Abstract:

This article offers an outline for the components of disaster planning and response where considerations for family reunification should occur and describes the challenges and solutions within each. Challenges and solutions are described in 6 areas including practice and planning, clinical services, ancillary support, transportation and accommodations, communication and identification, and psychological support. Family reunification will be more successful if these challenges are understood and solutions are enacted.

Keywords:

children; disaster; planning; family reunification; identification; tracking; ancillary services

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Family Reunification— Concepts and Challenges

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Disasters affecting mankind have existed since the beginning of time. More recently, an analysis of the literature has defined disasters in new ways, including a description of "natural disasters," such as floods, tsunamis, earthquakes, and fires; "manmade disasters," such as bioterrorism or chemical warfare; "technological disasters," involving industrial or radioactive events; or "complex humanitarian emergencies," such as civil unrest, economic collapse, or population displacement.[1] Despite the terminology, over the last 2 decades, disasters as a whole have adversely affected 800 million people, half of whom have been children. It is estimated that over the last 5 years alone, 75 million children have been affected by varied and catastrophic disasters.[2] In 2007, alone, there were 63 major disasters, 13 emergency declarations, and 60 fires.[3]

More recently, disasters such as Hurricane Katrina in the United States, the tsunami in Indonesia, and earthquakes in China and Japan illustrate the worldliness and impact of disasters, their unpredictability, and the devastation resulting in loss of human life, displacement of people, and the resultant emotional upheaval.

As a consequence of disasters, family reunification becomes one of the most challenging processes to plan for, implement, and accomplish. Interestingly, the term *reunification* is defined most simply in one source, as the "process of children returning to their parents' care after a period of separation," although the author acknowledges that the process is more complex than described in the definition.[4] Therefore, in an attempt to adequately address the magnitude and importance of this objective, and as a framework for discussion, this article will use the term *reunification*, as the

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National Center for Missing and Exploited Children (NCMEC) "Katrina Missing Persons Hot Line" phone number 1-888-544-5475.

Name: _____   Barrack # _____

Age: _____ Months/Years

Gender: Male   Female

Who is currently the supervising adult in this camp? _____

   Is this person a parent?   Yes   No
   A grandparent?   Yes   No
   Is this parent the usual guardian?   Yes   No
   Was the child living with this person before Hurricane Katrina?   Yes   No

If the adult(s) is not a parent or grandparent, what is the relationship to this child?
   Aunt/Uncle
   Sibling
   Friend
   Other (next-of-kin)

Does the child appear to be ill or have an injury?   Yes   No

If yes, please describe: _____

Does this child have a history of medical problems?   Yes   No

If yes, please list: _____

Does this child or family member have special needs?   Yes   No

If yes, please list: _____

FIGURE 1. Operation Child ID Survey.

considerations, strategies, and actions vital to the re-establishment and reuniting of families after a variable period of involuntary separation.

Inherent in this process is the goal and imperative to rapidly identify and protect displaced children in order to reduce the potential for maltreatment, neglect, exploitation, and emotional injury. A critical aspect of pediatric disaster response is to effectively address the needs of children who have been displaced from their parent or guardian.[5] The World Health Organization further suggests that the goal of family reunification is to ensure children's protection and well-being by prioritizing in any emergency the identification, registering, and documenting of unaccompanied and separated children as quickly as possible.[6] This process must include a focus on the knowledge of children's vulnerabilities and emotional responses; appropriate planning between local, regional, national groups, and governmental agencies; understanding surge capacity and resources; and having plans for communication, coordination, and tracking.

This discussion will focus on 6 broad areas (planning and practice, clinical services, ancillary support, transportation and accommodations, communication and identification, and psychological support), outline the challenges faced by clinicians and non-clinicians, and offer potential solutions. The contents herein will reference specific literature, if appropriate, and/or use assorted internet sites, academic "educational" papers, or information obtained from collaborative working groups, for example, the reunification conference conducted through the Pediatric Disaster Resource and Training Center at the Childrens Hospital of Los Angeles.[7]

PLANNING AND PRACTICE

Planning for a disaster response must first begin at the individual and family level. This process

should start with family discussions, taking inventory of personal resources, strategizing and planning for separation, and developing contingencies for unexpected events. Families can also rely on the guidance of their primary care provider who can suggest methods of teaching children their names, phone numbers, addresses, contact information, and how to avoid separation.[8]

