

Introduction: This report describes the response, action plan, and after-action changes adopted by the Louisiana State University New Orleans (LSU-NO)–Emergency Medicine (EM) Residency Program in response to Hurricane Ida, which occurred in New Orleans, Louisiana in late August through early September 2021. Summarized are the redistribution of emergency department (ED) residents within the primary clinical site, University Medical Center New Orleans (UMCNO); the daily communication flow from chief residents and program leadership; and discussions pertaining to procedural revisions instituted following investigation of pre- and post-hurricane operations.

Method: Small-group debrief sessions and after-action reports were conducted post-storm to discuss perceived deficiencies from a resident stand-point. Debriefing occurred between chief residents and individual classes through standardized residency forums. Additionally, an after-action committee, comprised of senior residents, academic faculty, and ancillary personnel, convened a separate counsel with hospital administration-level leadership to analyze retrospective limitations that occurred both during, and immediately following, Code Grey activation.

Results: Following data collection and analysis from the various feedback channels, several changes were made to the residency's Code Grey activation plan going into the 2022–2023 academic residency year. The information obtained was used to develop a more formalized Code Grey process, and to create more robust orientation and education materials for residents.

Conclusion: Throughout the events of Hurricane Ida, the LSU-NO Emergency Medicine Department at University Medical Center New Orleans managed a substantial intensification in daily emergency medical activity, while contending with a near-immediate reduction in available resources. Consequently, our program has formalized a more durable residency response to future disasters, including real-time, evolving evacuation correspondence and modernized protocols for rapid re-distribution of resident-power. These procedures are now distributed and practiced throughout each residency year and reinforced on an ad hoc basis in advance of any major weather-related events predicted to impact the greater New Orleans metropolitan area.

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Survey Evaluation of Nursing Emergency Preparedness Training

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Introduction: An effective response to CBRNE requires that frontline staff, such as nurses, are adequately trained in Emergency Preparedness (EP). Understanding the current gaps in nursing knowledge of CBRNE is the first step in creating an effective training program. This study assessed EP training gaps and needs among nursing staff.

Method: A web-based survey was distributed to all hospital nursing staff. The survey evaluated the CBRNE training that

nurses received. Staff listed the types of training they had received and were asked to rate their confidence in performing various disaster-related competencies or capabilities. Competency confidence levels were also surveyed as those who feel; not at all confident or not very confident.

Results: The survey assessed previous EP training. 572/763 Nursing Staff had completed the survey, for a response rate of 75%. Of the nurses who responded, areas in which they have been trained included: preparedness for radiological and nuclear agents (17.66% trained), preparedness for biological agents (22.20% trained), preparedness for chemical agents (27.45% trained), hazardous materials and patient decontamination (25% trained), and their own role within the hospital's ICS (31.29% trained), Patient evacuation (63.61% trained) and the hospital's EP plan (54.55% trained). The survey also assessed respondents' confidence in performing EP activities. The respondents reported lacking confidence in treating patients exposed to a radioactive material (59.9%), treating patients exposed to a biological agent (57.17%), and performing decontamination procedures (54.71%). The respondents reported having confidence in evacuating patients from units, departments, or hospitals (69.1%). The top incentives for participating in “nonrequired” training were no costs to complete the training (83.1%) and receiving continuing education credits (79.2%).

Conclusion: A majority of nurses reported inadequate training in CBRNE events with a self-reported lack of confidence in responding to these events. A targeted and educational CBRNE curriculum and materials to enhance EP among nursing professionals are clearly indicated.

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NO-FEAR Project - What Have we Learned

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Introduction: As the COVID-19 pandemic started, the NO-FEAR project shifted to real-time experience sharing to improve response to an unknown new threat. The lessons observed during more than 20 webinars were collected and analyzed at the end of 2019 to identify those relevant for future preparedness and response to another outbreak or new threats.

Method: A questionnaire using a 0–4 Likert scale was distributed to the wider NO-FEAR community, where they were asked to identify the relevance of the item for future preparedness. Later the results were discussed by the consortium and put for feedback in a large meeting in Madrid in March 2022. The 78 observations were clustered into five categories: 1) The human factor (23) 2) Knowledge sharing, cooperation and coordination (11) 3) Equipment and supplies (15) 4) Standard Operating Procedures (SOP) (20) 5) PPE (9).

