

Using a community-based approach for prevention and mitigation of national health emergencies

Abstract: Disaster management is most effective when developed at the community level. Community based planning, prevention, mitigation, and emergency response all engage the population to make choices that are commensurate with local needs and resources. Community based disaster management also offers a force multiplying effect by increasing the number of potential participants and leaders. This discussion of key community based developmental activities is meant to provide a primer for the public health practitioner beginning the study of emergency preparedness and response.

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Introduction

Disaster management is most effective when developed at the community level. Community level disaster management is especially important in Pacific jurisdictions where populations may become geographically isolated as a result of disaster. It also allows a maximum benefit to be accrued from the existence of strong family relationships and clan social structure.

In addition, the basic principles of emergency and disaster medical care are often time-dependent: more lives can be saved by early intervention that may be available only when provided within the community itself. Community-based planning also best takes advantage of the many important resources available at that level, and it promotes buy-in and acceptance of governmental planning initiatives.

Community-based planning should maintain the basic structure of the healthcare system as much as possible. In effect this means that planning should be in accord with a normal medical referral process. It should utilize the services of existing care-providers, dispensaries, and super-dispensaries. It should also seek to make use of other community assets such as local facilities that may include churches, schools, and private homes.

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This level of planning should involve community standards and societal norms. It should seek to identify community leaders and to enlist their support and guidance. It should involve a broad base of community assets including neighborhood and village volunteers. These people may be mobilized and organized in the form of community brigades under the direction of local leadership, (i.e. heads of traditional family units).

Community-based education

The chain of emergency health begins in the individual home and extends up to the national emergency operations plan (EOP). Several Pacific nations are very fortunate to benefit from proactive Red Cross Society and/or Peace Corps contingents that are directly involved in public education measures. Red Cross Society and/or Peace Corps trainees already form the basis for a grassroots-level disaster awareness educational system. Further support and extension of these types of training programs will only serve to strengthen this important indigenous capacity. The Red Cross Society and/or Peace Corps may also serve as a venue and mechanism to provide an additional training module encompassing community-based disaster preparedness, as well as search and rescue techniques.

Finally, for a plan to be effectively used by the community, it must first be effectively communicated to the community. Communication should occur in both directions. Planners should enlist community input and incorporate it into the disaster plan and exercises.

Community-based response

Community-based emergency response teams or brigades may also serve as effective extensions of the national health planning apparatus. They may be appointed for each village and would serve as "first responders" to assist their neighbors in times of emergency. These

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brigades may assist in the organization of community-level planning as well as emergency response to involve essential job elements such as the following:

- Direction and control
- Communications
- Warning and emergency public information
- Evacuation and mass shelter
- Health & medical
- Emergency census and search and rescue
- Resource management
- Damage assessment

Communication links with communities

Disasters frequently damage or destroy existing means of communication. This common phenomenon may lead to the relative isolation of some communities from the assessment, reporting, and coordination efforts at the national level. After disasters strike, "no news" may mean that communications are disrupted or that conditions limit the ability of the affected population to make an assessment. In one example, a hurricane caused extensive damage to the Caribbean island of Dominica. This disaster destroyed most of the means of communication on the island and nearly negated any ability of the nation to call out for external assistance. Only when commercial aircraft happened to fly over the island were outsiders made aware of the devastation and the need for assistance. Such a tragedy could occur in the more remote island regions of many Pacific nations unless robust and redundant means of communication are made available at the community level. These resources for communication, assessment, and reporting should be formally integrated into the national and ministry-level efforts.

Developing community-based disaster prevention and mitigation strategies

The most cost-effective use of disaster management resources is to prevent or mitigate the effects of a disaster before it happens. Several extensive disaster mitigation programs are available free of charge, such as those offered by the US Federal Emergency Management Agency (FEMA), the Centers for Disease Control and Prevention (CDC), and the Pan American Health Organization (PAHO).

Disaster mitigation

An example of a major national initiative for the promotion of community-level disaster mitigation is the program developed by FEMA called Project Impact.¹

Project Impact offers development according to four

phases: (1) partnership (2) hazard identification & vulnerability analysis (3) identifying and prioritizing risk reduction actions (4) communicating project impact to the community. See Table 1 for benchmarks that jurisdictions achieve through completion of these four phases of Project Impact.

Since 2000, the CDC Pacific Emergency Health Initiative (PEHI) has performed eight vulnerability assessments for Pacific island nations. These assessments included an onsite evaluation of public health and medical facilities by architectural and mechanical engineers. The engineers assessed vulnerability and mitigation measures at each location with respect to the most common hazards of the Pacific basin: wind, rain, flood, and fire. One goal of the PEHI program is to offer this assessment to all nations of the Pacific basin. Since the function of public health and medical facilities is often vital to the emergency health of a population during a disaster, a high priority is placed on prevention and mitigation of damage to these facilities as well as to other facilities critical to the national infrastructure.

