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NEWSLETTER

THE ROLE OF EPIDEMIOLOGY IN DISASTER RELIEF

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Epidemiology, as classically defined, is the quantitative study of the distributions and determinants of health-related events in human populations. Disaster epidemiology, however, can be viewed in a broader perspective which links data collection and analysis to an acute decision-making process. The overall objective of disaster epidemiology is to scientifically measure and describe the health effects of disasters and contributing factors to these effects, with the goals of assessing the needs of disaster-affected populations, efficient matching of resources to needs, further prevention of adverse health effects, evaluation of relief effectiveness, and for disaster contingency planning (Table 1). In addition, the epidemiologist has an important role to play in providing informed advice about the probable health effects which may arise in the future, in establishing priorities for action and in emphasizing the need for accurate information as the basis for relief decisions.

There are a number of problems faced by epidemiologists involved in disaster situations. These include problems related to the political environment, and the rapidly changing social and demographic perspective. Data must be collected rapidly under highly adverse environmental conditions in the field. Despite these difficulties, information collected by epidemiologists is absolutely essential for determining appropriate relief supplies, equipment and personnel needed to respond effectively to such catastrophic events. Unfortunately, the need for specific supplies and equipment such as blood, plasma, antibiotics, casting material and kidney dialysis machines is rarely determined on a rational basis resulting in inappropriate delivery of such items.

An organized approach to data collection in disaster situations assists in improving decision-making and predicting a variety of options that disaster managers need to face. Therefore, standardized procedures for collecting data in disasters need to be developed that can then be linked to operational decisions and action.

These decisions vary depending on the different phases of a disaster. Similarly, a variety of epidemiologic methods have been demonstrated to be of value before, during and after disasters. Thus, at the pre-impact phase the decisions are concerned with delineating the at-risk populations, assessing the level of emergency preparedness and the flexibility of the existing surveillance systems, and training of