

Chapter 10

Military Medicine and Global Health: A Core Competency



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Service to others is the rent you pay for your own room here on earth – Muhammad Ali

The foreign engagement of the US military in any capacity always arouses interest and often suspicion. Even participation in global health engagement(s) challenges many purists who feel that military medicine means direct care to the fighting force and that the humanitarian realm is an inappropriate domain for military personnel. Notable members of this population include selective nongovernmental organizations (NGOs). Their vision of the motivation and stance of humanitarian endeavors is one of strict impartiality, neutrality, and the apolitical approach. In many cases, the civil healthcare sector even feels that the military is unprepared and unpracticed technically and clinically. This chapter's goal is to change that perspective by providing an exposition of global military health engagement well beyond but certainly including humanitarian assistance and disaster relief (HA/DR). Additionally it is recognized that more intensive multilevel collaboration among Department of Defense (DoD) health professionals, USAID-sponsored organizations, and State Department diplomats can mediate and enhance acceptance of the military as a global health enabler.

Let's begin with the assertion that active and reserve military personnel comprise one of the most healthy segments of the nation's population, considering diversity of background and current professional capacities. Media promotions aside, observing soldiers, sailors, and airmen in action, at home and overseas, reveals attention to high personal health standards. Notably, by demonstrating this globally, they reflect highly at least the intent of our national health policy, from nutrition to physical fitness and lifestyle to performance.

Before featuring HA/DR activities, it is appropriate to discuss the variety of global military medicine capacities sometimes hidden in obscure outposts or not receiving appropriate media consideration. Medical research is a well-recognized

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M. M. G. Olivier, C. C. Croteau-Chonka (eds.), *Global Health and Volunteering Beyond Borders*, https://doi.org/10.1007/978-3-319-98660-9_10

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military hallmark with major clinical advances attributable to military personnel and the target of numerous programs. State-of-the-art burn management has brought global recognition and multinational referrals to Brooke Army Medical Center at Ft Sam Houston, San Antonio, Texas. Many of these injuries are the result of natural disasters and civil conflicts. Not surprisingly, military medicine has advanced trauma management with battlefield-response and surgical techniques. Aerospace medicine and hyperbaric treatment are additional relatively distinctive domains where military medicine is at the forefront. Unique geographic deployments have enabled US military medicine to be at the vanguard of both infectious disease and preventive medicine. Decades of public health engagement and assistance in high-risk environments have afforded unique experience in both immunization and sanitation strategies and realities.

From a logistics perspective, military medicine essentially invented the concept and construct of the air ambulance as an evacuation vehicle. Vietnam's terrain and the nature of insurgency operations were coupled with advances in aviation and with the advent of versatile rotary wing aircraft plus the participation of highly skilled aviators and medical corpsmen. Together innovation in equipment and advance training of personnel led to new approaches to medical transportation. In concert with strategically placed combat medical facilities, trauma care development received a major transfusion of time and talent, program placement, and management. Air, sea, and land mobility with the most advanced navigation, propulsion, and deployment capacities enable medical service provision anywhere, anytime.

Military medical education was transformed within the last decades with the dedication and establishment of the Uniformed Services University of the Health Sciences (USUHS) and the Defense Institute for Medical Operations in Bethesda, Maryland, in 1984. Combining the capacities of Walter Reed Army and Bethesda Navy medical centers, the military now educates at a Liaison Committee on Medical Education (LCME)-accredited medical university and supports a wide variety of similarly accredited allied health degrees. Accreditation Council for Graduate Medical Education (ACGME)-accredited residencies remain united with service respective regional medical centers, Army, Navy, and Air Force. USUHS was established as the armed forces medical leadership realized that an internal medical college education would allow the branches of service to essentially establish a career-oriented pathway for healthcare professionals, whether physician, nurse, or technician.

