Complex Humanitarian Emergencies/Disaster Management

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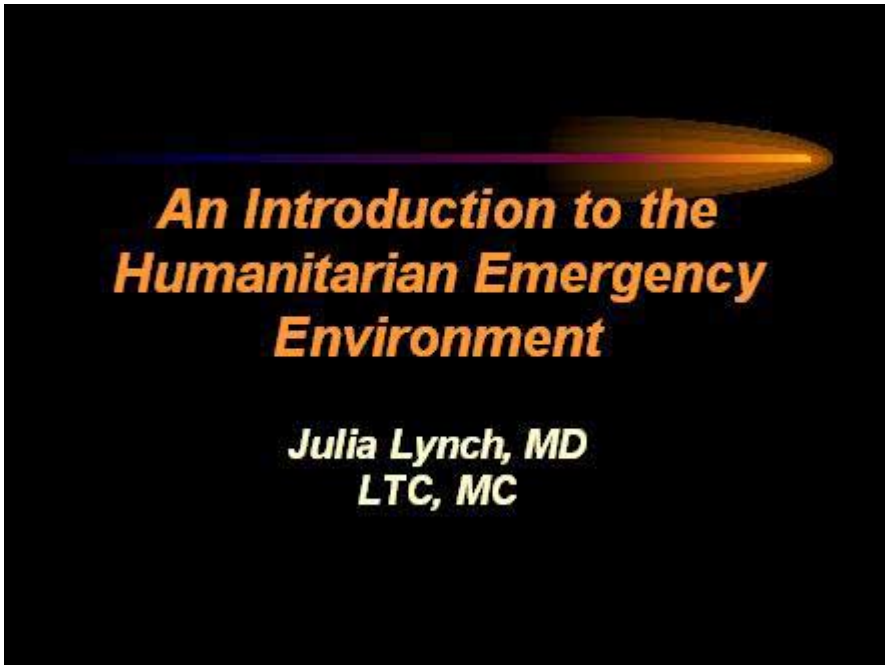

Hello. My name is LTC Julia Lynch. I am a Pediatric Infectious Disease specialist at the San Antonio Military Pediatric Center. Our topic today is the Humanitarian Emergency Environment. This is a subject that would not likely have been found in a Military Unique Curriculum a decade ago.

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Military Operations Other Than War Since 1991

Date	Operation	Description
Apr 91- Dec 96	Provide Comfort	support of coalition humanitarian operations in No Iraq
May 91-Jun 91	Sea Angel	humanitarian relief in Bangladesh following cyclone
Oct 91- Jul 93	Operation GTMO	JTF GTMO supported humanitarian assistance to Haitian migrants at GTMO
Aug 92- Sep 92	JTF Marianas	disaster relief on Guam following typhoon Omar
Dec 92- May 93	Restore Hope	establish security to facilitate humanitarian relief in Somalia
May 93- Mar 94	Continue Hope	conducted under UN auspices to continue humanitarian relief in Somalia

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The Gulf War and Operation Provide Comfort (OPC) at the beginning of the last decade marked something of a turning point in recent military history. Since that event military assets have been used more frequently for Operations Other Than War (OOTW) or Stabilization and Security Operations.

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In fact, over the last decade there have been numerous operations which have brought military HCP and civilian populations often in the developing world, to an interface. Most often this has occurred in a post-war or post-disaster setting.

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Our increased involvement is not by chance nor purely benevolence, but is based on an evolving belief that these operations will form a critical part of our new national global political and military strategy as we continue to define ourselves as a nation within this new post-cold war era.

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If we are to prepare ourselves as military health care providers for these operations, we must understand the unique medical requirements of these settings. They certainly are different than health care practice in our training institutions at home and even different than our wartime medical paradigm.

In the “war time paradigm”, the primary requirement is for the acute care of mostly trauma victims in a population of young healthy adults. In this paradigm, there is rapid triage and transfer to higher echelons of care, so behind you, as a provider is a vast system waiting to receive the patients that have exceeded your resources.

In post-war and post-disaster settings in the developing world, the primary requirement is often the care of civilian medical casualties among a population with poor baseline, health, and nutrition. The predominant casualties will often be women and children. Health care must be delivered in a complex environment where infrastructure has been interrupted or was non-existent and where resources are quite finite.

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The goal of this training module is to introduce you to the humanitarian emergency environment. My specific objectives are to:

Have you understand some of the terminology and general concepts in epidemiology used to describe humanitarian emergencies.

To have you recognize the variety of organizations both national and international that participates in these joint and combined operations.

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To allow you to anticipate the major sources of mortality in Humanitarian Emergencies (HE) in the developing world and the root environmental conditions that drive disease incidence and case fatality rates.

To understand the essential emergency relief measures as defined by international relief experts and the role that medical care plays in the emergency response.

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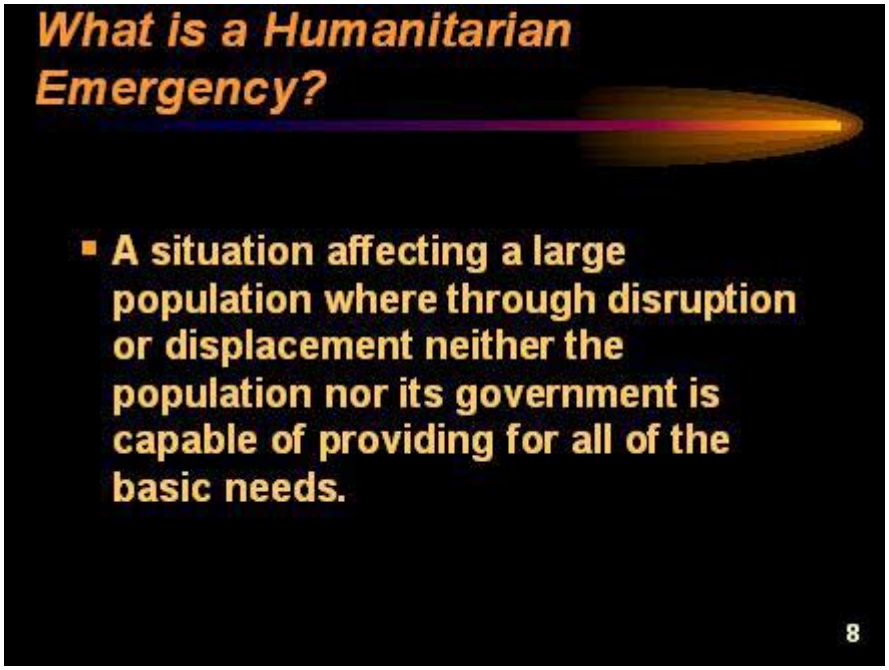

To begin this discussion, a reasonable question is what constitutes a humanitarian emergency. Unfortunately, there is no consensus definition in the international public health or political literature. But a reasonable definition for our purposes would be to say that a humanitarian emergency is a situation affecting a large population where, through disruption or displacement, neither the population nor its government is capable of providing for all of the basic needs. In some circumstances, particularly involving internal conflict, there may be functioning governments who are unwilling to provide for the basic needs of some members of its population. Such was true in Northern Iraq following the Gulf war, and more recently in Kosovo.

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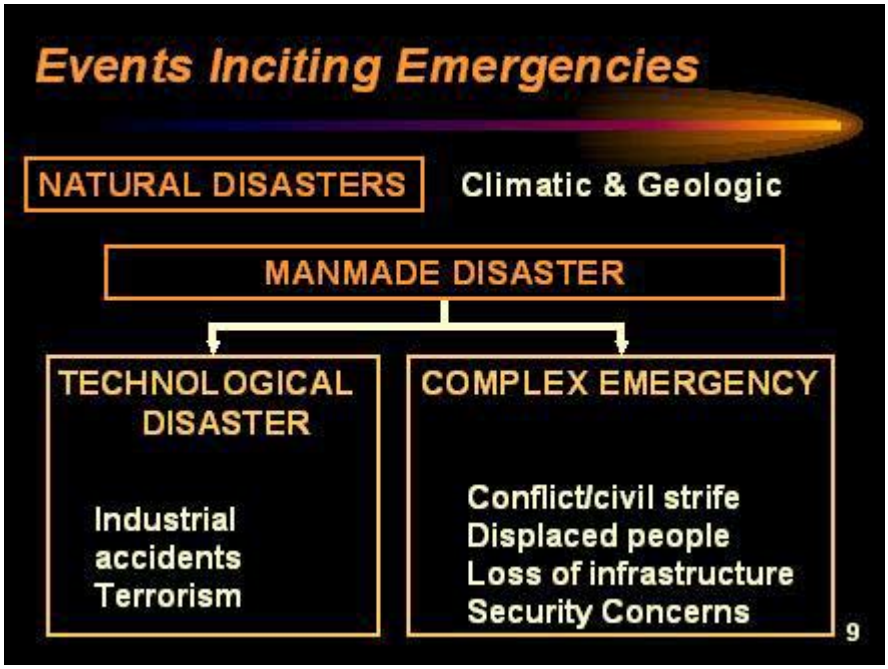

All emergencies have inciting events, generally either a natural or manmade disaster.

