

LIVES LOST, LIVES SAVED

EXCESS MORTALITY AND

THE IMPACT OF

HEALTH INTERVENTIONS

IN THE SOMALIA

EMERGENCY

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INTRODUCTION

This report is the result of a collaborative study by the Refugee Policy Group (RPG) and the U.S. Centers for Disease Control and Prevention (CDC). Team members included Steven Hansch and Charles Teller of RPG, and Scott Lillibridge, Grace Egeland and Michael Toole of the CDC. A number of analysts from CDC have served advisors to this core team, including Brent Burkholder, Leslie Boss, Kevin Sullivan and Deborah McFarland

For both RPG and CDC, this study followed considerable analytic work on the Somali emergency. RPG monitored and advised on the situation as the emergency developed.¹ CDC invested an unprecedented number of staff for the USAID and UNICEF activities in Somalia from June 1992 until June 1993. CDC staffers helped establish a surveillance and reporting system in late 1992 and early 1993, based in Mogadishu.

Since 1988, civil war has ravaged Somalia, destroying the country's food production and distribution system and much of the life sustaining public health infrastructure. As a consequence, in the period of 1991-1992, severe famine and disease outbreaks, particularly measles, occurred throughout Somalia. Without doubt the civil strife, drought, collapse of the government, and damaged infrastructure had an enormous impact on mortality and morbidity in Somalia during 1991 and 1992. The number of lives lost during this period, however, is unknown

The task of this study is to piece together a complete picture of the health crisis in Somalia in order to answer several important questions:

- ♦ What was the magnitude of the famine?
- ♦ How many people in fact died?
- ♦ How effective were international relief efforts; in other words, how many deaths of Somalis were prevented by international intervention? and,
- ♦ What more could have been done, and how?

Actually counting those who died in humanitarian emergencies and those who might have died, but were saved, is so fraught with methodological problems that it is rarely attempted. One of the main challenges of the study, therefore, was to face these methodological problems head-on. It attempts to lay the groundwork for future efforts to measure the impact of humanitarian interventions in relation to the lives at stake

First, the team examined available evidence to estimate how many people died as a result of the humanitarian emergency during the 1991 to 1993 period. Crude death statistics (either in the form of rates or total numbers of deaths) were gathered from site-specific mortality surveys and other sources

Second, projections were made to estimate how many people would have died, if no interventions had occurred, or if the timing or type of relief efforts were different. Unlike prior estimates of total Somali deaths, the team took into account: (a) the wide variations in total population size estimates; (b) baseline (non-famine-year) mortality estimates; and, (c) the limitations of extrapolating mortality data from specific populations to broader famine-affected areas. In analyzing how many deaths were averted it was necessary to examine the profile of diseases and the cause-specific death rates for each.

Third, the team documented how the health crisis unfolded and how the international community responded. This meant piecing together the chronology and geography of famine deaths, as well as social, migratory, and epidemiological factors. The study also emphasized how the international community used disease surveillance data in designing and targeting response.

The team conducted interviews and collected documents in the U.S., Europe, and Nairobi; Somalia site visits were made to Mogadishu, Kismayo, Baidoa, and five rural locations in the Bay and Bakool regions. Team members conducted 95 interviews with health practitioners or officers of operational agencies: 42 NGO, 12 UNOSOM, 8 UNICEF, 4 UNHCR, 4 WHO, 7 WFP, 6 USAID, and 12 ICRC officers. Following an extensive search, the team reviewed project documents, survey results,² NGO, hospital and clinical records. Finally, RPG convened a meeting in Nairobi on April 6, 1994, at which health officers from a dozen agencies compared information on the nature of the famine in different regions and the causes of famine-related deaths.

CAUSES OF DEATH AND ILLNESS

The Health Consequences of the War

The effects of war in southern Somalia from 1990 onward compounded by drought increased vulnerabilities of the population. The health care network, which served only a fraction of the population to begin with, collapsed entirely. Essential drugs became unavailable thereafter throughout most of the emergency. New immunizations of children ceased.³ Access to water became a crisis on its own, as wells, boreholes and irrigation infrastructure were destroyed, or plugged up, requiring heavy effort to remedy, particularly in the Hiraan and Bay regions.

