

PARKVIEW TRAUMA 2016

ANNUAL REPORT



 **PARKVIEW**
ADULT TRAUMA CENTER

 **PARKVIEW**
PEDIATRIC TRAUMA CENTER

MISSION STATEMENT

OUR MULTIDISCIPLINARY TEAM IS DEDICATED TO THE TREATMENT OF VICTIMS OF TRAUMA, THE EDUCATION OF THE COMMUNITY AND THE PREVENTION OF INJURY. WE STRIVE FOR OPTIMAL OUTCOMES BY PROVIDING EFFICIENT, QUALITY CARE, AND ARE COMMITTED TO SUPPORTING THE CAREGIVERS IN THE CRISIS ARENA.



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DEDICATION TO EXCELLENCE

Excellence in Prevention

Parkview Trauma Centers continued to focus on trauma prevention throughout 2015. Trauma prevention campaigns included: Share the Road, Don't Text & Drive, bicycle helmet safety, Don't Drink and Drive, child maltreatment, safe sleep and many others.

In 2015, nearly 92,000 members of the public attended a Parkview Trauma Centers program or presentation. This dedication to educating the community about preventing traumatic injury is further evidence of Parkview Trauma Centers' commitment to bringing the highest level of compassion and care to the region.

Excellence in Outreach and Education

Parkview Trauma Centers are passionate about providing the best training and education to promote the highest levels of care for the traumatically ill or injured patient.

Educational opportunities included annual adult and pediatric trauma symposiums, trauma grand rounds,

trauma case studies and hands-on training with high-fidelity medical simulation mannequins.

Excellence in Outcomes

Parkview Trauma Centers have adopted the modern Performance Improvement and Patient Safety (PIPS) model for measuring quality. Among the many measures that are collected, Parkview Trauma Centers continue to see reductions in both hospital and ICU lengths of stay (LOS) for both adult and pediatric patients.

Parkview Adult and Pediatric Trauma Centers are dedicated to excellence. From the pre-hospital phase through inpatient care and the rehabilitation process, each Parkview co-worker demonstrates passion and commitment to providing clinical excellence. This commitment and teamwork provides superior outcomes for critically ill and injured individuals throughout the region. ■



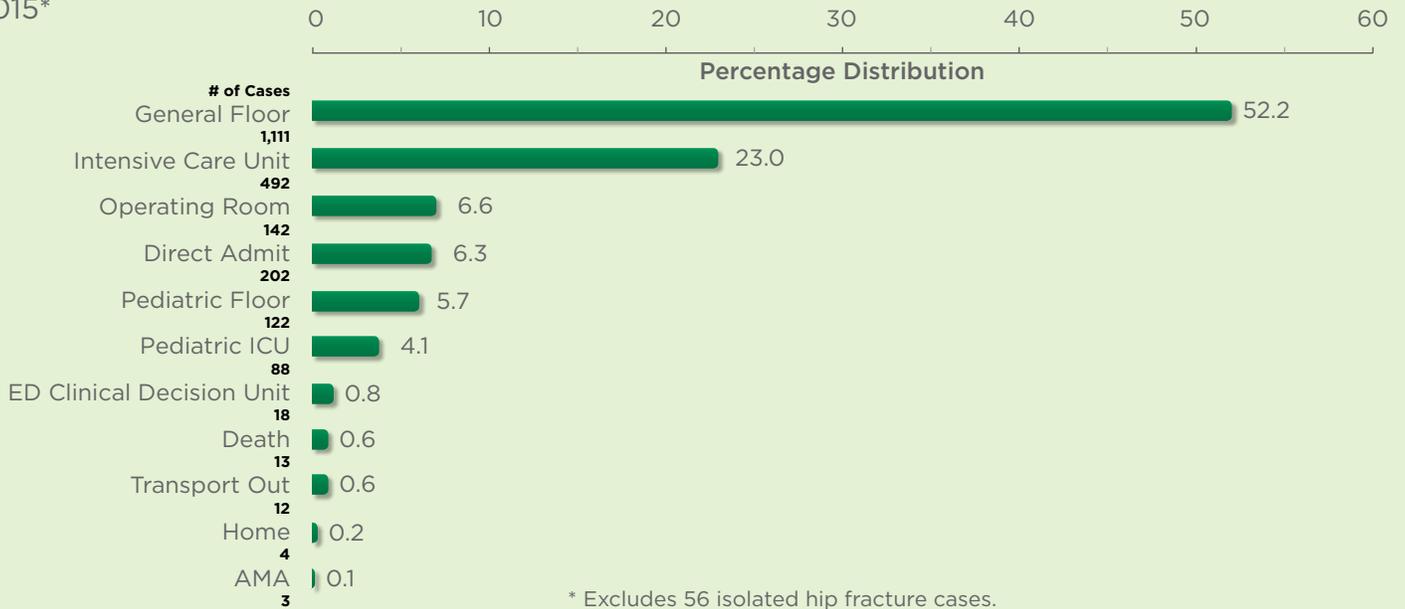
Lawrence Lottenburg, MD, FACS, Trauma Surgeon



Parkview co-workers volunteer in Fort Wayne's Three Rivers Festival parade to help spread the "Share the Road" message.

