Vulnerability and Adaptive Behavior of Low Income Communities in Flood Management and Planning Regimes in Kampala City, Uganda

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The rapid expansion of populations in cities and worsening economic inequality has shifted the balance of disaster risk from rural to urban areas. People must survive in a money economy and must contend everyday with many socio-economic and environmental hazards. This paper addresses three specific issues: (1) quantifying the vulnerability to flood stresses in low income areas; (2) identifying energies and synergies that exist among poor communities to reduce vulnerability to floods; and (3) what flood governance regimes and initiatives exist to make Kampala a livable city.

Results indicate that people living in the poor areas of Kampala are exposed to multiple stresses and vulnerabilities coming from a combination of heavy rainfall and poor planning systems especially housing, infrastructure, and drainage management. In their poor state, small weather events have serious consequences. All infrastructure systems have reached their full capacity. Small downpours have led to massive disruption of the lives of the poor and subsequently the whole urban economy due to the poor maintenance, inadequate income, few assets, inadequate shelters, lack of early warning systems, and total absence of safety nets. City authorities should not wait for the next disaster to happen, and yet, local communities are not flexible enough to cope with the frequent "closures" of their livelihoods. A better understanding and recognition of the multiple deprivations that contribute to increasing exposure of local communities to such threats must be considered in the development of city strategies and hazard/disaster management regimes.

Keywords: floods; infrastructure; low-income; urban planning; vulnerability
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Session 2

Chairs: M. Hoejenbos; Knut-Ole Sundnes

Epidemiological Evidence for the 2005 Niger Nutritional Crisis

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Background: Niger faces recurrent food shortages. Prevalence of global acute malnutrition (GAM) among children under five years of age remains >10%. Since 2001, Médecins Sans Frontières (MSF) has operated a nutritional program in the Maradi region (2,500,000 inhabitants). In April 2005, MSF documented a significant increase in admissions and sounded an alarm. Difficulties in interpreting existing data led to a debate among all of the involved agencies as to the scale and severity of the crisis. A retrospective description of all available data for 2005 was conducted.

Methods: Admissions of children under five years of age with severe, acute malnutrition (SAM) in 74 nutritional centers supported by MSF/Ministry of Health (MOH) by week and by district were described. Also, the United Nations Children's Fund (UNICEF) compilations of yearly admissions from 18 relief agencies were reviewed by the UNICEF, along with the results of 10 nutritional surveys estimating the GAM and SAM prevalence among children under five years of age. A child with GAM is defined as one having weight-for-height ratio > 2Z scores (SAM: 3Z scores) below the reference population median and/or the presence of bilateral edema.

Results: In January, the prevalence of GAM reported from World-Food-Programme for Maradi and Zinder was 13% (SAM: 2–3%). During April–October, 5 surveys in these regions indicated GAM of 15–20% (SAM: 2.4–5.4%). In Maradi, the MSF admitted 39,200 children with an episode of SAM (6–10 times more than previous years).

Conclusions: The 2005 nutritional crisis was extremely severe and particularly impacted the regions of Maradi and Zinder, which are considered to be the most fertile and populated regions of Niger. The use of nutritional surveys helped to assess the situation; however, the conduct of the surveys are limited to region and time. Establishing surveillance and alert thresholds is essential for early detection and timely delivery of aid.

Keywords: food aid; food shortages; malnutrition; Niger; nutritional crisis
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Pre-Existing Health Conditions, Injuries Sustained, and Ongoing Health Problems in Evacuees Participating in the 11 September 2001 World Trade Center Evacuation Study

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Introduction: Modern engineering has enabled the construction of larger and taller buildings. However, these high-rise structures present a challenge in terms of security and safety. Such was the case on 11 September 2001 when the World Trade Center (WTC) was destroyed. On this day, more than 20,000 persons were successfully evacuated; however, in the process, many were injured. The pre-existing health conditions, injuries sustained, and on-going health problems of evacuees participating in the larger Columbia University WTC Evacuation study were identified.

Methods: A convenience sample of 1,444 WTC evacuees from Towers 1 and 2 completed a survey.