The drought was preceded and accompanied by periods of intense fighting that, in some cases, directly targeted women and virtually whole households for extermination. Entire villages were eliminated and large populations were systematically debilitated through looting of life-sustaining crops, livestock, and food stores. Conflict precipitated food insecurity in four ways: (1) fighting destroyed the harvest; (2) militia took household assets necessary for planting and sowing; (3) bandits effectively closed off transport of foods to markets and eliminated any positive incentive for farmers to produce; and, (4) since building household food stores might incite further looting attacks, this fear discouraged farmers from growing anything even for their own households.

Even after civil conflict was reduced in late 1992 to lower-intensity skirmishes principally in Kismayo and Mogadishu, the threat to farmers transporting their food to market remained. As peasant agriculturalist Somalis have little tradition working in cooperatives, small farmers had to incur individual risks in the transport of foods they produced for sale. The dangers associated with transporting and selling foods thus continued to act as a drain on regional food availability.

While fighting and looting⁴ led to food insecurity in rural areas, food insecurity in urban and peri-urban areas was related primarily to pervasive unemployment. With international and inter-regional trade constrained by fighting and looting, households could no longer trade to obtain goods for survival. Mortality rates -- the proportion of people dying -- varied significantly among regions and among clans not only because of varying risks but also because of variance in the existence and efficacy of social support networks⁵ that helped families subsist despite years of formal unemployment and no income.⁶ Many families benefited from large sums of remittances from Somalis working overseas.⁷ Otherwise, many more urbanites would have suffered starvation than was actually observed.

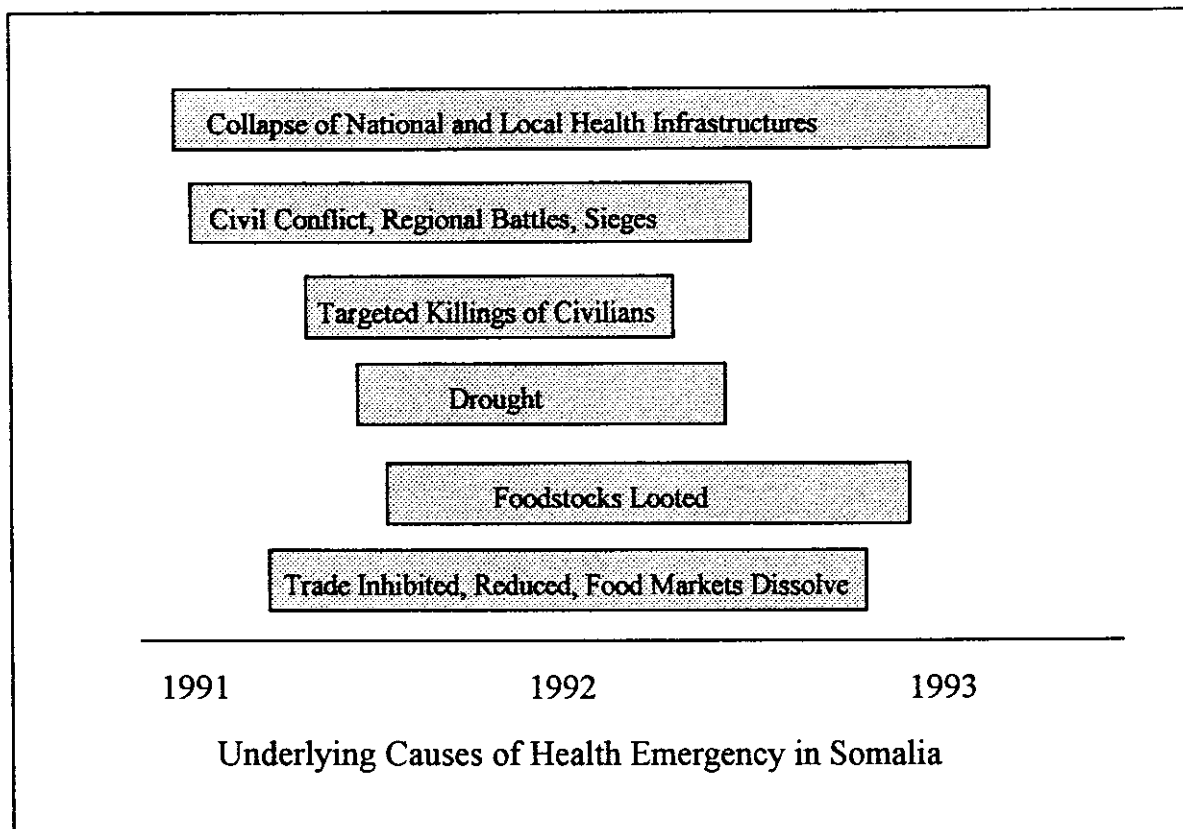


Figure 1. The timeframes of root causes of health problems in southern Somalia.