* Natural disasters may be either climatic; like a tropical storm Hurricane Mitch in Central America in 1998, and ensuing floods, or geologic; like the devastating earthquakes that struck Turkey in 1999 resulting in 20-30,000 casualties.

* Manmade disasters can be categorized as resulting from a technologic disaster or being a complex emergency. Examples of technologic disasters include industrial accidents like the nuclear accident at Chernobyl, and terrorist acts like the sarin gas release in the Tokyo subway.

These events may be our greatest future challenge. At present we have the least experience in responding to these disasters, but active development of response systems is underway- and the US military has an important role.

* Complex emergency is the commonly used term to describe the human disaster that follows war and civil strife. These events have historically been the most destructive to human populations. They are characterized by the displacement of large populations from their homes, a near total loss of existing societal infrastructure and continuing concerns for personal security.

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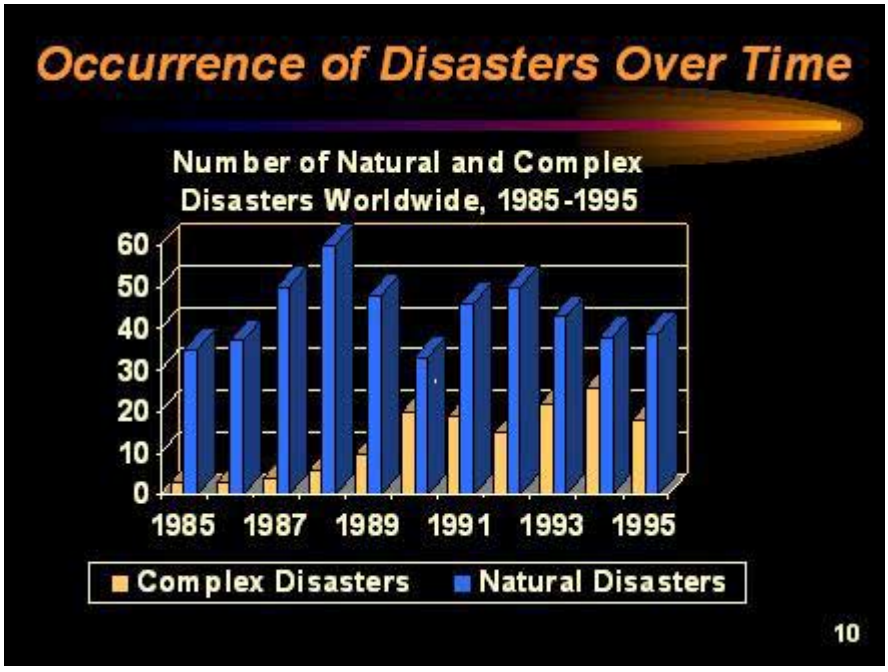

This figure depicts the overall number of declared disasters globally from 1985-1995. The number of natural disasters, seen as blue bars varies from year to year, however they have occurred at steady rates throughout history.

In contrast there has been a perceptible increase in civil/ethnic strife in the world resulting in an increasing number of complex emergencies (yellow bars); from less than 5 per year in 1985 to 15-25 such events annually since the beginning of the 90's.

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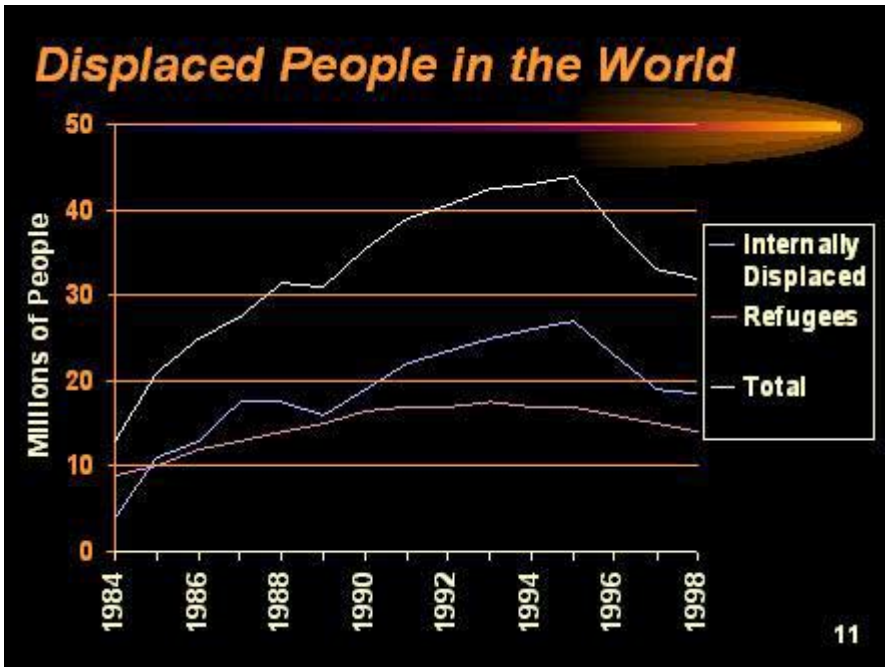

The result of these complex emergencies has been a remarkable increase in the number of displaced people in the world (people who leave their homes in order to attempt to survive). This figure depicts the estimated number of displaced people from 1984-1997.

There are two relevant categories of displaced persons. Those who are "refugees" (pink); have fled their own country because of war, violence, famine, or a well-founded fear of persecution. By crossing a border into another country under these circumstances, they meet the legal definition of "refugee" and are thus entitled to certain protections under International Humanitarian Law.

Internally displaced people (blue), who actually outnumber refugees, leave their homes for the same reasons. But in not crossing a border or not being allowed to cross a border, they are not protected by international law and generally do not have the same access to the relief services provided by the international community.

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Country Period	Deaths	Time
Sudan	Over 1 million	1983-Present
Ethiopia	750,000- 2 million	1984-1993
Rwanda	500,000- 1 million	1994- Present
Cambodia	Over 1 million	1975-1993
Somalia	500,000	1988-present
Bosnia	200,000	1992-1996

Complex Humanitarian Emergencies, even more so than natural disasters, can result in staggering loss of life. These are some estimated mortality figures among civilians in a number of recent and ongoing crises. Sudan- over 1 million excess civilian deaths in a more than decade long civil war, Ethiopia- up to 2 million, with conflict now re-heating, Rawanda- between 500,000 and 1 million, Cambodia- over 1 million, Somalia- at least 500,000, and Bosnia- 200,000.

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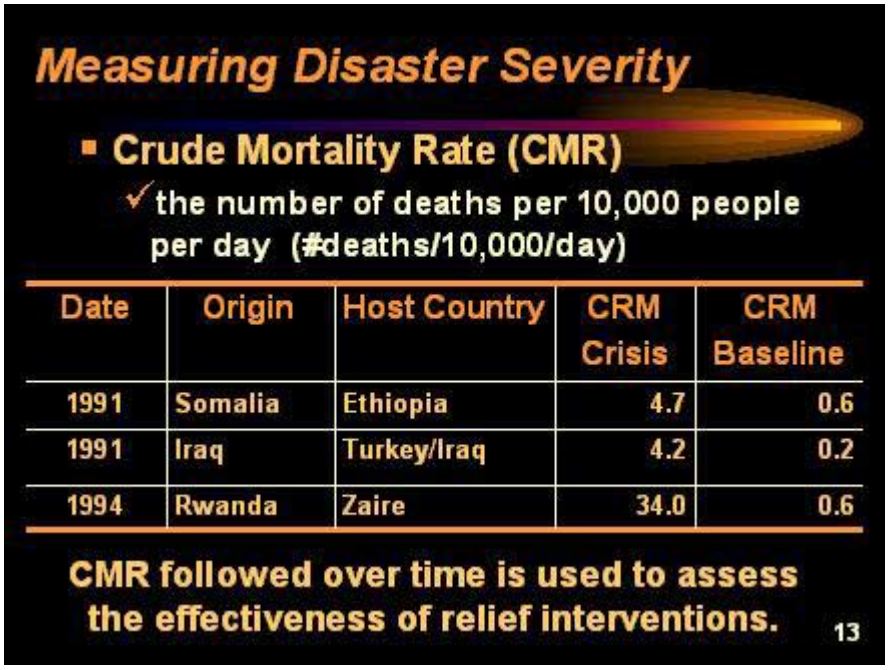

The severity of a disaster is often measured as the Crude Mortality Rate (CMR) experienced by the affected population and reported as 'the number of deaths per 10,000 people per day. A typical baseline CMR in the developing world is 0.4 - 0.7 deaths/ 10,000/ day. In the early phase of disasters the CMR can be extraordinarily high. Let's look at some examples:

* Somalian refugees who moved into Ethiopia in 1991 experienced a death rate of 4.7 deaths per 10,000 per day, which was 8 times greater than their baseline of 0.6.