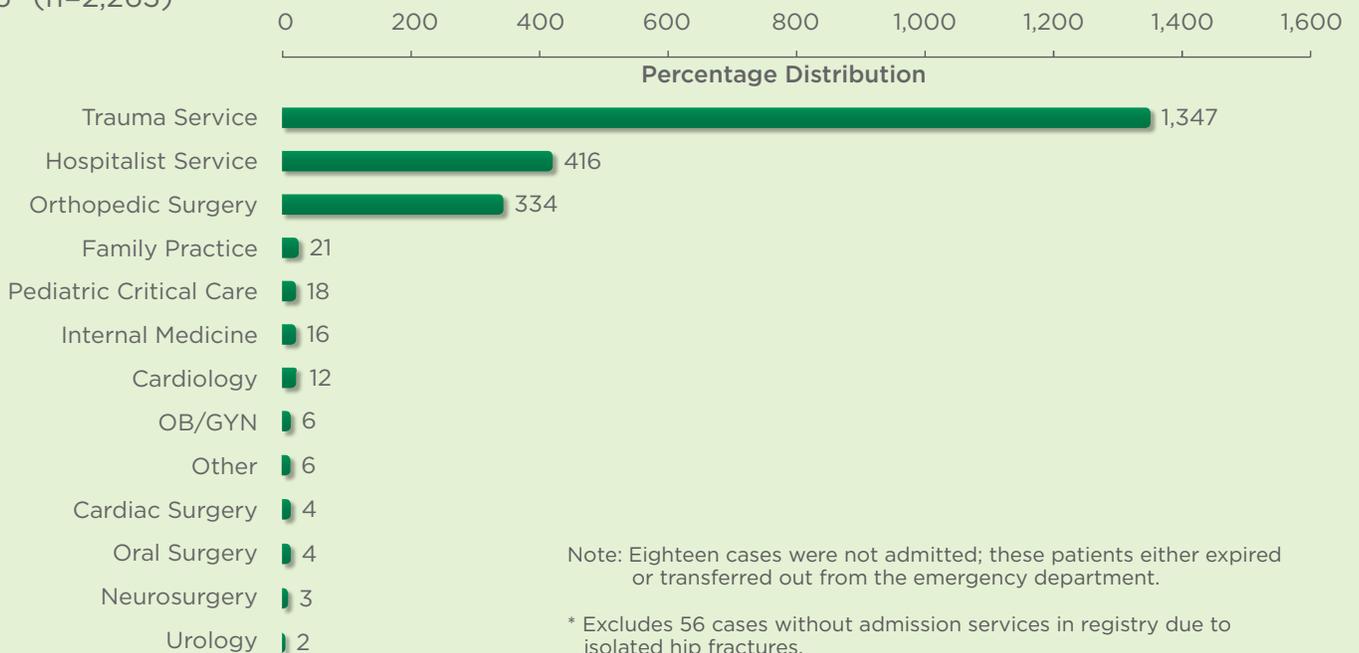
ER Disposition, All Ages

2015*

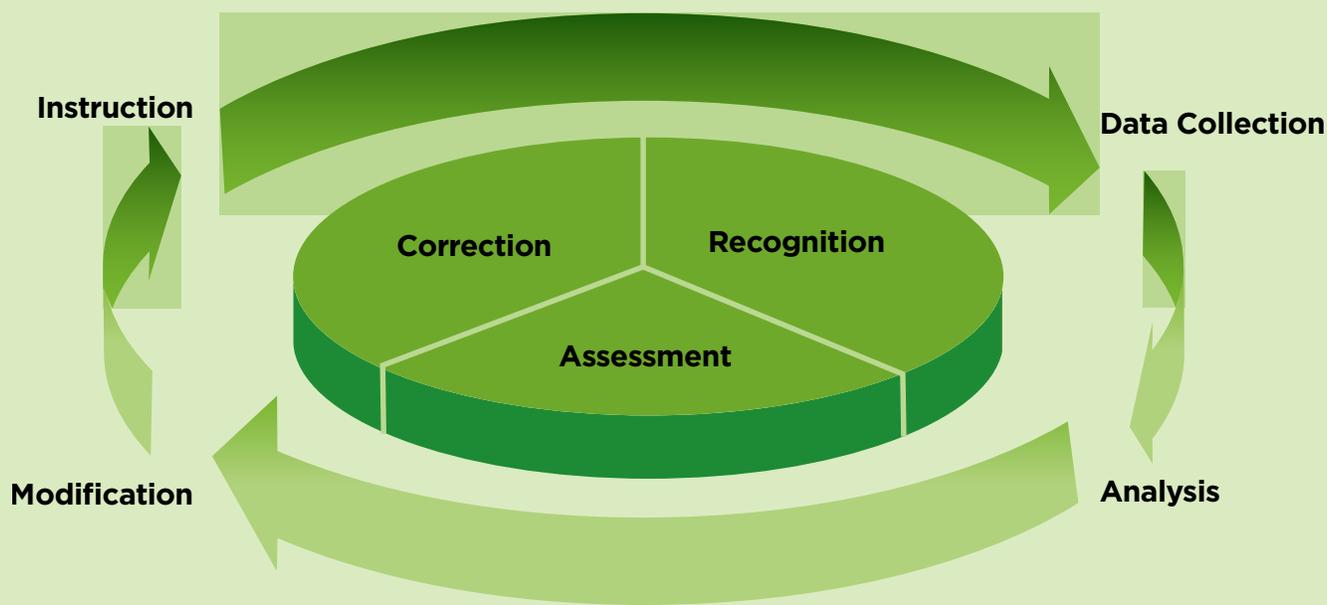


Admission Service, All Ages

2015* (n=2,263)



TRAUMA PERFORMANCE IMPROVEMENT AND PATIENT SAFETY



American College of Surgeons: Committee on Trauma (2014). Resources for optimal care of the injured patient.

According to the American College of Surgeons Committee on Trauma (2014), all trauma centers should provide safe, efficient and effective care to the injured patient. This requires the authority and accountability to reduce unnecessary variations in care and prevent adverse events.

The Adult and Pediatric Trauma Centers located at Parkview Regional Medical Center have adopted the modern Performance Improvement and Patient Safety (PIPS) model for measuring quality. The PIPS model includes a continuous and concurrent process of monitoring, assessing and managing trauma care using a multidisciplinary effort to measure, evaluate and improve the process of care and its outcomes (*American College of Surgeons: Committee on Trauma, 2014*). Performance

improvement and patient safety are inseparable. The performance improvement process is directed at the care itself; the patient safety process is directed at the environment in which the care is given.

In the PIPS model, Parkview Trauma Centers continuously monitor, assess and manage the environment in which the care is provided, the trauma care directly and the patient outcomes that follow. This is accomplished by concurrent and continuous extensive chart review by clinical staff, multiple levels of peer review among physicians and surgeons, and multidisciplinary committees that evaluate and improve all aspects of trauma care.

The PIPS program is supported by a trauma registry that concurrently collects data and obtains the necessary

information to identify opportunities for improvement. The data allows the PIPS program to monitor and continually improve internal and external structures, processes and outcomes (*American College of Surgeons: Committee on Trauma, 2014*). The Parkview Trauma Centers data is used on a daily basis and is provided to many care providers for their input on change.

Parkview is part of the National Trauma Quality Improvement Program (TQIP), which is a national risk-adjusted benchmarking program geared toward improving trauma patient care and outcomes. Risk-adjusted benchmarking is pertinent to improving performance and outcomes through comparative analysis across appropriately risk-adjusted populations. Parkview Trauma Centers are proud participants of TQIP.

The trauma program at Parkview Regional Medical Center reduces unnecessary variations in care through practice guidelines, education, protocols, research and algorithms derived from evidence-based, peer-reviewed and validated resources. The trauma program monitors compliance and effects in patient outcomes (*American College of Surgeons: Committee on Trauma, 2014*).

A few examples include: a mature massive transfusion protocol for the exsanguinating, hemorrhaging patient; management of severe traumatic brain injuries; reversal of oral anticoagulation; arrival of antibiotic administration and time to operating room for all open fractures.

Parkview Trauma Centers demonstrate a commitment to the continuous pursuit of improving the care of the injured patient through a well-defined and utilized PIPS process. ■

Left to right:

Sarah Hoepfner, RN, BSN, Trauma Coordinator and Performance Improvement Specialist; **Lisa Hollister, RN, MSN**, Director, Trauma and Acute Surgery



REGISTRY



A trauma registry is an electronic database with uniform data elements that describe the injury event, demographics, pre-hospital information, diagnosis, care, outcomes and cost of treatment. The database is used to collect, organize and analyze information on the trauma patient population and is essential to providing a trauma service.

