

**Results:** From the overall number of 24,600 patients, 127 patients had a diagnosis of cerebrovascular diseases. The frequency of cerebrovascular diseases is linearly increasing with age; after the age of 50, frequency is doubled. The frequency of cerebrovascular diseases is higher in women than in men, the role of heredity is significant, and risk factors influenced development of cerebrovascular diseases as follows: 50.40% of patients had hypertension, 16.54% diabetes mellitus, 48.82% smoking cigarettes, 40.94% obesity, 20.47% alcohol abuse, 11.02% migraine-like headaches, 30.71% cardiovascular diseases and 22.05% hyperlipidemias.

**Conclusion:** Cerebrovascular diseases are increasing in developing countries. The main reason is poor control of risk factors. In the majority of cases it is possible to produce decrease of frequency of cerebrovascular diseases by elimination and reduction of risk factors through the change of life style. Pre-hospital urgent concept of therapy and improving of organization of emergency service will contribute to decreasing mortality and morbidity of cerebrovascular diseases.

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#### (P1-4) Building Resilient Extended-Care Facilities during Natural Disasters – Lessons Learned From the 2007 Tulsa, Oklahoma Ice Storm

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Building Resilient Extended-Care Facilities During Natural Disasters – Lessons Learned from the 2007 Tulsa, Oklahoma Ice Storm. In the last decade, increasing importance has been placed on building resiliency into critical healthcare systems. This has meant shifting the paradigm from focusing on response to one of preparedness. In 2007, an ice storm as part of a series of winter storms occurred in the south central United States causing extensive power outages, in Tulsa, Oklahoma, for a period of up to 3 weeks. Five of the six tertiary care hospitals in Tulsa suffered power outages, phone system failures or oxygen and/or suctioning system failures. Local water treatment plants were without power for 48 hours. During this time, multiple extended-care (nursing home) patients were discharged to homes or transferred to hospitals because the nursing homes were not prepared to cope with an extended power outage. This paper is a retrospective analysis and discussion of lessons learned with respect to the vulnerability of these extended-care healthcare systems and the public health response during natural disasters.

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#### (P1-5) How Does Land use Pattern could Effect to Mitigate the Risk Flash Floods” a Success Story on a Model Project Implementing at the Upper Catchments Area of Badullu River in Sri Lanka

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The watersheds are the home for our key natural resources and have been one of the basic elements in land use management systems throughout the hydraulic civilization of our country.

“Badulla River” is one of the main watersheds in Sri Lanka extend about 1400sq.km consisting five sub catchments high steep lands. It mainly represents tea estates and agricultural lands with a weak land use pattern due to poor maintenance and unsuitable human involvements. This has contributed to reduce the rain water infiltration in to the soil increasing a huge amount of runoff water drainage. Situation has resulted frequent floods even in a small precipitation causing widespread damages to community. Hence, an initial project was started on surface water management, soil conservation and livelihoods development to control the frequent floods highlighting the urgent actions for an optimal land use management with support of field experts. Improved surface water drainage and soil conservation are the main options that might lead to mitigate the flash floods. Efforts were sharpened by integrating GIS Mapping for such initiation to enhance the effectiveness of the design. Results achieved could address many issues in relation to flood protection, habitat management, water protection and water quality management. Food risk generally related to the specific characters in a particular catchments and this model project proved that such issues can effectively be addressed through a joint program properly designed.

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#### (P1-6) Community-Based Disaster Management: An Effective Approach in Bangladesh

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Natural disaster like cyclone, tidal bore, flood, tornado etc. is a common phenomenon in Bangladesh. Tropical cyclones associated with tidal surges occur at the rate of 1.3 a year in the coastal districts, cyclone in 1970 and 1991 claimed over 500,000 and 138,000 lives respectively in the coastal districts and offshore islands. The vulnerability is so miserable that they have to go and settle in the newly accreted land in Bay of Bengal and its surrounding areas which is occasionally hit by tidal bore or devastating cyclone. The main susceptibility comes from weak social and economic structures of the country. Housing quality, preexisting poor health and nutritional status, social welfare infrastructure, and economic resilience determine the magnitude of a disaster's effect and its long term consequences. In recent years, improved early warning systems and preparedness measures have helped reduce mortality, but no significant change in morbidity. However the effective disaster preparedness systems and capabilities for post-disaster emergency phase usually provides through volunteer contributions and local authority at the neighborhood level. The government's relief team, NGOs and foreign teams took couple of days to few weeks to start operation properly after devastating disasters like Sidr in 2007. However the basic survival and emergency assistance like clothes, shelter, food and medicine which saved thousand of lives were managed by community people themselves. Active participation of local communities, those have rich experience of coping with natural disaster both in preparedness and emergencies are essential for successful disaster reduction policy and practice, also putting value on our traditional social and cultural bondage. So strategies for disaster preparedness should be focused at family

and community levels, support to community-based low-cost technology, promotion and development of human resources and integration disaster management components into development policies and empower the people to face the challenges of disasters.

