στρατιωτικών δυνάμεων, η οποία άφησε την κυβέρνηση της Αϊτής και τις ΜΚΟ μόνες τους να οργάνωσουν την επόμενη μέρα και την αποκατάσταση των ασθενών.

Η επιτυχής αντίδραση στις καταστροφές όπως ο σεισμός στην Αϊτή απαιτεί ηγεσία, οργάνωση, και προηγμένη υλικοτεχνική υποστήριξη και ασφάλεια. Πρέπει εξ αρχής να υπάρχει σαφής συμμετοχή, έγκριση και υποστήριξη των στρατιωτικών μονάδων και των αναγνωρισμένων οργανισμών στην αντιμετώπιση καταστάσεων έκτακτης ανάγκης.

Η απάντηση σε καταστροφές όπως αυτή της Αϊτής χρειάζεται να λειτουργεί σαν μια στρατιωτική επιχείρηση, δηλαδή με μια σαφή στρατηγική και εφοδιαστική οργάνωση και με τη δυνατότητα να καλέσει προκαθορισμένες ομάδες γιατρών και νοσηλευτών που είναι σε θέση να ανταποκριθούν στην κλήση σε περίπτωση ανάγκης. Αυτή τη στιγμή τα υπάρχοντα προγράμματα και πρωτόκολλα αντιμετώπισης καταστροφών, δεν είναι σαφώς προετοιμασμένα για να αντιμετωπίσουν κρίσεις σε περιοχές όπου υπάρχει έλλειψη υποδομής και ασφαλείας.

Οι στρατιωτικοί και πολίτες επαγγελματίες της υγείας, που ανταποκρίνονται σε κάθε έκκληση βοήθειας σε μεγάλες καταστροφές, βρίσκονται αντιμέτωποι με αντίξοες καταστάσεις. Ιατρικές αποφάσεις πρέπει να παρθούν άμεσα και κάτω από δύσκολες συνθήκες. Η εκπαίδευση πάνω στη συνεργασία και η κατάλληλη επαγγελματική κατάρτιση, είναι απαραίτητες μεταξύ των ιατρών για το σχεδιασμό, την ετοιμότητα και την ανταπόκριση σε κάθε μεγάλη καταστροφή.

## ***Introduction***

Military and humanitarian organizations share common roots in war and in peacetime. In fact, modern humanitarianism was founded on the battlefield. The International Committee of the Red Cross (ICRC) was established after the battle of Solferino in the nineteenth century, at the same way the Second World War produced a number of humanitarian agencies including Oxfam and CARE.

Effective emergency alertness requires mutual efforts by governmental and non-governmental agencies to proactive unity and cooperative action in emergency.

Coordination and collaboration are separate approaches used by organizations involved with the planning for preparedness and response to major disasters. When compared to collaboration, coordination is less effective because planning focuses on organizational needs and institutional control of their respective resources. Conversely, collaboration is the art of constructive dialogue and requires initial planning so that organizations mutually agree to share their resources and to render control to the most capable agencies [1]

Following natural or man-made disasters, humanitarian health organizations provide life-saving assistance to individuals and communities whose survival is at risk. This is a basic component of the humanitarian activism.

The scenarios in which humanitarian health agencies operate are complex in terms of internal dynamics and interactions with external parties involved in the response. Over the last decade, military actors have been increasingly involved in relief activities in various settings, including sometimes providing direct assistance to crisis-affected populations. From a humanitarian perspective, this poses specific questions regarding the extent to which their involvement has a positive impact and, conversely, whether and how this involvement might affect humanitarian organizations' ability to respond impartially to the needs of the population[2]. Civil-military coordination problems are particularly relevant for the health sector. Health activities have historically been part of military strategies. More importantly, rehabilitating the health sector is increasingly seen as key to ensuring the country's stability.

## ***Historical Aspects of Medical Collaboration***

The benefits of medical collaboration extend into ancient times when Rome used a combination of military and civilian clinicians. The most notable historic armies to render medical care on the battlefields were the Roman Legions in the first century BC. The capsarii were trained within the legion and functioned as combat medics. Roman field hospitals were located near the battlefield, and were staffed by qualified physicians recruited from the civilians. Unfortunately, the concept of systematic health care was lost for centuries after the fall of the Roman Empire. In some ways, this Roman-style healthcare system parallels the present-day emergency medical system, whereby first responders provide immediate medical interventions, then transport their patients to more definitive care.[1]

While Europe was consumed in war in the early 1800s, Dr. Larrey, Napoleon Bonaparte's chief surgeon, drew on contemporary medical concepts inspired by ancient Rome.[3, 4] Larrey initiated the first known formal first responder academy, designed the first horse drawn, wheeled ambulance, incorporated an effective patient triage system, and assigned surgeons to field hospitals. It is evident that Larrey understood resource management, immediate patient treatment,

and rapid patient transport, as well as the importance of definitive medical care,[5] which still are the basis of the current emergency medical system.[6, 7]

Larrey's concepts of military medicine were employed 40 years later by Major Jonathon Letterman during the American Civil War.[8] Letterman persuaded President Abraham Lincoln and the US Congress to authorize the use of military ambulances. Soon after the end of the American Civil War, former Union medical officers launched the first known urban, civilian ambulance services in the US at Commercial Hospital in Cincinnati, Ohio, and Bellevue Hospital in New York.

