Chronic Renal Insufficiency and Diabetes Mellitus following Disasters: A Model For Reform

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Background: Chronic diseases result in significant morbidity and mortality following disasters, but traditionally their incidence and treatment have been under-recognized.
Objective: To formulate a model for responding to post-disaster diabetic needs based on the nephrology community's response to post-disaster dialysis needs.
Discussion: In the wake of natural disasters such as the recent earthquakes in Pakistan, Iran, Japan, and Indonesia, the south Asian tsunami, as well as the hurricanes affecting the US gulf-coast, much attention has been focused on the care and prevention of primary illnesses such as traumatic injuries. However, while the exacerbation of secondary illness such as chronic disease, comprise a sizable health burden, the literature provides little information regarding the treatment of large numbers of chronically ill patients in post-disaster scenarios. Surveys estimate that 25–40% of persons living in the regions affected by Hurricanes Katrina and Rita had at least one chronic disease. In response to the 1989 Armenia earthquake, the International Society of Nephrologists and United States National Kidney Foundation worked together to form a disaster relief task force that has proven effective in responding to the dialysis needs of victims following the 1999 Turkey and 2005 Pakistan earthquakes. Recent data suggest the need for a similar effort for responding to post-disaster diabetic care needs.
Conclusions: By recognizing and addressing the impediments to proper glycemic control, creating supply stockpiles, educating patients and caregivers, and incorporating diabetes specialists into planning and relief efforts, we can greatly enhance the quality, delivery, and effectiveness of the care provided to diabetic patients during relief efforts.
Keywords: diabetes; disaster; kidney; public health
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Do Healthcare Providers Responding to Disasters Have Public Health Awareness and Preparedness?

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Introduction: Both Hurricane Katrina and Hurricane Rita caused major population displacements. This forced the American Red Cross to manage the largest shelter operation in their history. Response efforts identified the importance of increased public health awareness.
Methods: A collaborative partnership among Johns Hopkins University, the Harvard Humanitarian Initiative, and the American Red Cross (ARC) was formed to conduct a rapid assessment of public health needs. Trained team members traveled to five ARC-identified regions in Texas. A survey focusing on shelter demographics, basic public health knowledge, shelter healthcare training prior to deployment, and the referral system was distributed. Data were collected through observations and informal discussions with healthcare providers in the shelters.

The public health awareness of staff members was ascertained by scenarios based on infectious case definitions. Respondents needed to make decisions regarding treatment and next steps of care. Convenience sampling was conducted.
Results: Forty-three shelters were surveyed. Of these, 82% utilized resident nurses and emergency medical technicians as healthcare providers, and 60% of the shelters included medical doctors. Of the shelter managers, 75% reported having prior shelter training. Of the respondents, 33% had public health training, and 56% felt that prior public health training would have been helpful in the management of shelter populations.

Respondents felt that pre-deployment orientation on public health and immediate public health consultations would be extremely valuable.
Conclusions: Public health awareness and training is a necessity for staff members who run shelters. Additional training and educational interventions should be provided for any staff members interested in shelter care management.
Keywords: American Red Cross; evacuee management; hurricanes; population displacement; public health
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Session 3: Flooding

Chairs: M. Hoejenbos; Knut-Ole Sundnes

A Population-Based Cluster Survey of Vulnerability and Disease Burden for Hurricane Katrina Evacuees Displaced to Shelters

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Introduction: The burden of disease and vulnerability level of the population displaced to shelters by Hurricane Katrina was unknown. The purpose of this study was to define the demographics and health profiles of these evacuees in order to guide the humanitarian response.
Methods: We performed a two-stage, 30 by 21 cluster sample survey of the shelter population (38,804) residing in Louisiana Red Cross shelters two weeks after Hurricane Katrina. Shelter clusters were randomly selected using probability proportional to size methodology. Heads of households were then randomly selected to yield 551 households representing 1,597 individuals.
Results: Nearly half of the sample was single, widowed or divorced; the majority was female (57.7%) and African-American (68.8%). Underemployment (54.3%), dependency on assistance (42.6%), lack of home ownership (61.7%), and lack of health insurance (43.6) suggested vulnerability. Of the sample population, 56.3% arrived with at least one chronic disease. The prevalence of hypertension (33.9%),