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### (P1-7) Disasters and Implications for Changes in Vulnerability: A Case Study of Vavaniya Village Affected by the 2001 Gujarat Earthquake

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Disasters tend to exacerbate and bring to surface the socio-economic, political, environmental vulnerabilities of the different sections of a community and thus, are seen as opportunities for reduction of vulnerability. In a post-disaster recovery program, organizations often come together in an effort to create safe conditions, reduce pressures and address root causes. These programs, at times, may further strengthen the existing vulnerabilities, thereby making some groups of the community better off than the others. Vulnerability is a dynamic process and no individual is completely vulnerable or resilient. Root causes, dynamic pressures and unsafe conditions also change with time and depends on the context of analysis. This study examines changes in vulnerability after intervention by organizations using a case study of one of the villages affected by the 2001 Gujarat Earthquake. The case study of the village gives an insight into the intra-societal vulnerabilities and how these vulnerabilities change with time. The study is qualitative in nature and has used purposive sampling technique to collect data. Data analysis was done using inductive coding methods. The study is of practical significance for the local authorities to understand peoples' perception of their vulnerabilities and ways to decrease them. It also adds to the body of knowledge by understanding vulnerability and resilience as social processes and offer lessons for future recovery processes.

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### (P1-8) The Port-Au-Prince 2010 Earthquake - Unique Lessons Learned by Florida One Disaster Medical Assistance Team (FL1 DMAT) in the First International Dmat Deployment

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**Introduction:** The devastating Haiti earthquake of January 10, 2010 resulted in 250,000 dead, more than 300,000 wounded and at least 1.3 million displaced. As the poorest nation in the Western Hemisphere, life in Haiti was already fraught with poverty and one of the highest HIV rates in the world. After the earthquake, life in Haiti became intolerable. As Chief Medical Officer of Florida One DMAT, the author helped to coordinate medical relief operations at the US Embassy in Port-au-Prince beginning within 60 hours of the earthquake. The author and his FL1 DMAT team supported medical relief operations not only at the US Embassy but also at the Toussaint L'Ouverture International Airport for air evacuation of survivors to Miami

and at Terminal Varreux for coordination of ingress/egress casualty operations for the USNS Comfort hospital ship.

**Results:** Unique lessons were learned in this first ever deployment of US DMATs on foreign soil. The presentation will describe the medical operations, the triage process, the challenges of operating on foreign soil, and the results of the relief efforts. Recommendations will be offered to facilitate future international DMAT deployments including development of Standard Operating Procedures (SOPs) for DMAT international deployments and increased coordination between the US Department of State (who have jurisdiction over US assets on foreign soil) and the US Department of Health & Human Services (who are the coordinating governmental department for DMAT operations).

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### (P1-9) Multinational Disaster Response Exercise: Critical Look and Lessons Learned

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**Introduction:** International collaboration for disaster response is an increasing phenomenon. Japan-United States joint field exercises have been conducted annually since 2004, triggered by an incident in which a US helicopter crashed into a university campus in Okinawa, Japan. The fifth Japan-US disaster field exercise was conducted testing the disaster response of the Okinawa government and US military.

**Methods:** The simulated exercise involved a US Navy aircraft that crashed into a city center in Okinawa, Japan. There were 16 simulated casualties that included US military members and Japanese citizens. The participants in this exercise were US military members, including the Disaster Assistance Response Team (DART) and local rescue and medical teams including the Okinawa Disaster Medical Assistance Team (DMAT). Data were gathered from the joint debriefing session held by both medical teams. Furthermore, interviews with team leaders from both nations were conducted and feedback obtained.

**Results:** Lack of communication and inaccurate communication remained the root of most problems encountered. There were several miscommunications at the scene due to the language barrier and ignorance of different medical teams' capability and method of practice. Due to the unclear signage of the initial triage zone, another triage zone was developed later by a second medical team. Confusion regarding gathering information and order of transport also was witnessed. The capabilities of team members were not well known between teams, resulting in inappropriate expectations and difficulty in effective cooperation.

**Conclusions:** Understanding the systems and backgrounds of each medical team is essential. Signs or symbols of key elements including triage areas should be clear, universal, and multi-lingual. Communication remains the Achilles' heel of multinational disaster response activities.

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