



**Surgeon leads
pediatric
disaster planning
initiative**
by Lola Butcher



By the time Jeffrey S. Upperman, MD, FACS, finished a stint as a trauma surgeon at the Abu Ghraib prison in Iraq in 2004, his perspective on emergency preparedness had been forever changed.

“You just come to realize what security really means,” Dr. Upperman said in an interview with the *Bulletin* at that time. “You find yourself questioning whether where you work and where you live would really be prepared for a catastrophic incident.”¹

Four years later, he is making sure he can answer “Yes, it would be” to that question. Dr. Upperman, director of the trauma program at Childrens Hospital Los Angeles and associate professor of surgery at Keck School of Medicine, is also directing the Pediatric Disaster Preparedness Project, designed to bolster the county’s readiness to deal with a major disaster. With a \$5 million grant from the U.S. Department of Health and Human Services (HHS), the hospital, in collaboration with the Los Angeles Emergency Medical Services Agency, has established the Pediatric Disaster Resource and Training Center (PDRTC).

Through the grant, Dr. Upperman and his colleagues are working to improve hospital surge capacity, increase the capabilities of the emergency care system, and bolster community and hospital preparedness for public health emergencies ranging from a pandemic or natural disaster to a manmade or bioterrorist attack.

“We need all hands on board to effectively prepare,” Dr. Upperman said in a recent interview.

“As the only children’s hospital with a level I pediatric trauma center in southern California, it’s a natural extension for us to lead the regional effort in pediatric disaster preparedness,” said Henri R. Ford, MD, FACS, vice-president and surgeon-in-chief, Childrens Hospital, and vice-chairman of the surgery department at the University of Southern California Keck School of Medicine. “And as international leaders in pediatrics, it is a natural extension of our mission to ensure that the children of southern California receive the best possible care in the event of a major disaster.”

Opposite: Scenes from the 2007 Tri-Hospital Disaster Drill in Los Angeles, CA, in which Childrens Hospital Los Angeles, Kaiser Permanente Sunset, and Hollywood Presbyterian Hospital participated. Bottom left: Dr. Upperman speaking with participants in the drill.

In addition to improving the hospital’s ability to serve pediatric patients regionally, in part through the use of telemedicine, the PDRTC will demonstrate best practices to health care providers around the country.

“This type of preparation hopefully will be a model for the rest of the nation regarding the optimal way to coordinate pediatric patient care in the event of a disaster,” Dr. Ford said.

The need for preparation

With the federal government leading the way, America’s health care system has invested considerable time and money in preparing for a disaster since the 9/11 attacks called the nation’s emergency readiness into question. But as time has passed, many planning efforts have lost their urgency as attention has been diverted elsewhere.

In Dr. Upperman’s view, disaster planning does not focus on a bad event that might happen but on the inevitability of a sure thing. In the past 15 years, the Los Angeles area has been hit by earthquakes, coastal flooding, wildfires, and civil unrest, even as its residents await a long-dreaded earthquake of epic proportions.

“It’s not a matter of ‘if’—it’s just a matter of ‘when,’” Dr. Upperman said. “Will health care providers throughout the 4,000 square miles of L.A. County be prepared to handle the emergency medical needs of the region’s 2.8 million children?”

In his role as program director for the disaster training center, Dr. Upperman spends a lot more time planning and evaluating disaster drills, organizing conferences, and networking with county officials than most trauma surgeons. He thinks about things like how to reunite pediatric patients with their parents in the aftermath of a mass disaster and how to create disaster training technologies that can be deployed anywhere in the country.

He acknowledges that many types of disasters might not be generally considered a surgical problem at first glance, but he sees it differently. Disaster planning needs every type of health care provider to be at the table, and the personal attributes of surgeons make them particularly appropriate for this task.

“The complexity of our universe has changed, and I think we all have to be engaged in problem

solving,” Dr. Upperman said. “Trauma surgeons in particular, who have a sense of urgency in the care that they provide, are naturals to be leaders in terms of disaster planning and responding.”

Furthermore, he thinks pediatric surgeons have a particular responsibility because children have frequently been overlooked in disaster planning efforts. One indication of this problem surfaced in a 2007 survey of members of the American Pediatric Surgical Association, conducted by Dr. Upperman and several co-investigators. Whereas 77 percent of the 265 survey respondents felt “definitely” responsible for helping out during a disaster, only 24 percent felt “definitely” prepared to do so. In addition, nearly three-quarters of the respondents indicated they “definitely” or “probably” need to obtain more training to be ready for a disaster.²

“The surgeons who felt most prepared were the [ones who had been] most engaged in the disaster-related activities of their facilities,” Dr. Upperman said. “The ones who were really engaged and felt most prepared were those who had been given a job—a coordinator, a medical director, or some other position.”

