

PEDIATRIC TRAUMA

The greatest killer of children in developed nations is not a disease—not a virus or bacterium for which we’re researching a cure. The biggest killer of children is accidental injury. Severe injury—or “pediatric trauma”—kills more children than all diseases combined.

Trauma is the leading cause of death and disability in children. More than 15,000 deaths, children die annually due to trauma. Motor vehicle collisions and falls account for a majority of all pediatric injuries.

“Were some new epidemic to come along and cause a fraction of that death and disability, the public would demand action, yet we have been curiously slow to respond to the most important child health problem in our country,” says *Burton H. Harris, founding Director of the Kiwanis Pediatric Trauma Institute in Boston.*

There are two ways to stop this killer. One way is to *prevent* the accident from ever happening. That is why Young Children: Priority One provides service bulletins on preventive measures like Shaken Baby Syndrome, lead poisoning, and burns. But no matter how careful we are or what preventive measures we take, some children will suffer severe injuries.

The second way to stop this killer is proper treatment. Pediatric trauma kills in ways many doctors don’t understand because children don’t respond to severe injuries the way adults do. Blood pressure doesn’t indicate severe blood loss in the same way, air passages are smaller and more easily blocked, lungs are more easily damaged by air forced into them, skulls are more flexible and will press into the brain instead of fracturing, and medicines don’t have the same effects.

Injured children can rapidly deteriorate from labored breathing to a state of total exhaustion and apnea. Once an airway is established it is essential that rate and depth of ventilation be evaluated. Close monitoring of vital signs is absolutely essential to prevent shock.

That is why there needs to be an entire system designed to respond to pediatric trauma, which includes well-trained emergency medical technicians, local hospitals that can treat most injured children, and a regional pediatric trauma center to which the most severely injured children will be sent for treatment by a team of doctors well versed in the special needs of the patient.

The Model Solution

Kiwanians in the New England District understood this need and made a commitment in 1980 to establish the Kiwanis Pediatric Trauma Institute (KPTI) at the New England Medical Center. It is now the heart of a pediatric trauma system that reaches into every community throughout the six states of New England, ensuring that every injured child receives expert care.

The KPTI can stand as a model and a resource for other districts or groups of clubs that decide to help injured children. The staff at the Institute can provide material about each of the components of its system or offer advice on establishing a pediatric trauma center for a region. Other Kiwanis-supported pediatric trauma programs can be found in California, Colorado, New York, Ohio, and North Dakota just to name a few.

How the KPTI Works

The Kiwanis Pediatric Trauma Institute operates inside the New England Medical Center. It isn’t a building or even a specific room. Rather, it is a system established inside the hospital. The experts needed for the pediatric trauma system already worked at the hospital, and the special equipment was there before the Institute was formed. The KPTI simply established a system—or “protocol”—that makes sure all these resources are available and

properly coordinated when a severely injured child arrives at the hospital.

When a call comes in—whether from an ambulance 15 blocks away or a hospital 150 miles away—a team of doctors is alerted. By the time the child arrives at the emergency room, the doctors, nurses, and technicians are waiting. Headed by a pediatric surgeon, the team may involve pediatric specialists in anesthesiology, radiology, neurology, neurosurgery, orthopedics, and critical care medicine. They will accomplish in 20 minutes what would usually require a full hour, completely evaluating and stabilizing the injured child.

In the same way that the doctors are readied, the appropriate operating room, equipment, and space in the intensive care unit are arranged automatically. Because the protocol in the hospital makes the injured child the top priority, blood tests and other lab work are done immediately. Equally important, all the people helping the child have tremendous experience with pediatric trauma because they treat all the severely injured children in New England.

Components of the System

Even seeing this highly efficient system operate at the New England Medical Center doesn't really define the KPTI. The activity around one injured child in Boston is just the hub of a system that reaches into every community in New England. To really understand the concept of a pediatric trauma center, we must look at the components in the system.

The Tertiary Hospital

A tertiary hospital is a university teaching hospital or a regional children's hospital. Like the Kiwanis Pediatric Trauma Institute in Boston, it serves as the regional hub for the system, treating the most critically injured children and overseeing training and development of the rest of the pediatric trauma response system. Most, if not all, of the pediatric specialists and equipment needed to treat severely injured children are at this facility. A protocol coordinates the hospital's response with the other hospitals and establishes an administrative structure to help develop the rest of the system. This requires an allocation of resources for program development, patient care, long-stay units, and the components described below.

Primary and Secondary Hospitals

Because the hub hospital treats only the most severely injured children—five to 15 percent—every hospital in the region must agree to play a specific role in the pediatric trauma response system. A majority of injuries are treated at the nearest local hospital. More serious injuries that require specialists or special equipment go to secondary hospitals. Children with multiple injuries and those who do not respond to treatment at local and secondary hospitals are sent to the hub hospital. Hospitals and medical personnel must go through a self-assessment process to determine which patients they should treat. All the hospitals must agree on the policies for directing or transferring patients to a particular hospital.

Prehospital Care

About 40 percent of the children who die before arriving at the hospital do not receive the treatment they need. This is why emergency medical technicians and paramedics need special training on treatment of pediatric trauma.

Communications

Closely linked to prehospital care and referrals is the communication system. Emergency medical technicians should be in communication with the hospital from the time they find the injured child, so advice can be given on treatment and a decision can be made about which hospital the child should be taken to.

