

Disaster Risk Education of Final Year High School Students, Requires a Partnership with Families and Charity Organizations: An International Cross-sectional Survey

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Study/Objective: This multinational study of the terminal year of high school students aims to explore the relationship between engaging in discussions about disasters, as primary outcome, and the entities best situated to deliver Disaster Risk Education (DRE), in addition to a series of independent predictors identified in previous research.

Background: The aim of Disaster Reduction Education (DRE) is to achieve behavioral change. Over the past two decades, educational activities have been developed based on unverified assumptions, while the literature has not identified any significant change toward disaster preparedness at the individual level. Previous research suggests that change is dependent on multiple independent predictors. This study describes the relationship of the perceived entity responsible for disaster education, disaster education per se, sex, and country-specific characteristics with students discussing disasters with friends and family, as a measure of proactive behavioral change in disaster preparedness. School lessons and a national educational program are essential, but it's less clear which educational and delivery methods are best suited for DRE, which entities are best placed to engage with teenagers, and whether the assumptions that DRE can be learned like any other subject are true.

Methods: A total of 3,829 final year high-school students participated in an international, multi-center prospective, cross-sectional study using a validated questionnaire. Nine countries with different levels of disaster exposure, risk, and economic development were surveyed. Regression analyses examined the relationship between the likelihood of discussing disasters with friends and family and a series of independent variables.

Results: While several independent predictors showed a significant main effect, DRE through school lessons in interaction with Family & Charity organizations had the highest predictive value.

Conclusion: A behavioral change towards disaster preparedness in teenagers requires a synergistic partnership between different entities. DRE providers should engage with the entities with which the teenagers are more likely to collaborate, most and foremost, their families.

Prehosp Disaster Med 2017;32(Suppl. 1):s152

doi:10.1017/S1049023X17004162

A Brief Structured Educational Curriculum Improves Pediatric Emergency Department Staff's HAZMAT Response Skills

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Study/Objective: To design, implement, and evaluate an educational curriculum for pediatric Emergency Department (ED) staff to improve their skills, knowledge, and comfort in responding to a Hazardous Materials (HAZMAT) event.

Background: ED providers need competency in responding to HAZMAT events to treat contaminated patients, protect responding staff, and ensure the ED remains operational. The optimal strategy to teach HAZMAT response principles, including decontamination, to ED providers and to ensure the retention of these skills is not known.

Methods: This is a prospective cohort study assessing an educational curriculum comprised of didactics, skills stations, a tabletop exercise, and simulation focused on critical aspects of pediatric HAZMAT incident response, with an emphasis on donning Personal Protective Equipment (PPE) and patient decontamination. All ED staff were eligible to participate, and participants were randomly assigned to dyads. The primary outcome was the number of HAZMAT PPE donning steps correctly, completed by each dyad at pre and post-curriculum assessments using a 32-item checklist created by hospital expert consensus. Participants completed a 15-item questionnaire to evaluate their knowledge and confidence regarding HAZMAT skills pre- and post-curriculum. Donning skills were reassessed three months following the intervention.

Results: Eighty-four participants were enrolled and completed the curriculum: 56 physicians, 23 nurses, and four administrative staff. Compared to the pre-period, more steps were correctly completed following the intervention (median of 19 vs. 31; $P < .001$). Additionally, multiple-choice knowledge scores increased (64% vs. 91% correct; $P < .001$). There was also an increase in provider confidence (Likert level 3 vs. 6; $P < .001$). Skill retention for the dyads relative to the baseline was maintained at three months (median 19 vs. 28.5; $P < .05$).

Conclusion: A multi-faceted curriculum improved performance, knowledge, and confidence in HAZMAT skills. HAZMAT education is feasible and effective for pediatric ED staff, and should be incorporated into existing training programs.

Prehosp Disaster Med 2017;32(Suppl. 1):s152

doi:10.1017/S1049023X17004174

The Pediatric Disaster Mental Health Intervention.

A Guide for Primary Care Providers

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Study/Objective: PDMHI (Pediatric Disaster Mental Health Intervention) was initially developed in response to Superstorm Sandy's impact on children and their families in New York City (NYC). The objective was to develop training for primary care providers in Pediatric Disaster Mental Health care and to subsequently study its impact on the trainees.

Background: The effects of a disaster on a community's mental health can persist after the physical effects of the event

have passed. The pediatric population is often overrepresented in disasters and prone to serious mental health disorders based on their developmental age and parental/community response. Pediatric Primary Healthcare providers require the Psychosocial skills necessary to work in disaster zones and to effectively care for children in disasters.

Methods: A faculty of experts in pediatric mental health, psychiatry, psychology, and disaster preparedness and response was convened to develop the PDMHI curriculum. The faculty developed a four hour intervention to equip health care providers with the skills and knowledge necessary to care for pediatric patients with mental health problems stemming from a disaster via evaluation, triage, intervention and referral.