Schools and daycare centers must also be prepared for inevitable disasters. Approximately 67 million children are enrolled in US kindergartens, schools, and childcare centers. Research commissioned by Save the Children found that most states have not taken the steps to prepare for, or respond to the needs of children in the event of a disaster. Only 15 states require licensed childcare facilities to have a reunification plan for children and families in the event they become separated during an emergency.[9]

Practice and drilling with institutional personnel and families, including children, will likely lead to better success when an actual event occurs. Although drilling and exercises may take place currently among numerous institutions, it has been shown that these events are often ill-defined, disorganized and without the use of children as mock victims.[10]

Challenges

- Family planning within the home is performed insufficiently. In a recent 2008 survey, approximately 45% of US residents, even with disaster warning, felt that they were completely or mostly prepared with items needed for a safe evacuation, and 44% reported having all or some of the basic elements of a disaster preparedness plan, with items such as food, water, batteries, etc.[11]
- Family disaster plans frequently overlook pick-up of children, escape routes, meeting places, personal supplies, pet accommodations, alternative transportation arrangements if vehicles are nonoperable, or accommodations if the home is structurally damaged or inhabitable.
- School-based disaster plans may be incomplete and, if present, may not be coordinated with local emergency planners. A 2004 survey of more than 2100 superintendents demonstrated that 86% had a plan, 57% had plans for prevention, 30% had never conducted an evacuation drill, 22% had no disaster plan for children with special healthcare needs, 25% reported no plans for postdisaster coun-

seling, and 43% had never met with local emergency medical services officials to discuss emergency planning.[12]
- Disaster planning in healthcare settings frequently involves discussions about adult victims but usually omits planning involving children's healthcare needs and in particular children who are immobile, or at young, preverbal ages.
- There is no established national document that outlines standards for family reunification, strategies, or resources required, leaving the planning up to individuals, groups, institutions, and private or public agencies. This has resulted in insufficient planning, coordination, and lack of pediatric-specific resources (medications, supplies, staff, etc).
- Emergency departments (ED) are frequently ill-equipped to handle pediatric patients and haven't planned accordingly. In a national survey of ED nursing and medical directors, of the 1489 surveys received, only 6% of hospitals had all of the recommended pediatric supplies and equipment, and just 52% of EDs had a quality improvement plan for pediatric patients.[13] In addition, EDs in rural areas may not be sufficiently prepared to care for children, as a 2008 study revealed that 24% of EDs have access to board-certified pediatric emergency physicians, and 38% of EDs do not have a pediatrician available for consultation at all times.[14]

Solutions

Family reunification strategies start at home. It is likely that when emergency response and other healthcare personnel verify that their own families are safe and secure, the desire to respond to the aid of others is greater. It is essential that a blueprint of the home be created and that all pathways leading to entrances and exits are identified. This disaster and evacuation plan should also include how to shut off gas, water, and electricity. Children should be informed on potential evacuation routes, meeting places, and alternative means of communicating with family members; this may include cell phones, computers, door-to-door communication, and others. Practicing the plan under varied disaster conditions (eg, during the storm season, fire drills, etc) will also help to alleviate anxiety when an actual event occurs. Children should be taught safety practices, including what to do in the event of fires, earthquakes, and others. "Go bags" should be created with essential perishables and nonperishable supplies and placed in strategic locations.

School disaster planning should, by law, be implemented in order to address the likelihood that a disaster may strike when children are attending school. Under the jurisdiction of local school boards with guidance from state or federal agencies, disaster planning should address lockdown procedures, evacuation, relocation, and reunification of children with family.[12] The Emergency Medical Services for Children National Resource Center and the National Association of School Nurses have created a list of essential emergency equipment and resources that should be available to all schools. In addition, police, public health officials, fire fighters, and other vital members of the disaster response infrastructure should assist schools with the development of policies and procedures and assist with disaster drilling and exercises in order to enhance efficiency and coordination.

School-related disaster issues that affect children and general disaster preparation can also be guided by the child's pediatrician who can assist with: notification of utility and other service companies, maintenance and retrieval of medications and equipment, training of family members for specific disaster roles, and how to keep up-to-date emergency information.[15] The maintenance and ready availability of up-to-date emergency information may be especially important for families with children with special health care needs.