Recognizing the need to accelerate global health capacity at the career military physician leadership level, the three service academies, West Point, Annapolis, and the Air Force Academy, currently nominate approximately half of the entry class to USUHS. Institution graduates generally serve 20 years and beyond due to both entry background and educational commitment requirements. Their relationships with field unit nonmedical colleagues enable military medicine leaders to occupy a unique position in any global engagement whether a standard deployment, combat operation, or humanitarian/disaster relief mission. Recognizing that mutual engagement in a humanitarian intervention would be inevitable in an officer's career,

whether medical corps or infantry, all the academies have developed a civil-military operations element in their undergraduate Cultural Geography core education. The objective of this course is illustrating the interaction of “civilian” medical service providers with military resources in both civil and natural disaster interventions.

USUHS also supports and staffs the Center for Disaster and Humanitarian Assistance Medicine (CDHAM), integrating active participatory course content into the medical university curriculum for multiple provider levels. The following extract from the USUHS website provides a selection of activities that engage all healthcare professionals at the university from the microbiology laboratory to nursing and clinical medicine specialists [1]:

- Avian Influenza/Pandemic Influenza (AI/PI) Program
- Defense Medical Language Initiative (DMLI) Health Language and Culture Curricula
- Cooperative Biological Engagement Program (CBEP) for the Defense Threat Reduction Agency (DTRA)
- US Africa Command Pandemic Response Program (PRP)

US Africa Command Pandemic Response Program (PRP), in partnership with CDHAM, promotes stability and security and enhances African partner nations’ military capacity to plan for and respond to a pandemic disaster. CDHAM, as part of USUHS, assists in development of comprehensive educational programs in Disaster Management and Pandemic Crisis Response for both civil and military authorities.

PRP is executed via a strategic whole-of-government approach and fosters synchronization of national and regional level preparedness and response plans. It is conducted in collaboration with other interagency and international partners, who share the same end states, to strengthen partner nations’ capacity to respond to a pandemic disaster and to mitigate threats to stability and security. PRP Concept of Operations.

On the global theater level, geographically deployed theater combatant commanders facilitate military physicians participating in peacetime regional/national medical and surgical “teach and train” excursions. Coordination through host national specialty societies and governmental authorities enables proper credentialing as well as predetermined pre- and postoperative responsibilities. Naval hospital vessels, US Comfort And US Naval Ship Mercy, provide surgical theater capacity, and the USAF coordinates airmobile operative or teaching venues. Strict limits insure that these deployments do not detract from the principal duty of direct medical and surgical care for active duty and retired military populations at home and the deployed forces and families abroad.

To conclude this preamble, military medicine is active globally in a state of readiness at all times and is furthermore designed and dedicated to offer appropriate and integrated humanitarian assistance/disaster relief (HA/DR) when challenged, when invited, and notably when directed by both civilian executive authority and military command orders. Having referred to our engagement in Vietnam, it is appropriate to depict an early “modern era” humanitarian assistance project, Operation New Life,

Fig. 10.1 Military medicine in humanitarian missions



the medical care of more than 100,000 Vietnamese refugees, evacuated to the United States in the mid-1970s (Fig. 10.1).

This section begins with the charter and ultimate directive for the United States to involve its military medical capacity in providing humanitarian assistance and disaster relief (HA/DR). Structural features of the military as well as roles and relationships of various US governmental entities will be described focusing on military integration and coordination. Military intervention will focus on unique capacities as well as sequence and duration of resource provision. Examples from interventions since the 1960s and Vietnam but focused within the last decade serve to illustrate both the challenges and successes of military medicine as a rapid and ready global medical response force.