Surgeons who participate in disaster planning efforts not only improve their own ability to respond, but they also improve the overall plan. Although surgeons are accustomed to working in emergency situations, the equipment and supplies they need may not be available if they have not participated in planning. Moreover, their natural leadership ability will not be used to full effect.

“If surgeons aren’t at the table, then the response of the health care system may be incomplete,” he said.

Road to disaster planning

The survey of pediatric surgeons found that surgeons with combat experience were much more likely to indicate a willingness to respond to a disaster than their peers who had no such experience. That finding may ring especially true for Dr. Upperman, who served on a surgical team at Abu Ghraib for three months.

A longtime member of the U.S. Army Reserves, Dr. Upperman was a pediatric surgeon at Children’s Hospital of Pittsburgh, PA, at the time. He arrived at Baghdad Airport on his 40th



Rizaldy R. Ferrer, PhD, member of the PDRTC Drill Evaluation Core, analyzes hospital action report data to inform future disaster planning.

birthday for his first-ever deployment.

“I was an academic pediatric surgeon in the middle of the Sunni Triangle—that was truly a baptism by fire,” he said.

He performed 50 operations in the Army prison before returning home. Two years later, he moved to Childrens Hospital Los Angeles with a particular goal on his mind: “We’re all hearing about how California is going to have the ‘Big One’ [earthquake] happen—well, is there anything I can do to make that chaos a little less painful?”

He considered how the hospital might build a robust capacity to serve children during disasters—and help not just the local community but first-responders everywhere.

“I think we could make a very important contribution to the field of trauma medicine, and to the narrower field of disaster preparedness in general,” he said.

Grant activities

Childrens Hospital was one of five programs selected to receive a grant from the HHS, each funded at \$5 million, to serve as “best practice” examples.

“The over-arching purpose of this grant is really to expand the capabilities of our center, to



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Scenes from the Childrens Hospital MyPreparation–Ready To Respond Training Event. The event provided a hands-on experience for situations that may occur in a disaster. Left: Nurses from the Childrens Hospital Los Angeles float pool work together to construct patient litters. Right: Nurses from the pediatric intensive care unit improvise with existing materials to create alternate care sites.

strengthen that infrastructure in terms of training and access to some of the technology we have,” Dr. Upperman said.

The programming goals for Childrens Hospital’s one-year grant include the following:

- Identifying drugs and supplies needed for a pediatric population surge capacity resulting from a local disaster
- Helping first responders make best use of existing resources and helping them acquire the drugs, supplies, and shelters that their pediatric patients would need
- Training first-response providers throughout the area
- Creating a virtual critical care network that, in the event of a major crisis, would allow satellite hospitals and trauma centers to consult one-on-one in real time with Childrens Hospital’s intensive care specialists
- Developing software to help first responders create their own pediatric disaster plans
- Advising health care providers throughout the county on how to stage disaster drills that include pediatric care issues

The vision for the Childrens Hospital effort extends far beyond the grant’s timetable. Dr. Upperman is working closely with Robert Neches, PhD, a division director at the Uni-

versity of Southern California’s Information Sciences Institute, on ways to revolutionize disaster-preparation training.

“We’ve been working together to develop not just a way of dealing with children but something that could actually be promoted for all ages,” Dr. Upperman said. “And it has to do with not only having appropriate care standards but being able to share these care standards in a way that all practitioners, even in remote corners of our country, could take advantage.”

Dr. Neches describes the work plan as a set of initiatives needed to support the entire “life cycle” of a disaster scenario. That cycle includes a preparatory phase, in which health care providers identify the supplies, equipment, and personnel needed in a disaster and work to assemble them and train personnel in their use. The second, or response phase, is when disaster response is actually occurring, and the final phase is the evaluation phase, when systemic changes are identified to improve preparedness for future disasters.

Although the activities are focused on disaster planning, they actually support capacity building that will be incorporated into everyday life.

“People who respond to a disaster don’t learn new skills,” he says. “They do what they are already good at.”



