Journal of Pediatric Surgery 51 (2016) 1054–1058

Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

Correspondence

The pediatric surgeon's readiness to respond: commitment to advance preparation and effective coordinated response☆

To the Editor,

The power of natural disasters affects millions resulting in injury, death or displacement. Additionally, man-made disasters create local emergencies that can stress local response. In 2012, 357 natural disasters were reported resulting in more than $157 billion in damage and 9600 mortalities, which affected an estimated 123 million people worldwide [1]. The number of deaths was substantially less than the annual average of 106,891 from the first decade of the 2000s [2]. Disasters are ubiquitous and can impact all persons regardless of ethnicity, socioeconomic status, and age. In 2013, we were humbled by news footage of the Philippines being ravaged by an earthquake just days after being hit with a typhoon. This typhoon affected nearly 6 million children, leaving 1.7 million of them displaced. In 2014, the Ebola Virus Disease resulted in a public health emergency, underscoring the importance of preparedness, training, and systematic response.

Children have unique vulnerabilities that need to be addressed in emergency mitigation, planning, response, and recovery [3]. Their medical needs require specialists and different equipment and medication, which must be planned for. For example, it is estimated that 53% of the 2010 Haitian earthquake victims were children and many required immediate subspecialist care [4,5]. The pediatric surgeon offers a unique skill set that is critical in treating disaster injuries. While the role of the pediatric surgeons in disaster response remained undefined for quite some time, it has been suggested that they play an integral role in their facilities disaster planning and responses [6,7]. It has also been shown that children with traumatic injuries that are treated by pediatric subspecialists have better functional outcomes than those treated by adult subspecialists [8]. Thus, it is imperative to involve pediatric surgeons and pediatric subspecialists in emergency planning and response to deliver specialty care that could not otherwise be provided.

Special attention must be paid to children's needs as they relate to emergency preparedness, response, and recovery. Many governments, hospitals, and organizations must continue to work on meeting these needs [3,9]. In this paper, we will outline a high level overview of disaster management and disaster medical response within the United States and internationally. This paper also describes the possible role(s) of pediatric surgeons in emergency planning and response. We have elected to use the term *emergency*, instead of *disaster* in relation to the four phases of preparedness, mitigation, response, and recovery to be consistent with current terminology used in this field. Within the U.S., emergency management focuses on an all-hazards approach that includes all types of threats; natural, organizational, technical, or human.

1. The outlook of pediatric emergency management

Despite advances in overall emergency management activities and research, emergency preparedness and response activities for children remain an open opportunity for improvement. Children's needs are distinct from adult's [10]. Focused and concerted efforts are required to incorporate their needs into emergency preparedness, response, and recovery activities. Children, by definition, are an at-risk population according to the Department of Health and Human Services (HHS) Pandemic and All-Hazards Preparedness Act (PAHPA). This definition includes "individuals that may have additional needs before, during and after an incident related to maintaining independence, communication, transportation, supervision and/or medical care." [11] As of 2012, children comprised 23.5% of the total U.S. population which is a significant portion of the population and needs special recognition [12].

2. Policy & perspectives

2.1. Emergency support functions

When disasters occur, the responses start locally. If resources are exceeded, the request for support escalates from the local to the regional, state, then federal level. Requests must be made by the level at which the disaster command is functioning in order to draw in resources above that level. Response agencies use the National Incident Management System (NIMS) to provide consistent structure, language, and to support communication among response agencies. The National Response Framework (NRF) serves as a guide for responding to all hazards. It "describes the principles, roles and responsibilities, and coordinating structures for delivering the core capabilities required to respond to an incident and further describes how response efforts integrate with those of the other mission areas" [13].

Emergency support functions (ESFs) provide categorization of services and resources for emergency response. They are used to group the capabilities of both the government and private sector. The fifteen ESFs coordinate government and private sector capabilities to support a return to a normal state following domestic incidents. Medical care is included in ESF 8 titled "Public Health and Medical Services" with the Department of Health and Human Services as the primary agency responsible. The functions are coordinated by the Secretary of HHS, through the Assistant Secretary for Preparedness and Response (ASPR). These functions are activated to supplement state and tribal jurisdictions in meeting public health and medical needs of disaster victims [14].

2.2. Update on pediatric initiatives

Emergency preparedness and response for children continues to be a national priority and focus. The Consolidated Appropriations Act of

☆ Prepared for the American Pediatric Surgical Association Committee on Trauma.

