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## Chapter 2

# Postdisaster Potential of Communicable Disease Epidemics

The preexistent level of disease in a community affected by disaster is one of six risk parameters. In theory, the absence in a country of a disease such as cholera eliminates the need for surveillance, but in practice, the need is not so simply perceived. Rumors and other unofficial sources of information frequently give rise to concern about cholera, plague, and other exotic conditions not otherwise believed endemic in an area. The epidemiologist cannot necessarily assume that because diseases have never been reported they do not persist in remote communities or in populations where there is no access to public health diagnostic laboratories. The recent discovery of an endemic focus of *Vibrio cholerae* in the United States (15) is an excellent example of this point. If the patients in Louisiana had by chance been diagnosed after a hurricane or a period of flooding, public opinion would have accepted a cause-effect relationship without question.

A second consideration is the possibility that an infectious disease agent may be brought into an affected area by relief workers, or in transport vehicles or supplies. This may occur within a country or, more dramatically, from another country. The 1976 earthquake in Guatemala, for example, occurred during the winter influenza season in North America. Vectors and agents of communicable disease can also be introduced by transport vehicles (particularly the airplane) or in relief supplies. In Latin America and the Caribbean, the *Aedes aegypti* mosquito could easily be reintroduced into an area free of the vector by air or surface transport vehicles which originate in or pass through an infested area. When an explosive outbreak points to a common source of infection, epidemiologists should also consider the possibility that tinned or processed food used for relief was contaminated. Aftosa, or

foot-and-mouth disease, is a prime example of a serious veterinary problem of public health nature that may be introduced via infected meat, contaminated relief supplies and the shoes of relief workers. A major natural disaster does not provide justification for abandoning such accepted public health precautionary measures as limiting the contact of patients with ill relief workers, and spraying aircraft or inspecting them at ports of entry.

### **Exposure of Susceptibles to Endemic Communicable Disease**

There are three ways in which susceptibles may be exposed to endemic diseases which cause subsequent epidemics or increased levels of disease after disaster. Briefly, this occurs through the migration of rural populations to congested areas; the migration of urban populations to rural areas; and the immigration of susceptibles into areas affected by the disaster. Anticipating these problems and implementing preventive measures require an appreciation of the patterns of disease in the countries stricken by disaster.

#### ***Migration of rural populations to congested areas***

In medieval times, the privileged classes tried to avoid the effects of epidemics by fleeing the pestilential cities. The present pattern of reaction to drought, civil disturbance, and many natural disasters is one in which populations congregate for food, safety and medical attention. In general, the more rural and isolated are such migrants, the greater is their susceptibility to common communicable diseases, particularly those transmitted by aerosol or person-to-person contact. Individuals from dispersed communities are also less likely to have received routine childhood immunization. When populations migrate from highlands to camps or population centers at lower altitudes, the risk of vector-borne diseases not transmitted at higher elevations is also added.

#### ***Migration of urban populations to rural areas***

More rarely, urban populations may be forced by civil disturbance, an earthquake or a hurricane to move to a rural environment. In so doing they may be exposed to vector-borne diseases, in particular to malaria. The destruction of Managua by earthquake in 1972 was such an

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