Overall, general institutional disaster planning regarding reunification should begin by creating an educational data bank and creating a disaster curriculum that can serve as the justification for training and educating clinicians and nonclinicians on the procedures involved in family reunification. These disaster education materials should be created using input from professional organizations (American Academy of Pediatric, American College of Emergency Physicians, Emergency Nurses Association, American Academy of Family Physicians, etc), along with resources developed by emergency medical services organizations and state and national agencies. Disaster planning at all levels must include experts who deal routinely with children and who can assist with the development of pediatric-specific practices and recommendations, including child-specific drills that can be carried out in a variety of healthcare settings, including rural areas.

Although there is no specific national guideline regarding reunification strategies and processes for children, a state and/or national consensus meeting on this topic would prove valuable. Representation from stakeholder professional organizations, and from local, state, and federal governmental sources could result in the creation of family reunification procedures (eg, best practices) that could be distributed and implemented. To meet these consensus reunification guidelines, healthcare institutions and rescue organizations would need to develop practice standards and recruit appropriately trained staff to care for pediatric victims. Shortages of appropriately trained staff, lack of pediatric-specific resources, and lack of pediatric on-call specialists, unless corrected, will ultimately perpetuate deficiencies in all aspects of disaster preparedness for children, including family reunification objectives.

CLINICAL SERVICES

Coordinating family reunification under disaster conditions involves the collaboration of providers, having clear lines of communication, compliance with treatment and reunification protocols, and having goal-directed behavior. Aligning pediatric victims with family members is ideal; however, without family involvement, efforts should be undertaken to create a system whereby children are matched to other volunteers or care providers. In addition, considerations must be given to environmental safety and security, as children can wander off or be harmed by hazards created in a disaster. Facility planners should carry out the necessary arrangements to secure children in appropriate designated areas, as intentional or unintentional injury could occur.

Although evacuation should be considered the last resort, it may be a necessary strategy in order to avoid further harm. This should occur as efficiently as possible, based on predetermined guidelines with emphasis placed on patient identification, tracking, and verifying that patients' medical conditions are stabilized with minimal likelihood that transport will cause unnecessary harm.

Challenges

- Based on insufficient training and/or limited baseline experience of clinical staff with ill and injured pediatric patients, children may suffer medical sequelae as a result of their particular injuries. Fundamentally, children are different from adults and cannot be treated as merely "small adults".[16] Their unique anatomic, physiologic, developmental, and psychological needs must be reflected in all aspects of planning for the clinical care of disaster victims.

- Developmentally, children lack the cognitive skills that enable them to understand medical interventions or treatments. Without sufficient support, treatments may be difficult or impossible to implement.
- Environmental safety and security may be faulty, disorganized, or ill-equipped, thus causing potential harm to children. Not having an organized structure within the care area, that is, a designated and defined space with appropriate personnel, may result in patient deterioration from overlooked injuries.
- Evacuation, if necessary, may create undue harm to patients if their medical conditions are not appropriately stabilized. Stabilization is likewise affected if staff is insufficiently trained or unavailable.
- The Joint Commission emergency medicine standards should be used as a basis for policy guidelines among institutions.[17] However, since these recommendations are not specific to the pediatric population and their unique needs, all clinical personnel must be trained on pediatric disaster-specific protocols in order to coordinate and provide care. Deficiencies may result if facilities omit pediatric clinical care protocols in their general hospital-defined guidelines. In addition, family reunification may not be emphasized or drilled as part of the general disaster operations training.
- Children may also be at risk for secondary injury within or outside a hospital setting, such as a reunification center, by adults who may abuse, abduct, or exploit child victims. A publication in 2000, based on child abuse reporting, demonstrated that there was disproportionately more abuse in the aftermath of several hurricanes and an earthquake.[18] Secondary medical conditions may also occur, resulting in such conditions as wound infection, gastroenteritis, dehydration, and malnutrition.[19]
- Children being treated in disaster conditions must be identified and tracked from initial contact, throughout treatment, up through and including reunification with their identified caregiver. Failure to complete this vital process may result in neglect, abandonment, loss, or injury.

