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Short-term Impact of a Major Disaster on Children's Mental Health: Building Resiliency in the Aftermath of Hurricane Katrina

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DISASTERS, WHETHER RESULTING from terrorism or natural events, have a dramatic impact on the health and well-being of children. Studies after the terror attacks of September 11, 2001, in New York City and the 1995 Oklahoma City bombing and countless reports on the impact of natural disasters on children show that a child's mental health can suffer from direct and indirect exposure to these events. Children may react to a disaster or act of terrorism in a variety of ways. These reactions are influenced by age, developmental level, intellectual capacity, individual and family support systems, personality, and other factors. Common manifestations of psychological trauma in young children include regression, clinging behavior, inattentiveness, aggressiveness, bed-wetting, somatic complaints, irritability, social withdrawal, nightmares, and crying. Longer-lasting effects may include depression, anxiety, adjustment disorders, posttraumatic stress disorder, and interpersonal or academic difficulties. Some children are particularly vulnerable to postdisaster trauma because of preexisting psychosocial stressors (homelessness, foster care, exposure to violence, etc), low socioeconomic status, or special needs (including cognitive delays and prior mental illness). These postdisaster reactions may not manifest until well after the event and could persist for years.

AUGUST 30: 1 DAY AFTER LANDFALL

The National Center for Disaster Preparedness (NCDP) at Columbia's Mailman School of Public Health gathered key staff to discuss the appropriate response to the needs in the Gulf Coast region. Over the following few days, talks were held with federal, state, and local public offi-

cial to assess immediate needs and determine what resources could be offered to the affected areas. Necessary clearances to provide medical care were obtained from the Louisiana, Mississippi, and Texas departments of health. Permission was also necessary (and obtained) for access to gasoline and necessary supplies including pharmaceuticals and to travel after curfew.

SEPTEMBER 2: 4 DAYS AFTER LANDFALL

The Children's Health Fund and the NCDP launched Operation Assist, a collaborative effort to organize programs supporting the medical, mental, and public health needs during the crisis and through the long-term recovery process. Custom-designed, fully equipped, state-of-the-art mobile medical units (MMUs) staffed with physicians, nurses, and mental health and social service professionals were sent to the hard-hit areas of Louisiana and Mississippi at the request of state authorities. These MMUs are an asset of Children's Health Fund, a national organization that provides health care to medically underserved children in 19 rural and urban sites around the United States. Irwin Redlener, MD, and singer Paul Simon founded it in 1987.

Key Words: Hurricane Katrina, disaster response, mental health, resiliency, children mental health

Abbreviations: NCDP, National Center for Disaster Preparedness; MMU, mobile medical unit; EOC, emergency operations center

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As of this writing, Operation Assist staff has spent almost 8 months in various areas of Louisiana, Mississippi, and Texas. Our model has been comprehensive health care including medical, mental health, and social service/case management services. Simultaneously, planning was done for the development of a long-standing program that would help address some of the deficiencies in the baseline availability of health care to the affected regions.

SEPTEMBER 7 THROUGH 15: 9 TO 17 DAYS AFTER LANDFALL

On September 7, Operation Assist deployed a team of experts in disaster emergency medicine, psychological trauma, and school safety to evacuation sites in San Antonio and Houston, Texas. The staff assisted in providing clinical services to evacuees in shelters in both cities and conducted an on-the-ground assessment of the health, medical, and psychosocial needs of the population.

According to a United Way of Texas report, well over half (57%) of the families there included children, with an average of 2 per family. Our team focused on helping parents and children regain a sense of safety, express their feelings and concerns, and provide support and validation while performing medical and psychological assessments to rule out the need for urgent and/or specialized services. The following describes some of our experiences and findings from our work with families and our meetings with key officials.

Toddlers and young children were clingy with their caretakers, and their affect was withdrawn, depressed, and anxious. The young mother of a 3-year-old girl commented that, for the first time, her daughter looked “out of it and too shy” and was misbehaving. Before the evacuation, the mother said, her daughter had been “extremely friendly with strangers,” verbal, and generally obedient.

School-aged children showed concern for their peers and often stated that they wanted “things to go back to normal.” They were looking forward to starting school and had a more clear understanding of what had happened and the seriousness of the situation than did the younger children.

Older children reported headaches and other minor medical concerns but said that they liked being able to spend time playing with new friends in the shelter. Many reported feeling worried about their parents, not being able to go back home, and the uncertainty of their future and expressed anxiety about not knowing the whereabouts of family members. Shelter security personnel commented on how often children would ask what type of place the shelter was and if they were going to stay there long.