* Iraqi refugees into Turkey experienced a death rate of 4.2 deaths/10,000 per day, which was a 21-fold increase in their daily mortality.

* Rwandan refugees a 60 fold increase largely due to a cholera epidemic.

The CMR can be used to both describe the severity of the disaster and when followed over time it can be used to track the progress of a disaster and assess the effectiveness of interventions in reducing mortality.

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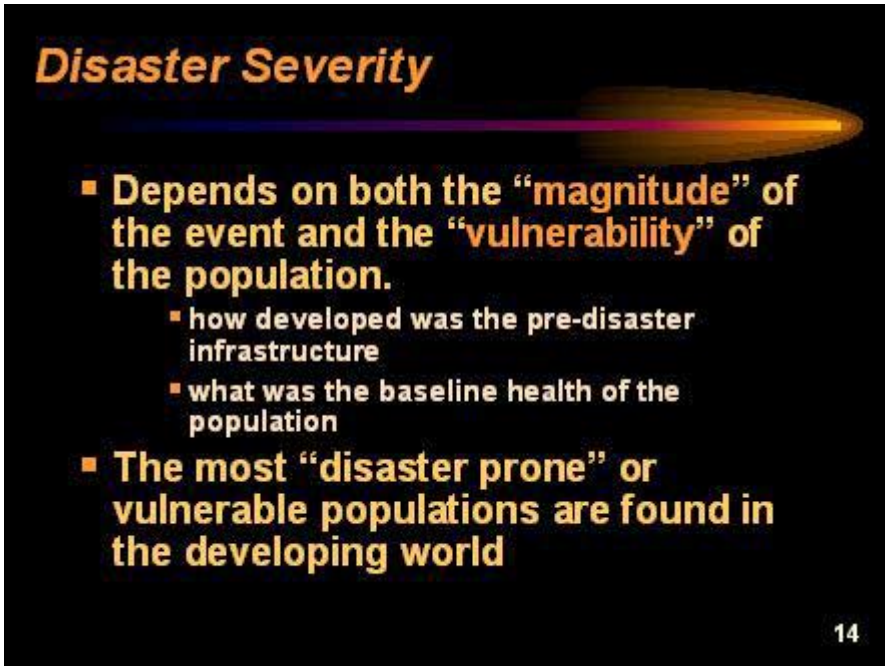

The severity of natural disasters and complex emergencies will depend on both the magnitude of the event itself as well as the vulnerability of the population. By "vulnerability" I mean, how developed was the pre-disaster infrastructure? What was the baseline state of health of the population? The most "disaster prone" or vulnerable populations are found in the developing world where infrastructure and baseline health are often fragile. We cannot only talk about the vulnerability of populations, but also the vulnerability of individuals within a population, because disasters do not impact upon populations evenly.

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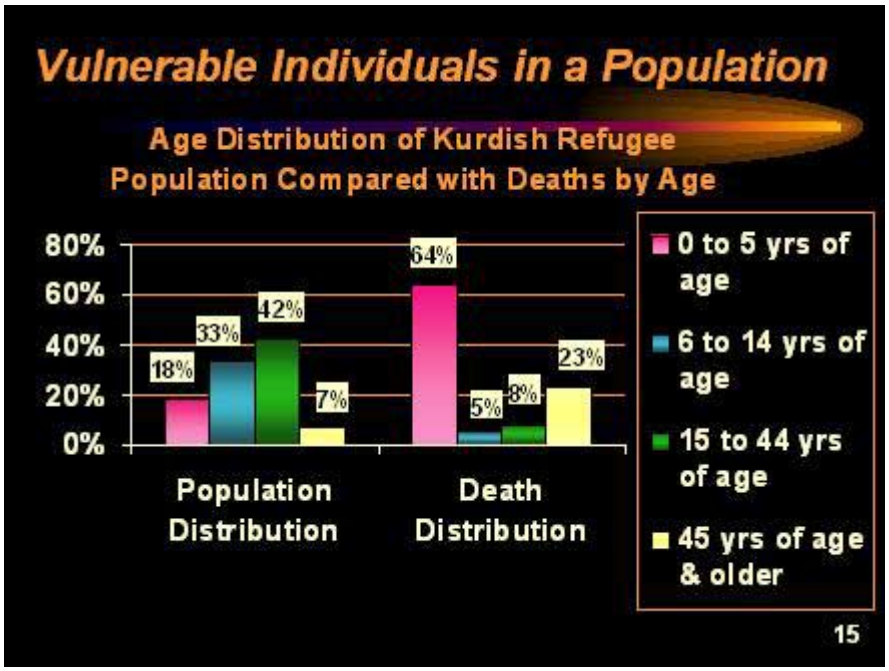

Lets look at this data from the Kurdish refugee crisis in northern Iraq. The group of bars on the left represents the age distribution of the refugee population. The pink bars represent those under age 5 yrs who made up 18% of the total population. The blue bars are those aged 6-14 at 33%, the green those 15-44yr at 42% and the yellow bars are those elderly or over 45 yrs of age making up 7% of the refugee population.

Now let's look at the death distribution. 64% of the mortality occurred among the 18% who were under age 5. The elderly or those over 45 yrs also suffered disproportionate mortality. So disaster related deaths are typically disproportionately suffered by the youngest and oldest members of a population.

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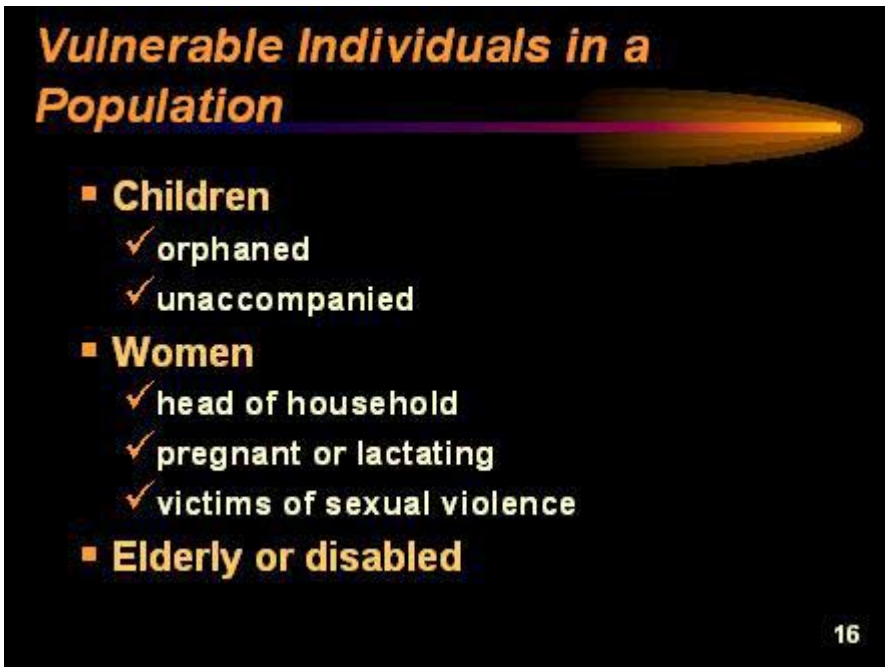

Although all children are at risk, those who are:

* Orphaned or unaccompanied are even more vulnerable to the adverse effects of disasters.

* Epidemiologic studies have documented that women and households headed only by women have less access to relief services.

* Women who are pregnant or lactating are another vulnerable group with increased nutritional requirements.

* Sexual and physical violence against women appears no less common among displaced populations and may be more common in certain settings where it is used as a weapon of terror.

* The elderly or anyone disabled are also at increased risk.