Results: The prevalence of reported pre-existing health conditions was 37%. These included respiratory (27%), mental health (16%), cardiac conditions (12%), vision/hearing problems (8%), and other problems (7%). Injury during the evacuation was reported by 531 (37%) of the study participants. The most common injury reported was psychological injury (24.7%), followed by surface trauma (11.9%), inhalation injury (11.4%), orthopedic injury (7.2%), and eye

injury (2.5%). Evacuees with a pre-existing health condition were more than twice as likely to report sustaining an injury (OR = 2.16, 95%, CI 1.70–2.74).

Most evacuees received their post-evacuation medical care in a non-hospital setting (the majority went to their own personal physicians' offices); only 44 individuals in this sample were hospitalized. Nearly 17% of the evacuees reported ongoing, long-term health problems two years after the event, the most common being related to mental health, followed by respiratory diagnoses.

Conclusions: These findings reinforce the need to view high-rise building evacuation as a public health concern.

Keywords: 11 September 2001; evacuation; health problems; high-rise buildings
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Anti-Microbial Resistant Gram Negative Bacilli in Water in Banda Aceh: For Rational Antibiotic Use for Traumatic Wounds Caused by Tsunami

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Introduction: In January 2005, three researchers from the Japan Disaster Relief (JDR) were engaged in medical activities in Banda Aceh. The team treated 1,891 patients. Of the 367 traumatic injury cases treated by this group, 215 required antibiotic therapy. Subsequently, medical services were taken over and continued by the Japan Self-Defence Medical Team until mid-March 2005. Of the original 215 trauma cases who were initially treated by JDR, 82 received prolonged antibiotic therapy for persistent symptoms, in spite of repeated debridement. Although 20 months had elapsed since the tsumami event, researchers investigated the cause of the persistent symptoms of infection by examining bacteria from the water and soil that were flooded by the Tsunami water.

Methods: In August 2006, 49 samples from various water sources (the sea, rivers, sewage, wells, and swamps), in 11 areas that were flooded during the tsunami, were collected and microbiological tests were performed in Banda Aceh. According to an inhabitant of the inundation areas, well water became brackish after the Tsunami and has remained that way since then.

Results and Discussion: Of the 49 water samples obtainted, Aeromonas sp., Klebsiela sp., Vibrio sp., and Proteus sp. were isolated from 24, 14, 16, and six samples, respectively. Regardless of genus, almost all of the isolated Gram negative bacilli were resistant to ampicillin and amoxicillin, while they were sensitive to ciprofloxacin and gentamicin. Based on the results of this study and further analysis of the medical records, the researchers recommend ciprofloxacin (and other relevant quinolones) and/or gentamicin for the initial antibiotic therapy of traumatic wounds that are exposed to a water-soil mixture, such as occurs with a tsunami or flood, when clinical microbiological tests are not available.

Keywords: anti-microbial; Indonesia; tsunami; water; wounds
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Local Implementation of International and National Recommendations for Pandemic Flu Preparedness in a Swiss Western State

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The need for worldwide pandemic flu preparedness recently overwhelmed public health authorities who were requested to adapt and operationalize the World Health Organization (WHO) and national guidelines at a subnational level. Since June 2005, an Expert Group nominated by the Executive Council has brought together health specialists in infectious diseases, public health, emergency and disaster medicine, travel medicine, geriatrics, and hospital management, as well as non-medical partners (i.e., the Head Veterinarian, or the Chief of Disaster Coordination) in a Swiss western state (650,000 inhabitants). This group implemented a strategic plan based on five principles:

1. Early treatment with anti-viral drugs within 6–12 hours after the onset of symptoms;
2. Separation of patients with and without flu symptoms by creating a pandemic channel that avoids usual health facilities;
3. Controlled distribution of healthcare resources;
4. Continuity of urgent care for non-pandemic patients;
5. Real-time epidemiological and crisis follow-up.

Ten thematic working groups involved partners from: (1) public hospitals; (2) private hospitals; (3) rehabilitation centers; (4) nursing homes; (5) social institutions; (6) private practitioners; (7) pharmacies; (8) epidemiological units; (9) the emergency call center; and (10) public health specialists. Special attention focused on pediatric issues. Continuity plans for public and private institutions were treated separately from the health contingency plan. Political support at each phase was pivotal.

This ongoing work has allowed input from a broad range of health and non-health professionals and a consensual development of new and sometimes contradicting priorities, which are closer to scientific and epidemiological views than those recommended by the WHO and national guidelines. It provides new and useful ways of responding in case of a future public health threat.

Keywords: guidelines; health; public health; recommendations; World Health Organization
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