Raymond Cava, MD, FACS, Trauma Medical Director, Pediatric Trauma Medical Director and Pediatric ICU Co-medical Director, Parkview Regional Medical Center; and Acute Care/Trauma Surgeon, Parkview Physicians Group — Surgical Specialists

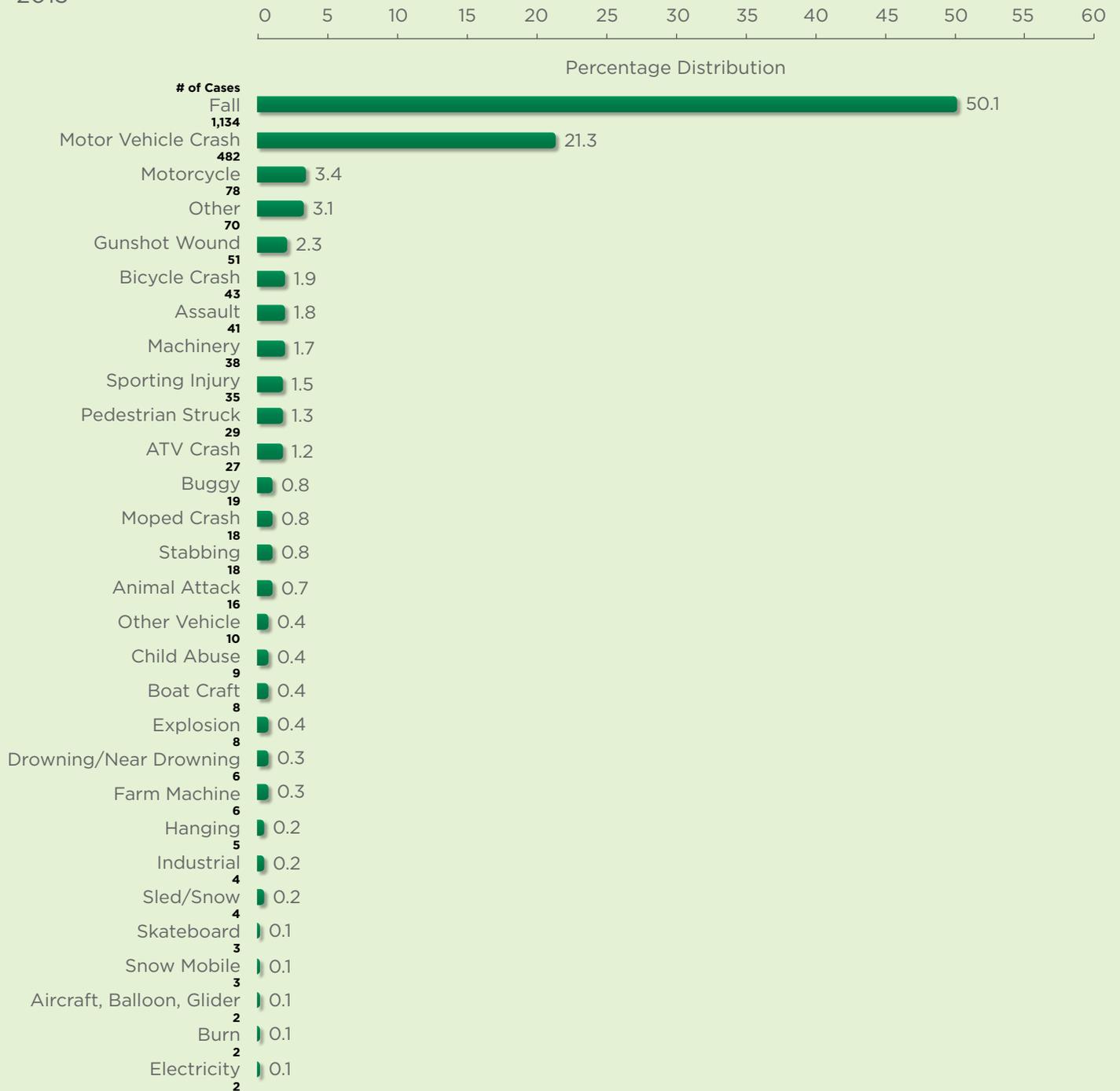
The data has many uses but is primarily used to monitor the continuum of care, from injury prevention through outcomes measurement. Currently, the Parkview trauma registry manages data for more than 45,000 patients. The Parkview trauma registry contributes information to staff on a daily basis and quarterly to the National Trauma Data Bank, the Indiana State Department of Health and the Trauma Quality Improvement Program (TQIP). Contribution to a larger database allows Parkview to identify trends in quality measurements, shape public policy and benchmark at national, state and regional levels. ■



Dawood Dalaly, DO, Medical Director, Surgical Trauma ICU

Mechanism of Injury, All Ages

2015

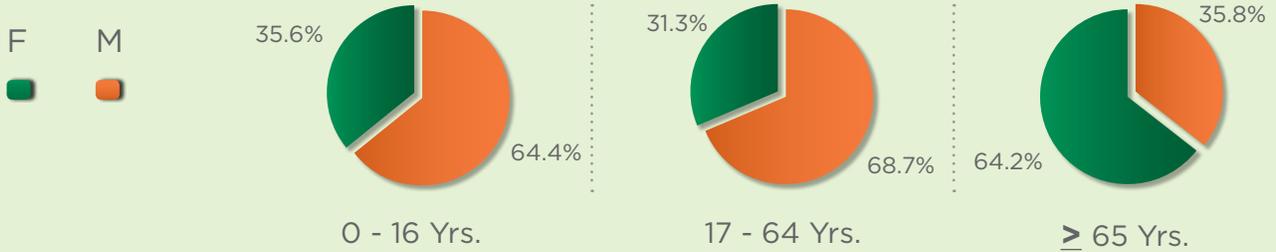


Note: There were 89 (3.9%) cases with unknown mechanism of injury.