Table 1
Adaptation of Chackungal – Surgical Issues Within the Humanitarian Space Working Group Summary.

	Step 1	Step 2	Step 3	Step 4
Program planning	Establish minimum core competency standards for providers who will respond	Assess ground environment Infrastructure; Electricity Waste management Water	Personal needs: Safety and security Food source and availability Housing	Medical care needs: sterilization Blood availability Physical location of surgery
Preparing to care	Define services provided Staff: Assess the number of surgical, anesthesia, and rehabilitative care required Surgery and anesthesiology teams should be paired to provide care	Identify equipment required to serve: Anesthesia, Surgical, and Rehabilitative equipment Pharmaceuticals: anesthetics, antibiotics and prophylaxis, pain management and intravenous fluids	Identify the physical surgery space	Documentation: Identify the minimum data elements and a method for recording
Caring for the patient	Documentation of medical care including pre-operative assessment, consent, operative note, anesthetic record and post-operative/discharge plan			
Re-integrating into the system of care	Connect patient to existing medical systems for continuing their rehabilitative or post-operative care			

2008, signed into law by President George Bush, authorized the establishment of the National Commission on Children and Disasters (NCCD) [15]. Among four deliverables, the NCCD was established to review the needs of children related to preparation, response, and recovery from all hazards [15]. This group was tasked with providing recommendations for closing gaps in pediatric disaster planning. In the 192-page report to the President Barack Obama and Congress in 2010, the NCCD documented recommendations related to the following areas of focus:

1) child physical health, mental health, and trauma;
2) child care in all settings;
3) child welfare;
4) elementary and secondary education;
5) sheltering, temporary housing, and affordable housing;
6) transportation;
7) juvenile justice;
8) evacuation; and
9) relevant activities in emergency management.

The NCCD also called for the creation of a national strategy on disasters affecting children and the creation of a national resource center on children and disasters. This report has laid the foundation for activities and organization's continued work in advancing the issues for children's needs related to emergency management activities. Many of these issues have been taken on by the National Advisory Commission on Children and Disasters.

The 2013 National Report Card, compiled by Save the Children, documents four basic disaster preparedness standards recommended by the NCCD. The report was completed in 2008 and 2013. The number of states meeting all four of the standards (evacuation/relocation plan, family–child reunification plan, children with special needs plan, and K-12 multiple disaster plan) increased from four to twenty-two within the five-year timeframe [16].

In 2014, an application process, led by the Federal Emergency Management Agency, was conducted to identify a 15 member panel to convene until 2018 to provide advice and consultation regarding the medical and public health needs of children related to all-hazards preparedness. This panel will further the development of children's needs at a national level.

3. Disaster resource systems and networks

3.1. Federal organizations

Disaster response starts locally; however once resources are exceeded at the local, regional, and state levels, a federal disaster declaration can be made to leverage federal assets. Federal assets include response personnel, ambulance contracts, and the strategic national stockpile which is the U.S. national repository of pharmaceuticals and critical medical supplies and equipment. The National Disaster Medical System (NDMS) is the primary federal system for medical response.

4. The National Disaster Medical System

Medical response is primarily organized in two ways: government sponsored response and non-governmental organization medical response. The NDMS Response, overseen by the U.S. Department of Health and Human Services, is a coordinated system that supports federal medical response. NDMS employees serve when they are activated as a federal employee and have liability coverage and compensation for workplace injuries. Response teams appropriate for surgeons within the NDMS include Disaster Medical Assistance Teams (DMATs) and the International Medical Surgical Response Team (IMSURT). DMATs are structured regionally and typically support local, regional, and state efforts. The benefit of being part of a pre-designated and structured system is that NDMS teams are supported by logistical and administrative staff.

4.1. Medical Reserve Corps

The Medical Reserve Core (MRC) is a nation-wide network of "local groups of volunteers committed to improving the public health, emergency response, and resiliency of their communities". They are organized under the Office of the U.S. Surgeon General. Frequently, the volunteers partner with their local response agencies including departments of public health and the American Red Cross [17].

4.1.1. Non-government organizations

Of the many humanitarian and medical response agencies throughout the world, one of the largest is the American Red Cross. The Red Cross is the only Non-Government Organization (NGO) that has a federally designated role. [18].

4.1.2. Regional coalitions

More than the past ten to fifteen years, efforts have been made to address the importance of networks and connectedness among individuals and agencies for emergency planning and response. These networks are focused on improving coordination of emergency planning, response, and recovery efforts. The networks provide a structure