Though long assumed to be available, the United Nations Office for Coordination of Humanitarian Assistance formally codified Relief Capacity in 1994 through the Oslo Authority. Relief comes with the following conditions: relief is requested by the host government, provides a unique capability, responds to distinct need, and includes a terminal timeline [2]. The mobilization and foreign deployment of the US military through the Department of Defense is ulti-

mately a US presidential decision. However, the long-standing authority of the Department of State to manage foreign affairs engages its principal intermediary, the US Agency for International Development (USAID), in decisions regarding HA/DR commitments. Within USAID, the Bureau for Democracy, Conflict, and Humanitarian Assistance (DCHA) and ultimately the Office of Foreign Disaster Assistance (OFDA) authorize and manage Disaster Assistance and Response Teams (DART), principally in administrative roles and oversight responsibility. Cross coordination takes place with similar structural entities with the Department of Defense and facilitates roles and responsibilities. The small fraction of “disaster budget” that reaches the recipient is easily understood. Budgeting for DR is embedded within the Department of Defense budget. DoD ultimately receives annual authorization and appropriations in anticipation of anticipated foreign Disaster and Civic Aid.

With respect to HA/DR, the architecture of the US military features the Joint Chiefs of Staff directing the resources of the various services, Army, Navy, Air Force, and Marines. These units and individuals are mobilized through multiservice geographic combatant commands [2].

The Commands related to recent civil and disaster responses are the Central Command (Iraq and Syria), Southern Command (Haiti earthquake), Africa Command (Ebola and Boko Haram), and Pacific Command (Indonesia-Japan tsunamis; Philippine typhoons). Regional combatant commanders, faced with a valid response request, have at their disposal a variety of military humanitarian components, some directly attached to a specific service unit and many multi-service, multi-purpose. A prime example of the detached would be the Ft Bragg, NC-based, on-call, Global Response Force [3], a special purpose, situation-tailored, Airborne, Army brigade combat team capable of deploying within 24 h. This Force provided security and operational capacity of the Port-au-Prince airport in response to the Haitian earthquake. Having an operational airport was the highest initial priority to enable subsequent assistance.

Additional military structures offer tailored Global Health Engagement including Special Operations Command (covert forces), US Air Force Logistics Command, US Naval Hospital, and Logistics vessels. Activation is through Executive Order followed by Defense Department Directives and always including State Department collaboration. Department of Homeland Security assets are often a paramilitary complement in foreign disaster incidents. Though primarily responsible for border security and national disaster response, in the aftermath of the 2010 Haiti earthquake, Coast Guard vessels were both proximate and available. Their crews facilitated the opening of ports and the evacuation of US citizens. Likewise, FEMA, the Federal Emergency Management Agency, was activated for Haiti and operated an interagency task force to monitor and manage multi-governmental agency (including military) supply distribution and deploy search and rescue teams. US military medical support included reserve military personnel volunteering for Department of Health and Human Service DMATs and IMSURTs (International Medical Surgical Response Teams) and thus collaborated with the entire spectrum of US Governmental Departments [2].

This is an appropriate juncture to review the recurring arguments for and against military accompaniment to US HA/DR programs. While assisting foreign, civilian populations affected by civil or natural trauma, a moral proposition would call for maximum potential and reasonable effort. Military capacities are often considered more political and strategic to US governmental interests than humanitarian and benevolent capabilities [4]. A question to be asked is, “Is this a national interest or human interest and does the military represent a governmental force more than a helping hand?” Given the range and readiness of response capacity and the relatively recent advances in interdepartment and interagency collaboration, the military contribution seems accepted as vital. Military capacities and resources employed in HA/DR activities remain coordinated through the State Department. Somewhat esoteric but vital adherence to the following principles would serve to keep military contribution relatively nongovernmental: humanity, impartiality, neutrality, independence, and empowerment.

Likely because of the uniform, military medical resources often polarize and may destabilize the areas to which they are called. In general, military personnel should always act to support US and other foreign government civilian services in concert with host nation authorities and agencies. Adamantly neutral entities such as Medecins Sans Frontieres (MSF; Doctors without Borders) and the International Commission of the Red Cross (ICRC) are the most likely to describe civil-military friction. The deluge of recent interventions and the need for human and materiel resources have meant that military involvement has prevailed. A national specialty medical society, Special Operations Military Association, has notably acted to engage the range of global health resources off the battleground and beyond the disaster scene with significant advancement in communication, collaboration, and mutual respect among disaster responders [5].

