

Clinic Emergency Preparedness Project and the development of the Clinic Emergency Preparedness Help Desk.

Connecticut's approach to health emergency preparedness at the CCHC-level has been to form links with other state and local partners in order to weave a tightly integrated network for disaster response. The CCHCs in Connecticut have focused on their strengths of providing culturally- and linguistically-appropriate medical and behavioral health care to populations that traditionally have been difficult to reach. One in 19 Connecticut residents utilize the services of a CCHC for their primary care. Of these patients, more than 40% have reported that they are best served in a language other than English.

Conclusions: California and Connecticut have taken different, but complementary, approaches to CCHC emergency preparedness, which have been tailored to the needs of each state.

Keywords: California; Connecticut; community; community clinic and health centers (CCHC); diverse; preparedness

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A Decade of Petroleum Disasters in Nigeria

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Introduction: Nigeria, the sixth largest oil-producing nation in the Organization of the Petroleum Exporting Countries (OPEC), receives 95% of its foreign exchange from oil exports to the global market. As a result, disasters affecting the petroleum industry in have national significance.

Objective: This presentation describes emergencies and disasters that have affected Nigeria's petroleum industry over the past decade.

Methods: Descriptive information concerning these events was obtained through the authors' observations, anecdotal reports, and reports from local media and government, when available.

Results: Types of petroleum-related emergencies and disasters occurring in Nigeria in the past decade include pipeline explosions, kerosene explosions, and repeated militant attacks on oil installations. The Jesse oil pipeline explosion in 1998 killed >1,000 persons. Kerosene explosion disasters have occurred in Lagos, Benin, Abuja, and several other states. The impact of these events includes health damage (morbidity and mortality), environmental degradation, social damage, and economic damage (including loss of man-hours). Petroleum-related events are likely to recur in the next decade due to a lack of government sanctions for responsible parties, poor policy formulation, and continued poverty.

Conclusion: Petroleum-related emergencies and disasters have a large impact across all segments of Nigerian society. The social, economic, and environmental damage from these events likely has very exceeded the health damage to the first generation of victims.

Keywords: disaster; environment; explosions; health damage; petroleum; Nigeria; Organization of the Petroleum Exporting Countries (OPEC)

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Regional Trends in Road Traffic Crashes in Ghana, 2002-2004: What Are the Implications?

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Introduction: The burden and pattern of injuries resulting from road traffic crashes (RTCs) in Africa are not well described.

Objective: This study describes the burden of RTCs in different regions of Ghana.

Methods: A retrospective study of RTC data in different regions of Ghana was performed. Data were collected from the National Road Safety Commission and analyzed using simple descriptive statistics.

Results: Certain regions, such as Greater Accra, were identified as having a relatively higher incidence of RTCs ("black spots"). Possible reasons for this higher incidence will be suggested during this presentation.

Conclusion: The government in Ghana should use this data to direct its RTC prevention and mitigation efforts.

Keywords: Ghana; incidence; road traffic accidents

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Development and Evolution of a Collaborative Community-wide Mass Vaccination Program

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Introduction: During the winter of 1997–1998, the need to improve influenza vaccine delivery in Stamford, Connecticut became clear when high rates of respiratory illness led to emergency department overcrowding and a critical shortage of hospital beds.

Objective: This presentation describes the development and evolution of a collaborative, community-wide influenza vaccine program (IVP).

Methods: Descriptive information was obtained from observations and records associated with the IVP, including an electronic database of patient demographics and volume over six seasons in Stamford.

Results: In response to the 1997–1998 influenza season, Stamford Hospital and the Stamford Department of Health developed a collaborative, community-wide IVP in order to increase the influenza vaccine coverage in the community. Evolution of the IVP was aided by mapping and rehearsing several key processes, including patient education, triage, registration, patient flow, staffing, and vaccine administration. The IVP regularly processes 240 patients per hour. Staffing requirements for this volume include: (1) eight registered nurses; (2) four volunteers; (3) four security personnel; (4) two reception/triage personnel; and (5) one–two supervisors who also serve as rovers and troubleshooters. At its maximum, the IVP vaccinated 20,800 persons (>16% of the community and almost 300% of baseline), including more than 75% of residents >64 years of age. Hospital employee vaccination rate also rose from 34–58% over six seasons.