Solutions

Children must be cared for with an understanding that their physiology, medical conditions, response to interventions, and treatment vary dramatically from that of adults. Their organs are proportionately larger, closer together, and not as well protected as adult organs. Young children have disproportionately large head sizes, possibly resulting in more serious head injury. Children also metabolize drugs differently and require varying dosages of drugs and antidotes based upon weight. In addition, medical and nursing personnel must be familiar with a child's medical needs and spectrum of treatments available and be versed in the use of pediatric equipment.

Areas designated to treat patients must be safe and secure, taking all necessary precautions to avoid hazards or dangers in high risk areas such as stairs, hallways, or elevators. Equipment and supplies that impact patient care, such as monitors, oxygen tanks, and airway and rescue equipment should be functional, available, appropriately sized, and transportable. Personnel, and the tasks to be performed, should be predetermined and practiced in a variety of areas, and under simulated disaster conditions, in order to lessen patient deterioration in an actual disaster. A mnemonic used to assist in these components are designated as the 4 "Ss," including staff, stuff, structure, and space.[5,20]

In the event of evacuation, staff should perform all the care necessary to maximize patient stability prior to transfer. Planning should include predetermined transport arrangements, and a memorandum of understanding (MOU) with alternate care sites, verifying that staff assigned to patients continue with each child throughout the transport process; that equipment and supplies necessary for patient care stay with the patient, and that identification bands, markings, or any other tracking tools used (see section on Communication and Identification), are patient specific. These steps and/or procedures are essential in order to maintain optimal care throughout the process of patient transport and to support reunification efforts at alternative care sites.

Planning for the care of children in disasters should also include considerations for providing care in the absence of a consenting parent or guardian, and under disaster conditions, what constitutes "standard of care." To meet these goals, legal counsel should be obtained as part of planning within each institution. Individual provider malpractice insurance policies may not cover out-of-office care or the expanded scope of practice that may be required during a disaster.[15] In addition, for disaster victims who are deceased, arrangements should be made for the aid of social service support, police, and personnel from the National Center for Missing and Exploited Children (NCMEC).[21]

TABLE 1. Technologies for identifying and tracking.

Technology	Description
Wristbands	Color-coded wristbands worn for ID purposes
Barcoding	Printed lines, dots, or circles containing machine readable information, read by optical scanners
Forensic odontology	Used to ID teeth matched to victim; can also use imbedded RFID to identify patient
Smart cards	A card which stores imbedded microchip used for ID, requires a reader
Geographical information system	Uses spatial technology and user data to track victims from location to location
Global positioning systems (GPS)	Uses remote sensing technology to create maps of the disaster area, can determine receivers' location, speed, and direction
Robotics	Robots sent to locate victims in unsafe areas, can transmit geo-location data
Radio frequency ID implantable chips	Uses radio frequency tags with ID information stored on microchips, imbedded in individuals to provide ID and tracking
Wireless communication devices	Cell phone technology which allows for victim positioning
Personal digital assistants	Technology which can send/receive emails, functions as a mobile phone and GPS unit. PDA can assist in victim ID and location via the internet
Wireless Internet	Technology which can instantly transmit ID and location data. WIISARD (wireless internet information system) uses RFID to track victims by reading sensors and transmitting data to a centralized data base

TABLE 1.   (continued)

Technology	Description
Biometrics (authentication technologies) Examples: passwords, fingerprint scans, signature analysis, voice recognition, digital certificates, iris/retina scan, face recognition, hand geometry	Technology which uses physical or behavioral traits as a means of using digital ID unique to that individual
Intelligent triage tags	Electronic triage tag using sensors, and memory, allowing for wireless transmission capabilities

To maximize reunification efforts, one model used at Camp Gruber, a reunification center created in the aftermath of Hurricane Katrina, involved the use of "Operation Child-ID." This program was created to identify separated children, to help prevent intentional injuries, and to help thwart abductions.[19] With the use of volunteers, nurses, and staff, "strike teams" were created who used a standardized survey form (see Figure 1), along with specified identification procedures (bracelets on children and their accompanying adults), along with NCMEC personnel, and demonstrated significant success at reuniting affected children and their families.