REGISTRY *continued*

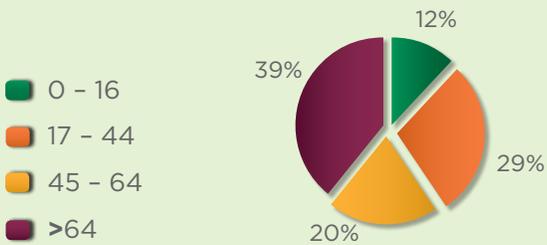
Age and Sex, All Patients

2015



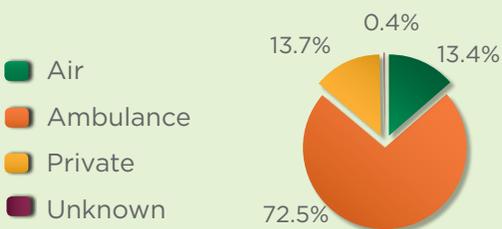
Ages of All Patients

2015



Mode of Transportation

2015



Volume of All Ages Admitted from ER to ICU and OR

2010 - 2015

■ All Trauma
 ■ ER-ICU/PICU
 ■ ER-Surgery



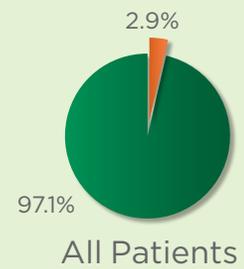
Trauma Type

2015

All Trauma

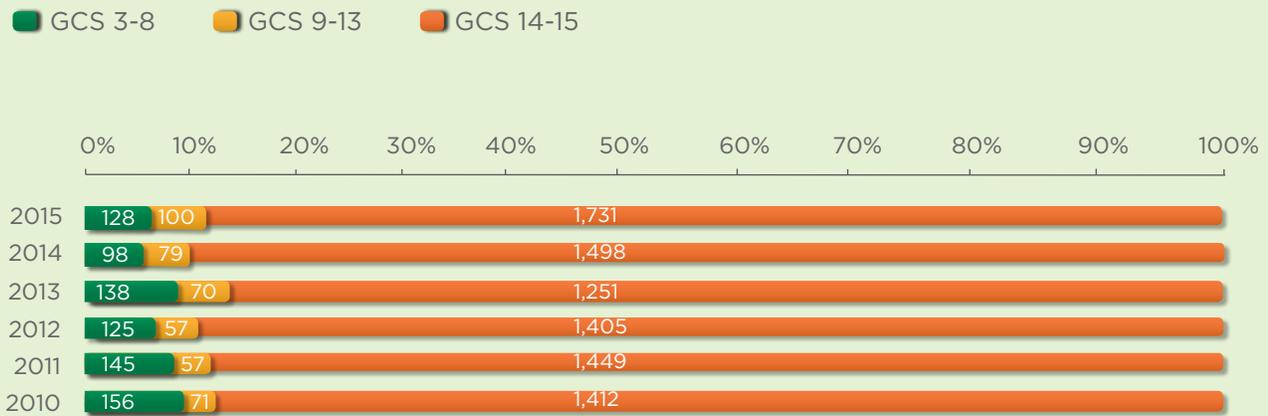
■ Blunt Trauma

■ Penetrating Trauma



REGISTRY *continued*

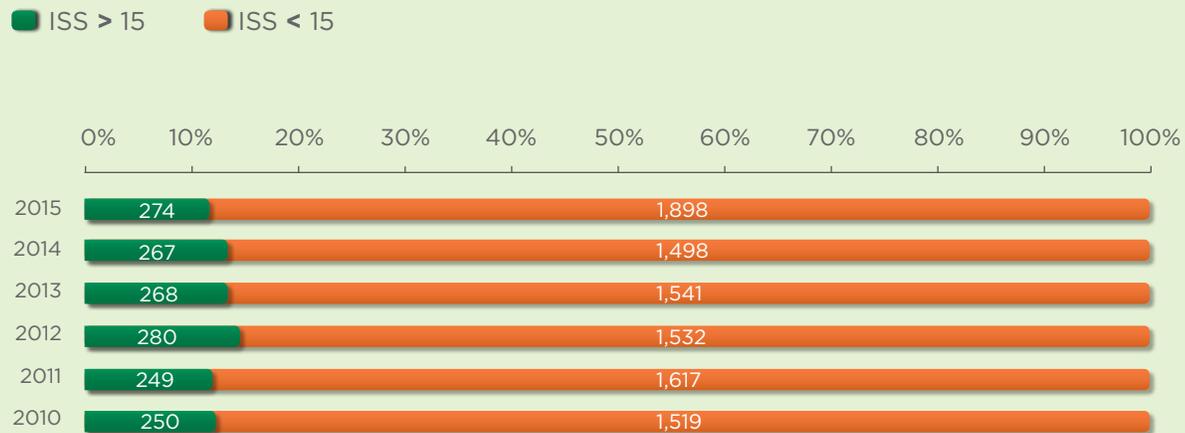
Volume (and Percentage) of All Patients by Admit Glasgow Coma Score (GCS) Value 2010 - 2015*



GCS 3-8 = Possible severe head injury
 GCS 9-13 = Possible moderate head injury
 GCS 14-15 = Possible mild head injury

* Excludes cases for which GCS is unknown.

Volume (and Percentage) of All Ages by Injury Severity Score (ISS) Value 2010 - 2015*



ISS > 15 can include life-threatening, critical or fatal injuries.

* Excludes cases for which ISS is unknown.



Kellie Girardot, RN, BSN, *Pediatric Trauma Coordinator, Trauma CNS Fellow, Parkview Pediatric Trauma Center*

As a pediatric trauma center, Parkview has special resources dedicated to the care of injured children. The high quality of pediatric trauma care at Parkview can be attributed to pre-hospital providers, physicians and hospital-based personnel who support the trauma program. All members of the trauma team are committed to pediatric trauma care, and all members of the trauma team who care for injured children are properly trained and credentialed. For the pediatric patient, there is active collaboration with other surgical and pediatric subspecialists, such as neurosurgery, orthopedic surgeons, pediatric emergency medicine physicians and pediatric critical care physicians.

Children experience trauma differently than adults due to significant anatomic and physiologic differences as well as varying mechanisms and patterns of injury. This requires a unique response to major trauma in children, which drives a need for specialized pediatric services. Parkview Regional Medical Center is verified

as a pediatric trauma center by the American College of Surgeons and is dedicated to providing the resources necessary to accommodate the specialized needs of the pediatric trauma population. Verification is granted to trauma centers that demonstrate the highest quality of care in addition to a commitment to injury prevention, outreach, performance improvement and education.

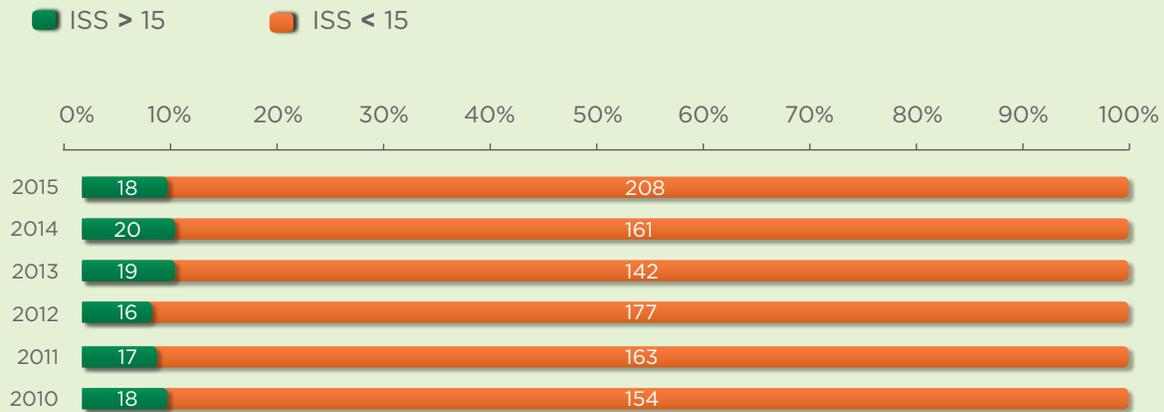
More children die from injury than from all other causes combined. For injured children who survive, severe disability may become a lifelong problem requiring long-term care, further increasing the financial burden on society. Parkview provides effective care to the injured child through a comprehensive and inclusive approach that recognizes childhood injury as a major public health concern, identifies effective strategies for prevention, improves systems of emergency medical care for children and provides the highest quality of pediatric trauma care, including rehabilitation care. Child life specialists assist in meeting the needs of both the pediatric patient and his or her family members.

