NACCD Brief Task: Identifying Metrics of Baseline Vulnerability in Pediatrics Health Care Services

Introduction

This When Hurricane Maria struck Puerto Rico in September 2017, every aspect of life and infrastructure on the island was devastated. The healthcare delivery system was not immune to this impact. Access to healthcare was tenuous and inadequate for many months after the storm, and still falls short of the optimal. The reasons for this are many: some relate to the tremendous scope of damage from Maria, but there are other characteristics related to the geography and pre-hurricane infrastructure, economy, and healthcare system.

The concept of a Regional Disaster Health Response System (RDHRS) rests on the aspiration of a strong and resilient local healthcare system that can withstand, respond to, and recover from disasters and public health crises. The different effects and recovery trajectories from the three major U.S. hurricanes of 2017 – Harvey, Irma, and Maria – invite inquiry as to why some areas can respond better and faster than others after disaster. A baseline assessment of vulnerabilities in healthcare delivery would be invaluable in predicting an area’s need for outside assistance and prognosis over short, medium, and long-term timescales, enabling a more targeted direction of resources.

The Assistant Secretary for Preparedness and Response (ASPR) asked the National Advisory Committee on Children and Disasters (NACCD) to develop a list of metrics that could define the baseline status and vulnerability of an area’s ability to deliver pediatric healthcare. The NACCD addressed this question at its in-person meeting on June 28, 2018 in Washington D.C., and identified the following indicators:

Community Characteristics

- Geographic isolation (possible definition: distance to two closest major metropolitan centers)
- % children receiving free or subsidized school lunch
- Baseline power grid penetrance and capability for rebuilding
- Baseline high-speed internet/cell phone/4G availability
- # of children with technology-dependent medical conditions (identify through Medicaid claims data)
- Homeless population per capita
- Baseline water capacity, frequency of water disruptions and shortages
Pediatric Services

- Availability of pediatric primary care (identify through Health Professional Shortage Area (HPSA) designation; also utilize AMA Physician Masterfile (1), AAP Chapter, insurer rosters as additional data sources)
- Availability and breadth of pediatric medical and surgical specialists, focusing on 24/7 coverage
- Availability of pediatric behavioral and mental health services (outpatient and inpatient)
- Availability of pediatric nurses
- Inpatient capacity (pediatric bed capacity, average % filled, surge capacity)
- % of area hospitals which are Critical Access Hospitals
- Access to pediatric trauma care (Pediatric Level I/II trauma centers)
- Pediatric transport capacity
- Pediatric extracorporeal membrane oxygenation (ECMO) availability and capacity

Other Indicators

- Average Medicaid to Medicare payment ratio (amount paid by Medicaid as a % of Medicare)
- Hospitals’ days cash on hand
- Hospitals’ inventory of specialized pediatric equipment and supply chain replenishment capability
- Robustness of local healthcare coalition participation, functionality, funding, pediatric drills

Recommendations

The NACCD recognizes that this list is a first step in developing a measure of baseline vulnerability in the pediatric health system. Specifically, the NACCD recommends the following next steps:

1. Assess the ability to quantify each of these metrics using existing data sources. Some of the proposed indicators will be very easy to obtain and quantify, such as health professional shortage area (HPSA) score. Other measures may be more challenging or subjective, or will require consensus on definition, such as capability for rebuilding a power grid or availability of pediatric nurses.

2. Refine the list by identifying the metrics most useful in determining baseline pediatric health system vulnerability. Some of the proposed indicators will be more readily available or carry greater weight than others. Utilization of a weighted scoring system, such as a Cause and Effect Matrix, may be helpful here.

3. Attempt to validate the refined list by retrospectively applying it to areas that have experienced disaster and comparing the results to assessments of healthcare access and status in recovery in these areas.
Appendix A: Notes


Appendix B: NACCD Roster

Voting Members

Scott Needle, M.D., FAAP (Chair)
Medical Director for Patient Safety and Quality of Care
Healthcare Network of Southwest Florida

Michael Anderson, M.D., MBA, FAAP
President
UCSF Benioff Children’s Hospitals

Allison Blake, Ph.D.
Senior Fellow
Child Welfare Strategy Group
The Annie E Casey Foundation

David Esquith
Director
Office of Safe and Healthy Students
U.S. Department of Education

Robin Gurwitch, Ph.D.
Clinical Psychologist
Duke University Medical Center
Department of Psychiatry and Behavioral Sciences

Lauralee Koziol
Former FEMA Child Coordinator
Senior Analyst
Office of Regional and Field Coordination
FEMA Individual Assistance Federal Emergency Management Agency
U.S. Department of Homeland Security

Linda MacIntyre, Ph.D., RN
Chief Nurse
American Red Cross

Susan McCune, M.D., MAEd, FAAP
Director, Office of Pediatric Therapeutics (OPT)
Office of the Commissioner
Food and Drug Administration (FDA)

Sarah Park, M.D.
State Epidemiologist and Chief
Disease Outbreak Control Division
Hawaii Department of Health

Georgina Peacock, M.D., M.P.H., FAAP
Director, Division of Human Development and Disability
National Center for Birth Defects and Developmental Disabilities
Centers for Disease Control and Prevention
U.S. Department of Health and Human Services

Sally Phillips, RN, Ph.D.
Deputy Assistant Secretary
Director, Office of Strategy, Policy, Planning, and Requirements
U.S. Department of Health and Human Services
Office of the Assistant Secretary for Preparedness and Response

Jeffrey Upperman, M.D.
Director, Trauma Program
Associate Professor of Surgery
Division of Pediatric Surgery
Children’s Hospital Los Angeles
Keck School of Medicine
University of Southern California
Anne Zajicek, M.D., Pharm.D., FAAP
Deputy Director, Office of Clinical Research
National Institutes of Health
U.S. Department of Health and Human Services

Ex-Officio Member

Gary L. Disbrow, Ph.D.
Acting Director
Biomedical Advanced Research and Development Authority (BARDA)
Office of the Assistant Secretary for Preparedness and Response
U.S. Department of Health and Human Services

ASPR Subject Matter Expert Liaison

Daniel Dodgen, Ph.D.
Director of Policy
Office of Strategy, Policy, Planning, and Requirements
Office of the Assistant Secretary for Preparedness and Response (ASPR)
U.S. Department of Health and Human Services

Office of the Assistant Secretary for Preparedness and Response (ASPR)

CDR Jonathan White, Ph.D., LCSW-C, CPH
Chief, Domestic Policy
Designated Federal Official
Office of Strategy, Policy, Planning, and Requirements

Maxine Kellman, D.V.M., Ph.D., PMP
Biotechnology Analyst
Alternate Designated Federal Official
Office of Strategy, Policy, Planning, and Requirements

Sarah Verbofsky, MPA
Jr. Management Analyst
Office of Strategy, Policy, Planning, and Requirements