Early nursing pioneers also were influential in promoting collaboration between civilian and military healthcare systems. In 1854, an English civilian nurse, Florence Nightingale, introduced essential nursing care into British military field hospitals during the Crimean War. Likewise, Clarissa Harlowe Barton, an American nurse, was referred to as "The Angel of the Battlefield" during the American Civil War.[4] Barton pressed the US Congress to staff Union military hospitals with civilian nurses, which is similar to present-day civil service healthcare professionals who staff US military medical facilities. Barton's efforts provided dividends, as they showed adequate nursing care drastically decreased the infection rate of wounded soldiers. Barton later established the American Red Cross in 1873. The American Red Cross is appreciated for its support of military troops and its assistance to civilians.

A French nurse, Marie Marvingt, contributed to flight nursing and became affectionately known as "The Fiancé of Danger" because of her accomplishments as a balloonist and pilot. She also participated in search and rescue operations in the Alpine Mountains and served intermittently as a Red Cross nurse; all the while envisioning the airplane as a flying ambulance. The French military eventually used aircraft as a means to evacuate wounded soldiers from the Balkans to Paris hospitals during World War I. The Americans and British also utilized airplanes to evacuate wounded soldiers, but to a much lesser extent, due to the prevailing attitude that there were enough dead soldiers in France already, "without killing the wounded in airplanes."

The years between World War I and World War II provided ample opportunities for medical collaboration between military and civilian healthcare professionals. For example, in the 1920s, American military officials authorized the use of military airplanes for civilian disaster relief in response to devastating floods. Similarly, the French and British military used their air-medical ambulance assets to service the health needs of citizens living in the frontiers of Colonial Africa. In the early 1930s, Marvingt developed the first civilian flight nurse training program in Morocco.

This same concept was adapted by the US military during World War II.

### ***Disaster Events***

Natural disasters affect millions of people worldwide each year. A disaster, as defined by the International Federation of Red Cross and Red Crescent Societies, is an event negatively impacting 100 or more people, 10 or more deaths, or an appeal for external aid. A disaster may include fires, collapsed buildings, power outages, accidental toxic industrial chemical or release of radiation, earthquakes, floods and infectious disease epidemics.[9, 10]

Improved technology has allowed the population to expand into disaster-prone areas. In Southern California, the shift from an agricultural society has concentrated populations in large centers. The impact of disasters is expected to increase in the future. Disasters overwhelm the resources of the community in which they occur. When large-scale disasters affect non industrialized countries like Haiti, these developing countries do not have reserves to respond to the pursuing devastation. Recent events such as Hurricane Katrina remind us that even developed countries, like the US, are not immune to such tragedy.[11-14]

It has been said that the difference between a disaster and a catastrophe depends on the response of the community.

Country	Event Type	Date	Cost (million \$US)
US	Storm	29 August 2005	125
US	Storm	12 September 2008	30
US	Storm	24 August 1992	26.5
US	Storm	15 September 2004	18
US	Storm	13 August 2004	16
US	Storm	23 September 2005	16
US	Storm	24 October 2005	14
US	Storm	05 September 2004	11
Japan	Storm	27 September 1991	10
Japan	Storm	03 September 2004	9

**Table 1**—Top most costly meteorological disasters for the period 1900 to 2009 [15]

These events may be the result of natural occurrences or terrorist acts, but the end results are casualties with assorted injuries. The US Marine Corps found that its level of readiness, regardless of whether the mission is humanitarian, peacekeeping, or combat, is related to the quality of training.[16] This concept can be applied by military and civilian clinicians for readiness training for coping with All-hazard events. The All-hazard event model provides a framework for responding to a wide variety of disasters and streamlines training and education resources.

### ***Operational Planning***

Decision-makers use operational planning for identifying capabilities and making reasonable changes for effective training and education to respond with efficacy in emergencies.[17] In 1942, an American General was impressed by the British mobile surgical units operating in North African deserts since the US lacked similar medical capabilities.

Since adequate response to major disasters requires an operational planning, so it's vital that NGO, state, and military teams seek out collaborative education and training opportunities that test the operational plans and ensure that all available resources are utilized. The negative aspect of those “disaster response exercises” may be difficult coordination of all those teams and the high cost of exercises at large level. For these reasons, virtual war games, tabletop exercises, teleconferences, and/or high-fidelity patient simulator scenarios may be acceptable alternatives to test the strengths and flaws of operational plans. These patient simulation techniques are utilized successfully by military and civilian academic educational settings worldwide.

### ***Coordination***

The dictionary definition for coordination is: “the harmonious functioning of parts for effective results.”

The elements that require coordination in the health sector include, but are not limited to: efforts by the affected community; national and local governments activities in the affected areas; multi-



lateral agencies (including the United Nations (UN) and international financial institutions); national and international non-governmental organizations (NGOs); academic institutions; the military; and the media.[18]

Every crisis and each country is unique. Some of the lessons learned from crisis management cannot be transferred completely for different events and different countries. However, there are common characteristics of an emergency that allow some of the lessons learned to be applied in most situations.[18-20]

The experiences of Indonesia and Sri Lanka have shown that if uncontrolled, numerous agencies can go to affected areas and work in total independence, often duplicating efforts and sometimes doing things that may be harmful (e.g., forced debriefing of stressful experiences)[21]. Efforts to control and coordinate such agencies must be expedited to ensure that this experience is not repeated [18-20].

This will require the development of standards and specialized education and training programs for the responsible governmental agencies. The development and implementation of such programs should be facilitated by the WHO.