Parkview Trauma Centers continue to host the annual Pediatric Trauma Symposium and support Parkview's annual Child Maltreatment Symposium to increase awareness and prevention of child maltreatment. Additionally, the trauma program participates in state-wide trauma initiatives. Members of the pediatric trauma team participate in bi-monthly pediatric simulations hosted by Parkview Trauma Centers, and the trauma program coordinates site visits to the simulation lab at Cincinnati Children's Hospital Medical Center. These simulation exercises use high fidelity patient simulators. This education allows us to demonstrate improved teamwork and leadership among team members, more rapid recognition and management of injuries and, ultimately, improved outcomes for severely injured children. These efforts support a high level of trauma expertise among the regional system of providers who care for injured children. ■

PEDIATRICS *continued*

Volume (and Percentage) of Pediatric Patients (Ages 0 - 14) by Injury Severity Score (ISS) Value

2010 - 2015*

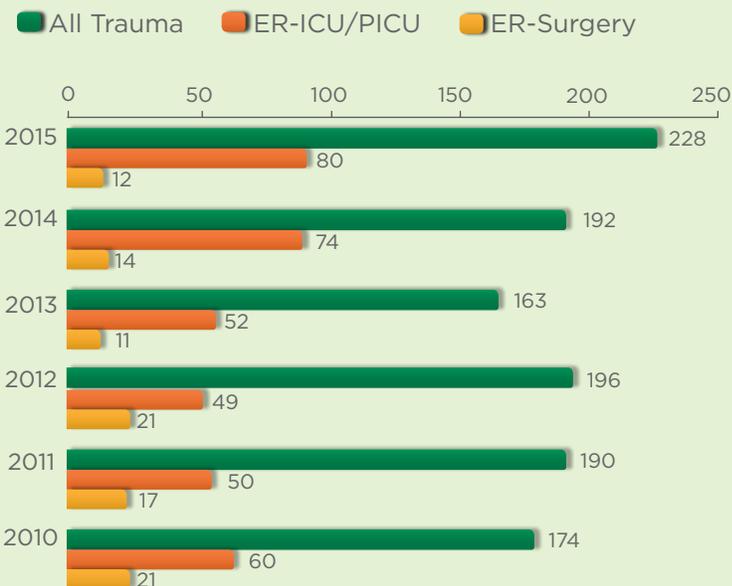


ISS > 15 can include life-threatening, critical or fatal injuries.

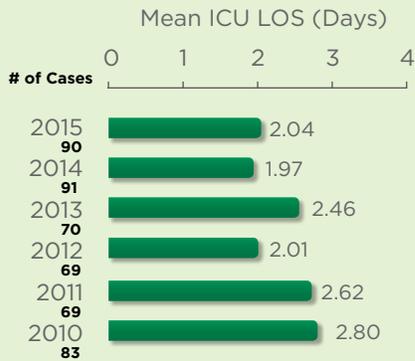
* Excludes cases for which ISS is unknown.

Volume of Pediatric Patients (Ages 0 - 14) Admitted from ER to ICU or Surgery

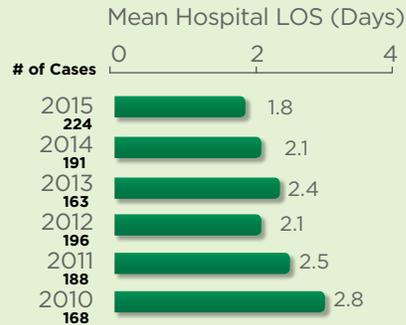
2010 - 2015



**ICU Length of Stay (LOS),
Pediatric Trauma (Ages 0 - 14)**
2010 - 2015

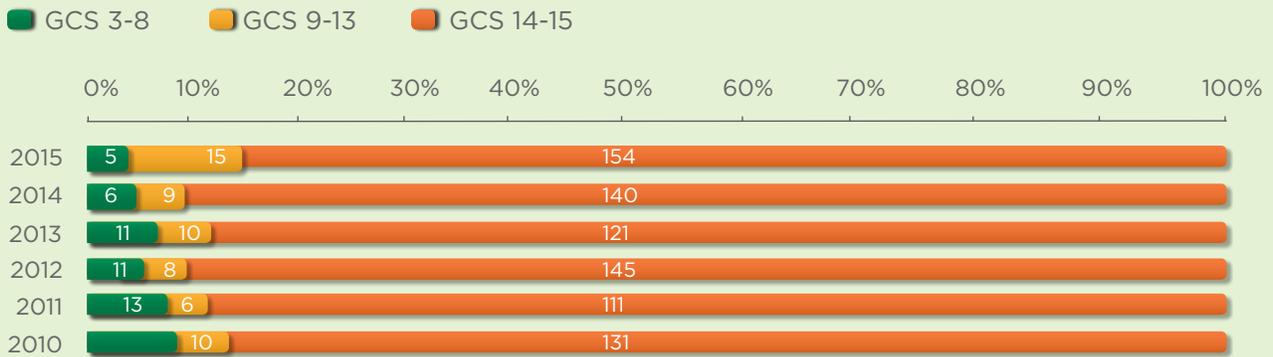


**Hospital Length of Stay (LOS),
Pediatric Trauma (Ages 0 - 14)**
2010 - 2015



Note: Excludes patients who expired in the emergency department or were transferred out of the emergency department.