Demographic Effects

As early as 1990, the effects of the war and food insecurity were leading to famine, increasing the risk of stillbirths and a reduction in fertility.⁸ Interviews conducted in the Bay and Bakool regions suggest that fertility rates, among the highest in the world in normal times, declined. Some of the reasons may include famine amenorrhea, reduced desire for children as a conscious coping strategy during lean times, increased birth spacing particularly among transient pastoralists on the move, and separation of husbands and wives.⁹

Decreasing birthrates resulted in fewer young children under the age of four by the time the famine peaked. Fewer live births occurred during the years prior to the peak of the famine relief, thus there were somewhat fewer infants and children at the beginning of the emergency period.

Relief workers entering villages for the first time remarked that they saw very few young children, concluding that the high death rates had depleted the entire infant and

young child population, consistent with what was known of the elevated mortality rates. What was less well recorded was when whole towns and villages disappeared or were depopulated.

Another reasonable inference that one might make from the disappearance of children from villages is that children had been taken to relief centers or refugee camps. While men went off to war, women and children often fled to displaced camps in towns such as Belet Huen, Kismayo, Afgoi, Johar and Mogadishu, and to refugee camps in Kenya.

Displacement

Violence, the threat of violence, and the scarcity of water and food compelled several hundred thousand Somalis to uproot during 1991 and 1992. In late 1991, hundreds of thousands of rural dwellers fled to coastal urban areas in search of sustenance. They did not find it. The influx of large numbers of migrants may have spurred other migration, for hundreds of thousands of those in cities fled as well, often to other countries.

While many Somali refugees continued to inhabit refugee camps in northeast Ethiopia (from a period prior to the famine), another 50,000 refugees fled to Ethiopia in late 1991 and early 1992. Those who went to Ethiopia were largely from the Central regions, Bakool and Gedo.¹⁰ More Somalis might have fled to Ethiopia if the Ogaden border region had not also been undergoing a food crisis and increased banditry. ICRC even considered moving food through southern Somalia into the Ogaden of Ethiopia to feed Ethiopians. Over 350,000 Somali refugees came to Kenya over the course of the emergency. Those fleeing to Kenya included many from the urban middle class, including many doctors. They brought with them assets, such as cars, which they sold in Kenya.

War-related Physical Trauma

Conflict-related injuries accounted for most of the pre-famine excess mortality¹¹ during 1991. Famine deaths were not widely seen during this period of intense fighting. The earlier civil war that unseated Siad Barre's government raged throughout the country, leading to the destruction of homes and infrastructure in central and northern regions. Fighting in 1991, however, was more localized and focused in the southern regions and Mogadishu. The conflict in the Bay and Bakool regions in early 1992 led to the greatest numbers of uprooted and impoverished families.

Somalis and other key informants attest that killings of civilians, often in conjunction with banditry and campaigns against clan groups, accounted for more deaths than deaths among combatants in pitched battles. In the Bay region, the Marhehan armies targeted women as a means of genocide against the Rahanweyn clan

Fighting in the Juba and Gedo regions in late 1991 led to perhaps the highest mortality rates seen. By August of 1991, the health consequences of being internally displaced began to outweigh the direct risks from violence. After February 1992, casualties directly from violence were exceeded by secondary effects of fighting such as famine and infectious disease.

While war-related killings and injuries continued beyond 1991, other health problems loomed larger. Massive deaths began to occur in early 1992, as a result of the fighting, scorched-earth campaigns of armies, increasing looting, breakdown of civil society, and famine in November and December of 1991.