Many children staying in hotels with immediate and extended families, all in 1 room, were happy to be in a “nice place” but were very much looking forward to

“going home.” Their parents, on the other hand, were concerned about other family members’ whereabouts and anxious about their future, their homes, and their belongings.

Families with debit cards, provided as part of the government relief effort, were using them to buy food and medications. We observed how a family of 8 shared a small-sized pizza pie on 2 consecutive nights in the lobby of a hotel. Many families were starting to decide whether they should attempt to find permanent housing in their new location or wait to go back home.

Two middle-aged men who had evacuated from New Orleans, Louisiana, before the hurricane and were staying in a hotel had no contact with their families since the hurricane 10 days previously. Because they were not shelter residents, they were not allowed into the shelters and were denied information about those inside because of “privacy restrictions.” Neither man had access to the Internet. The Red Cross was unable to assist them in locating their families.

Because we had better access to information, we found out that no area shelter had their family members in residence. Because the Red Cross was unable to cross-check their other area shelters, we used the names, dates of birth, and basic demographic information to search other databases, including the National Center for Missing and Exploited Children (see “Reuniting Fractured Families After a Disaster: The Role of the National Center for Missing and Exploited Children,” pp S442–S445). For one of the men, we were able to locate the children and their mother, verify their location, and obtain contact information. We put the father in contact with the mother, who had all 3 children with her in a shelter in Lake Charles, Louisiana. They were able to arrange a reunion shortly thereafter.

Situations in shelters have significant implications for children’s mental health. Many adults with chronic mental illness and no medication were with their children. Although they generally seemed to be stable, their ability to care for their children could have been further compromised because psychiatric medication refills were not available and/or dispensed. Overall, there were not many mental health professionals, including psychiatrists, available. Most volunteers in the mental health section were master’s level professionals, and some were students with a desire to help. There consistently were 5 to 10 patients waiting to be seen by each psychologist.

While working in a medical clinic, we met a middle-aged woman with a chronic medical condition and her 4-year-old daughter, who was not speaking. Our colleague sat on the floor and played with the little girl for about 15 minutes with a yellow rubber ball that lit up when it bounced on the floor. Afterward, she was asked her name. There was a pause, and then the girl clearly said her name. Her mother was astonished and declared that this was the first time she had spoken since they left

New Orleans. This is reflective of the type of “initial intervention” that can be helpful with young children. It is best to first establish rapport by engaging in activities that allow the child to feel a sense of safety and then, to the extent possible, allow expressions of their feelings. This can be done through the use of drawings, play, storytelling, and (for older children) journal writing. Whenever possible, the initial goal is to help the child and caregiver obtain a sense of “normalcy.” This has been a very challenging task given the extent of the evacuation and the lack of resources that allow caregivers to make decisions about their future.

SEPTEMBER 21 THROUGH 27: 23 TO 29 DAYS AFTER LANDFALL

In a heavily damaged east Biloxi, Mississippi, neighborhood with predominantly Vietnamese residents, volunteers washed clothes and distributed food and supplies while we delivered medical services in our MMU. The Buddhist temple there remained intact and has been used for various purposes. Residents were camping on the front porches of the remains of their homes while they were inside cleaning. There were piles of foul smelling and moldy clothes, pictures, furniture, and refrigerators strewn throughout the neighborhood. The people looked dazed and confused, and many reported feeling retraumatized from earlier experiences in Vietnam.

OCTOBER 3 THROUGH 14: 5 TO 6 WEEKS AFTER LANDFALL

The Louisiana State Director of School Health Programs organized a focus group in Lafayette, bringing together representatives from 24 of the state’s 56 school-based health centers to discuss the needs of the children and families in their care. Many of these providers had suffered significant losses themselves. On the basis of the information obtained, we developed a survey to allow systematic needs assessment of children in the Louisiana schools. We found that school health providers wanted training on children and families who have experienced trauma, and medical providers wanted extra help identifying and meeting mental health needs. Some schools’ populations grew dramatically in a short time (eg, taking in 143 new students in 4 days), creating a concern about meeting a new level of need without adequate resources.

There were consent and confidentiality issues that came up about providing needed care to children who were no longer living with their parents or guardians. Continuity of care was an issue as children were relocated from 1 temporary shelter location (and school) to another without any health and immunization records.