This chapter’s conclusion will attempt to address US military best practice patterns and procedures. Military intervention can generally be categorized as direct, indirect, and support, whether humanitarian or disaster oriented. Examples of direct support include the operating theaters aboard the US Navy Ship Comfort (Fig. 10.2), offshore Haiti, and, earlier, the US Navy Ship Mercy, offshore Indonesia. Multiservice air evacuation and multi-specialty (military and civilian) surgical and medical teams ably provide inestimable resources. Project HOPE’s long-standing close relationship with military medicine in many theaters (Iraq, Afghanistan) forged the professional relationships to integrate civilian and military surgical teams aboard the Comfort, supplementing Naval surgical capacity with civilian volunteer medical teams [6].

Indirect services are best exemplified by the rapid transport capacities of multi-service air.

Evacuation crews (Fig. 10.3) and the Navy underwater teams clearing the critical shipping harbors of Port-au-Prince for naval re-supply, civil and military, post-earthquake. The joint rapid deployment of USAF air traffic controllers coupled with 82nd Airborne soldiers enabled re-opening of the Port-au-Prince airport in record time to receive vast global resource deliveries of life-saving medicine, water, tents, blankets, and all the other necessary items to sustain the people.



Fig. 10.2 US navy ship Comfort

Fig. 10.3 Air evacuation



Not formally described as a military medicine capacity is the predominantly indirect role of retired, military physicians who remain engaged through roles facilitated by nongovernmental organizations. Serving as volunteers but engaged through their global specialty organization relationships and their NGO (International Medical Corps) sponsorship, they offered connections to US Military Medical Staff (US Navy Ship COMFORT) for Haitian NGOs and host national medical and surgical specialty societies. Initially they served to coordinate postoperative care onshore to free surgical patient capacity aboard the medical relief ship; the relationship later led to reconstitution relationships. In Haiti, the response was multi-specialty incor-

porating many volunteers (former military personnel, now NGO facilitated), surgeons, internists, gynecologists, and pediatricians.

In the Japanese tsunami relief, retired military first responders, enabled by Project HOPE and interacting with the Japanese Ministries of Health and State, determined less need for surgeons and more impact from psychiatric specialists due to the shoreline devastation of the adult workforce and the survival of children and elderly. This prompted a call to the American Psychiatric Association to identify a cadre of Japanese-speaking volunteer psychiatry colleagues to donate counseling capacities.

Heavy Logistics capacity is a prime component of the support category of humanitarian service. Military air and sea resources for transport are renowned and unmatched, in capacity, variety, and responsiveness. Physical security alone is always a major “support” resource, and notably in Haiti, it was an essential element as the earthquake in its destructive swath across Port-au-Prince fractured prison walls releasing thousands of surprised prisoners. US Military Police (MPs) were first responders. Serving medical care providers, MPs rapidly secured major roadways, escorted ambulances, and acted as groundskeepers controlling all access to the central Port-au-Prince Hospital, HUEH (Fig. 10.4). With their armed but respectful presence ready to engage, chaos was controlled, prioritization was enabled, and security was assured.

Earlier the Indonesian response offered another perspective on military medicine as a multivariate resource. Active duty and retired/recalled military offered direct surgical and medical care aboard US Navy Ship Mercy, but in arriving 6 weeks post-tsunami, many field hospitals had been established, so the US “warship” was perceived to be competitive. Many complex surgical repairs were accomplished, but relative to capacity, the ship was underutilized. The inability to accommodate families also presented a sociopolitical issue. On the resourceful side, biomedical engineering capacities were exceptional in dealing with medical devices, demonstrating that all medical support is definitely not based on life-saving surgery [7].