**Volume (and Percentage) of Pediatric Patients (Ages 0 - 14)
by Admit Glasgow Coma Score (GCS) Value**
2010 - 2015*



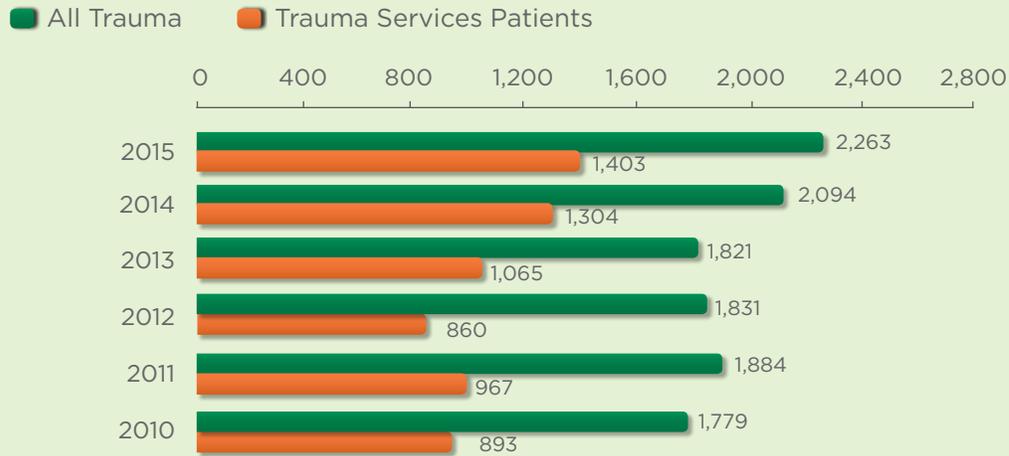
GCS 3-8 = Possible severe head injury
 GCS 9-13 = Possible moderate head injury
 GCS 14-15 = Possible mild head injury

* Excludes cases for which GCS is unknown.

PEDIATRICS *continued*

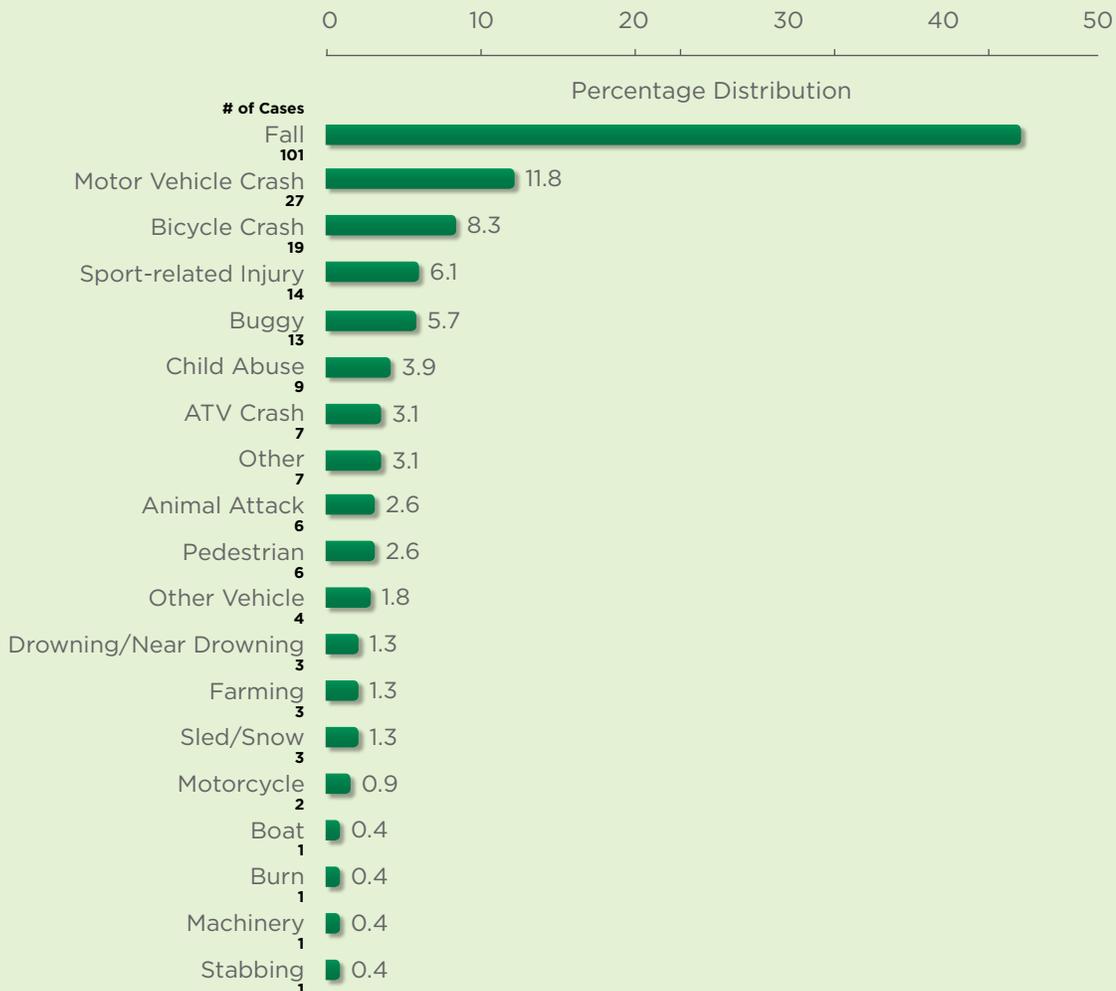
Trend of Trauma Admission by Type

2010 - 2015



Mechanism of Injury, Pediatric Patients (Ages 0 - 14)

2015





Candice Nichols, NP, Geriatric Fracture Coordinator, Parkview Trauma Centers

Parkview was recognized in the US News & World Report “Best Hospitals” Guide 2017, and by the American Orthopaedic Association as a Star Performer for our achievements and participation in the Own the Bone® quality improvement program. Since enrolling in the American Orthopaedic Association’s Own the Bone® program, Parkview has taken steps to prevent fragility fractures from recurring.

Osteoporosis is nearly an epidemic in the United States among older adults. At least 44 million Americans are affected by osteoporosis or low bone density. A fragility fracture is the first sign of poor bone health. Over 2 million fragility fractures occur each year — more than heart attacks, strokes and breast cancer combined. Patients who have had a fragility fracture are at an 86 percent higher risk of a second fracture.

Own the Bone serves to identify, evaluate and treat fragility fracture patients through the use of a national

web-based registry, collaborating physicians and a fracture-care liaison to facilitate both inpatient and outpatient care. Through the Own the Bone partnership, Parkview has recognized the specialized needs of this population of patients as well as the positive impact offered through initiating a geriatric fracture program.