We attended meetings with representatives from Louisiana and Mississippi offices of public health, education, and mental health to discuss child mental health needs and initiatives. We found, as expected, that most children and families have shown a high degree of re-

siliency and were exhibiting the expected normal signs of situational stress. Families coped by working hard to stay together, sharing with others in need, being grateful for what they had, and taking care of one another.

Our work corroborated the literature reporting that a prior mental health diagnosis is a significant risk factor for increased posttraumatic symptoms, which include anxiety, panic attacks, the triggering of manic or depressive episodes, dissociation, and acute stress disorder. Some youth reported experiencing more serious symptoms of acute stress including flashbacks, dissociation, nightmares, difficulty sleeping, poor concentration, crying spells, and feeling subjectively traumatized. Assessing the exact cause of the acute stress is difficult. It could be a result of the destruction, loss of property, having witnessed and withstood the storm, the evacuation, bereavement, grief, and/or the ambiguity about how long their dislocation from home will last.

We generally used play-therapy techniques in the brief interventions we were able to provide to children. Whenever possible, we also provided brief assessments, support, validation, and psychoeducation to parents. Our colleagues reported that in a shelter in Appaloosas, Louisiana, toys and puppets were available for therapeutic use. In other sites, there were day care facilities in which children could play with each other; some (but not all) had toys and coloring books available. Many shelters focused on helping children regain a sense of “normalcy” and routine by helping them to integrate into their new schools and establish a sense of routine and predictability. This also helped parents who needed time to look for housing and jobs, find relatives and friends, and take care of their own physical and mental health needs.

OCTOBER 16 THROUGH 23: 7 TO 8 WEEKS AFTER LANDFALL

Since the first week after landfall, our MMU and its Mississippi team have been housed at Keesler Air Force Base in Biloxi. The unit was deployed daily to various sites to provide care to residents on a walk-in basis. Most adults and, to a lesser extent, children accessing services had medical complaints but were also suffering mild stress to significant posttraumatic stress and depression symptoms such as frequent crying, sadness, anxiety, hyperarousal experiences, headaches (new onset), sleep difficulties, and some generalized anxiety symptoms. Several of the children and adults who had treatment before at mental health centers were having trouble reconnecting with their previous providers. Caretakers were concerned about what the upcoming Halloween would be like for their children, who were no longer looking forward to a festive day. Families living in the various sites seemed subdued. People were friendly but clearly distracted and concerned about what would happen next.

We continued making contacts with key agencies to

outline an ongoing collaborative effort and attended debriefing and planning meetings. Some of the facilities of the main mental health agency in the Gulfport/Biloxi area had been destroyed, and others sustained damage. A residential treatment center and a local crisis stabilization unit were destroyed. Between those 2 facilities, more than 60 high-need psychiatric patients had been housed and treated.

School staff was trying to balance academic work with their students' needs for nurturing. As many as 80% of the teachers had lost their homes. They, along with the mental health and support staff, now had the additional responsibility of taking care of the students. School health providers tried to screen students and refer those in need to mental health clinicians who were overwhelmed and traumatized themselves. Emergency departments diverted psychiatric cases from hospitals, and psychiatrists were overwhelmed and unable to keep up with new psychopharmacology consults and follow-up appointments. Many psychiatric practices had been destroyed, and displaced mental health providers had not been located. Several residential treatment facilities were destroyed, causing chronically mentally ill residents to be sent to a variety of locations, some as far away as North Dakota. This was likely to have been a traumatic event for these clients, many of whom had never before left their county, much less their state.

A young mother walked into our MMU for mental health support and brought her 2 daughters, "M" and "K" (6 and 8 years old, respectively). Both children seemed subdued, depressed, and fidgety. "M" reported having frequent "bad dreams." "K" had clear signs of increased startle reaction and regression, which were verified by her mother. She was also suffering from an ear infection. We provided the mother and 2 girls with validation, support, and an opportunity to "tell their story" in their own way. We gave the girls toys and referred them to a mental health facility for follow-up treatment.

In Biloxi, we observed small groups of people sitting amid the remaining rubble of what once was their homes. Others were wandering through the apartments salvaging what might be still usable goods. They seemed dazed and dissociated and reported feeling simultaneously shocked. Everyone at this housing project was awaiting relocation and was very unsure of future. We spent several hours talking with and providing support for these individuals. The most prominent conversation topics were issues of loss and uncertainty. Our response was to validate their feelings, assist them with their attempts to normalize, and reestablish community connections and sources of support including housing, employment, and health care. Several had been clients at various mental health clinics and were now seeking care at the local emergency departments. We were able to assist several families and children.