Conclusion: Six seasons of experience implementing and refining the IVP has enabled the Collaborative to define the structural components, patient flow, and staffing requirements necessary to vaccinate healthcare workers and the community urgently. With simple staffing adjustments, the IVP readily may be adapted to a community-wide smallpox vaccination program.

Keywords: influenza vaccine; staffing; vaccination program

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11 March 2003 Madrid Bombings: A Prehospital Analysis

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Introduction: On 11 March 2004, 13 terrorist bombs exploded, nearly simultaneously, in four trains in urban Madrid, Spain. The bombings injured more than 2,000 persons at the four separate sites, left 191 dead and 233 victims with severe injuries, and produced the equivalent of four separate mass-casualty incidents (MCI). Lay persons, many public-private organizations, prehospital emergency medical services (EMS), and 14 emergency departments and hospitals provided care to the victims. **Objective:** This study sought to: (1) describe the prehospital emergency response to these four terrorist bombings; and (2) identify strengths and limitations of the prehospital response to this event.

Methods: This was a descriptive study, using multiple information sources, including: (1) official government reports; (2) print and television media reports; (3) interviews with eyewitnesses; and (4) interviews with >180 first responders and EMS workers who participated in the emergency response. Items for data collection were suggested by a consensus group of disaster experts (listed at <http://www.mebe.org>).

Results: Prehospital resources dispatched to the four scenes included: (1) 49 mobile intensive care units (with one physician, one nurse, and two emergency medical technicians (EMTs)); (2) 22 fast-cars (with one physi-

cian, one nurse, and one EMT); (3) 11 home medical cars (with one physician and one EMT); (4) two helicopters (with one physician, one nurse, and 1–2 EMTs); (5) 48 Basic Life Support (BLS) SERMAS ambulances; (6) 47 BLS SAMUR ambulances; (7) 32 BLS Red Cross ambulances; (8) 20 BLS civil-protection ambulances; (9) three BLS SAMER ambulances; (10) private vehicles; and (11) >100 other vehicles for logistical and operational support. The number of immediately injured, immediately dead, critically injured, and scene times at each site are listed in Table 1. An estimated 14–20 victims with initial vital signs died at the scene. An estimated 85–90 victims received Advanced Life Support (ALS) care at the scene. Thirty-nine percent of victims were transported by ALS ambulance. More than 650 victims were transported to hospitals by BLS ambulances. All together, 58.6% of victims were transported to hospitals by EMS. Emergency departments received an estimated 233 red triage tag victims in the first hours.

Most red triage tag patients were received at the three closest hospitals (91, 38, and 30 victims, respectively). Factors that aided prehospital emergency response included: (1) the location of the bombings on open air trains (not in tunnels or buildings), which did not impede prehospital transit; (2) the collaborative efforts of citizens, fire-rescue, police, and public/private workers in rescuing victims; and (3) the strenuous efforts of many EMS providers. Factors that limited prehospital emergency response included: (1) the occurrence of four separate MCIs, two of which were proximally located (Atocha and Telez), which led to operational confusion; (2) the lack of operational coordination between two different responding EMS with two different and independent coordination centers; (3) inadequate emergency planning and deficient communication at SUMMA, which contributed to the maldistribution of victims to hospitals; and (4) a lack of information about hospital bed availability, which also contributed to the maldistribution of victims to hospitals.

Conclusion: Although the prehospital response to the 11 March 2004 Madrid bombings was nothing less than heroic, several lessons may be learned, which can be applied to future prehospital emergency preparedness and response.

Table 1—Injuries and estimated scene-times at four mass-casualty incident sites (*+30 severely injured; **+6 severely injured; Imm = immediately; min = minutes; n = number)

Site	Imm. dead (n)	Imm. surviving injured (n)	Critically injured (n)	Estimated total scene time (min)
Atocha	34	145	27*	120
Santa Eugenia	17	52	14**	75
El Pozo	67	56	6	75
Tellez	64	83	7	145

Keywords: bombing; emergency medical services; emergency response; Madrid; prehospital; preparedness

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