

Public Health Surveillance after a Volcanic Eruption: Lessons from Cerro Negro, Nicaragua, 1992¹

JOSEPHINE MALILAY,² MARIANA GUIDO REAL,³
ÁLVARO RAMÍREZ VANEGAS,⁴ ERIC NOJI,² & THOMAS SINKS²



The eruption of the Cerro Negro volcano near León, Nicaragua, on 9 April 1992 distributed an estimated 1.7 million tons of ash over a 200 square kilometer area. An assessment was conducted to evaluate the health effects on approximately 300 000 residents, using routine data obtained by the national epidemiologic surveillance system. It was found that rates of visits to health care facilities for acute diarrheal and respiratory illnesses increased in two study communities, one within and one near the disaster zone. Specifically, visits for acute diarrhea were nearly 6 times more numerous than before the eruption in both communities, while visits for acute respiratory diseases were 3.6 times more frequent in Malpaisillo (the community near the disaster zone) and 6.0 times more frequent in Telica (the community within it). Most of the visits were for infants and children less than 5 years old.

Increased diarrheal disease morbidity, which commonly occurs after volcanic eruptions, demands detailed investigation of the type and quality of water supplies following heavy ashfall. Ash-related respiratory problems should be further examined to determine the spectrum of such diseases and the timing of illness onsets among infants and other special population subgroups. Data collected on health conditions before and after an eruption by passive surveillance can be used to detect eruption-related morbidity. Systems already in place, such as Nicaragua's national epidemiologic surveillance system, can be modified or extended so as to increase their sensitivity to new cases and hence their ability to provide appropriate notification to medical relief agencies.

Investigation of the health effects of disasters with acute impacts has tended to employ active surveillance systems—ones that actively solicit information as opposed to passive (routine) surveillance systems that do not (1–6). Such active systems can permit immediate assessment of disaster-

related problems for the purpose of mounting relief operations (7). However, the work reported here made use of a passive surveillance system, Nicaragua's national disease surveillance system, to detect health effects following a volcanic eruption and identify issues whose resolution could re-

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² Division of Environmental Hazards and Health Effects, National Center for Environmental Health, Centers for Disease Control and Prevention, Atlanta, Georgia, U.S.A.

³ *Sistema Local de Atención Integral en Salud*, Ministry of Health, León, Nicaragua.

⁴ National Epidemiologic Surveillance Unit, Ministry of Health, Managua, Nicaragua.