Common complaints were sleep problems, headaches, and excessive and unsurprising concerns about death and the weather. In these more casual settings, the children seemed atypically close to the adults. There was less spontaneous play observable than expected in young children, who seemed distracted and distant. They were polite when involved in conversations but agitated when engaged in cleaning up debris.

We heard that a 10-year-old boy, living in an area where many evacuees were living, had committed suicide. We were not able to ascertain whether the boy who had killed himself was an evacuee or to what extent he had been impacted. In addition, we were informed of an increase in suicidal attempts, parasuicidal behavior, and suicidal ideation among children as young as 7 years old. Some parents had difficulty, as expected in these circumstances, enforcing limits or controlling child behavior as well as identifying red flags for further attention.

We encouraged parents and children to make connections, build relationships, and reestablish support groups. Our clinical goals included helping them develop a realistic acceptance of their current circumstances and use solution-focused approaches to their concerns. Parents reported that they would benefit from gaining a sense of the situation as manageable, feeling that change is an inevitable part of life, and establishing attainable goals. Some of the messages we attempted to convey to higher-functioning caretakers and their children were that these highly unusual circumstances presented opportunities for self-discovery, nurturing a positive view of oneself, and self-care.

A 23-year-old mother of 2 daughters aged 6 and 9 came to our MMU because of her younger daughter's sore throat and fever. The woman reported that her "story was unbelievable." She had moved to Gulfport to "start a new life" with her daughters, initially living with her sister while she enrolled the girls in school, found a job, and got a "great place on the beach." She was literally walking on the beach on the day before landfall and suddenly had to evacuate. On her return the day after the storm, "everything was gone"—her apartment, belongings, and the business where she was working. She was having symptoms of sleeplessness, headaches, depersonalization, and nightmares (classic posttraumatic stress disorder symptoms) and sought help in a series of emergency department visits. She reported that "they barely talked to me." The intervention at our MMU focused on validating her symptoms, providing psychoeducation, cognitive restructuring, refilling her prescription for an antidepressant, and offering her follow-up at the MMU if needed while waiting for her appointment at the mental health clinic in 2 weeks. She appreciated being heard and was relieved to know that she was not "going crazy." This was a fairly common set of presenting complaints, and the intervention clearly was a helpful one.

At an emergency medical services meeting at the Harrison County courthouse in Mississippi, a variety of agencies reported inconsistency of providers. Volunteers were coming and going after their specific stints were completed, resulting in a transient workforce that complicated the relief effort. There was clearly some relief when we assured the group that Operation Assist planned for a commitment of 2 to 3 years' duration.

The main psychiatric issue was the need for emergency back-up services for the cases referred from 4 smaller emergency departments to Gulfport General Hospital, which has a 20-bed inpatient psychiatric unit. Another major issue was how to address the fatigue and burnout of community officials. We joined members from the emergency management agency in Kansas who had been recruited by the Federal Emergency Management Agency to assess psychiatric needs and visit the emergency operations center (EOC) in Hancock County. We found that their need for services was enormous.

OCTOBER 30 THROUGH NOVEMBER 9: 9 TO 10 WEEKS AFTER LANDFALL

As part of our planning process for the establishment of permanent Operation Assist mental health programs in Louisiana and Mississippi, our mental health team coordinator began to make biweekly trips to the Gulf Coast to meet key state and local officials and providers. She also provided supervision and support to clinicians in the field who were treating children and families. Our contacts in both states included private and community-based mental health providers and agencies, local elementary and high schools, providers of day treatment centers and community hospitals, etc. Our clinical findings have been consistent with reports from these providers, with many children in need of psychological support. Suffering families brought their children to our MMU, requesting medical help for somatic complaints or to get vaccinations. During our mental health assessments, we found that many children were depressed and anxious yet hopeful that their lives would go back to "normal." Parents increasingly reported feeling overwhelmed, hopeless, anxious, and depressed. They noticed behavioral and emotional changes in their children, which they felt unable to address because of a lack of information and their own feelings of being overwhelmed.

We learned that 7 children from different families had been brought to an EOC in Louisiana on the third day after Katrina made landfall. They were separated from their parents for reasons that remain unknown. The adult who had been asked to care for them asked the National Guard for help, and the children were driven to the EOC. One of the little girls has been identified as "A." "A" was very frightened and only wanted to be held by men. After the children were eventually reunited with their mother, little "A's" mother reported that she had

nightmares and threw almost daily tantrums that often lasted for hours. "A" became anxious when she saw helicopters. According to one of the officials in the EOC, "A" was most likely the only child of the 7 who did not know the other children. The other children each were reportedly with at least 1 sibling.

