

The Relative Risk of Communicable Disease after Natural versus Manmade Disasters

Manmade disasters fall into two categories. In the first are those that result from accidental destructive activity. Such events may be acute, as with airplane crashes, explosions, fires and intoxications, or they may be chronic processes like deforestation and the contamination of the environment. Accidental manmade disasters, which usually pose little, if any, additional risk of communicable disease to the community, are beyond the scope of this manual.

The second category consists of manmade disasters caused by warfare, economic or social disruption and civil disturbance. Warfare is frequently subdivided into the conventional type, including siege and blockade, and the nonconventional type, including biological, chemical (toxic gas) and nuclear warfare. Experience with the effect of nonconventional warfare on communicable disease is limited. Biological agents



Courtesy, Il Mattino, Italy

Tent camps set up after a major earthquake shook northern Italy in November, 1980. The increased population density and lack of adequate sanitary services that often characterize camps and temporary settlements make them undesirable from a health standpoint.

capable of producing epidemics that incapacitate military or civilian populations (e.g., anthrax and plague) are handled through taking the same public health measures as those used for naturally occurring outbreaks. Information about these is available elsewhere (2).

The relationship of social disruption and conventional warfare to communicable disease is similar to that of chronic disasters such as drought. Warfare and drought are the most common causes of widespread serious malnutrition and famine. Communicable diseases, which have adverse nutritional effects in previously well nourished individuals, compromise malnourished patients further, and many, like measles, are more severe in extremely malnourished individuals. There is also anecdotal evidence that some parasitic diseases, like malaria, and viral diseases, like herpes, tend to reactivate during refeeding (3). Decision makers may not have political interest or may not be able to assist affected populations during wars and insurrections, unlike during drought where civil authorities usually support relief efforts.

The six factors which contribute to the risk of communicable diseases after natural disasters mentioned earlier are generally valid in the event of conventional manmade disaster. Military activities, however, frequently involve movement through and extended stays in geographic areas which are not ordinarily inhabited by man. In the process, military populations may be exposed to a large variety of zoonotic and vector-borne diseases which are ordinarily of little concern to civilian relief administrators. Examples of such diseases are leishmaniasis, rickettsial diseases, and most arthropod-borne viral diseases. Military surgeons are aware of these risks and, thus, civilian physicians rarely become involved. The probability that these diseases will be spread to dependents and to the civilian population varies, but is quite low overall.

Postdisaster Experience with Communicable Disease

Historically, a variety of communicable diseases have reached epidemic proportions after disaster (4,5) or because patients are malnourished and thus more susceptible to many disease agents (6,7). Indeed, until World War II more deaths during wartime or famine were caused by communicable disease than by hostile action or starvation. The diseases classically associated with war and famine and the most ef-