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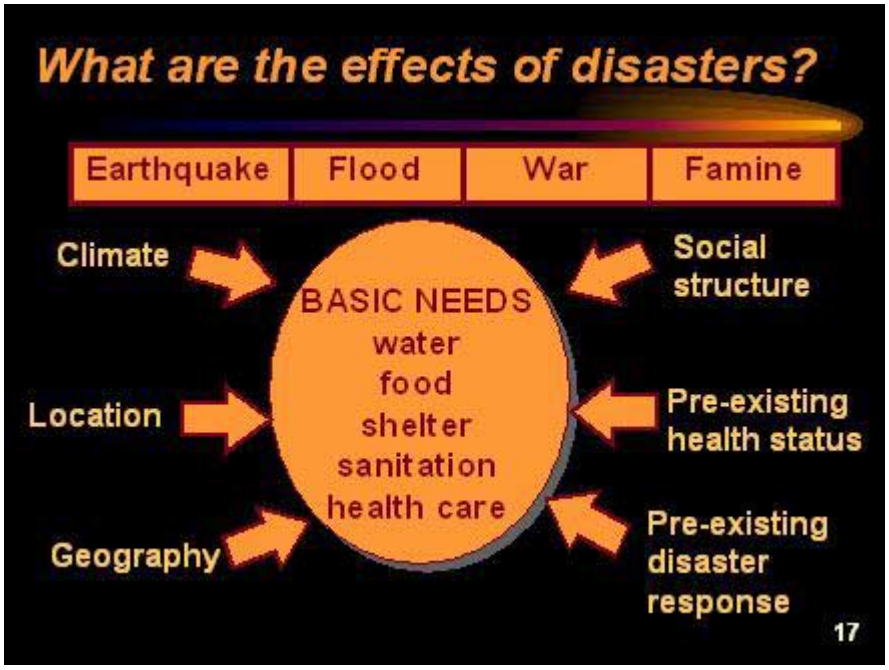

Disasters exert their effects on these vulnerable individuals by limiting availability of basic needs such as water, food, shelter, sanitation, and access to health care.

Although types of disasters may have somewhat predictable patterns of disruption, the response requirements for a given disaster should not be assumed. Every emergency is unique in terms of the context or environment in which it occurs: The climate, location or geography, culture/social structure, pre-existing health status of the population affected, and the capabilities of the local response systems.

Relief interventions based on speculation rather than on an assessment of the situation on the ground are likely to waste time and resources and ultimately prolong suffering.

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An appropriate response is always tailored to the needs of the disaster. Rapid assessments of disasters are carried out by teams composed of National and International Public Health Experts. These teams will identify and prioritize the overall relief needs during the initial response.

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* Emergencies of a scale to exceed the capabilities of indigenous resources will typically require the collective resources of a number of agencies.

* As a military clinician, you may be working side by side with a civilian counterpart or transitioning your job to another agency. Consequently, it is important to understand the nature of agencies often involved in disasters.

* Each agency has an independent system and unique characteristics with regard to its composition like its internal organization or chain of command. Few relief organizations are as structured as the Armed Forces.

Agencies may differ with regard to their response capabilities or technical and logistic resources. For example, a civilian agency may have great expertise in providing field water and sanitation, but have no transportation assets to get their personnel to a remote site.

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Organizations can also differ with regard to their motive for participation ranging from true altruism to religious beliefs, political objectives, and even financial goals. Some agencies have thematic and regional focuses that make them particularly useful with regard to understanding local culture and politics in the affected region. All of this diversity in agencies can make coordination and transition of care in the already chaotic environment of an emergency even more challenging.

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Some of the major players include, of course, the government or military of the host country where the disaster occurred (if such exists).

* The United Nations and its many agencies- the World Food Program, the World Health Organization, the UN High Commissioner for Refugees, UN Childrens Fund or UNICEF, and the UN Office of the Coordinator for Humanitarian Assistance.

* An important organization in any emergency involving conflict or war is the International Committee of the Red Cross (ICRC). The involvement of this organization is mandated by International Humanitarian Law.

* The ICRC is distinct from but related to the local or regional Red Cross or Red Crescent Societies (like our American Red Cross) that may also participate in an emergency response.

* Non-Governmental Organizations or NGO's, of which there are hundreds, often provide most of the direct person-to-person disaster assistance. Examples of NGO's include Save the Children, CARE, OXFAM and others.

* The US agencies most often involved are the Office of Foreign Disaster Assistance from the USAID.

* And of course the US military, which may be acting independently or within the context of a regional military alliance, like NATO.

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While most other agencies that participate in humanitarian emergency response are designed explicitly for that purpose, this is not true of militaries. The US military has participated in these operations at either the direct request of an allied nation or as part of a strategic stabilization of a civilian population when US interests are at stake.

In many operations we have played a critical role. We have unique assets, unmatched by other organizations that allow us to contribute to a humanitarian response.

Speed- no other organization can mount a large logistical response as rapidly.

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Security- we arrive fully prepared to secure an environment, both people and material.

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Transportation- with an array of fixed wing and rotary air assets as well as land and naval assets, we have the capability to bring anything, anywhere, anytime.

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Logistics- can maintain supply lines in austere environments.

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Command Control Communication- we have a well defined, and responsive organizational structure.

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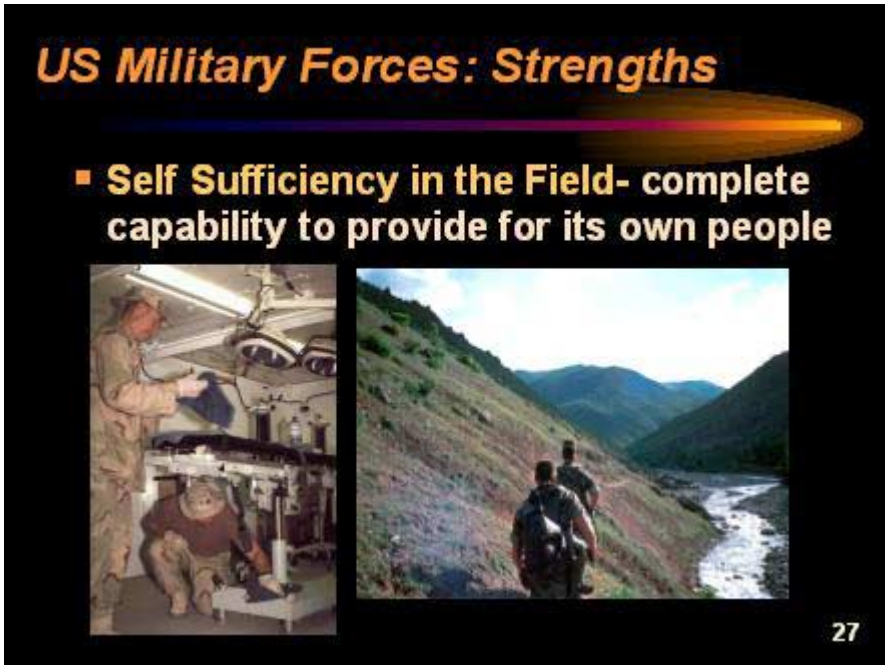

Self Sufficiency in the Field- we have the complete capability to provide for our own people: water, sanitation, ration, shelter, and medical care.

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Within our organization we have specialty units that include engineers, who can rapidly execute structural repairs in austere settings; like rebuilding roads, runways, and bridges. This air traffic control tower in Northern Iraq was destroyed by coalition airpower and within weeks rebuilt by army engineers to allow reopening of the airport to bring deliveries to relief supplies to civilian refugees. The Army and Marine Corp have Civil Affairs Units that specialize in public administration and infrastructure redevelopments. Preventive Medicine Teams and Field Laboratories are capable of providing rapid epidemiologic assessments, managing disease surveillance, outbreak investigations, vector control, and field water and sanitation management.

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The Armed Forces there are Deployable Field Hospitals and Med-Evac Capability.

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It is important to remember that there are significant potential drawbacks to the use of the military in these settings.

* Medical Care- the structure and training of our medical field units are traditionally oriented to combat casualty care of healthy young adults, not to the needs of disaster victims.

* Logistics- unless appropriate planning occurs, the supplies available in the system may not be appropriate for a disaster setting in the developing world. Medical supplies may not reflect prevalent disease and food rations may not be culturally or physiologically appropriate.

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The military mission may focus on short-term objectives with little emphasis on redevelopment. It is unlikely to provide long-term commitment to the affected community. Politically, we are an extension of our government and will be used to meet political and strategic objectives. Our involvement is never purely humanitarian. This may put us in conflict with elements of the population and with civilian relief workers who must maintain neutrality for their own safety and function. Regarding expense; military assets are expensive. For example, military deployment to Somalia cost about 100 million dollars per month.

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How do the many players responding to a humanitarian emergency, both civilian and governmental, coordinate their actions? While every operation is unique, some generalizations about the determination of operational command can be made.

During a natural disaster in a sovereign nation, the host nations government/agencies and military will likely have operational command. US assets, including military, will play a supportive role.

