

Empowering Emergency Responders to Treat on Scene Alleviates Hospital Strain During Disaster Events

Authors

Anastasiya Ivanko, MS¹, Elizabeth Lacy MHS, MPS, NRP², Carl Flores NRP², Jonathan E. Schoen, MPH, MD, FACS, FABA^{1,2}, M. Victoria P. Miles EMT-P, MD^{1,2}, Denise Danos, PhD¹, Randy Kearns, MSA, DHA, FACHE, FRSPH, FACHE^{2,3}, Jeffrey E. Carter, MD, FACS, FABA^{1,2}

1. Louisiana State University Health and Sciences Center, New Orleans, LA, USA.

2. University Medical Center (LSU Health), New Orleans, LA, USA.

3. University of New Orleans, College of Business, New Orleans, LA, USA.

ABSTRACT

Background:

Disasters often lead to increased generator use, resulting in carbon monoxide poisonings (COP) and burn injuries that can overwhelm regional burn centers. Following Hurricane Ida, pre-hospital guidelines were altered to allow Emergency Medical Services (EMS) to treat clinically mild COP and burn injuries on scene. Our aim was to examine the care coordination and collaboration between EMS and a verified burn center in Southeastern Louisiana in response to a natural disaster.

Methods:

Using EMS and Louisiana Emergency Response Network (LERN) data, we analyzed EMS calls from three periods surrounding Hurricane Ida's landfall on August 29, 2021: PRE-IDA (07/08–08/25), MID-IDA (08/26–09/08), and POST-IDA (09/09–10/31). We tracked call volumes, transport rates, and EMS turnaround times. Weekly calls were compared using Kruskal-Wallis tests and negative binomial regression; transport rates were assessed using Chi-squared tests.

Results:

EMS received 1,607 COP or burn-related calls during the study period. Median weekly call volume increased significantly from PRE-IDA (108 calls/week) to MID-IDA (146; $p=0.006$), then fell POST-IDA (76; $p<0.001$). COP-related calls peaked MID-IDA (median 116.5/week) versus POST-IDA (59; $RR=2.0$, 95% CI 1.5–2.7; $p<0.001$), while burn calls nearly tripled from PRE-IDA to MID-IDA (10 vs. 29.5/week; $RR=2.8$, 95% CI 1.7–4.6; $p<0.001$). Transport rates for all calls dropped from 94.3% PRE-IDA to 83.8% MID-IDA ($p<0.001$), with stable EMS turnaround times across periods ($p=0.49$). No repeat calls were recorded for patients treated on scene.

Conclusion:

COP-related EMS dispatches rose sharply during MID-IDA while hospital transports declined, reflecting effective on-scene management and coordination between EMS and the regional burn center. Stable turnaround times and absence of repeat calls support the feasibility of structured EMS protocols for field treatment during disasters. Such strategies may reduce hospital burden in mass casualty events, though further research is needed to evaluate long-term outcomes and optimize disaster preparedness.

Disclosures:

1. Ivanko, Lacy, Flores, Danos, and Kearns have no conflicts of interest to report.
2. Dr. Miles serves as a consultant for Polynovo, Avita Medical, and Vericel, where in lieu of compensation all proceeds are donated to local burn charities to support outreach, education, and survivor burn programs.
3. Dr. Schoen serves as a consultant for Polynovo, where in lieu of compensation all proceeds are donated to local burn charities to support outreach, education, and survivor burn programs. Dr. Schoen also serves as a consultant for LivaNova.
4. Dr. Carter serves as a consultant for Avita Medical, PolyNovo, & Spectral MD where in lieu of compensation all proceeds are donated to local burn charities to support outreach, education, and survivor burn programs. Dr. Carter also holds stock options at Spectral MD.

Correspondence

Anastasiya Ivanko, MS

Aivank@lsuhsc.edu