Fig. 10.4 Military police presence in Port-au-Prince Hospital



Military medical teams often provide more community relations and nation building through public health interventions. Such place-based services are often a more critical issue in the aftermath of natural disasters. In Haiti this took the form of cholera management, both treatment and prevention. In Indonesia a more complex issue arose with the variable community health services provided by US military medical teams to rival Indonesian factions. Despite attempts to serve all populations, medical relief often triggered cries of non-neutrality at both national and community levels regarding relief provision to separatist forces versus the Indonesian military.

To conclude the section on disaster response, some general observations and principles are of benefit. The military stages of humanitarian medical reaction in natural disaster as follows:

Response: Save lives, Provide security and direct services, Aid survivors; Coordinate with “all” UN, US, Host and NGO resources.

- Relief: enhance indirect and supply resources; engage host capacity.
- Restore: empower host colleagues and organizations plus NGOs.
- Recovery: transition to coordinator as opposed to provider; delegate to successors.

Before departing the disaster relief arena, it is appropriate to briefly describe the capacities and activities of foreign (non-US) military medicine entities as well as their relationships with our civil and military resources. In the well-orchestrated Relief Theater, the United Nations engages all responders through the Office for the Coordination of Humanitarian Affairs (OCHA) and as appropriate offers further collaboration through the United Nations Civil Military Coordination [2]. Without elaboration as to each country’s capacity and responsiveness, suffice it to say that major national military forces maintain rapid response, mobile, field hospitals along with the appropriate security cadre. These entities gained development and deployment in WW2 by a variety of nations but became quite notorious in Vietnam with the Mobile Army Surgical Hospital (MASH) distinction. Though designed and dedicated to the sponsor’s military medical needs, treating any injured including civilian casualties was the rule.

In recent years, nations have reserved Mobile Hospitals, including standby medical manpower, in readiness for disaster response. A very noteworthy example is the Israeli Defense Forces (IDF) Field Hospital that has achieved the distinction of first to be declared a World Health Organization Level 3 facility [8]. In Haiti within 48 h of notice, it was deployed at the just-opened, frenetic airfield and ultimately served 1100 patients in 10 days with 90 beds and 2 operating rooms. Similarly, following the Japan tsunami, the IDF Hospital arrived within 2 weeks and deployed at a very remote plateau above a destroyed harbor village. It essentially served for days as the only field casualty recovery site offering OR capacity. Notably the Chinese Navy offered the services of a full-capacity offshore hospital ship, but the resource was declined. In summary, essentially, all nations with a robust military have developed a humanitarian disaster capacity, and at least 25–30 nations have offered such medical relief.

There remain instances where host authorities are suspicious that “foreign” military presence is indicative of a national interest whether social or political—as opposed to a genuine humanitarian effort.

From the perspective of the service provider, foreign military medical resource commanders struggle with either the absence of or the awkward delivery of appropriate “central” coordination or, in military lingo, lack of “command and control.” Civil versus military, host versus global provider, and friend versus foe parallels are a challenge to the military medical commander. As the Israeli Defense Force medical commander in Port-au-Prince, Haiti, learned the standard complexities of medical decision-making to include triage, management, and disposition in a strange new world were overridden by multinational, sociopolitical factors.

Leaving the disaster scene, the concluding military humanitarian medical dimension to be discussed is the role in the various stages of civil conflict from nation building through low-intensity engagements to outright combat zone activities. The preface is that military medicine’s primary mission is the support of the soldier, sailor, and airman in military deployments. The corollary, however, is that any military medic is also first bound by his or her humanitarian ethic.

As the Oslo Doctrine guides military engagement in disaster relief, the multiple iterations of the Geneva Convention guide the principles of cross-border intervention. In effect, however, authorization of any US military action, including medical resources, is initiated and directed through the executive branch of government and ultimately through Defense Department command.