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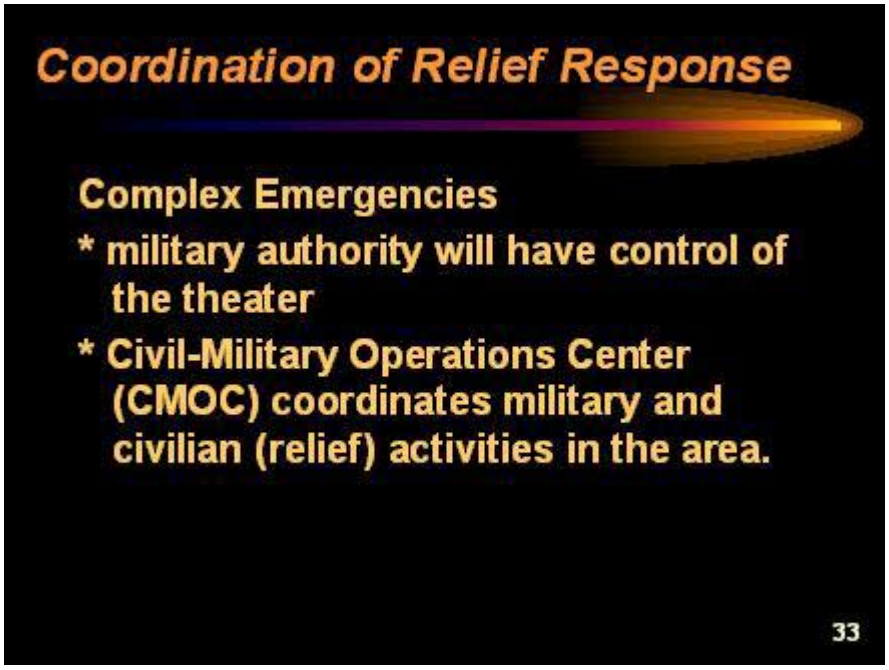

In complex emergencies involving conflict,

* A military authority (like NATO, or a UN Multinational Force) will have control of the theater and play a critical role in coordinating humanitarian assistance.

* In either setting, US, or the Multinational Force Leadership can establish a Civil-Military Operations Center (or CMOC) whose purpose is to coordinate military and civilian relief activities in the area.

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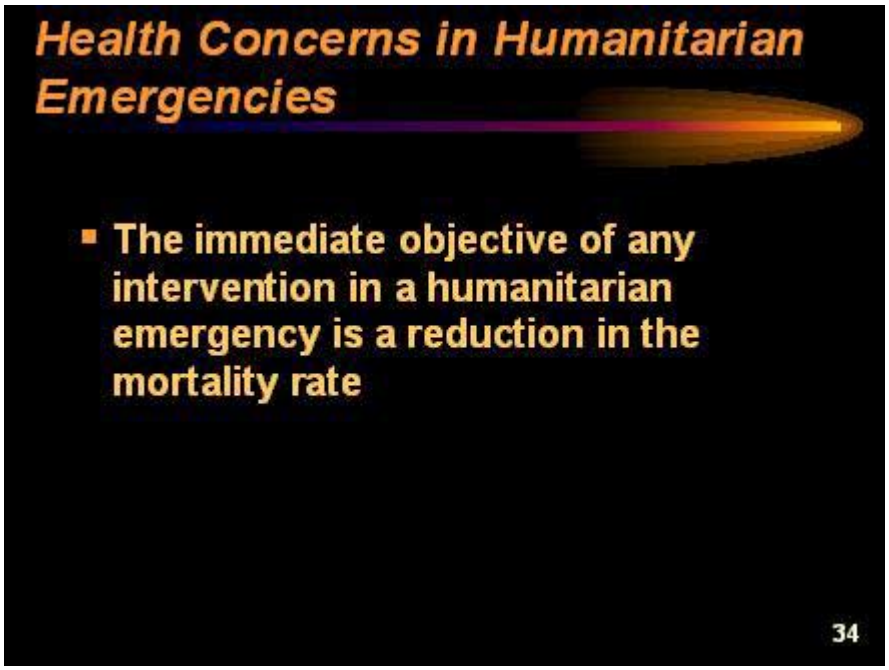

Let's change our focus to one of health in humanitarian emergencies. Certainly "the immediate objective of any intervention in a HE is a reduction in the mortality rate of the affected population."

In order to impact mortality we first have to understand the causes of mortality.

Mortality during Humanitarian Emergencies in the developing world has consistently been associated with a rather short list of generally treatable and preventable conditions.

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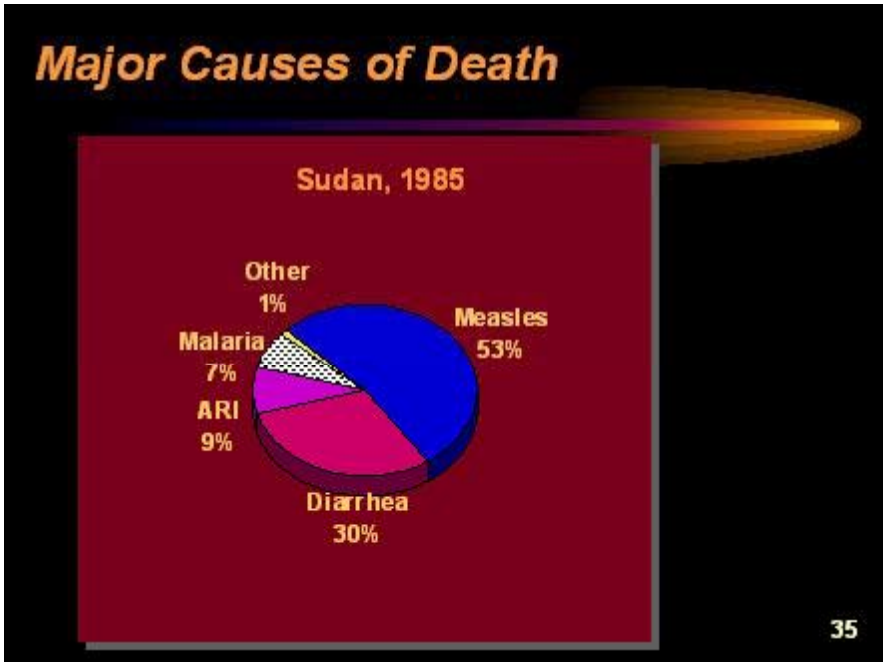

This data was recorded from a refugee camp in the Sudan in 1985, and depicts the major causes of death among the population. 53% of the deaths were due to measles, a highly contagious disease with devastating consequences among the malnourished children common to these situations. 30% of the deaths were due to diarrhea and dehydration, 9% to acute respiratory infections (primarily pneumonia), and 7% due to malaria.

The unique circumstances of each disaster (climate, geography, pre-existing health status, and the specific camp conditions) will affect the relative contribution of each of these to total mortality, but the same diseases appear over and over again and affect predominantly the most vulnerable individuals.

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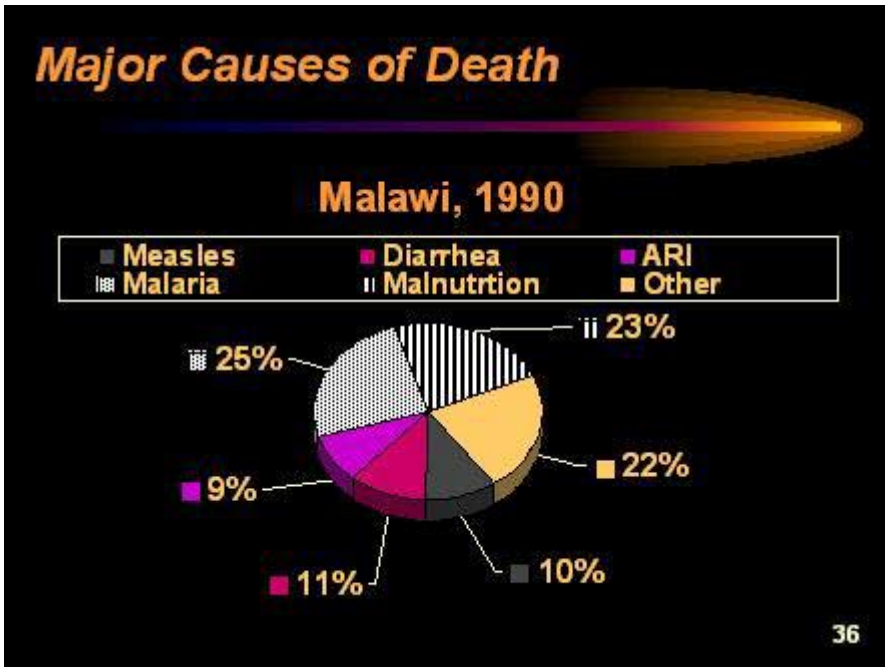

Here in Malawi in 1990: Measles 10%, diarrhea and dehydration 11%, acute resp infections 9%, malaria 25% and malnutrition 23%. In this camp “malnutrition” was counted as a separate and direct cause of death. In fact, even when malnutrition is not counted separately as a primary immediate cause of death, numerous studies have demonstrated the synergistic effect of co-existent malnutrition on the case fatality rate of communicable diseases.

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In HE in the developing world, the most commonly identified sources of mortality are:

* Diarrhea illnesses and dehydration
* Measles
* Malaria
* Acute respiratory infections
* Malnutrition

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Each of the leading causes of mortality has one or more root environmental conditions in the emergency/disaster setting that drives disease incidence and/or increases case fatality rates.