Proximate Causes of Death During the Somalia Famine

The collapse of the health system, lack of security, and reduced food trade were preconditions that disposed the population to heightened levels of malnutrition and disease. Other consequences were social, most importantly, the increasing inability of social and kinship ties to provide for daily needs.

During famine conditions, particularly when persons have been displaced and the public health infrastructure has been disrupted, the risk of disease is dramatically increased¹². Consistently the highest mortality rates during the famine were reported among persons who were displaced¹³ and among those children less than 5 years of age

As a result of these conditions, the proximate cause of death for most famine victims is usually related to endemic infectious diseases rather than purely starvation. The synergistic effect of malnutrition, particularly vitamin A deficiency, and disease¹⁴ in contributing to the overall mortality rate has been noted in other famines. The reasons for this effect are related to crowding, lack of clinical services, inadequate immunization status of the population, limited access to potable water and poor sanitation. Historically, measles, acute respiratory illness and diarrhea tend to be the most common reported causes of mortality for displaced and refugee populations, as well as developing countries in general.¹⁵ Particularly in the Horn of Africa, cholera, hepatitis E,¹⁶ malaria and tuberculosis are also common scourges among uprooted populations.

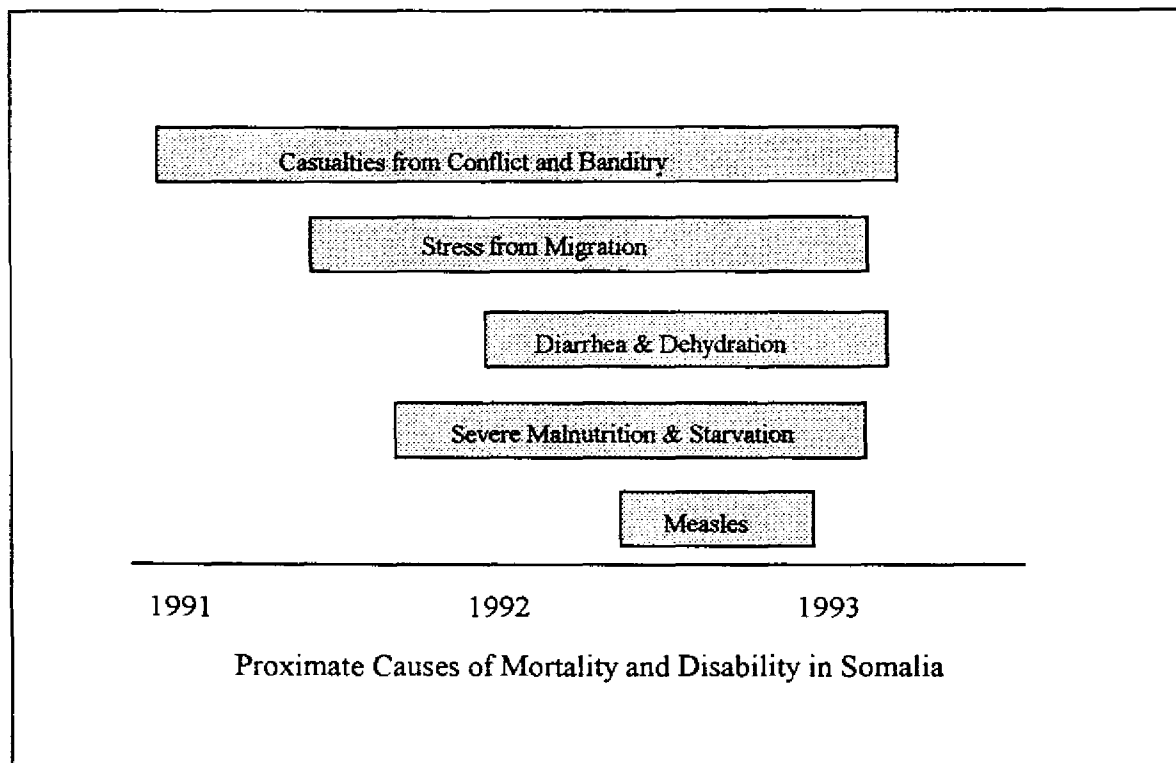


Figure 2. Primary illnesses during the emergency

It is likely that the high mortality experienced by the Somali population during this famine was equally associated with Somalia's chronically underdeveloped public health infrastructure, as well as with the lack of food. For example, a review of the most frequent causes of death for persons under 5 in Somalia reported in 1987 (one year before the civil war) is remarkably consistent with the causes of death associated with the recent famine, albeit to a lesser extent in terms of magnitude.