### ***Civil-Military Coordination:***

The essential dialogue and interaction between civilian and military actors in humanitarian emergencies is necessary to protect and promote humanitarian principles, avoid competition, minimize inconsistency, and when appropriate pursue common goals. Basic strategies range from coexistence to cooperation. Coordination is a shared responsibility facilitated by interconnection and common training.[2]

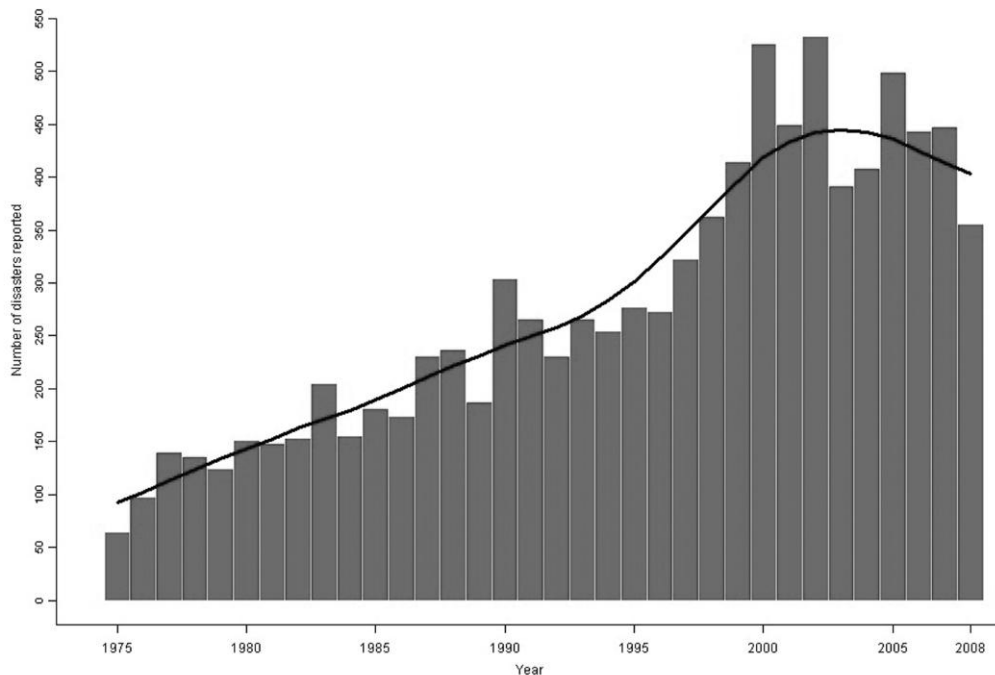
### ***Benefits and Risks of Collaboration***

Collaboration is beneficial as was shown by the international responses following the 2004 Indian Ocean tsunami. [22] Combined support forces of US Marine Corps and Navy personnel, supported the US Agency for International Development and the United Nations relief efforts until humanitarian relief organizations arrived. Reports indicate that US Marines and sailors delivered 54 million kilograms of relief supplies via air and sea transport; plus six Navy ships generated thousands of gallons of potable water for grief-stricken people.

Collaboration has risks because governmental agencies may be asked to surrender specific responsibilities and resources, which may create inter-agency conflict. This was demonstrated by agency rivalry between the New York City Police Department and the New York City Fire Department on 11 September 2001. This type of bureaucratic antagonism created a silo mentality that contributed to hoarding of vital information. In comparison, local and state government officials demonstrated unruly behaviors that led to ineffective responsiveness and attributed toward delayed evacuation and relief efforts after the devastation caused by Hurricane Katrina on 29 August 2005.

Leaders of civilian and military agencies recognize the importance of collaboration, yet resistance makes this effort difficult due to judicial intricacies and resource limitations. The International Committee of the Red Cross and the Centers for Disease Control and Prevention (CDC) recognized that US civilian healthcare providers must be educated, trained, and prepared to treat all types of injuries. Therefore, in order to ensure adequate planning, preparedness, and responsiveness to all disasters, US military and civilian healthcare professionals should collaborate training and education.

Natural disasters reported 1975 - 2008



**Figure 1**—Number of worldwide disasters caused by natural hazards reported by the World Health Organization from 1975 to 2008

Since 1975, disasters due to natural hazards have increased worldwide (Figure 1).[15] This makes essential the need of collaboration between civil and military health for strengthening the preparedness culture. An example of collaboration between the public and private sectors is the National Disaster Education Coalition, a non-profit organization. The National Disaster Education Coalition offers informational pamphlets, such as *Talking about Disasters*, which are free to those who educate the general public about health safety in the event of a hazard event. The private sector gained a wealth of experience after Hurricane Katrina. Large retail chain stores and telecommunications companies focused on preparation to protect buildings and shield inventory; during storms, some company employees considered consequences of failure and stockpiled critical supplies, such as drinking water, building materials, fuel, and portable electric generators. Most of these items were provided free-of-charge to citizens in need. Governmental agencies should note these consequences because many communities became self-reliant earlier than anticipated.

The US Army-Baylor program serves the federal health system by preparing military officers as health administrators who are able to interact with their civilian counterparts in solving complex healthcare issues, such as preparing first receivers for mass-casualty incidents.

A similar program is active in Germany (The Senior Visiting Surgeon Program) at the Landstuhl Regional Medical Center, as a collaborative military and civilian training program.[23] The goal of this program is to establish a professional relationship and exchange of ideas between civilian and military trauma surgeons.