* Lack of water
* Disrupted food sources
* Disrupted sanitation systems
* Crowding
* Loss of shelter
* Loss of income
* Disruption of health services

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Effective relief efforts must then be directed not just at treating disease states, but also at preventing and correcting the root environmental contributors.

A World Health Organization (WHO), Conference of International Relief Experts, identified ten essential emergency relief measures. These are founded on an understanding of the leading causes of mortality in emergencies as well as the root situational contributors. They provide an extremely useful model for understanding the intervention priorities in a humanitarian emergency.

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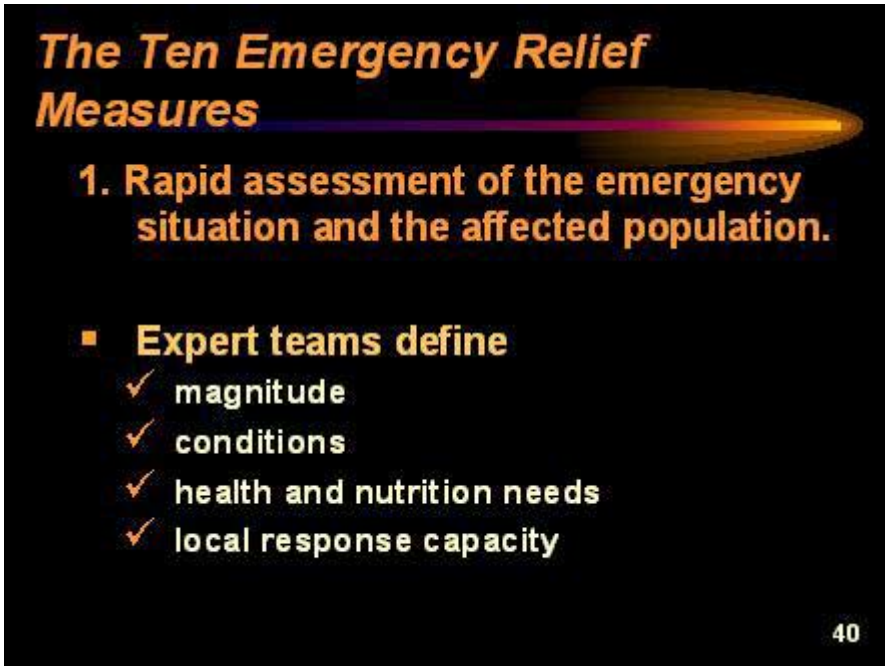

Relief efforts should be based on the results of a rapid assessment of the emergency situation and the affected population.

Carried out by expert teams focused on rapidly defining:

* Magnitude of the emergency

* Environmental conditions

* Major health and nutrition needs of the population

* Local response capacity

It is this information that will allow prioritization of the remaining essential measures.

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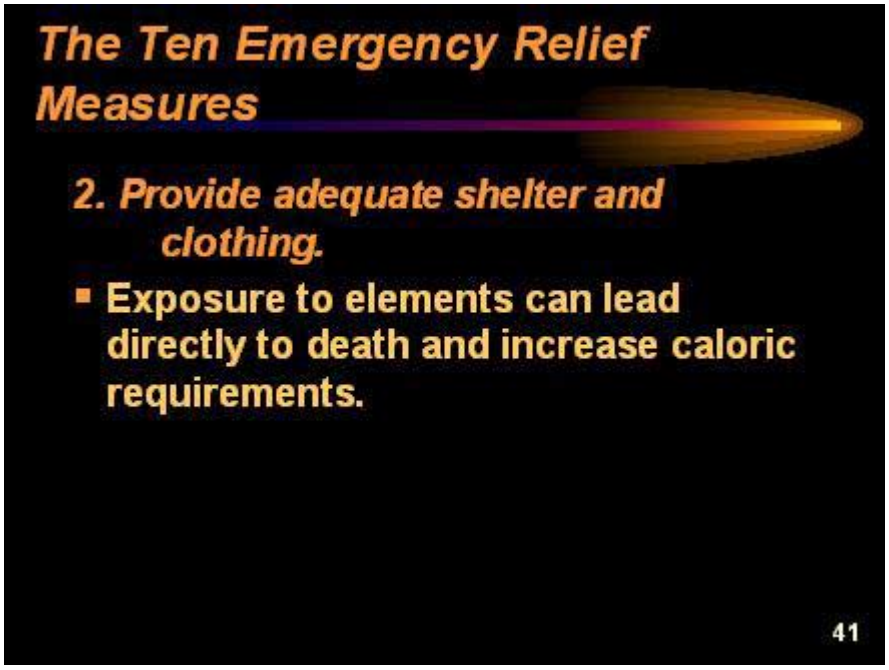

2. Provide adequate shelter and clothing.

* Exposure to elements can increase caloric requirements and lead directly to death.

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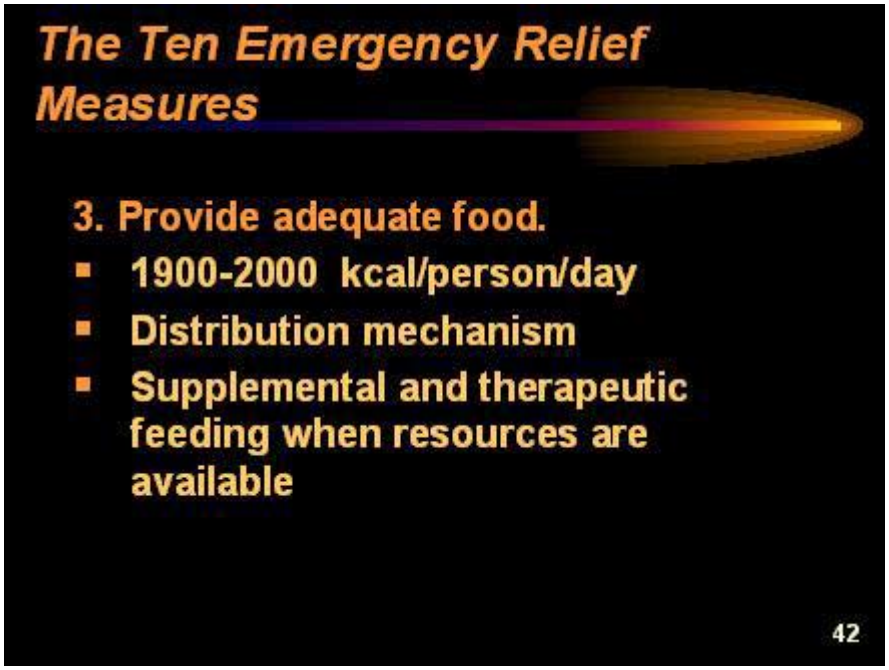

3. Provide adequate food.

* Approximately 1900-2000 kcal/person/day is the amount used to calculate bulk food requirements to deliver to an emergency setting.

* In planning, one must consider a mechanism for the equitable distribution of the food.

* In addition to the regular rations, targeted supplemental and therapeutic feeding programs for vulnerable and severely malnutritioned individuals should be established when resources are available. However, an adequate basic ration is first priority.

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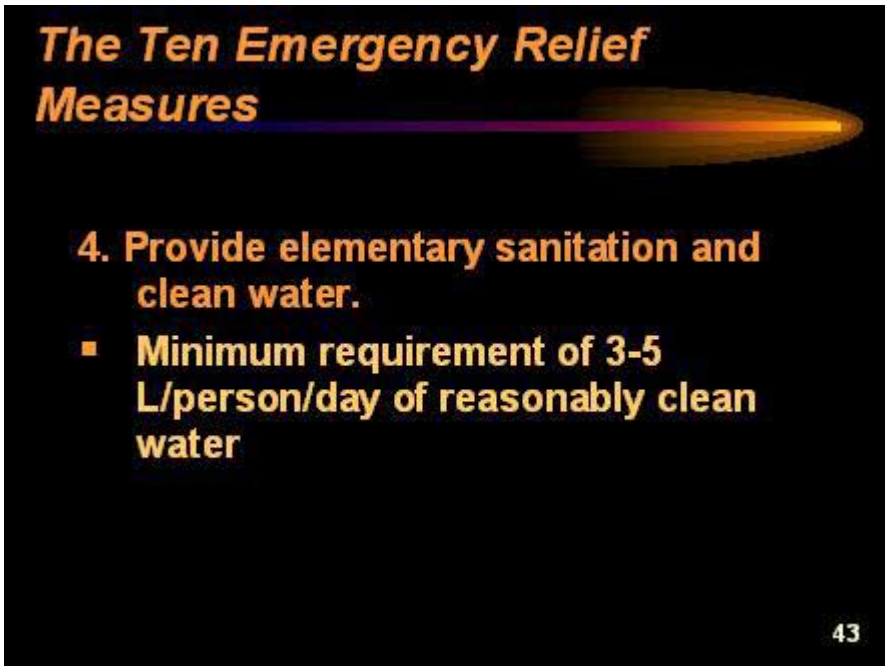

4. Provide elementary sanitation and clean water.

* Minimum requirement of 3-5 L/person/day of reasonably clean water. Quantity is more important than quality in the initial emergency response.