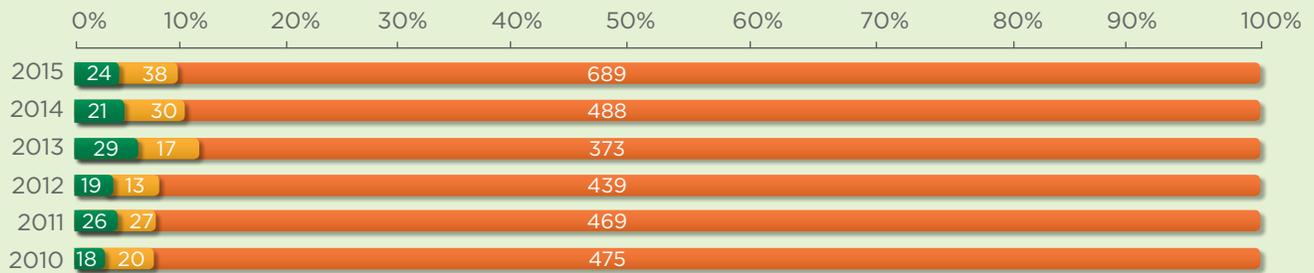
Alarming, nearly 25 percent of patients who suffer a hip fracture die within a year. Those who do survive often experience a loss of independence and may require long-term nursing home care. Since its implementation, the Geriatric Fracture Program has focused on the care of the hip fracture patient and has reduced average length of stay in this patient population by one day. With falls as the leading mechanism of injury and the leading cause of death in older adults, Parkview has demonstrated a commitment to helping patients understand their risk for future fractures and steps they can take to prevent them. ■

GERIATRICS *continued*

Volume (and Percentage) of Geriatric Patients (Ages ≥ 65) by Admit Glasgow Coma Score (GCS) Value

2010 - 2015*

■ GCS 3-8
 ■ GCS 9-13
 ■ GCS 14-15



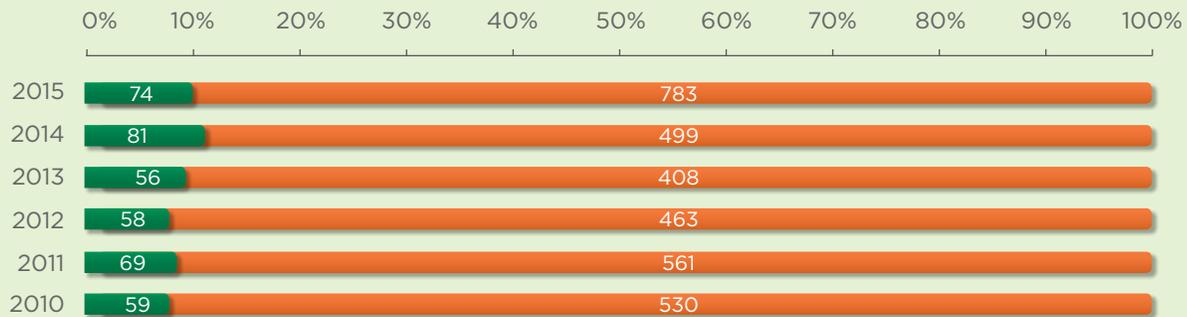
GCS 3-8 = Possible severe head injury
 GCS 9-13 = Possible moderate head injury
 GCS 14-15 = Possible mild head injury

* Excludes cases for which GCS is unknown.

Volume (and Percentage) of Geriatric Patients (Ages ≥ 65) by Injury Severity Score (ISS) Value

2010 - 2015*

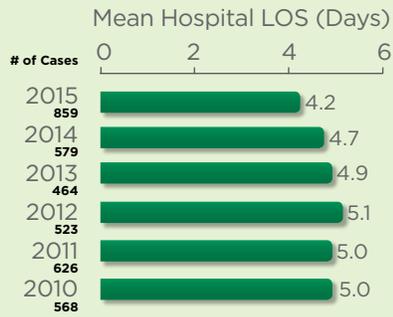
■ ISS > 15
 ■ ISS < 15



ISS > 15 can include life-threatening, critical or fatal injuries.

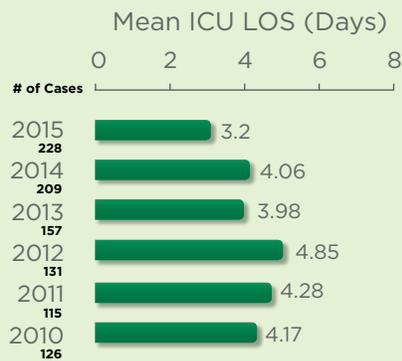
* Excludes cases for which ISS is unknown.

**Hospital Length of Stay (LOS),
Geriatric Trauma (Ages ≥ 65)
2010 - 2015**



Note: Excludes patients who expired in the emergency department or were transferred out of the emergency department.

**ICU Length of Stay (LOS),
Geriatric Trauma (Ages ≥ 65)
2010 - 2014**

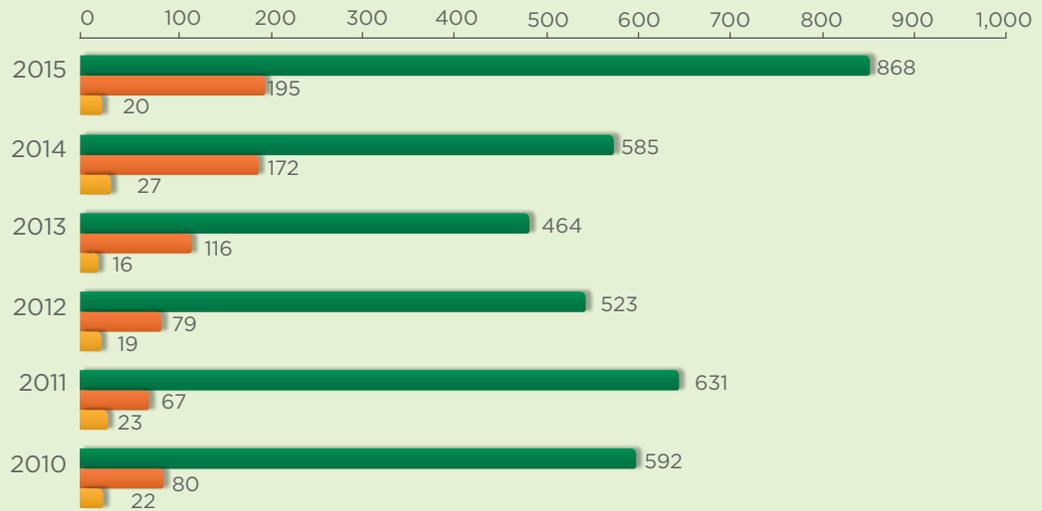


Lindsay Riegler, MD, Trauma Surgeon

GERIATRICS *continued*

Volume of Geriatric Patients (Ages ≥ 65) Admitted from ER to ICU or Surgery 2010 - 2015