hypercholesterolemia (17.1%), diabetes (13.4%), psychiatric illness (13.4%) and pulmonary disease (13.3%) suggested significant chronic disease burden. Substance abuse, HIV, and TB were rare. Of the evacuees with chronic disease, 42.4% lacked their medications upon arrival; 34.5% arrived at the shelter with symptoms warranting immediate medical intervention including dehydration (12.3%), dyspnea (12.0%), injury (10.0%), chest pain (9.3%), and fever (8.5%). Infected wounds, suicidal ideation, and recent sexual assault were rare. Known history of chronic disease and lacking medication upon arrival were the greatest risk factors for presenting with acute symptoms (OR 3.24; CI 1.96, 5.35).

Conclusions: The displaced, sheltered Katrina population was vulnerable and carried a significant acute and chronic disease burden; population-based knowledge guides relief preparation and response.

Keywords: disease burden; evacuees; Hurricane Katrina; shelter; vulnerability

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Public Health Issues Associated with a Radiological Medical Emergency Involving Mass Casualties

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The public health community will play a number of key roles in the event of a nuclear or radiological emergency such as a terrorist attack involving a radiological dispersal device. These activities include: (1) treating immediately life-threatening injuries; (2) developing and implementing criteria for entry into and operations at the incident site; (3) monitoring the health and safety of workers reporting to the event; (4) field investigations and monitoring of people for radiation exposure and contamination; (5) assuring the safety of shelters for people displaced by the event, as well as assuring the availability of healthy food and water supplies; (6) coordinating the gathering of biological samples and laboratory analysis of these samples; (7) implementing a wide range of disease control and prevention measures; (8) developing medical intervention recommendations; (9) treating impacted citizens; (10) dealing with contaminated decedents; and (11) establishing a registry and evaluating the long-term health and medical impacts on the public and emergency personnel. The Centers for Disease Control and Prevention (CDC) is developing guidance, training, and information materials that may be useful to the public health community. Some of these materials are currently available on the Internet at **http://www.bt.cdc.gov**, and others are in various stages of development. This presentation will highlight some of these materials, and the audience will be encouraged to comment on current CDC activities.

Keywords: disease; mass casualties; preparedness; public health; radiological dispersal device

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Combined Clinical and Public Health Response in the Aftermath of Hurricane Katrina: Operation Assists and Utilization of Mobile Medical Units

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In the immediate aftermath of Hurricane Katrina, the Children's Health Fund (CHF) and the National Center for Disaster Preparedness (NCDP) at the Columbia University Mailman School of Public Health combined resources to create Operation Assist (OA). The CHF is a non-profit organization that provides comprehensive medical care to underserved children in rural and urban sites across the US using fully equipped, mobile medical units (MMU). Initially, deploying MMUs and medical teams from five of its national sites, OA was able to provide health services in Mississippi and Louisiana. Venues were coordinated with state emergency response officials, but the MMUs were able to follow displaced populations who moved en masse from one shelter to another. Units were able to provide a wide range of services including vaccinations, wound care, acute and chronic care, and mental health support. The staff include experienced, physician-led health care teams, and are equipped with a computerized patient database and satellite communications capability. Operation Assist coordinated services through the New York headquarters of the CHF, rotating teams through sites in the affected areas. More than 12,000 medical encounters were provided within the first three months. Services have been provided continuously, and now are supported by newly raised funds. Through the coordination with NCDP, OA also conducted extensive field surveys of health and mental health needs among displaced children and families living in a variety of shelter settings. Data and analyses collected in these surveys have helped to drive program development and ongoing advocacy on behalf of displaced persons.

Keywords: advocacy; children's health; displaced population; healthcare; Hurricane Katrina

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Hurricane Relief Efforts Outside of an Overcrowded and Overworked Hospital

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National Disaster Medical Assistance Teams (DMATs) established an aid station outside of West Jefferson Hospital, the only operating hospital on the West Bank of New Orleans. There was a pressing need for both routine and emergency medical care. The Georgia-3 DMAT took over operation of a three tent facility on the lawn of the hospital from the Oregon DMAT team on October 26. Treatment tents were set-up as Red for Emergent and or