WHO has also developed initiatives for the promotion of disaster mitigation. For example PAHO's Emergency Preparedness Program in Latin America has created a new Web page on disaster mitigation in hospitals.² (<http://www.paho.org/GOV/CE/SPP/doc207.pdf>) The site contains various information on disaster mitigation including guidelines, training materials, and a selected bibliography as well as publications available from PAHO.

PAHO has also just published Natural Disaster Mitigation in Drinking Water and Sewerage Systems: Guidelines for Vulnerability Analysis.³ (http://www.paho.org/English/PED/nd-water_mit.pdf) This publication focuses on vulnerability analysis, an essential step in determining how to protect drinking water and sewerage systems and how to respond appropriately when a disaster occurs. The guidelines are to be used as an analytical tool by engineering and technical personnel working with drinking water and sewerage services to evaluate the function of these systems in the event of a natural disaster.

Disaster prevention

Prevention is also a very important component of disaster management. If vulnerable populations can be prevented from coming in contact with hazards, then the risk from disasters may be eliminated for that hazard. This prevention may be accomplished through methods used to prevent other causes of human adverse health effects. These methods are also applicable to disaster prevention

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Table 1. Benchmarks that will have been met upon completion of Project Impact**Partnerships:**

- Identified a community CEO
- Identified and contacted likely partners
- Developed or reproduced Project Impact materials
- Held first planning committee meeting
- Established subgroups to tackle identified issues
- Began the process of hazard identification and vulnerability

Hazard identification & vulnerability analysis:

- Gathered hazard identification and vulnerability information
- Compiled information into a geographical information system (GIS) format or other useful format
- Began the process of prioritization
- Developed hazard awareness materials for your community
- Developed graphic materials to support decision-making

Identifying and prioritizing risk reduction actions

- Assessed a community's disaster risk
- Began to seek community input
- Analyzed all information related to public and private buildings
- Identified and implemented mitigation actions relevant to your risks
- Developed policies pertaining to community growth
- Prepared a long-term Project Impact plan
- Began to identify and apply potential resources for carrying out priorities

Communicating Project Impact to the community

- Formed a publicity subgroup
- Developed a version of the Project Impact message
- Created a timeline for media outreach in relation to actions carried out
- Recruited media outlets as partners or sponsors
- Developed a speakers' bureau
- Developed and distributed promotional mitigation materials
- Accessed FEMA materials

and control measures and include engineering controls, educational controls and legislative controls.

Engineering controls

Facilities, homes, and communities may be designed or located within areas that may minimize or lessen vulnerability and risk. Examples of these measures include seismic, flood or high wind risk-specific architectural designs; floodplain management engineering projects; and fire-resistant structures. Topography may also be developed and maintained that will minimize risk for

seismic activity, landslide, lahars, (volcanic mudflows), or floods.

Education controls

Public education can promote general hazard awareness and guide individual management of risk. It can serve to identify hazards, prioritize risks, offer prevention strategies, discourage development within high hazard areas, and promote safe conduct. Student education within the school system also offers a unique opportunity for instilling a lifelong awareness of disaster prevention measures.

Legislative controls

Legislative controls restrict and encourage behavior among a vulnerable population that will serve to prevent disasters. These may include controls involving industrial, commercial, and construction practices that could prevent technological disasters, such as hazardous material spills, building collapse, dam failure, or boat and plane crashes. Such controls involving maritime transportation have already made a significant impact recently in diminishing the number of sea search and rescue missions that are now required in Samoa.

Legislative controls may also be applied to guide behavior of vulnerable populations on an individual basis. Such controls may discourage counter productive measures such as home building within floodplains, ravines, and hillsides prone to landslide or deforestation.

Summary

Prevention and mitigation are the most cost-effective and humane measures for management of public health

emergencies and disasters. These measures do not always require extensive capital investment or infrastructure. Many of the most effective interventions are implemented at the community level. Pacific island communities would likely benefit from a better knowledge and application of these principles.

References

1. U.S. Federal Emergency Management Agency, *Project Impact Guidebook*, January 12, 1998, <http://www.fema.gov/library/lib18.htm>.
2. Pan American Health Organization, *Disaster Mitigation in Hospitals*. 1998. (<http://www.paho.org/GOV/CE/SPP/doc207.pdf>)
3. Pan American Health Organization, *Natural Disaster Mitigation in Drinking Water and Sewerage Systems: Guidelines for Vulnerability Analysis*. 1998. http://www.paho.org/English/PED/nd-water_mit.pdf.

The habitat of all holidays are those
Kept by ourselves in silence and apart;
The secret Anniversaries of the heart
H W Longfellow. From 'Holidays'