Transport

In most regions, both ground and air transport are needed. The receiving hospital is usually responsible for providing transportation for critical care patients, often providing a mobile care unit—helicopter or ambulance—staffed by a crew of doctor, nurse, and paramedic.

Aftercare

Severely injured children generally face a long recovery period and intensive rehabilitative therapy. The hub hospital should be prepared to house children for long periods, and the child may need to go to another hospital for further rehabilitative therapy. As soon as it is practical, each child will be transferred to a hospital closer to his or her home. At this time, a therapeutic plan can be sent to the receiving hospital, and the child can be scheduled for follow-up visits.

How Kiwanis Clubs Can Help

These components can be assembled in any region, and Kiwanis can bring it about. In fact, Kiwanis clubs in several districts now help support pediatric trauma centers in a variety of ways. Many of the activities they undertake are described below. The first two can be implemented by a single club. The latter projects require coordination with other clubs or technical assistance.

Safety

The trauma centers encourage education activities and other efforts that prevent injuries to children. These include loaning of car safety seats, checking or installing smoke detectors, distributing information on poison prevention, and installing safety gates to prevent falls. Refer to the Project Idea List and other service bulletins to learn more about safety projects.

Family Caring Network

The Kiwanis Pediatric Trauma Institute in Boston has set up a network with clubs throughout New England to help any family whose child is sent to the Institute. As soon as the hospital learns a child is coming, the administrator of the KPTI calls the club nearest the child's home. The club offers help with:

- Transportation
- House sitting
- Child care
- Food
- Laundry and cleaning
- Lawn mowing
- Notifying family and friends about the emergency

This allows the parents to go to Boston and be with their injured child without having to worry about the Cub Scout meeting, piano lesson, or other obligations.

Kiwanians in Boston may also assist the family by arranging for lodging, visiting the parents at the hospital, meeting everyday needs, and working with the hospital social worker or member of the clergy to pass time and comfort the parents. The clubs may also offer financial assistance to help with non-medical costs that will not be covered by insurance, such as housing, meals, and parking costs. Sometimes, hometown fund-raising events are developed.

Clubs have assisted with the return home by building a wheelchair ramp, renting a wheelchair or adjustable bed, installing an extension phone, relocating a bedroom to the first floor, providing transportation, staging a party, or arranging for child care, home nursing, or tutoring.

If your club decides to set up a family care network with the local hospital or a trauma center, you will need to take these steps:

1. **Survey the club** to find out what services (and at what times) each club member is willing to provide. Establish a budget for the support activities.
2. **Contact the mental health association** or local clergy to find volunteers trained in family counseling and stress management who will participate in the network.
3. **Work with a hospital administrator**, social worker, or member of the clergy to establish what services the club can perform, a system for deciding when the network should be activated, and the level of control (or oversight) the hospital should have over the family care network.
4. **Set up a directory** of the club members and their services for the club committee that will oversee the family caring network. Arrange for a member of the committee always to be on call—available for a call from the hospital administrator.
5. **Train participating club members** to clear any offer of additional assistance with the chairman of the program or the hospital administrator. Never should a promise be made that cannot be kept.

For additional information on setting up a Family Caring Network, contact the Kiwanis Pediatric Trauma Institute in Boston. (Address and phone number below.)

Training

In New England, local clubs organize seminars for emergency medical technicians and other medical personnel. A team from the KPTI conducts the training, and the club handles all the logistics, from registration to setting up the room and providing refreshments. Registration fees can be established to pay for materials and travel of the speakers. The result is better-prepared local medical personnel and visibility for Kiwanis.

The KPTI will work with a club interested in setting up a similar training session outside New England. The club would need to work with the Institute to find doctors in the region who would be willing to take the KPTI materials and conduct the training session.

Clubs in New England have also subsidized the attendance of doctors and nurses at conferences on pediatric trauma. A club could encourage a pediatric surgeon or similar specialist to attend by offering to pay the registration fee or air fare. For instance, the Kiwanis Pediatric Trauma Institute holds its National Conference on Pediatric Trauma in September. The club could request material on this conference from the KPTI and then share it with the nearest pediatric surgeon. The club would demonstrate its interest by offering to subsidize the doctor's attendance.

Equipment

Ambulances and community hospitals sometimes lack the equipment needed for the care of small children. For instance, the blood pressure cuff that fits adults and older children is too large for infants and toddlers. Many other pieces of equipment are similarly oversized. A club can request information from the KPTI on the pediatric equipment that should be in an ambulance and work with the emergency medical system to make sure these items are acquired.

Pediatric Trauma Center

In several districts, clubs have united to raise funds for the establishment of a pediatric trauma center. If your district decides to pursue this project, it will be voted on at a district convention, and clubs will be informed about the amount of money they will be asked to raise each year. In New England, clubs committed to giving \$1,000 each year to the KPTI, thereby raising a total of \$245,000 per year. Later, the New England District developed an endowment fund to support the KPTI.

These funds are used to support the parts of the program not related to patient care (which are paid for by the patients and their insurance companies). The Kiwanis money supports the "nonrevenue-producing" efforts: education of medical personnel, community safety education programs, accident awareness efforts, research, and linking community hospitals with the regional center. Clubs that wish to learn more about starting a district-wide campaign for a pediatric trauma center should contact:

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