Legal authority for the US military to engage is in the US Code, Title 10, Humanitarian and Civic Assistance. Remembering the oft-quoted civil-military discord in humanitarian roles, the US Ambassador is the official “abroad” representative of the US Government and is directly responsible for US policy in that country [2].

US Military Medical forces have been deployed on the global stage as early as the 1920s well before USAID and the Peace Corps could object. In the post WWI theaters of Eastern Europe, Army Medical officers established an American-Armenian refugee hospital, and the American-Polish Relief Expedition was developed to combat typhus [4]. Later similar US military assistance was distributed in Russia in 1923 including preventive health measures, vaccination, and sanitation capacity. Leadership in the United States recognized the value as a foreign policy tool [4].

The next chapter of Military Medicine’s “nation building” spanned the post WW2 decades through Vietnam. As global powers challenged and often entangled in limited geographic domains such as Korea, the Philippines, and Central America, the Department of the Army engaged military units and often their medical capacities in a variety of civil affairs exercises, highlighted by President Kennedy’s National Security Action Memorandum [4]. When conflicts escalated, the role of medicine was embodied as supplying, training, and advising host country providers through Medical Civic Action Programs (MEDCAPs) [9]. Relatively unsuccessful due to the total Vietnam outcome, they served as a platform for subsequent foreign relations and the ultimate employment of the Special Operations forces—lower profile,

quick reaction, field medicine capable—ideally suited for Cold War counterinsurgency environments.

Military medicine subsequently engaged in countless medical readiness training exercises in Central American nations, most notably Honduras and El Salvador [4]. Internal and external assessments extolled public relations, host nation medical professional training, and general improvement in national health status but also recognized several common negative reactions: “giving away of unwanted supplies, cultural insensitivity, and short-term approach.” While competitive NGOs did not have the same logistics or field medical capacity as the military, their public health roles demonstrated capacity building, continuity, and generally a more caring engagement. Competition for the hearts and minds was always a guiding national/political interest of the governmental funding whether through civilian or military middlemen. Another conclusion from engagements in this era was that the intensification of the Vietnam counterinsurgency to true military combat exposed fragile and vulnerable civic action programs.

Private and voluntary organizations invoke the Geneva Conventions to preclude military resources from civil conflict humanitarian relief, insisting on independence from any party in the conflict—quite difficult in light of vast governmental or sociopolitical funding for almost any and all actors, even humanitarian, on the battlefield.

MEDCAPs were succeeded by structural and philosophical changes—less civic action and more direct medical capacity building—in global engagements with the term medical readiness training exercise (MEDRETE) [9]. These efforts persisted in Central America and initiated in Africa, the Middle East, and Asia. Additional examples included military surgical teams training global colleagues during multinational excursions with US Navy Ships Mercy and Comfort and US Air Force Mobile Hospitals. In the interest of furthering both US diplomatic and security goals, the military combatant commander for the geographic region engaged with the US Ambassador to combine military and civilian capacities. Not surprisingly other major global powers extended their geopolitical dimension with medical outreach through military muscle, notably the Australian, British, and French. Proactive through their advocacy for “droit d’ingerence” (the “right to interfere” in humanitarian crises), the French are heavily engaged in the former colonial areas of West Africa, a most turbulent and needy region with medical vulnerability recently exposed by insurgent military and viral infectious challenges [4].

Always ready to reflect and reorganize and prompted by former Defense Secretary Robert Gates, military medicine has undergone an inside and outside assessment of humanitarian assistance effectiveness. This has occurred in the midst of almost two decades of intensive demand of military medicine combat theater deployment and consequent minimal capacity for low-intensity theater engagements. Now known as Military Humanitarian Medical Operations (MHMOs), the changing label reflects the military need for a contemporary pneumatic for every era [9].

The DoD leadership expressed concern for diversion of resources from the real mission of operational medical readiness. On the ground the “unreasonable expectations” of host nations and their physicians coupled with difficulties in documenting changes in clinical outcomes or national health status confounded grading the MHMO. While compiling HA deficiencies and seeking alternatives, several interventions in Iraq altered the approach to combat zone military medical assistance beyond direct care.

