

Crash Investigation

From Tragedy, Insight



The Science of Crash Investigation

Motor vehicle crashes are a leading cause of injury-related admissions to The Children's Hospital of Philadelphia. They also are the leading cause of death for children in the United States. To help reduce the number and severity of injuries to children in car crashes, the Hospital formed its own crash investigation unit within the Center for Injury Research and Prevention in 2005.

The crash investigation team collects detailed information from the scene of actual crashes involving children. They use that information to guide improved engineering design and policy to protect children from injury in future crashes.

The team leads the Center's engineering-focused research, providing results seen in real crashes. Crash investigations help monitor how auto-safety technologies affect outcomes for children in crashes, as well as improvements to federal safety standards and engineering design.

With more than 800 crash investigations completed, the Center's researchers have extensive experience and a detailed database of crashes involving child passengers. Because the Hospital treats adolescents through age 19, the crash investigation team also has access to teen-driver related crashes and is working cooperatively with the Center's teen-driver experts to inform their work.

Crash Investigators on the Scene

Study participants are identified and give consent through Children's Hospital's Level One Pediatric Trauma Center, which admits more than 1,100 injured patients each year. The team also collaborates with the neighboring Hospital of The University of Pennsylvania to enroll adult study participants.

After a crash, a team of investigators collects detailed information from the scene of the accident, the vehicles, the treating hospital and the family. Engineers analyze this real-world data to better understand how injuries are caused, forming the basis for innovations and recommendations to reduce the risk of injury to other children in similar situations. A multidisciplinary team from the Center and CHOP meets monthly to evaluate the crash data from many perspectives. This analysis helps determine what causes or prevents pediatric injury in serious crashes.



Crash Injury Research and Engineering Network (CIREN)

The Center was awarded a five-year contract from the National Highway Traffic Safety Administration in 2005 to serve as the only site primarily focused on pediatric passengers in the Crash Injury Research and Engineering Network (CIREN). A multidisciplinary research affiliation of clinicians and engineers in academia, industry and government, CIREN's mission is to improve the prevention, treatment and rehabilitation of motor vehicle crash injuries. Its goal is to reduce deaths, disabilities, and human and economic costs through the study of real-world cases of serious injuries sustained in car crashes. Pooling data from eight network trauma centers nationwide, CIREN provides a rich database for analysis to create life-changing tools and technologies.

Action

These data serve as a first step in designing countermeasures to prevent future injury. Regular joint review of cases by the researchers and vehicle manufacturers, restraint suppliers and regulators helps to set evidence-based priorities for future research, identifies necessary safety design modifications, and informs the development of anthropomorphic test dummies and test procedures.

Visit www.chop.edu/injury to learn more about the Center's pediatric field investigation, or contact Jessica Steps Jermakian at steps@email.chop.edu.

More details are available at www.chop.edu/injury.