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Participants in the Childrens Hospital Ready to Respond Training Event experience first-hand how to don decontamination gear as part of a just-in-time training experience.

That system requires training for disasters and conducting drills—but it also means building the use of disaster-related skills and equipment into nondisaster routines.

“The tools we’re trying to put in place for use during a disaster are tools that will help people every day. That way, operating in a disaster may mean going into a special, more stressful mode, but it’s doing so using tools you’re already familiar with,” Dr. Neches said.

Robot to the rescue?

One of the most innovative elements of the grant program is the pilot testing of a mobile robot that can help physicians “teletriage” patients at locations throughout the county.

This program builds on Childrens Hospital’s pioneering capabilities in the emerging field

of virtual pediatrics. Using specially designed software programs and sophisticated robotic equipment installed off-site, the hospital’s pediatric intensivists are consulting in real time with health care providers who are treating critically ill or injured youth in outlying areas of the county.

Through the grant, the hospital’s disaster preparedness team is designing a two-directional, Internet-based, audiovisual communications network specifically for pediatric disaster care. Dr. Upperman has already given the novel technology a go during a three-hospital disaster drill earlier this year.

“It really blew my mind what I could see and what I could hear,” he said. “You can hook up a stethoscope to it. You put on noise-reduction headsets and you can listen to heart tones, lung sounds, just like you’re at the bedside. The cam-



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Competitors in the Childrens Hospital Ready to Respond Training Event in the evacuation exercise (left) and waste management relay.

era is great—I can zoom in on eyes and I can look at pupil reactions and do a neurologic exam.”

In keeping with Dr. Neches’ perspective, Dr. Upperman has been using the robot technology in the course of his normal work.

“I’ve been using it in our emergency department when trauma victims come in,” he said. “While the technology does not replace the benefits of actually examining a trauma patient in person, it is much better than exchanging information about a patient via a telephone call.”

Who’s your mommy?

Fewer than 25 percent of the hospitals and public health emergency agencies in Los Angeles County have written disaster plans that specifically address the needs of pediatric patients.

“It’s presumed that if an adult is awake and

alert, they can make their way back home if they go to a hospital because of a disaster,” Dr. Upperman said. “A three-year-old is a different story. You have to question, ‘Who’s your mommy? Who’s your daddy?’ and you have to have a system in place to be able to care for them, even if they have no observable wounds.”

A survey conducted by the California Emergency Medical Services Authority found that only approximately 30 percent of respondents had participated in disaster training that considered children’s issues in the past year, and only 10 percent have a disaster plan that includes strategies for reuniting pediatric patients with their families during a large-scale emergency.³ And it’s likely that California hospitals are actually more prepared than hospitals in less-populated states.

Against that backdrop, the Pediatric Disaster

Preparedness Project is working to influence planning strategies nationally. Its efforts include the following:

- *Pediatric reunification.* The PDRTC hosted a conference that brought nearly 60 experts from around the country together to discuss issues regarding pediatric disaster evacuation and family reunification. The group—which included representatives from state and local emergency medical services, area hospitals, the National Center for Missing and Exploited Children, and the American Red Cross—tackled the clinical issues as well as psychological support, patient movement, and technology that can be used for tracking.

At a follow-up consensus session, the group members finalized a family reunification strategy to be recommended to HHS.

- *Special needs populations.* The PDRTC co-sponsored a conference to discuss how to serve individuals with special needs during a disaster. “There were about 250 people in the room from all over the region, as well as representatives from national organizations,” Dr. Upperman said.

- *Research for disaster planning.* This month, the center will convene a national Pediatric Disaster and Emergency Services National Summit to bring together medical experts, government officials, and leaders in pediatric emergency services preparedness to present research findings and best management practices for various pediatric disaster planning issues. One of the objectives of the summit is to develop a research agenda for pediatric trauma and disaster.

Call to action

One point that surfaced in the survey of pediatric surgeons is troubling: 66 percent of the surgeons who said they definitely needed more disaster training were not willing to participate in it.

Suspecting that survey outcome reflects unsatisfactory training experiences in the past, Dr. Upperman says the center is working to develop training that is effective and engaging—and avoids the “death by Powerpoint” pitfall. Meanwhile, he wants surgeons to be open to the possibility of learning something important.



Dr. Upperman (left) with Dr. Neches

“Surgeons need to make themselves available to be engaged,” he said. “They need to be the leaders that they are and really step up to the table.” [Q](#)

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