COMMENTS

Consistent with previous findings and clinical experiences, one of the most significant consequences of the hurricane and its aftermath on children, their parents, and the professionals caring for them has been the impact of separation, relocation, and uncertainty about the future. Many children were confused and unclear as to what was going on. They had been transported from place to place without any explanation, sometimes separated from their families. At least initially, they were not able to count on any reliable caregiver, which, as expected, severely compromised their sense of trust and comfort.

Many families were deeply affected by the evacuation and relocation processes. Louisiana has a very strong culture with many subcultures, communities, and unique ways of approaching situations. Children being absorbed into new schools were faced with new challenges, because they had to learn new behavior patterns, social expectations, and even vocabulary in addition to adapting to new communities in which they may or may not stay permanently.

LESSONS LEARNED

The following are recommendations for resilient child outcomes:

- In the immediate aftermath of a disaster such as that left by Hurricane Katrina, child and family resilience may be fostered by:
 - promoting some degree of control, empowerment, and normalcy;
 - rapid family reunification;
 - helping families recognize strengths and resources;
 - assisting evacuee integration to the community;
 - encouraging proactive measures to cope with losses and changes;
 - providing ready access to basic human needs;
 - treating individuals with respect and dignity; and
 - making sure that individuals with special needs are assisted in the most appropriate way possible.
- Given the large number of black and poor underserved people directly impacted by Hurricane Katrina, it is essential to consider the cultural and socioeconomic aspects of the community and region when planning interventions and developing programs. We

suggest that minority professionals be hired and consulted, and that past discrimination, restricted access to health care, and racism be taken into account as factors that may prevent access, utilization, and acceptance of health services offered.

- It will be essential to continue helping evacuees settle into their new community, or previous community if they are able to return. They will require help obtaining medical, mental health, and financial support. To best meet the needs of children, it is imperative that day care centers, Head Start programs, and schools obtain the resources they require to meet emerging child needs. This includes increased facility capacity and training staff to identify typical child reactions to trauma and how to provide assistance. It is also essential that the health of children in host cities is not neglected.
- Addressing mental health concerns should be integral to disaster preparedness, response, and recovery, especially for children. A comprehensive list of preparedness recommendations and guidelines dealing with child mental health concerns can be found in the NCDP report of its second national consensus conference, *Considerations in Emergency Preparedness: A Two Track Conference*.
- State and local government and health care and other community-based agencies should develop lists of qualified individuals who will be available to help in case of an emergency. These lists should include clinicians who specialize in disaster and trauma, professionals familiar with community resources, and those who are able to provide short-term treatment and recognize long-term needs in children.

CONCLUSIONS

Immediately after a disaster, mental health interventions should be available, practical, and responsive to concrete needs. This includes creating opportunities for children

to express their feelings and concerns, feel safe, and establish a sense of normalcy as soon as possible. Similarly, demonstrating empathy, validating feelings, and providing psychoeducation to parents are essential components of this early stage of relief that can have a significant impact on children. Children obtain their sense of safety from cues from adults and by having a predictable routine and consistent support system. Development of more serious symptoms, especially for children with prior trauma and loss histories and with pre-existing mental illness, should be anticipated.

Although children may seem carefree and resilient in the first days after a disaster, it is important to keep in mind that posttrauma symptoms often develop weeks and months after the “trigger” event. Children may gradually become more aware of their losses, and the lack of structure, supports, and resources may take time to impact their sense of identity and self-efficacy. Psychological problems including depression, interpersonal problems, and an inability to trust and to feel safe and secure may emerge over time. The adults who care for these children (parents, teachers, pediatricians, family physicians, day care workers, etc) need to monitor each child’s reaction to trauma and stress and make sure that the child obtains adequate treatment.

RESOURCES

- Hagan JF Jr; American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health; Task Force on Terrorism. Psychosocial implications of disaster or terrorism on children: a guide for the pediatrician. *Pediatrics*. 2005;116:787–795
- American Academy of Child & Adolescent Psychiatry. Katrina disaster response. Available at: www.aacap.org/publications/DisasterResponse/Katrina/clinicians.htm
- The National Child Traumatic Stress Network. Home page. Available at: www.nctsnet.org
- National Association of School Psychologists. Identifying seriously traumatized children: tips for parents and educators. Available at: www.nasponline.org/NEAT/trauma.html
- American Academy of Pediatrics. Feelings need check ups too. Available at: www.aap.org/profcd/childrencheckup.htm

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