

ASPR TRACIE Technical Assistance Request

Request Receipt Date (by ASPR TRACIE): 13 February 2019

Response Date: 14 February 2019

Type of TA Request: Standard

Request:

The requestor asked if ASPR TRACIE had any resources related to healthcare evacuation specific to Neonatal Intensive Care Units (NICU), new born babies, laboring mothers, and high risk obstetrics (OB), during notice and no-notice events.

Response:

The ASPR TRACIE Team reviewed exiting Topic Collections; namely the following:

- [Access and Functional Needs](#)
 - In particular, please review the [Population-Specific Resources: Women and Gender Issues](#) section
- [Healthcare Facility Evacuation / Sheltering](#)
 - In particular, please review the [Special Populations: Pediatric, NICU, and OB/GYN-Related Resources](#) section
- [Pediatric](#)

We also conducted a search online for additional resources. Section I in this document includes resources specific to evacuation and NICUs/ pediatrics. Section II provides materials specific to women and obstetrics.

I. NICU and Pediatric Evacuation-Specific Resources

California Hospital Association. (2013). [NICU Surge & Evacuation Considerations](#).

This document provides a list of considerations for hospital personnel to use when evacuating NICU patients. It includes a list of surge factors for the receiving hospitals and evacuation factors for the transferring hospital to consider.

Carbine, D., Cohen, R., Hopper, A., et al. (2014). [Neonatal Disaster Preparedness Toolkit](#). California Association of Neonatologists.

This toolkit identifies major hazards faced by neonatal intensive care units in California and provides suggested mitigation and response planning strategies, including evacuation and sheltering in place. It also provides appendices with sample check lists, job action sheets, and information transfer sheets for specific hazards.

Espiritu, M., Patil, U., Cruz, H., et al. (2014). [Evacuation of a Neonatal Intensive Care Unit in a Disaster: Lessons from Hurricane Sandy](#). *Pediatrics*. 134(6).

The authors identify lessons learned from the evacuation of NICU patients during Hurricanes Irene and Sandy in 2012.

Femino, M., Young, S., and Smith, V. (2013). [Hospital-Based Emergency Preparedness: Evacuation of the Neonatal Intensive Care Unit-The Smallest and Most Vulnerable Population](#). (Abstract only.) *Pediatric Emergency Care*. 29(1):107-13.

The authors describe a full-scale neonatal intensive care unit evacuation exercise and emphasize the importance of constant, clear communication.

Graciano, A.L., and Turner, D. (2015). *Current Concepts in Pediatric Critical Care*. (Book available for purchase.) Society of Critical Care Medicine.

Chapter 16 of this book addresses pediatric preparedness, and specifically includes sections on the evacuation of pediatric intensive care units.

Hoskins, J., Krupa, A., and Lyons, E. (2016). *Pediatric Evacuation: [You Don't Get To Go Home But You Can't Stay Here](#)*. Illinois Public Health Association.

This presentation provides information on pediatric evacuation initiatives within the State of Illinois.

Illinois Emergency Medical Services for Children. (2009). [Neonatal Intensive Care Unit \(NICU\) Evacuation Guidelines](#).

These neonatal intensive care unit (NICU) evacuation guidelines were developed by professionals throughout Illinois. A multi-disciplinary committee was also convened to collate personal experiences, recommendations, and current literature on NICU evacuations. This guide is intended to assist healthcare providers assess pre-event vulnerabilities and plan for the evacuation of medically fragile Level III NICU patients while addressing core components of incident management, in conjunction with the promotion of patient safety and evacuation procedures based on lessons learned from past disasters and experiences.

Illinois Emergency Medical Services for Children. (2013). [NICU/Nursery Evacuation Tabletop Exercise Toolkit](#).

This toolkit provides various resources and tools developed specifically for exercises, and offers guidance on planning, conducting, and evaluating tabletop exercises focused on the neonatal intensive care unit and nursery population.

Loma Linda University Children's Hospital. (2013). [Pediatric/Neonatal Disaster Reference Guide: Bridging the Gap Between EMS and Hospital Care.](#)

This guide was created to help emergency managers, coordinators, and hospitals in their efforts to develop their own specific departmental Emergency Operations Plan that addresses the special needs of children and infants.