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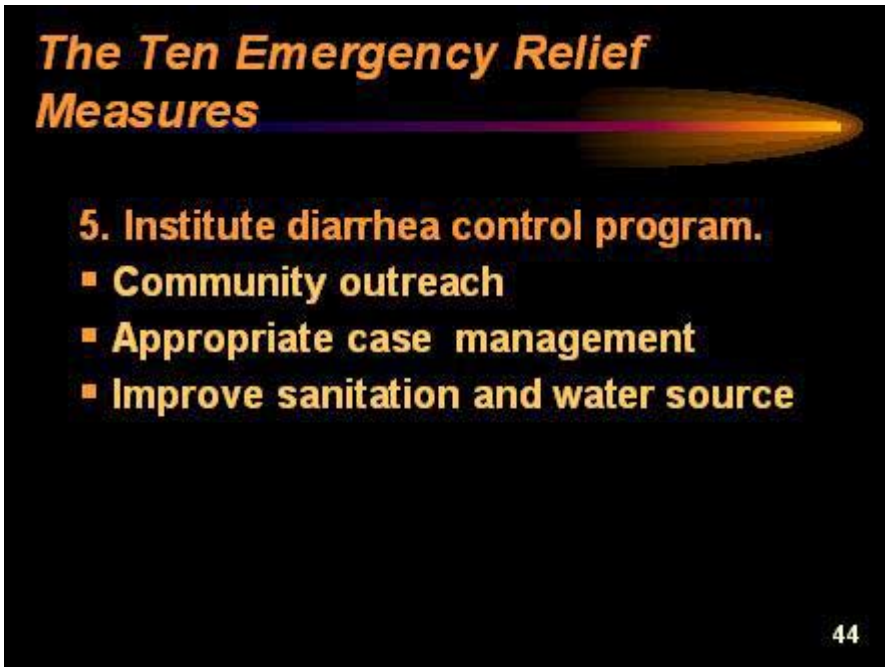

5. Institute diarrhea control program.

* That includes community outreach education on personal hygiene and household management of diarrhea and dehydration for case prevention.

* Appropriate case management of severe diarrhea and dehydration. Always work toward improving sanitation and water sources.

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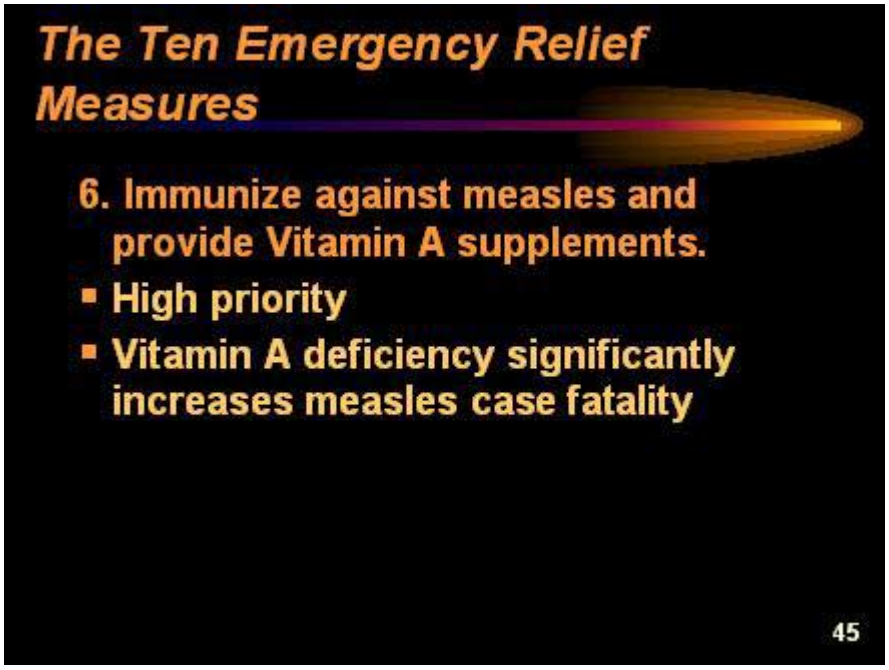

6. Immunize against measles and provide vitamin A supplements.

* Measles vaccine is the only vaccine with proven effectiveness in reducing mortality in a humanitarian emergency setting. Although its distribution is logistically difficult, because it requires maintenance of a cold chain, it is a high priority in any displaced population living in crowded conditions.

* Vitamin A deficiency is common in malnutritioned populations and contributes significantly to measles case fatality. So provision of Vit A supplements alone can reduce measles associated mortality.

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7. Establish primary care medical treatment.

* Using appropriate treatment algorithms for prevalent diseases, based on treatment standards among the local population.

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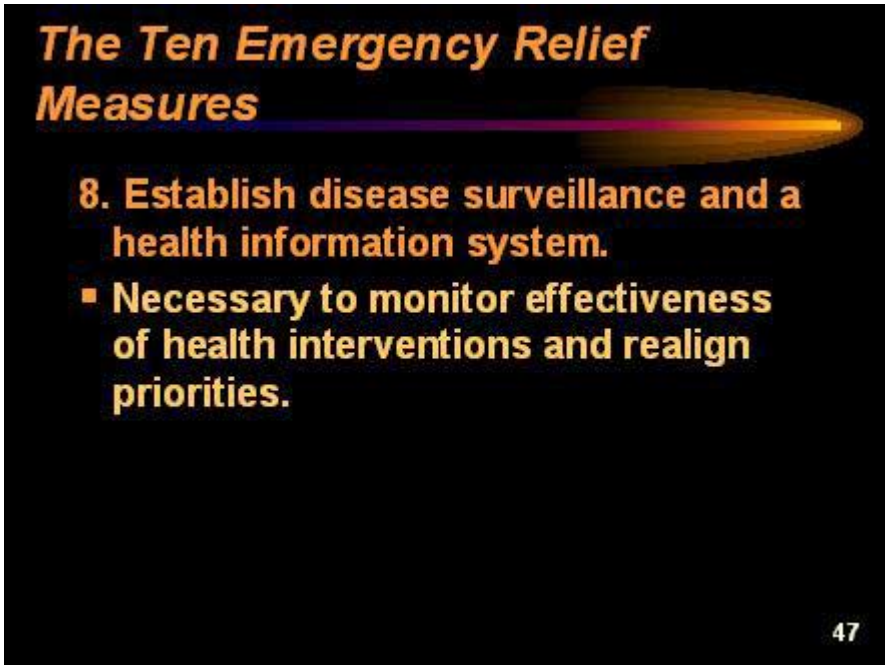

8. Establish disease surveillance and health information system.

* This is necessary to monitor effectiveness of health interventions and provide information when intervention priorities need to be realigned.

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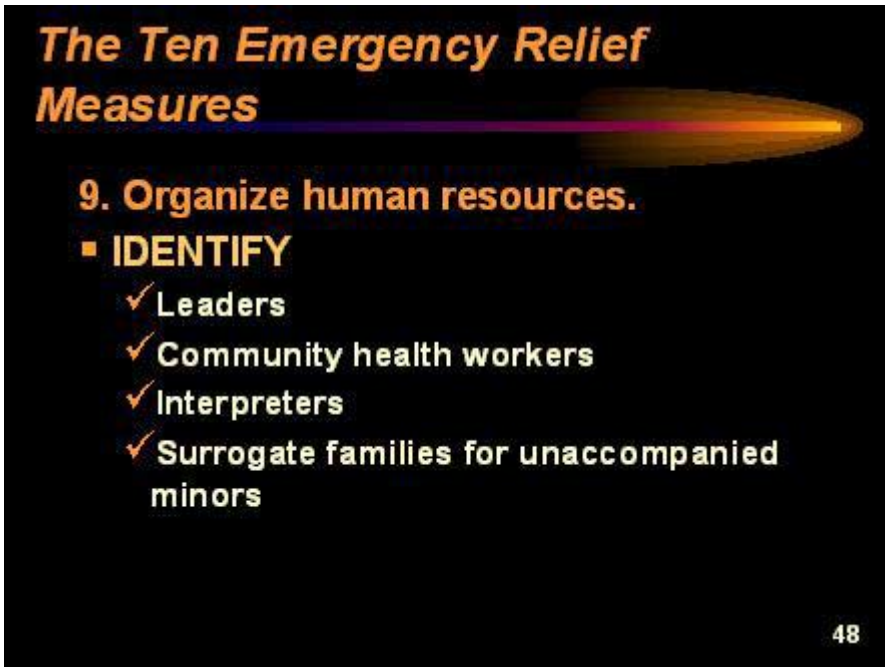

9. Organize human resources. Disaster victims are not helpless; most want to help themselves but need the means.

* Identify leaders to organize food and water distributions and sanitation programs.