Lesho and colleagues describe the “collaborative medical engagement” where active duty military medicine physicians visit host physicians in their communities for total stakeholder inclusion and face-to-face dialogue [10]. In this model host physicians accompany patients in need of advanced surgical procedures to the capable US medical facility, and the guest physician teaches/supervises/advises host personnel. Assembling similar specialty colleagues for “Continuing Professional Development” discussions ensues in the host medical facility.

CDHAM and USAID have reviewed and positively scored this revised humanitarian approach recognizing the need for bilateral accreditation, certification, licensure, and credentialing.

Stakeholder inclusion and ultimate host “ownership” of the capacity-building effort is the goal.

An applied variant of this concept is the joint Defense and State Department Project entitled “Medical Alliance for Iraq” initiated by the Surgeon General of the Army and the Senior Military Medical Advisor, Baghdad, in 2003. The activity amplified the Continuing Professional Development philosophy of contemporary medical ethics as well as the need to personally engage the host physician community from the start. Supported by the Department of Defense, a national Iraqi physician forum directed by two dozen (many retired) military physicians was conducted in Baghdad (2004) for 500 Iraqi specialty society leaders from across the country (Fig. 10.5). Diverse representation offered widespread clinical stakeholder insight and identified greatest clinical educational needs for 12 major specialties. Through a State department grant, US and UK volunteer physicians conducted approximately 60 specialty-tailored 1-week teach and train (CPD/CME) sessions offering nonclinical content such as medical ethics and clinical guidelines along with principles of accreditation and certification as well as state-of-the-art surgical techniques [11]. Serving Baghdad, Basra, and the Kurdish regional capital, Erbil, they exemplified inclusion across sociocultural divisions. Next-generation and female physicians were included and empowered. US national specialty societies offered electronic access to educational content plus telemedicine and global exchanges for conferences and fellowships.

Through active combat zones and timeframes, the implementation was logistically supported by the global NGO, International Medical Corps, but the vision and implementation were driven by national military medicine leadership and a willingness to recognize that different battlefields deserve different approaches. In Iraq’s high-intensity combat, active duty military and even reserve medical officers were overtaxed and over-deployed. Iraqi physicians were eager for external medical professional relations after years of sanction. Continuing Professional Development



Fig. 10.5 Baghdad medical forum, volunteer physician briefing FEB, 2004

activities within specialties and among these same physician leaders persist to this day and are now employed to assist with northern Iraq's recent refugee crisis. The willingness of volunteers to return for multiple engagements fostered enduring collaboration facilitated by military medicine and USAID. This model has been employed in Afghanistan, Haiti, and Libya with less success but offering formative, trusting, personal, and professional relationships.

In summary, military medicine offers a valuable humanitarian dimension in both natural and civil disaster and civil environments. Bridge building before the tsunami tide encroaches or the earth quakes is the answer to successful deployment of all resources. Several measures could be accomplished by DoD to positively impact HA/DR authority, strategy, and outcome:

1. Update the statutory DoD Directive defining nature and limits of DoD response
2. Create an "international framework for foreign HA/DR," including USAID, DoD, other government agencies and NGOs—similar to the National Response Framework
3. Ensure all senior military commanders are charged with roles and responsibilities for rapid deployment of resources
4. Ensure that response-designated, military medical professionals are culturally and professionally prepared to serve in humanitarian roles
5. Report outcomes, reassess structure and function, and remodel regularly

Finally, it is well recognized in global diplomacy that "trusting personal relations" between host nation and global humanitarian volunteer, whether senior officials or

military doctors caring for civilian patients, is the foundation of successful professional response and capacity building. The same principle should apply to the various governmental and nongovernmental providers of HA/DR. Confidence through communication and collaboration is more important than capacity and control.

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