Results: Three PDMHI training sessions were held; 67 providers were trained; 31 pediatricians, 18 nurses, 8 social workers 4 psychologists, 2 psychiatrists and 4 others. Pre and post-tests measured knowledge before and the impact 3 months post intervention; 62.5% of responding primary care providers made changes to their practice; 92% felt better equipped to identify, treat and refer patients; and 81% would be willing to work in a disaster zone, and felt prepared to treat patients with disaster mental health issues.

Conclusion: PDMHI covers psychosocial responses to disasters from normal to mental health disorders. Participants gained tools for managing pediatric mental health issues in primary care. Study data showed an increase in the participants perceived knowledge and skills about pediatric disaster mental health, and their willingness to participate in future disasters.

Prehosp Disaster Med 2017;32(Suppl. 1):s152–s153

doi:10.1017/S1049023X17004186

Feasibility of the Novel Combination of Influenza Vaccinations, and Child Passenger Safety Seat Fittings, in a Drive-Thru Clinic Setting.

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Study/Objective: We hypothesized that combining influenza vaccinations and child passenger seat fittings (CPSF) in a DTC format will be both feasible and desired by the community.

Background: Disaster Medicine and Public Health Preparedness are ever-evolving areas of medicine with the purpose of helping the masses quickly and efficiently. The drive-thru clinic (DTC) model is a disaster tool that allows distribution of supplies or services while participants remain in their automobiles. Influenza vaccination is the most commonly utilized form of the DTC and has been utilized in metropolitan areas successfully as a single service.

Methods: Each driver was verbally surveyed at each station of the DTC. The survey content involved satisfaction and background of health habits.

Results: In the inaugural DTC, six-hour session, there were 86 automobiles served that contained 161 children, of which 28 also participated in CPSF. The median total clinic time was 9:00 (Interquartile Ranges (IQR) 6:00–14:00) minutes. For those who only received influenza vaccines, the median total clinic time was 7:30 (IQR 6:00–10:00) minutes. For those

who received both services, the median total DTC time was 27:00 (IQR 22:20–33:30) minutes, with an average of 1.75 CPSFs per automobile.

Conclusion: This was a pilot study involving two different services using the DTC model, and the first of its kind in the literature. Our DTC was successful in executing both services, without sacrificing speed, convenience, or patient satisfaction. Additional studies are needed to further evaluate the efficacy of the multiple service DTC.

Prehosp Disaster Med 2017;32(Suppl. 1):s153

doi:10.1017/S1049023X17004198

Utility of Performing Serum Glucose Measurement and EKG in the Outpatient Evaluation of Pediatric Syncope

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Study/Objective: To determine the frequency of BG and EKG abnormalities in previously healthy children who present to an emergency department [ED] with Syncope.

Background: Syncope is characterized by sudden onset, brief duration episode of altered consciousness usually associated with loss of postural tone from which recovery is full and spontaneous. Prior studies have shown that evaluating a detailed medical history often provides discerning information regarding etiologic risk; despite this, routine tests are frequently performed in syncope cases.

Methods: Chart review of consecutive children aged 5–18 years presented to the Pediatric ED at Maimonides Medical Center, Brooklyn from 2004–2014 with a discharge diagnosis of syncope, fainting, or vasovagal event. All events were acute, of sudden onset and brief duration [< 10 minutes], with loss of or altered consciousness, and spontaneous full recovery. Patients with known underlying metabolic or endocrine, cardiac, psychiatric disorders; anemia or pregnancy; preceding head trauma, acute blood loss [except epistaxis], current intoxication, observed seizure activity; currently receiving an oral hypoglycemic medication were excluded. All had BG measured prior to administration of IV/oral glucose or parenteral glucagon. Data collected included patient demographics, past medical history/current medications, vital signs, laboratory values, EKG results per interpretation by an attending-level pediatric ED physician or pediatric cardiologist, medical interventions, and disposition. Hypoglycemia was defined at serum glucose < 60 mg/dL.

Results: A total of 969 patients met the study criteria. Of these, hypoglycemia was present in 3 cases [0.3%]. EKG was performed and interpreted in 656 patients [68%]; in 4 cases [0.5%] an abnormality was identified: 1 case of prolonged PR interval, 3 cases of cardiac hypertrophy [2 ventricular, 1 atrial]. Follow up ECHO done on all these patients revealed no cardiac pathology. Financial analysis for performing BG and EKG on these patients amounted to total health care cost of \$226,156.

Conclusion: Previously healthy children presenting for outpatient evaluation for simple syncope rarely have underlying hypoglycemia or EKG abnormality.

Prehosp Disaster Med 2017;32(Suppl. 1):s153

doi:10.1017/S1049023X17004204