The Landstuhl Regional Medical Center is the clearing site for all US military casualties evacuated from Iraq or Afghanistan. Civilian and military physicians are afforded opportunities to participate in stabilizing critically injured casualties before they are airlifted to the US.

### *Certification Programs*

The template for trauma patient care is Advanced Trauma Life Support (ATLS), a comprehensive training program whereby civilian and military physicians learn about primary assessment and initial lifesaving interventions[24]. Most physicians practicing in emergency departments are

encouraged to become certified in ATLS every four years, in addition to certifying in Advanced Cardiac Life Support every two years, so that resuscitation efforts improve survival rates.

Parallel training for nurses and paramedics includes the Trauma Nurse Core Course, Emergency Nurse Pediatric Course, Transport Nurse Advanced Trauma Course, Prehospital Trauma Life Support, and International Trauma Life Support, also known as the Basic Trauma Life Support[25], which instruct systematic approaches in assessing and treating trauma victims. Critics argue that these courses emphasize civilian circumstances and that it is difficult to transition these principles into military situations; others believe that these programs are certificate factories.

Conversely, the Defense Medical Readiness Training Institute in Fort Sam Houston, Texas, offers some of the previously mentioned certificate programs in its joint service military medical training program. Military medical personnel seem to value the efforts of the Defense Medical Readiness Training Institute with providing them an opportunity to rehearse concepts of systematic patient assessment and lifesaving treatments in a safe learning environment.

Presentation in these courses has been credited for decreasing the mortality rates for injured US military service members. For example, mortality rates have consistently lessened from 30% in World War II, to 24% in Vietnam, and 10% in the current Iraq and Afghanistan conflicts.

Like their fellow civilian emergency medical technician (EMT) peers, US Army healthcare specialists also known as “medics”, earn their national registry emergency medical technician basic certification after completing initial medical training. Army, Air Force, Navy, and Coast Guard corpsmen assigned to special operation units or sea duty are expected to provide advanced life support and to be able to practice autonomously in austere and remote environments.

### ***Preparing for Hazard Events***

Civilian clinicians benefit from shared knowledge by experienced military providers who have treated injured casualties during conventional and unconventional warfare. From 1980 to 1988, Soviet medical reports from Afghanistan confirmed that casualties were two-and-one-half times more likely to be injured by explosions than from gunshot wounds. In contrast, the Iraq and Iran war from 1980 to 1988 produced an astounding number of chemical casualties. Ongoing military experience in Iraq and Afghanistan is creating numerous casualties with multifaceted wounds. There is a high likelihood that these types of injuries may be mimicked during a disaster. Current preparedness for a major disaster requires clinically competent clinicians trained at all skill levels. These healthcare professionals must be the core consultants and evaluators for both civilian and military actors. Using a synergistic and collaborative approach under the guidance of experienced military and civilian clinicians.[26-28]

In 1998, the US General Accounting Office (GAO) reported that military clinicians lacked suitable exposure to critically injured patients due to base closures and privatization of the military medical system. It recommended the development of collaborative military and civilian training to boost readiness.[23] Sixty nationwide metropolitan trauma centers were evaluated to identify facilities that best fit military long-term, medical training needs.[23, 29]

It is important to support the national Ministry of Health and not undermine the local health system. The vast criticisms of disaster health response, ranging from problems with field hospitals, personnel working outside their skill range,[30] to dumping of pharmaceuticals, are unquestionably valid.

## *International help in disasters*

Aid from all over the world starts to pour in as soon as a disaster strikes. This is fuelled even more when the media focuses the world's attention on it. Major health providers, such as Médecins Sans Frontières and the International Committee of the Red Cross, are some of the organizations best skilled in disaster response.

Massive relief efforts were seen after the earthquake in Iran (2003), the Asian tsunami (2004), and again with the Haiti earthquake (2010). Help is offered mainly as donations, but there also is an influx of dedicated and experienced people volunteering their time and skills. These include government teams, non-governmental organizations (NGOs), and even individuals pitching up on their own to assist those in need. These volunteers are nobly motivated to help, but all emergency interventions have unintended consequences.

Professional humanitarian workers have mixed feelings about the influx of “foreign disaster relief experts”. Sometimes, the responders are poorly suited to help, with little or no experience in international relief, poor understanding of the local culture, and usually have no relationship with either local agencies or the affected population. This influx phenomenon has been described as “disaster tourism” or “parachuting”. This has an adverse impact on relief efforts, and may dim local receptiveness to foreign help[26].

Disaster tourists may cause harm by depleting scarce resources (like food and water), using culturally inappropriate methods, or by violating security precautions.

The Achilles' heel of most emergencies remains poorly coordinated efforts. This results in an uneven allocation of support and sub-optimal care that do not always satisfy the local needs.[27] This view is supported by survivors of the Bam earthquake who scored the medical care provided only as “moderate”. [19-21] Poor coordination further results in duplicate assessments leading to assessment fatigue of those in need, as well as increasing feelings of frustration and resentment. The lack of accountability and credentialing from independent relief teams are further areas of concern.