* Identify community health workers, individuals with pre-disaster help experience in the effected population.

* Identify interpreters.

* Identify surrogate families for unaccompanied minors.

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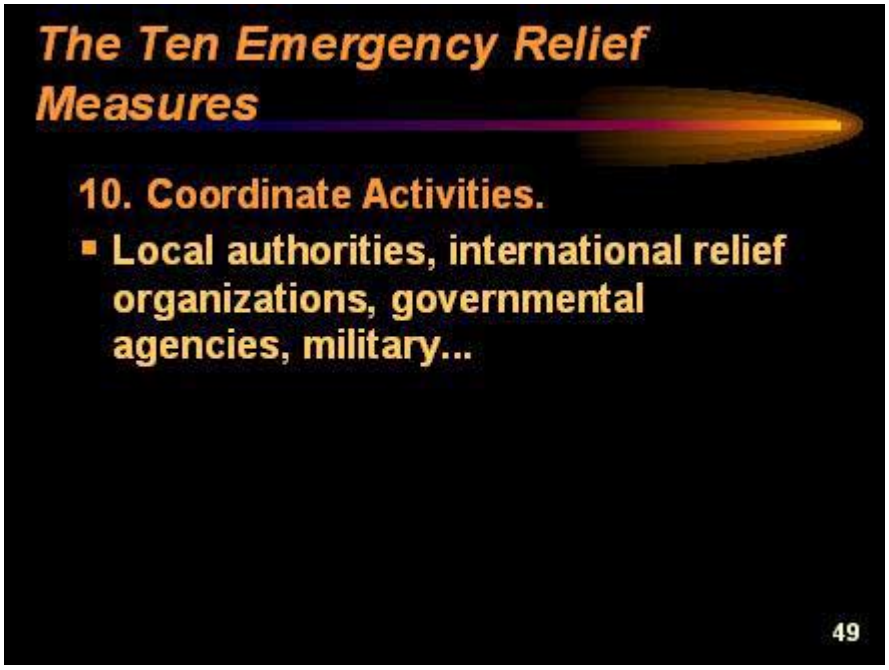

10. Coordinate activities.

* Between local authorities, international relief organizations, governmental agencies, and the military.

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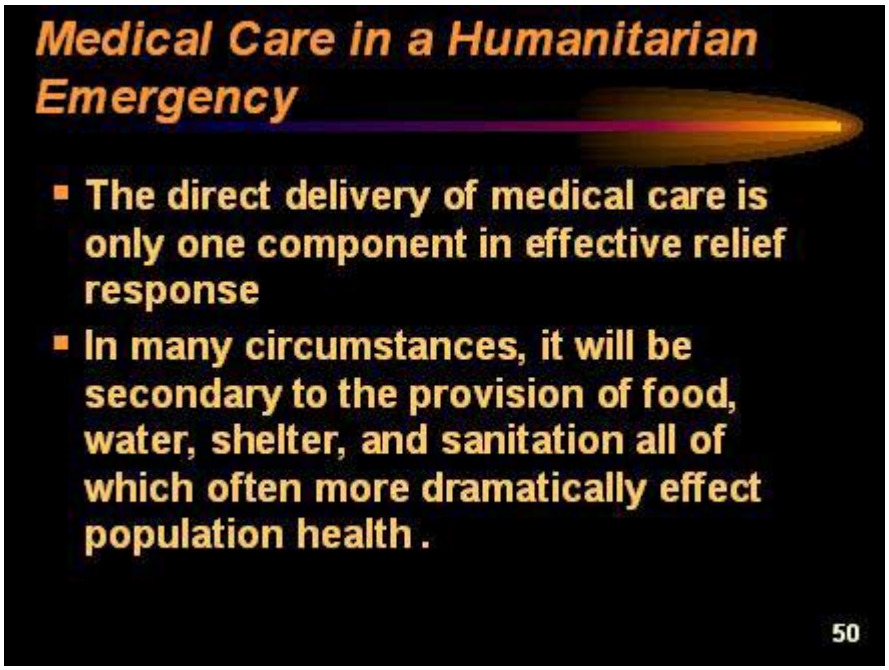
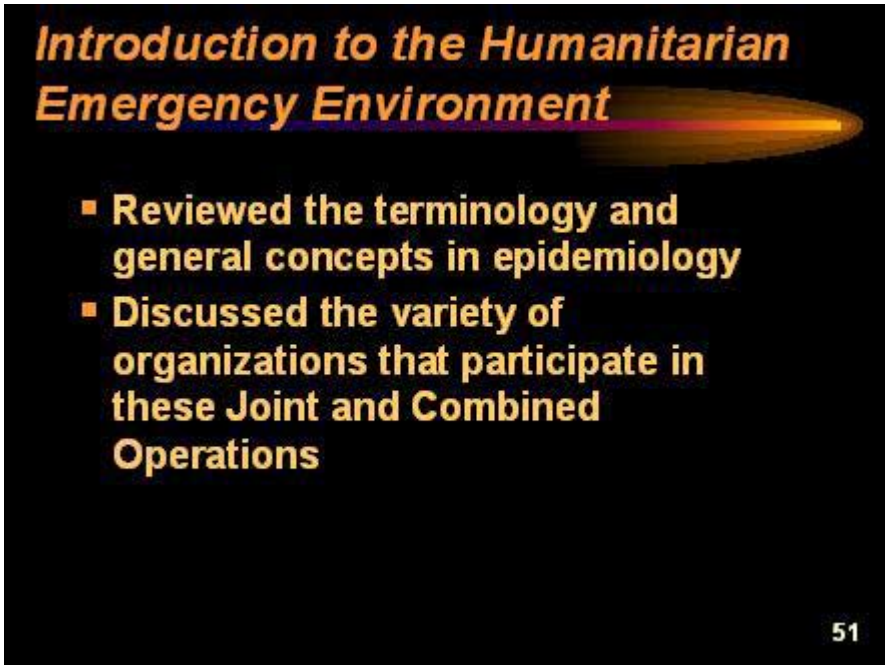


As you can see, the direct delivery of medical care is only one component in effective relief response and in many circumstances it will be secondary to the provision of food, water, shelter, and sanitation; all of which often more dramatically affect population health.

Slide 51

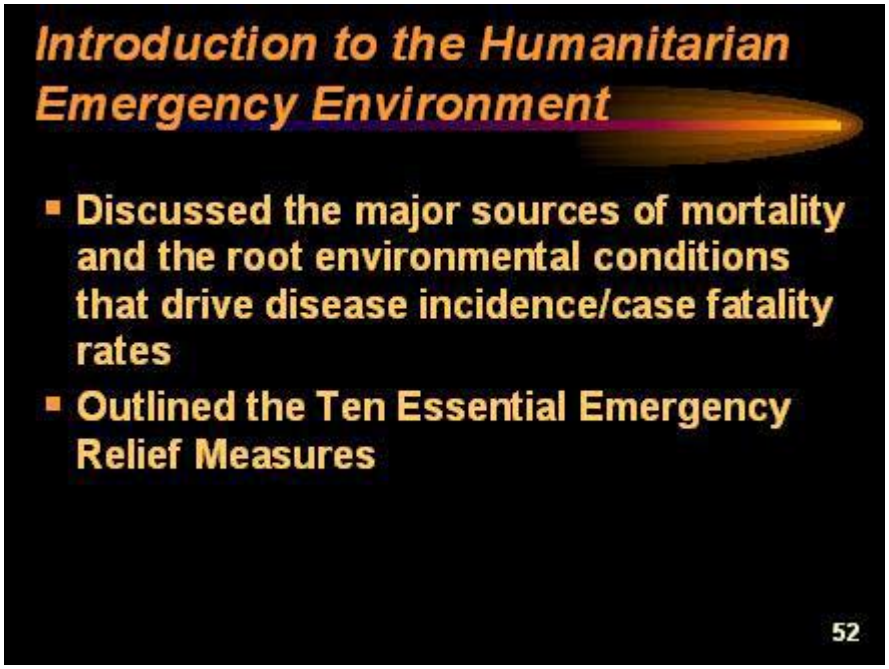


In this overview of the HE environment we have:

* Reviewed the terminology and general concepts in epidemiology used to describe humanitarian emergencies.

* Discussed the variety of organizations both national and international that participate in these joint and combined operations.

Slide 52



* Discussed the major sources of mortality in HE in the developing world and the root environmental conditions that drive disease incidence and case fatality rates.

* Outlined the essential Emergency Relief Measures as defined by International Relief Experts and the role that medical care plays in the emergency response.

US Military participation in these operations is expected to continue in the future. As Military Health Care Provider's, we must prepare ourselves for the medical requirements of these environments. Thank you for your attention, please complete the post-training exam as directed by your institution.