Results: The Top-rated observations were the following:

- The human factor: 2.3 need for updated, trustful information sharing with personnel (e.g. regarding treatment protocols, PPE, updates, etc.) to allow them a comprehensive understanding of the situation (3.73).

•Personal Protective Equipment (PPE): 6.1 need for PPE stockpile management, considering transportation, storage space, and risk of throwing away out-of-date PPE (3.63).

•Equipment and supplies: 4.3 need for solutions to increase equipment and beds capacity (3.56).

•The human factor: 2.22 need for management of fake news and mitigation of violent incidents against healthcare personnel (3.56).

•Knowledge sharing, cooperation and coordination: 3.5 need to collect data, needs, gaps, and lessons in preparation for future outbreaks (3.56).

Better integrating health care into crisis management structures was highlighted during the Madrid conference.

Conclusion: NO-FEAR highlighted the importance of real-time international real-time knowledge sharing in a crisis, the need to better address the needs of the personnel during a long-term crisis, and better integrate health into crisis management structures

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Emergency Medical Team Type 2 and Intensive Care Unit: A Necessary Binomial

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Introduction: A disaster involving significant casualties in a populated area demands the rapid development of a field hospital with personnel specialized in Disaster Medicine. In this scenario, the clinical response of Emergency Medical Teams should be guided by the knowledge of how the medical needs of the population change after the disaster itself. In order to reduce the loss of life and prevent long-term disability, it is essential to have the right tools to treat critical patients. In fact, disasters cause a variety of conditions ranging from minor to life-threatening injuries requiring admission to Intensive Care Unit (ICU).

Method: A systematic review was carried out and electronic healthcare databases were searched using terms such as “Disaster” or “Flood” or “Storm” or “Earthquake” or “Mass Casualty Incidents” and “Intensive Care Unit” or “Intensive Care” or “Health Impact”. Articles that met the search criteria, published in the last 15 years in the English language, were analyzed and summarized. The objective of the review was to identify the main health problems following disasters and, in particular, the diseases that may require intensive care in order to assess the need to include ICU in the minimum technical standard for Emergency Medical Teams type 2.

Results: The review included 12 studies identified as relevant and significant for our purpose. Health problems were sorted for disaster type and severity of the injury. The review demonstrates that health problems after a disaster are different depending on disaster type, but in all the scenarios there are diseases that potentially may require timely intensive care.

Conclusion: The presence of an ICU within an Emergency Medical Team type 2 (according to WHO EMT classification)

is an essential part of disaster management plans as ICU plays an irreplaceable role in saving lives and in reducing the health impact of a disaster.

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Mortality from Landmines and Explosive Hazards: Findings from a Global Epidemiological Analysis

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Introduction: Explosive hazards like landmines are known to contaminate over sixty countries and continue to threaten the health of affected communities across generations. The current study is the first to consider the impact of landmines and explosive remnants of war by drawing on global casualty data to determine mortality patterns.

Method: This study is a retrospective analysis of secondary multi-source data on over 100,000 explosive hazard casualties from 17 low and middle income conflict-affected countries. This data was collected from mine action centers, international non-governmental organizations, and international bodies (e.g., United Nations), and include surveillance data, retrospective and prospective survey, and data collected through organizational operations.

Results: The global case fatality rate was 38.8 deaths per 100 casualties. Males represented 87.4% (n = 34,642) of those killed, however females had higher odds of death when involved in an explosive incident (OR = 1.29, 95% CI: 1.24 – 1.34, p < 0.01). Adults experienced higher odds of death compared to children (OR = 1.60 95% CI: 1.55 – 1.64, p < 0.01). Case fatality ranged between countries with Lao PDR, Angola and Ukraine the countries with the highest proportion of deaths. Improvised explosive devices (IEDs) and ERW had higher odds of death compared to antipersonnel landmines (OR = 1.78, 95% CI: 1.67 – 1.91, p < 0.01; OR = 1.55, 95% CI: 1.50 – 1.60, p < 0.01).

Conclusion: Mortality from landmines and other explosive hazards remains a public health issue in conflict impacted countries. This study addresses the lacunae of global data for explosive hazard casualties and provides an understanding of how fatal injury is endured. Adult males represent the most deaths globally, however case fatality ranges across conflicts. ERW and IED had the highest risk of death. These findings underscore the need for a global health response and strengthen advocacy measures for conflict affected communities as well as weapons prohibition campaigns.

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Readiness of Emergency Medical Teams of Sri Lanka Army Medical Corps for Response to Natural Disasters in Sri Lanka

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