Non-governmental organizations are eager to provide urgent support and impatiently bypass governmental bureaucracies and politics. This may be the result of the constant battle between NGOs as they compete for funding for their cause. They have diverse goals and often create a parallel service that may serve to weaken the capacity and credibility of combined efforts. Competitive humanitarianism is not only destructive but also leads to poor utilization of skilled resources. Furthermore, their services usually are unsustainable: they may raise expectations, but then leave after a short period, resulting in feelings of abandonment by the local population. However, disaster relief teams can be of substantial value when they are fully self-sustained and capable of delivering definitive care as well as managing the day-to-day cases that are unrelated to the disaster. This can be accomplished by erecting fully-equipped field hospitals while working with the United Nations and local government. [31].

## *The Haiti case*

On January 12, 2010, an earthquake measuring 7.0 on the Richter scale hit the island nation of Haiti. The epicenter occurred approximately 25.7 km west of the nation's capital, Port-Au-Prince, a city of 2 million people. The earthquake resulted in approximately 230 000 deaths and 300 000 injuries. Additionally, there was near total devastation of the Haitian health care infrastructure.[32-34]

The earthquake of Haiti killed or gravely injured hundreds of thousands of people in Port-au-Prince. Even more were left homeless. The devastation was incomprehensible.

On the second and third days, as access to the country and hospital improved, American, Swiss, Canadian, Norwegian, Haitian-American, French, and Spanish volunteer physicians, predominantly from nongovernmental organizations and universities, arrived and worked side by side to bring order to patient flow.

On the third day, 80 soldiers (including 5 medics) from 325th Airborne Infantry Regiment, were deployed [35-37]. The arrival of the military was essential. With their arrival, security was immediately established, including gate access, a perimeter surveillance, and crowd control. The military medics assisted in evaluating and treating patients in the field and tents. They also carried stretchers and hauled supplies.

The U.S. Navy's hospital ship *Comfort* arrived 8 days later on January 20. At that day began the transfer of the sickest patients by navy helicopter, to the naval hospital with its more than 300 medical personnel, its operating rooms, and its 500 beds. This resulted in the USNS *Comfort* being the primary trauma facility for evacuation of life- and limb-threatening injuries. During the next 40 days, the crew of the ship processed 1056 admissions, performed 843 surgical procedures (including 669 trauma-related extremity procedures), conducted more than 3600 radiographic studies (including 626 computed tomography scans), and reached a maximum inpatient census of 411 patients.[38, 39]

The support of the U.S. military was unequivocally integral to the success of the medical mission. The military supplied with critical equipment and supplies, such as tents to establish the emergency room, stretchers, medications, food, and water. The soldiers, who assisted the patients in the hospital compound, brought not only skill but also a "can do" attitude and energy to a medical staff that was stretched to its physical and emotional limits [35, 36].

At the first days there was a civil-military collaboration discomfort, as in most disasters, clarity of messaging was the problem. A lot of patients were transferred to the naval hospital that wasn't able to treat them. This was clarified the next day, when the navy provided a list of the types of cases that were best served by its facility (e.g., complicated extremity injuries, obstetric cases, and maxillofacial injuries) and those that were not (pelvic fractures, closed head injuries, complete spinal cord lesions, and cases requiring assisted ventilation).

Although the delays were always understandable in the context of the disaster, the situation would have been improved by a clear and reliable form of communication between the civilian and military relief efforts at the ground level. Initially there was no protocol for obtaining information from the ship on the status of transferred patients[35].

Always exists complexity and sensitivity of interactions, between nongovernmental organizations and the military. Nobody is perfect, but in this disaster response, the collaborative interaction between civilian medical teams and the military in responding to the initial casualties of the Haiti earthquake could serve to inform policies and procedures for future disasters. Working together, they achieved order out of chaos[35].

The military collaboration in major disasters is essential also for the security. In Haiti, security was the biggest problem. Five thousand prisoners escaped from the National Penitentiary, which was a short distance from the clinic. They have infiltrated the refugee camp.

They were armed and organizing. The U.S. Army protected the field hospital but was not responsible for the refugee camp[40].

The US Navy hospital ship USNS Comfort played an integral role in the initial phases of Operation Unified Response–Haiti following the devastating earthquake that struck near Port-Au-Prince.[38, 41]

Under the direction of the United States Military Southern Command (SOUTHCOM) and in support of the United States Agency for International Development (USAID), the military mission termed “Operation Unified Response” included multiple U.S. Air Force medical assets to provide humanitarian assistance and disaster relief.[36, 41-43] These units were required to adapt to unique and changing circumstances while providing medical care and compassion to the people of Haiti. Interaction and communication with other U.S. government and military units, foreign military forces, nongovernmental organizations (NGOs), and local physicians and representatives from the Haitian health care system were imperative to provide the best care possible.

The Air Force Special Operations Command (AFSOC) sent rapidly assistance into Haiti within 24 hours of the earthquake. In addition to medical teams, they had teams specialized in search and rescue, weather observation, communications, and airfield management, among others [36, 38, 42]. The special operations medical assets were composed of special operations surgical teams, special operations critical care evacuation teams, and special operations forces medical elements. Working with the Haitian government as well as other government organizations and NGOs, they helped coordinate the initial medical response to the disaster. [38, 42, 44]

The worst experience was made by medical teams, that arrived with television crew and without any consultation with any parties on-scene, started to see patients, leading to unnecessary re-assessments, duplicating painful wound checks all in the glare of the television cameras. Humanitarian aid is the perfect opportunity to fulfill the deepest desire of any healthcare worker—the desire to help others in need. On the other hand, a *disaster tourist* may be defined as a person heading to the site of a disaster to see the destruction, take pictures, obtain bragging rights, and get the shoulder badge. Man has forever been a curious being, and with television desensitizing us to tragedy, people want a true taste of authenticity. Everyone wants to experience everything firsthand. [45, 46]

Typical of most large scale emergency responses, the multitude of actors in the Haitian earthquake response placed huge challenges on the humanitarian leadership and coordination mechanisms. A high level Coordination Support Committee comprising senior MINUSTAH, US Military, Haitian government, donor and UN representatives was established and oversaw strategic coordination and related subsidiary bodies translated strategic direction into action.