ANCILLARY SUPPORT

Accompanying the clinical needs of children are those support services and resources that impact overall children's health and the chance for effective and prompt reunification. As an aid to reunification efforts, reliance on personnel within and outside a healthcare institution contributes to the success of monitoring, tracking, and identifying children. These ancillary support providers such as volunteers, nonclinical staff, police, security, social workers, interpreters, and public health personnel can accompany children throughout the triage and treatment process so that patients are comforted and supported amidst the chaotic, frightening, and possibly hazardous environment.

Other ancillary needs include nonmedical supplies vital to the well-being of each child, including nutrition, diapers, clothing, toys or other distractions, and a sundry of other comfort measures.[1] These services and supplies cannot be forgotten and must be maintained throughout the continuum from initial care to family reunification.

Although treatment and non-treatment areas blend during disaster conditions, it is essential that areas are labeled and configured such that appropriate care or services can occur. These areas, for instance, may include: staging, triage, treatment areas for each distinct level of acuity, designated ancillary service areas, including those places necessary for supplies and equipment, media center, family information center, temporary morgue, daycare, pet-safe area, and others. These service and treatment areas must be safe and secure, with ample staff and supplies (medical and non-medical) to assure that patients, families, and staff are well cared for.

Challenges

- During disaster conditions, it is likely that staff, volunteers, and other facility personnel will be short handed and/or shifted to specific areas, leaving deficiencies in acute care or related service areas. This may impact patient flow, causing inefficiencies, bottlenecking, treatment delays, patients who leave without care, and inadequate resources which can adversely affect patient outcome.
- As children are placed in a vulnerable position, some of whom will be without a parent or guardian, lack of adequate pediatric patient appropriate supplies (eg, formula, food, diapers, etc) may create the potential for further harm among patients.
- Based on predetermined protocols and hospital disaster planning, well-defined areas for patient care and service needs may be deficient so that patients with varying conditions or levels of severity, may not receive appropriate care. In addition, non–patient care areas, such as those containing supplies and equipment, may lack the necessary resources or be so unorganized that patient care is impacted.
- Ancillary service areas, important for communication within and outside the facility, and therefore important for the reunification process, such as a media center, or family information center, if poorly structured or unavailable, may detrimentally affect reunification efforts. Other areas such as daycare or pet safe areas, if unavailable, may dissuade health care professionals from coming to work due to concerns for the safety of their own family members.

Solutions

Long before a disaster strikes, planning for child victims must include the coordination and cooperation of ancillary providers. Within the hospital organization, managers, division directors, and administrators must consider strategies that will be necessary to support pediatric care. These plans should include arrangements with vendors that are able to supply medications, perishable items, and equipment. Hospital personnel in charge of specified areas should likewise formulate processes for procuring and delivering supplies and equipment necessary for patient care. Patient care unit and ancillary service directors must formulate disaster on-call panels or "disaster trees" so that staff can be called in to increase service capacity. Having an adequate staff will eliminate resultant delays in patient care, inefficiencies in service, and the chance that patients will leave without obtaining appropriate care and treatment. Depending on the severity of the disaster and the impact upon the structure and facilities, arrangements should include needed supplies, as well as the procedure to obtain "on-call" supplies.

Ancillary support personnel, such as volunteers, must be pre-arranged in adequate numbers, if needed for assistance. Other personnel such as law enforcement, public health officials, social service workers, and security will be needed to carry out tasks essential to keep patients, families, and staff safe and secure. A predetermined contractual relationship should be in place, allowing for adequate numbers of each contractual provider, knowing that some may not be available or capable of coming to the disaster location.

The creation of designated areas for specified services should also be pre-determined with methods for labeling, staffing, and carrying out specified duties. Staff, patients, and families must be fed and cared for, especially if confinement is likely, based on the disaster conditions. This means that adequate food supplies, clothing, sleeping quarters, sanitation, distractions, phone service if available, daycare, and an assortment of other basic needs must be supplied. Families will rely on information coming from hospitals, so communication including updates and media reports to the public is essential.

TRANSPORTATION AND ACCOMMODATIONS

Transportation to and from a hospital involved in disaster management typically functions under pre-established protocols, either arranged by a hospital individually, or through regional planning. More importantly, the mode of transportation from hospitals to alternate care sites or to centers with higher level capabilities should be determined based on the needs of the patient. This may, under disaster circumstances, include all methods of transport, ranging from taxi or private car, to the most sophisticated mode of critical care transport, for example, ambulance, helicopter, fixed-wing aircraft.