Somalia presented an unusual challenge for public health during the famine years of 1991-1992 because of the absence of a functional Ministry of Health (MOH) and the range and complexity of endemic diseases during the recent famine. In addition, numerous reports indicate that baseline public health indicators in Somalia were very low prior to the current period of civil conflict and subsequent famine. For example, only 30 percent of the rural population had access to potable water and, when surveys were conducted, much of the preschool population was chronically malnourished.¹⁷

Major Illnesses

The primary causes of illness and death in Somalia were malnutrition, measles, and diarrhea; the effects of these conditions in the population are cumulative. The fact that such common and easily preventable illnesses occurred among so many is not in the least surprising; indeed, it would have been surprising had they *not* occurred. The fact that approximately 1 million Somalis were displaced¹⁸ during the emergency led health analysts to predict in advance that measles would become epidemic, as they did in late summer 1992.

Based on its human ecology, a number of infectious diseases are either endemic or potentially epidemic in Somalia.¹⁹ What is relevant to note in the Somalia emergency is that few of these diseases were significant health problems during the crisis; there was minimal pertussis, postoperative infections, schistosomiasis, onchocerciasis, or meningitis. Cholera was not reported, and apparently did not occur, until 1994.

Tuberculosis, malaria, and dengue fever were prevalent in the population before the emergency, but population movements increased the transmission of diseases and malnutrition reduced immune capacity and reactivated sub-clinical cases (as in TB). The intensity of dengue hemorrhagic fever prevalence was particularly high in the Bardera area.²⁰

Malaria transmission accelerated with the rains in September and October 1992, contributing to the high mortality in October. It is possible that the severity of cases -- and the resulting mortality -- were related to specific populations having moved from sparsely populated arid areas to more densely populated endemic areas. Another peak in malaria incidence was reported in January and February 1993.

Diarrheal disease is epidemic in most displaced populations, and particularly among pastoralists who have little custom-based appreciation for sanitation systems. In Somalia, sanitation-related diarrhea became a problem early in the emergency, as water utilities, access to wells, and other clean water sources became increasingly restricted. Pastoralists are particularly vulnerable to epidemics of diarrhea transmission in displaced camps where defecation habits, based on rural/nomadic lifestyles, lead to increased exposure and transmission.

Shigella, largely fatal in Somalia, was reported in relief centers in Somalia and refugee camps in Kenya and was of concern to physicians, as it resisted standard antibiotics. The epidemic occurrence of Shigella in these locals reflected the poor sanitary conditions in the relief centers and displaced persons camps. Few of the relief programs were able to address this problem on a population basis.

The Role of Malnutrition

Very high rates (over 20 percent) of severe, acute malnutrition²¹ were reported from most displaced population encampments. As with mortality data, it is difficult to extrapolate these observations to the much wider, unseen, non-displaced population. Experts on Somali culture report that only the most desperate migrated away from their homesteads to the displaced camps, suggesting that those who stayed behind were more robust and therefore probably incurred less mortality. Many whole families and communities migrated en masse due to insecurity. Yet rural survivorship surveys in Somalia show that in the worst affected regions, half of all deaths occurred in rural villages among the non-displaced.

During a famine, malnutrition, by definition, poses a health risk to a large proportion of the population. For many who died, the primary diagnosis -- the "last straw" -- was measles, diarrhea, etc. But those who died of these diseases were vulnerable to these infections and to high case fatality rates because of their malnutrition.

Global epidemiologic studies suggest that moderate and severe malnutrition is implicated in up to 80 percent of deaths, particularly among children, in countries like Somalia.²² In refugee-like situations where tens of thousands are displaced, malnutrition is seen to correlate closely with mortality.²³ Surveys indicate that Somalis had numerous micronutrient deficiencies, including avitaminosis,²⁴ scurvy, and extreme anemia²⁵. Widespread severe anemia, in particular, combined with dehydration and protein-energy malnutrition to increase the risk of death from common infections such as malaria,²⁶ measles, and pneumonia.