Coordination capacity was established at sub-national level and shadow clusters were established in the Dominican Republic. The absence of civilian led humanitarian leadership in the weeks immediately following the earthquake was quickly and effectively helpfully filled by the military[36, 47].

There were some significant coordination successes, including the **cluster system** (*When there is a humanitarian disaster, the UN activates the “clusters” or groupings of “UN agencies, non-governmental organizations (NGOs) and other international organizations around a sector or service provided during a humanitarian crisis,”* ) which was quickly established within 10 days of the earthquake, deploying experienced cluster leads early, in part due to their activation in response to the 2008 hurricane and in later contingency exercises.[48, 49] Many clusters proved responsive and imaginative, including the housing sub-cluster, which promoted people-centered, culturally-sensitive reconstruction of informal housing in Port-au-Prince and the health cluster, which issued a helpful statement on the improbability of an immediate epidemic[47]. Headquarters supported with policies, guidelines and resources.

Novel information communication technology was used in the Haiti earthquake response including social media, crowd sourcing and user-generated content of assessments including mapping. However, serious delays in collating and sharing information on humanitarian agency activities were attributed to poor prioritization of information sharing. Effective humanitarian coordination in the chaotic environment immediately following the earthquake where much local capacity was badly damaged and where the number of agencies responding far exceeded the UN's capacity to coordinate them was always going to be a challenge[47, 50, 51].

As a consequence of coming late to the coordination table, OCHA (*Office for the Coordination of Humanitarian Affairs of UN*) took some time and effort to re-establish itself as the primary humanitarian coordination mechanism in Haiti. It took three weeks for the Humanitarian Coordinator to call a meeting with aid organizations. And the rapid and large influx of well intentioned, but relatively inexperienced NGOs with weak capacity coupled with a weak host government, a large military presence, a depleted and weakened existing UN leadership in Haiti placed great pressures on humanitarian coordination structures. The capacities of clusters varied and many found coordinating the large number of humanitarian NGOs extremely difficult. These difficulties led to clusters having difficulty in making strategic decisions and managing the response adequately. Haitians expressed frustration about the lack of coordination and poor information on the response with overlapping NGO activities. [29]With a large number of international NGOs converging on Haiti in the immediate aftermath of the earthquake, it was inevitable that the level of professionalism among humanitarian staff would vary significantly. The effects of this on general professional standards would have been further compounded by high staff turnover, poor living and working conditions and high stress levels (including post traumatic stress disorder). Language barriers, including the scarcity of Creole and French speaking staff would have further diminished the effectiveness of many[47].

While medical personnel continued to do everything possible to save lives, the international community needed to prioritize medium- and long-term investment in the health care system of Haiti, which was weak before the earthquake[52]. This was the criticism from various NGO for the “military medical intervention”, that leaved Haiti and the NGO alone to organize the day after and the rehabilitation.

## **Discussion**

The Air Force and other military units have resources that uniquely qualify them for humanitarian responses, such as in Haiti. Although the military platforms are primarily intended for the treatment of battlefield casualties, similar principles allow them to function well in a humanitarian role. The military can provide self-sustained units that can rapidly deploy and provide lifesaving care. The military can also provide transport of these assets to anywhere in the world as well as support the evacuation mission. The learning and experiences from military deployment in support of combat operations, such as triage management, treatment and resuscitation after severe injuries, patient movement, communication, and mass casualties on a smaller scale, also make a responder better prepared for this type of humanitarian mission. In Haiti it was often commented that the conditions were “like wartime.” In some cases this was true. Units were working with limited resources and needed to utilize triage principles to manage their resources. There were terrible injuries that required stabilization and resuscitation. Care was administered in austere conditions, sometimes requiring resourceful solutions. Patients were evacuated to higher levels of care if they were available. Both wartime and humanitarian operations require good relationships with the local community and other resources [38, 42].

Wartime units have established lines of communications and knowledge of other units in the area. A more rapid deployment of these units as well as partnering up with other government organizations or NGOs would likely have resulted in better use of these resources. Although it would be challenging in a multinational response, an overall command and control element could better direct the available resources, assist in patient flow, and better interact with the host nation. It is also necessary to consider the interaction of military units with civilian and other government units in disaster response planning and how the resources and capabilities that the military provides can best be integrated. Opportunities for interaction between military and nonmilitary command elements would help these groups become more familiar with each other's equipment and capabilities and could translate into better integration in a disaster situation[42].

These teams are prepared for rapid deployment and trained together to be prepared for these potential disasters. It is important that different government organizations as well as NGOs communicate, train, and interact with one another to optimize future responses. If a disaster of this magnitude occurs again, hopefully the lessons learned from this experience can help us respond more effectively [38, 42].