Personnel involved in these transports must adhere to strict care guidelines in order to maximize efficiency and diminish the chance for patient deterioration en route. Vital data on patients being transferred should include identifying information and specific information related to the child's identity matched to his/her caregiver. Transport arrangements and specifications may also be managed through a data-recorded, centralized dispatch system.

Transportation within the components of disaster care system should also be preplanned and practiced. Transportation may be by foot, wheelchair, gurney, or, in the worst case scenario, by improvised transport means. Frequently, children in a disaster treatment setting, will be shuffled and moved numerous times as treatment progresses and as more victims arrive. This movement of patients from one area to another must be tracked meticulously, in order to avoid "lost" patients.

Challenges

- Depending on the severity of patients or the magnitude of a surge, availability for certain transport modes may be limited. For instance, if all critical care transport teams are in use, large numbers of critically injured patients may be at risk.
- Transport coordination may be challenging if communication systems are down, MOUs are not arranged appropriately, if there are limited personnel capable of transporting patients, if pediatric specific equipment is limited, or if the disaster conditions limit transport capability, because of flooding, impassable roads, etc.
- As seen with Hurricane Katrina, transport of hospitalized pediatric patients was dependent on out-of-region, private and public transport

services. These transport arrangements often functioned largely unsupported and not under the direction of any local, state, or federal disaster agency. In addition, some transport efforts were threatened by sniper fire and acts of violence.[22]

- Traveling to alternate care sites, or to centers for reunification may cover extraordinarily long distances, or require transport to other states, making reunification challenging.[23] Because of these long distances, there may be inadequate transport supplies and/or qualified personnel, placing evacuating patients and families at risk.[24]
- Trained staff, readily deployable, should be equipped to assist with pediatric care, and transport to various centers. Only 2 pediatric Disaster Medical Assistance Teams exist nationally and often evacuation is under the guidance of federal coordinating centers located at Veterans Administration hospitals, and military bases.[25] Because of this, it is likely that pediatric expertise among transport personnel may be limited.

Solutions

Transport during a disaster should be based on well established protocols at the hospital level, with the assistance of county, public health, and emergency medical service agencies. In a wide-scale disaster, it is likely that all ambulance services, private and public, will be reliant on city or county-wide protocols and contracts. Alternative means of transporting patients will best be enhanced using pre-planned partnership arrangements with taxi services, public transportation agencies, neighboring city, county, or state transport resources, and by military support. Coordination of public/private patient transport relationships, including short and long distances, in some form, must be regulated by a federal coordinating system analogous to the air traffic control system that manages airline traffic.[25]

Inherent in long transports is the chance that a child's medical condition could change. To minimize this possibility, children should be stabilized to a sufficient level so that a change in condition during transport is unlikely. In addition, volunteers that are trained medically, as in the Medical Reserve Corps (MRC), may be likely to assist, as a recent study demonstrated that joining the MRC was a way for workers to altruistically assist and help ones own community.[26]

Transporting within the hospital itself will be largely dependent on medical and non-medical personnel, such as volunteers, care techs, etc. Accommodations must be made within each care or service area within the hospital to make room for, and track, incoming patients. As makeshift sites may be commonplace, such as the conversion of a cafeteria into a waiting, discharge, or treatment center, transport arrangements must also include the necessity of a staff member to remain with patients during transport, track children incoming and outgoing, and align reunification efforts into this process.

COMMUNICATION AND IDENTIFICATION

Communication in a coordinated, clear fashion is essential in all aspects of disaster management, internally within a hospital and with outside providers. Communication comes in multiple forms during a disaster, and may rely upon multiple modes (eg, electronic means, cell phone, walkie-talkie, land lines, communication through satellite, or distance/relayed connections). Much of this coordinated communication should be determined as part of disaster planning and preparation, whereby MOUs are created, contingency arrangements are negotiated, and interactions with media sources and outlets are verified.