Lucile Packard Children's Hospital. (n.d.). [Preplanning Disaster Triage for Pediatric Hospitals: TRAIN TOOLKIT.](#) (Accessed 2/14/2019.)

The Triage by Resource Allocation for IN-patient (TRAIN) matrix is a tool for pediatric hospital disaster “pre-planning” and an in-patient triage system designed to facilitate evacuation in a major crisis. It categorizes pediatric inpatients according to their resource transportation needs. It can be implemented manually or within an electronic medical record.

Texas Perinatal Services. (2018). [NICU Disaster Training: El Paso Hospitals Test Plans for Evacuating Tiniest Patients in an Emergency.](#)

This resource provides information on the lessons learned from exercises that were conducted by El Paso hospitals in 2018 specific to the evacuation of NICUs.

II. Women and Obstetrics-Specific Resources

American College of Obstetricians and Gynecologists' Committee on Obstetric Practice. (2017). [Hospital Disaster Preparedness for Obstetricians and Facilities Providing Maternity Care.](#) ACOG Committee Opinion. 726.

According to the authors, disasters can increase the likelihood of spontaneous miscarriages, preterm births, and low-birth weight infants. This opinion paper lists recommendations hospitals that provide maternity services can include in their disaster plans.

Centers for Disease Control and Prevention. 2014). [Critical Needs in Caring for Pregnant Women During Times of Disaster for Non-Obstetric Health Care Providers.](#)

This tip sheet addresses the critical obstetric considerations for non-obstetric providers for patients relocated due to disasters.

Centers for Disease Control and Prevention, Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion. (n.d.). [Estimating the Number of Pregnant Women in a Geographic Area.](#) (Accessed 2/14/2019.)

This factsheet describes the process used to estimate the number of pregnant women in a United States jurisdiction at any given time. It can be used by emergency planners to ensure adequate resource allocation and tailored planning.

Daniels, K., Austin, N., and Hilton, G. (n.d.). [Get Ready Stay Ready](#). (Accessed 2/14/2019.) California Hospital Association.

This presentation provides disaster planning information for obstetric units. It addresses the unique needs of these units, and includes information on disaster training for obstetric units.

Daniels, K., and Peterson, N. (n.d.). [We're in this Together](#). (Accessed 2/14/2019.) California Hospital Association.

This presentation provides disaster planning information for obstetric units. It provides strategies for surge and shelter-in-place procedures, and demonstrates a triage tool designed for obstetrical patients (OB TRAIN).

Haeri, S. and Marcozzi, D. (2015). [Emergency Preparedness in Obstetrics](#). (Abstract only.) *Obstetrics and Gynecology*. 125(4):959-70.

The authors emphasize the need for emergency preparedness discussions and actions among obstetric providers, tailored plans for pregnant women and their families, and all-hazards hospital planning.

Harville, E.W., Xiong, X., and Buekens, P. (2010). [Disasters and Perinatal Health: A Systematic Review](#). *Obstetrics and Gynecological Survey*. 65(11): 713728.

The authors examine the existing evidence on the effect of disasters on perinatal health. While there is evidence that disaster impacts maternal mental health outcomes and some perinatal health outcomes, the authors suggest that future research focus on under-studied outcomes such as spontaneous abortion.

New York State Department of Health, Health Emergency Preparedness Program, and Division of Family Health Office of the Medical Director. (2010). [Pediatric and Obstetric Emergency Preparedness Toolkit](#).

This toolkit is especially designed for those hospitals that do not have pediatric intensive care services or obstetric or newborn services, and must prepare for such patients during a disaster. Hospitals should use this document to inform their facility-specific plans.

Stanford Medicine Obstetrics and Gynecology. (2015). [Stanford OB Disaster Planning Toolkit](#).

A Stanford Health Care multidisciplinary committee, consisting of obstetricians, obstetrical anesthesiologist, labor and delivery and postpartum nurses, created and tested in a simulated setting, a compilation of tools that can be employed in the event of a hospital disaster requiring evacuation. This toolkit addresses the evacuation of labor and delivery and antepartum units, and includes shelter in place plans for actively laboring patients.

UNC Center for Public Health Preparedness. (2011). [Reproductive Health Assessment After Disasters A Toolkit for US Health Departments.](#)

This toolkit can help healthcare providers assess the reproductive health needs of women aged 15-44 after a disaster. It includes links to a variety of resources including checklists, training resources, and instructions for analysis.