## **Conclusions**

The major problems in the case Haiti were:

1. Scarcity of support from both the Haitian government and medical community.
2. Complete absence of coordination and logistic organization on the ground.
3. Lack of any security presence at the hospital.
4. The withdrawal of the military team left the Haitian government and the NGO's alone to organize the day after and the rehabilitation.

The successful response to disasters such as the Haiti earthquake requires leadership, organization, and advanced logistic and security support. There must be clear involvement, approval, and support of the military and recognized emergency response agencies from the very beginning[50].

Medical doctors in good faith were entering the country with no plan of what they were going to do and with nobody directing them how, where, or when to do it. Without plan, surgeons alone were of limited value. An organized system, in cooperation with the government and military agencies is necessary. Civilian healthcare personnel are critical to disaster management.

What we do not have is expertise in disaster management. Disasters like Haiti need to be run like a military campaign with a clear strategy and logistics and with the ability to call upon prearranged groups of physicians and nurses capable of responding at a moment's notice.

Currently existing disaster programs and protocols clearly are not prepared to deal with crises in areas where lack of infrastructure and security are issues[50].

However, without control of this relief effort by a "General Patton's" with military clout and a predetermined "disaster plan," many of those with salvageable injuries who might otherwise have been saved will lose limbs and lives[50].

Military and civilian health professionals responding to any hazard event are faced with difficult odds. Medical decisions must be made instantly and under challenging circumstances. Collaborative training and education is necessary between civilian and military clinicians for planning, preparedness, and responses to any major disaster.



## References

1. Marklund, L.A., et al., *Collaboration between civilian and military healthcare professionals: a better way for planning, preparing, and responding to all hazard domestic events*. Prehosp Disaster Med, 2010. **25**(5): p. 399-412.
2. IASC. *Civil–military Relationship in Complex Emergencies*. 2004; [An IASC Reference Paper]. Available from: <http://ochaonline.un.org/mcdu/guidelines>.
3. Brewer, L.A., 3rd, *Baron Dominique Jean Larrey (1766-1842). Father of modern military surgery, innovator, humanist*. J Thorac Cardiovasc Surg, 1986. **92**(6): p. 1096-8.
4. Crumplin, M.K., *The Myles Gibson military lecture: surgery in the Napoleonic Wars*. J R Coll Surg Edinb, 2002. **47**(3): p. 566-78.
5. Stevens, R.A., et al., *The U.S. Navy's forward resuscitative surgery system during Operation Iraqi Freedom*. Mil Med, 2005. **170**(4): p. 297-301.
6. Schreiber, M.A., et al., *Military trauma training performed in a civilian trauma center*. J Surg Res, 2002. **104**(1): p. 8-14.
7. Gunnarsson, D., et al., *Panel 2.15: civil-military cooperation in humanitarian health action*. Prehosp Disaster Med, 2005. **20**(6): p. 450-4.
8. Meier, D.R. and E.R. Samper, *Evolution of civil aeromedical helicopter aviation*. South Med J, 1989. **82**(7): p. 885-91.
9. Merchant, R.M., J.E. Leigh, and N. Lurie, *Health care volunteers and disaster response--first, be prepared*. N Engl J Med, 2010. **362**(10): p. 872-3.
10. Sondorp, E. and O. Bornemisza, *Public health, emergencies and the humanitarian impulse*. Bull World Health Organ, 2005. **83**(3): p. 163.
11. Barnes, M.D., et al., *Analysis of media agenda setting during and after Hurricane Katrina: implications for emergency preparedness, disaster response, and disaster policy*. Am J Public Health, 2008. **98**(4): p. 604-10.
12. Hughes, R.T. and P. Trantham, *When Disaster Strikes, Humanity Becomes our Patient*. Perm J, 2011. **15**(3): p. e118-22.
13. Rudowitz, R., D. Rowland, and A. Shartzler, *Health care in New Orleans before and after Hurricane Katrina*. Health Aff (Millwood), 2006. **25**(5): p. w393-406.
14. Berggren, R.E. and T.J. Curiel, *After the storm--health care infrastructure in post-Katrina New Orleans*. N Engl J Med, 2006. **354**(15): p. 1549-52.
15. WHO. *WHO: Welcome. The International Disaster database*. 2009 [cited 2012; Available from: <http://www.emdat.be/natural-disasters-trends>].
16. Redmond, A.D., *Natural disasters*. BMJ, 2005. **330**(7502): p. 1259-61.
17. Baumann, M., *[Evaluation in humanitarian health and action]*. Arch Pediatr, 2000. **7 Suppl 2**: p. 376s-378s.
18. Oyegbite, K., *What have we learned? Coordination*. Prehosp Disaster Med, 2005. **20**(6): p. 471-4.
19. Abolghasemi, H., et al., *International medical response to a natural disaster: lessons learned from the Bam earthquake experience*. Prehosp Disaster Med, 2006. **21**(3): p. 141-7.
20. Seyedin, S.H., M.R. Aflatoonian, and J. Ryan, *Adverse impact of international NGOs during and after the Bam earthquake: health system's consumers' points of view*. Am J Disaster Med, 2009. **4**(3): p. 173-9.
21. Wessells, M.G., *Do no harm: toward contextually appropriate psychosocial support in international emergencies*. Am Psychol, 2009. **64**(8): p. 842-54.
22. Samarasinghe, D., *Disaster management: lessons from immediate responses to the tsunami*. Ceylon Med J, 2005. **50**(1): p. 25-7.