Identification and tracking of patients is paramount to the success in getting patients from one location to another and in supporting timely family reunification. Tracking of patients victimized by Katrina resulted in a situation in which providers tried to, "quickly do what they do not ordinarily do in an environment with which they are not familiar".[27] This resulted in victims being hastily sent to shelters across the country, with many children being separated from their parents, including 5068 missing children, according to NCMEC data.[28]

Examining all potential sources of information for the identification and tracking of children will ultimately create a greater ability to monitor patients through the system at all levels and allow for greater, more efficient, and timely family reunification. In addition, providing adequate documentation of the patient encounter, in a written or electronic format, will aid in the capture of necessary medical information, provide the medical/legal justification of care, provide information that can be transmitted from one care center to another, and provide the necessary documentation for billing purposes.

Challenges

- Communication involves a sequence of events, from the initial encounter through the reunification process. At any point, deficiencies or omissions could exist including lack of documentation, nonadherence to photographing (child, caregiver, or guardian), lack of identifying the child by alternative means (tagging, biometric, or other electronic methods), failure to document sociodemographic data, and failure to provide verbal/written/electronic transport information.
- Children will be transported from one geographic area to another, from one healthcare setting to another treatment institution, or from one care unit to another within the same hospital. Medical and nursing personnel will be obligated to communicate with like personnel at healthcare settings to which the patients may be moved. Transport information should also be transmitted into local, regional, or national databases.
- Communication with the aim of family reunification is best coordinated through media support, data entry, collaboration with outside agencies (social service, law enforcement, NCMEC), and through internal communications and coordinating centers. As these vital steps must occur, often in sequence, misalignment of these efforts may result in a lost or displaced child.

Solutions

Communication efforts, throughout the process of care, from outset to family reunification, involve the collaboration of caregivers at all levels, both inside and outside the institution. Transport arrangements must be succinctly communicated, patients should be tagged in the staging and triage areas, and moved throughout the disaster management system with the aid of proper communication from person to person. In addition, all efforts should be made to document on a transferrable record or electronic system, the whereabouts of each child to include a name (if known) gender, age, caregiver or guardians' name, and identifying marks or unique physical characteristics. Information should be documented succinctly on a disaster medical record, or inputted into an electronic medical record, either of which should be viewable at each stage throughout the treatment phase.

Each hospital should communicate as part of the reunification effort, identifying information to

those providers/service organizations capable of providing relocation or reunification information that will aid in the success of reuniting the child with his/her family. All information obtained should be catalogued through the Family Information Center, which can function as a clearing house for patient information. In addition, a patient tracking office with a liaison officer, should be created, linked directly or indirectly, to police, fire, television, radio offices or coordinating centers. In addition, patient release protocols should be created, specifically outlining how patients and caregivers are to be identified, how information is conveyed, and the policies and procedures regarding reunification.

National services available for assistance in locating and/or tracking children may include law enforcement, public health, social services, and the NCMEC (1-800-THE-LOST). Other resources available include, the National Emergency Family Registry and Locator System (1-800-588-9822), which can be activated when families are looking for lost family members in the event of a disaster, and the National Emergency Child Locator Center (1-866-908-9570), which can be activated 24 hours a day and functions to help locate children separated from their parent or guardian.[29] Another resource is the Joint Patient Assessment and Tracking System, a system used to aid in patient evaluation, including the evacuation of pediatric patients (US Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response-March 2008), and the New York State Operation Safe Child, which partners with New York law enforcement and its Missing and Exploited Children Clearinghouse. This 3-pronged program offers information on internet safety, sex offenders, and most importantly a campaign that creates Safe Child Cards, which contain the child's name, biographical information, and fingerprints. The information is digitally recorded and stored in a data base at the Division of Criminal Justice Services.[30]

The methods used for tracking patients are varied and include: photographing, placing identification markings on the skin (tracking number), wristbands,[31] bar coding,[28] forensic odontology,[28] smart cards,[32] geographical information systems,[33] global positioning systems (GPS),[34] robotics,[28] radio frequency identification (RFID), including implantable chips,[35,36] wireless communication devices,[28] personal digital assistants (PDA),[28] wireless internet,[28] biometrics, (passwords, fingerprint scans, signature analysis, voice recognition, digital certificates, iris/retina scan, face recognition, hand geometry),[37,38] and intelligent triage tags.[39] Table 1 briefly describes the technology and description for each method. Although there are no set guidelines or uniformity among tracking methods, many of these technologies will gain usefulness, especially for child victims, where the ability to communicate and cooperate is limited and a parent or guardian may not be available.

