

Acknowledgments

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Conflict and Emerging Infectious Diseases

To the Editor: In the November 2007 issue of *Emerging Infectious Diseases*, Gayer et al. (1) describe how conflict leaves populations in dire poverty, internally displaced or seeking asylum, having poor access to essential services, and consequentially vulnerable to infectious diseases.

Cholera, caused by the bacterium *Vibrio cholerae*, is a disease that seems particularly sensitive to conflict and deserves more consideration. Major risk factors for cholera—poverty, overcrowding, poor hygiene, contaminated food, and lack of safe drinking water (2,3)—largely resemble the consequences of war and civil fighting. Yet little is known about the relationship between cholera and conflict. This lack of information may be because cholera tends to be epidemic, affecting hundreds to thousands of people across vast, war-torn regions, making it impossible for local governments, nongovernment organizations,

and aid workers to control, let alone collect and analyze data.

Examination of data sources listed by Gayer et al. (1) and recent reviews (2,3) indicate that cholera occurs 1) in countries during war and civil unrest, as exemplified by the latest outbreaks among displaced populations across northern Iraq; 2) in neighboring countries, where temporary camps accommodate masses of political refugees under poor conditions, such as those in eastern Chad near Darfur, Sudan; and 3) during the postwar period when large numbers of repatriated persons return home and consequently place undue pressure on an eroded and fragile national infrastructure, as evident in Angola in recent years.

Moreover, all the countries affected by conflict shown in the Figure by Gayer et al. (1) (available from www.cdc.gov/EID/content/13/11/1625-G.htm) have reported cholera outbreaks (2–4). They are also among the poorest countries in the world; the latest statistics on human development (5) indicate that compared with all developing countries, on average they have higher rates of undernourishment, refugees, child deaths, and less adequate water and sanitation facilities. Thus, more information is needed about conflict and cholera, especially in Africa.

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In Response: We agree with Kelly-Hope on the propensity for cholera outbreaks to occur in conflict-affected countries and the need to monitor and respond more effectively to such events. In 2006, cholera was reported from 33 countries in Africa, and 88% of all reported cases were from conflict-affected countries (1).

As highlighted in our November 2007 article on conflict and emerging infectious diseases (2), conflict situations present a multitude of risk factors that enhance disease emergence

and transmission, over and above those in other resource-poor countries. Many such conflicts facilitate the occurrence of cholera outbreaks.

More precise research on cholera and conflict is indeed necessary. However, despite cholera being a disease that has been around for a long time and that causes frequent outbreaks to this day, much information about this disease, beyond its relationship with conflict, remains unknown. For example, although *Vibrio cholerae* persists in the environment, little is known about the exact conditions that trigger a cholera outbreak at a particular time. Further elucidation is needed about the factors that influence the duration of an outbreak, disease severity, and duration of individual protective immunity after an episode of cholera.

Cholera, which is closely linked to a country's social and economic development (1,3), ceased to be of concern in Europe, for example, when access to potable water and sanitation improved although its cause was still unknown and antimicrobial drugs were not yet available. Today, renewed interest from the international public health community is urgently warranted, and strong initiatives are needed to

help developing countries (conflict-affected or not) fight against cholera and control this easily preventable disease on a global level.

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