23. Moore, E.E., et al., *Military-civilian collaboration in trauma care and the senior visiting surgeon program*. N Engl J Med, 2007. **357**(26): p. 2723-7.
24. Ali, J., et al., *Trauma outcome improves following the advanced trauma life support program in a developing country*. J Trauma, 1993. **34**(6): p. 890-8; discussion 898-9.
25. Liberman, M., D. Mulder, and J. Sampalis, *Advanced or basic life support for trauma: meta-analysis and critical review of the literature*. J Trauma, 2000. **49**(4): p. 584-99.
26. Disch, J., *Collaboration is in the eye of the beholder*. Jt Comm J Qual Improv, 2002. **28**(5): p. 233-4.
27. Zoraster, R.M., *Barriers to disaster coordination: health sector coordination in Banda Aceh following the South Asia Tsunami*. Prehosp Disaster Med, 2006. **21**(1): p. s13-8.
28. Owens, P.J., A. Forgione, Jr., and S. Briggs, *Challenges of international disaster relief: use of a deployable rapid assembly shelter and surgical hospital*. Disaster Manag Response, 2005. **3**(1): p. 11-6.
29. Cumberland, S., *Groundbreaking approach to disaster relief*. Bull World Health Organ, 2008. **86**(9): p. 661-3.
30. Carballo, M., S. Daita, and M. Hernandez, *Impact of the Tsunami on healthcare systems*. J R Soc Med, 2005. **98**(9): p. 390-5.
31. Ginzburg, E., et al., *Rapid medical relief--Project Medishare and the Haitian earthquake*. N Engl J Med, 2010. **362**(10): p. e31.
32. Schultz, C.H., K.L. Koenig, and E.K. Noji, *A medical disaster response to reduce immediate mortality after an earthquake*. N Engl J Med, 1996. **334**(7): p. 438-44.
33. Kolbe, A.R., et al., *Mortality, crime and access to basic needs before and after the Haiti earthquake: a random survey of Port-au-Prince households*. Med Confl Surviv, 2010. **26**(4): p. 281-97.
34. Fournier, A.M. and M. Dodard, *The health care delivery crisis in Haiti*. Fam Med, 1997. **29**(9): p. 666-9.
35. Auerbach, P.S., et al., *Civil-military collaboration in the initial medical response to the earthquake in Haiti*. N Engl J Med, 2010. **362**(10): p. e32.
36. McCartney, S.F., *Combined Support Force 536: Operation Unified Assistance*. Mil Med, 2006. **171**(10 Suppl 1): p. 24-6.
37. Vanholder, R., et al., *When the earth trembles in the Americas: the experience of Haiti and Chile 2010*. Nephron Clin Pract, 2011. **117**(3): p. c184-97.
38. Hussey, S.M., et al., *The 2010 Haiti earthquake: a pathology perspective aboard the USNS Comfort*. Arch Pathol Lab Med, 2011. **135**(4): p. 417-21.
39. Schultz, C.R., et al., *Development of a hospital-based trauma registry in Haiti: an approach for improving injury surveillance in developing and resource-poor settings*. J Trauma, 2007. **63**(5): p. 1143-54.
40. Pape, J.W., W.D. Johnson, Jr., and D.W. Fitzgerald, *The earthquake in Haiti--dispatch from Port-au-Prince*. N Engl J Med, 2010. **362**(7): p. 575-7.
41. Ray, J.M., R.W. Lindsay, and A.R. Kumar, *Treatment of earthquake-related craniofacial injuries aboard the USNS Comfort during Operation Unified Response*. Plast Reconstr Surg, 2010. **126**(6): p. 2102-8.
42. Stuart, J.J. and D.C. Johnson, *Air Force disaster response: Haiti experience*. J Surg Orthop Adv, 2011. **20**(1): p. 62-6.
43. Skolnick, A.A., *Military physicians of 12 nations cooperate in Haiti*. JAMA, 1995. **274**(22): p. 1748-50.
44. Kidder, T., *Recovering from disaster--Partners in Health and the Haitian earthquake*. N Engl J Med, 2010. **362**(9): p. 769-72.
45. Robinson, L. and J.K. Jarvie, *Post-disaster community tourism recovery: the tsunami and Arugam Bay, Sri Lanka*. Disasters, 2008. **32**(4): p. 631-45.
46. Van Hoving, D.J., et al., *Haiti disaster tourism--a medical shame*. Prehosp Disaster Med, 2010. **25**(3): p. 201-2.

47. Patrick, J., *Haiti earthquake response. Emerging evaluation lessons*. Evaluation Insights, 2011. **1**: p. 1-14.
48. *Global Health Cluster position paper: removing user fees for primary healthcare services during humanitarian crises*. Prehosp Disaster Med, 2010. **25**(4): p. 374-6.
49. Zoraster, R., *Disaster coordination needs more than the "health cluster"*. Prehosp Disaster Med, 2010. **25**(4): p. 372-3.
50. Lorch, D.G., et al., *The 2010 Haiti earthquake: lessons learned?* Tech Hand Up Extrem Surg, 2010. **14**(2): p. 64-8.
51. Lee, V.J. and E. Low, *Coordination and resource maximization during disaster relief efforts*. Prehosp Disaster Med, 2006. **21**(1): p. s8-12.
52. Ivers, L.C. and K. Cullen, *Coordinating and prioritizing aid in Haiti*. N Engl J Med, 2010. **362**(7): p. e21.