PSYCHOLOGICAL SUPPORT

Children involved in a disaster suffer reactions immediately, during, and possibly even long after the event. Depending on the age of the patient, their developmental level and cognitive abilities, and whether the child is separated from his/her parent or guardian, a vast array of reactions may be seen. Many disaster victims require treatment strictly for psychological stress. This psychological treatment may take many forms, including onsite comforting and brief counseling, the use of distraction techniques, and referral for ongoing psychological support.

Reunifying children with their parent or guardian is critical in mitigating mental health sequelae for children. This also reduces the chance of secondary injury that can result in further psychological damage. Involvement from appropriately trained mental health personnel will aid in the screening and evaluation for mental health emergencies during the process of treatment and reunification. Working together, medical personnel and mental health practitioners (social workers, psychologists, therapists, grief counselors, crisis intervention workers, and psychiatrists) can screen for children that are emotionally disturbed, patients with acute psychological or psychiatric reactions, such as depression and suicidality, to provide appropriate intervention, stabilization, and treatment.

Challenges

- Emotional reactions are intertwined intimately with the physical and medical needs of each child victim. Emotional support throughout the treatment and reunification phases must be seen as vital to the overall care of each child.
- Currently, NCMEC is in the process of developing a multi-purpose hot line/call center facility that can be readily activated in emergency situations.[21] These plans do not incorporate the expertise of a mental health professional that could assist with the screening and evaluation of children and their

parents and guardians for psychological stability and readiness for reunification.

- Tragically, some children will die during the course of evaluation or treatment. Given the expected shortage in disaster medical personnel and other resources available to support families, a mental health professional could be available to help with communication, assessing and comforting family members, and helping to direct aftercare for surviving family members.

- Ancillary providers of mental health support, such as spiritual care, child life, social workers and psychologists, may be in short supply during disaster conditions. It is therefore essential to create a call list of professionals willing to assist at the time of the disaster.

Solutions

There is no doubt that children in a disaster need emotional support. From initial triage to the processes involved in family reunification, mental health professionals must take an active role in assessing children and providing support. Mental health personnel can assist in this process and take an active role by providing patient comfort, offering distraction, education, and assisting with communication and tracking.

As stress reactions and anxiety manifest differently at different ages and development levels, mental health staff can function as a liaison in creating a "child ambassador" model.[40] The child ambassador system personnel would assist in finding and training individuals, for example volunteers, who can help with identification and tracking; being there as a trusted advocate for the child; assisting with developmentally appropriate toys, arts and crafts, and other activities; and helping with communication efforts between patients, families, and caregivers.

Mental health professionals can also actively participate in the reunification process by communicating to families and actively serving as an advisor to the media, composing, editing, and reviewing messages before they are publicized. Developmentally appropriate and psychologically sensitive communications can prove useful in delivering needed information and reassurance.

Mental health personnel can be there to assist with, be a liaison for, or communicate unfortunate news to parents or guardians, such as the occurrence of significant injuries or death, and by providing an acute assessment for conditions such as severe anxiety, depression, violence, suicidality,

or other psychiatric symptoms. Lessons learned from Katrina demonstrate that resilient child outcomes can best occur if mental health staff: promote some degree of control, empowerment, and normalcy; assist with rapid family reunification; help families recognize strengths and resources; assist evacuee integration into the community; encourage proactive measures to cope with losses and changes; provide ready access to basic human needs; treat individuals with respect and dignity; and make sure that children with special needs are assisted in the most appropriate way possible.[41]

SUMMARY

Disasters are inevitable and the effects on children and families can be devastating. Coordinating the strategies and processes pre, peri, and post disaster, including family reunification, will be challenging and fraught with difficulties. To understand the interplay, complexity, and intricacies involved in family reunification, 6 broad areas were described, including, *planning and practice*, *clinical services*, *ancillary support*, *transportation and accommodations*, *communication and identification*, and *psychological support*. Family reunification will clearly be more successful if the challenges in these areas are planned for; developed with child specificity in mind; and coordinated succinctly with multiple providers, agencies, and organizations in the private and public sectors. Although there is no standard of care or practice regarding the processes necessary for family reunification to occur, all personnel involved at multiple levels in disaster planning, must strive for cohesion, collaboration, and uniformity as ultimately children, families, and our society will be better served.

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