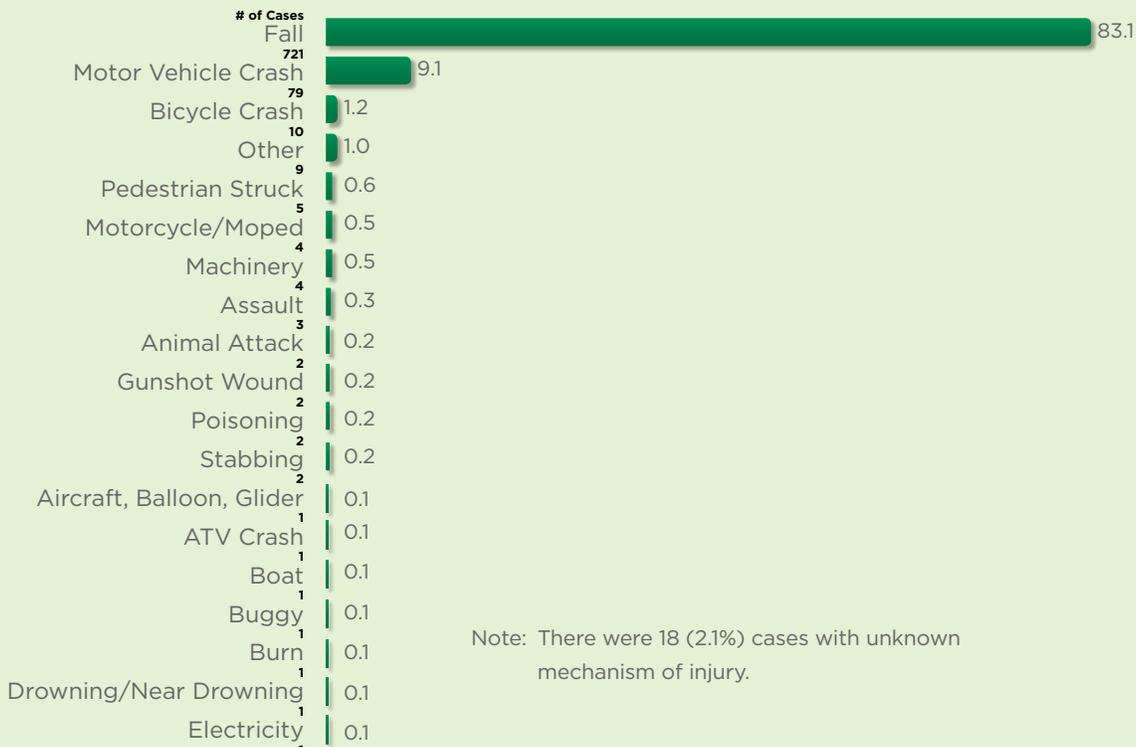
■ All Trauma
 ■ ER-ICU/PICU
 ■ ER-Surgery



Mechanism of Injury, Geriatric Patients (Ages ≥ 65)

2015

0 10 20 30 40 50 60 70 80 90
Percentage Distribution



Note: There were 18 (2.1%) cases with unknown mechanism of injury.

PERIOPERATIVE SERVICES



Left to right:

Dennis Warner, Director, Perioperative and Endoscopic Services, Parkview Regional Medical Center; **Marcy Rogers, RN, MBA**, Vice President, Surgical and Ancillary Services, Parkview Regional Medical Center

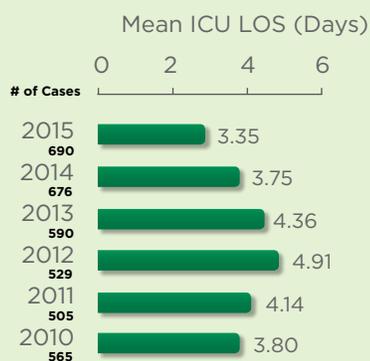
Dating back to the initial verification of Parkview's Level II Trauma Program, Perioperative Services has been an integral part of the continuum of care for our trauma and emergency room patients. A team of highly trained and dedicated surgeons, anesthesiologists, nurses, surgical technologists and support staff is always ready to respond to any emergency, day or night. Our surgical team is on-site 24 hours a day, 7 days a week, and specializes in caring for emergent and non-emergent surgical patients.

By performing a high volume of surgical procedures, our team has gained valuable experience and knowledge in treating a wide spectrum of urgent conditions. Our dedicated Trauma Operating Room is equipped to provide immediate access to supplies and equipment needed during emergency procedures. By utilizing state-of-the-art equipment and computer-enhanced technologies, we are able to employ new and innovative techniques through surgical intervention. The result demonstrates improved quality care, reduced length of stay and faster recovery. ■

PERIOPERATIVE SERVICES *continued*

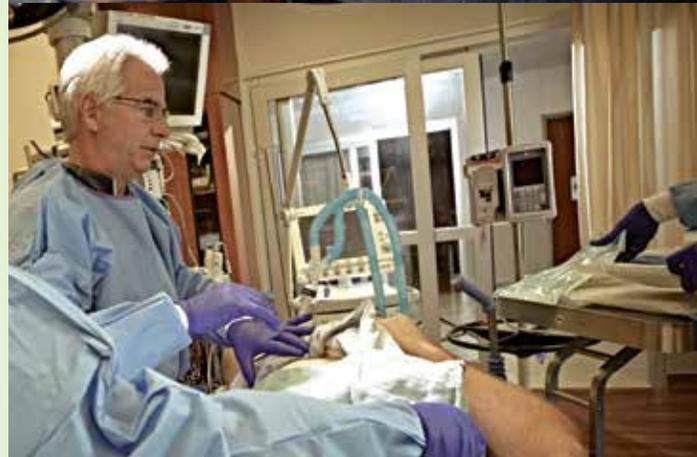
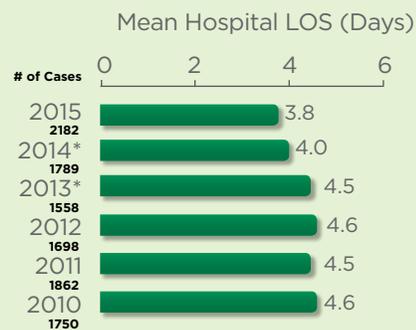
ICU Length of Stay (LOS), All Ages

2010 - 2015



Hospital Length of Stay (LOS), All Ages

2010 - 2015



POST-TRAUMA CARE



The Parkview Rehabilitation Center is a comprehensive inpatient medical rehabilitation program located within Parkview Hospital Randallia. The Parkview Rehabilitation Center meets rigorous national standards as evaluated by The Joint Commission and is CARF (Commission on Accreditation of Rehabilitation Facilities) accredited.

The Parkview Rehabilitation Center has been accredited by CARF for the following programs:

- Stroke program (child/adolescent and adult)
- Brain injury program (child/adolescent and adult)
- Comprehensive Inpatient Medical Rehabilitation program (child/adolescent and adult)

The unit strives to continually meet and exceed recognized quality standards. Patients and families can be confident that the professionals providing care at the center are focused on helping their loved

ones achieve the most favorable results possible. The Parkview Rehabilitation Center provides a full range of inpatient services and programs to support patients of Parkview's verified Level II Adult and Pediatric Trauma Centers and Parkview Stanley Wissman Stroke Center, the region's first primary stroke center certified through The Joint Commission. Our facility is designed to meet the complex needs of patients requiring specialized therapies. The Parkview Rehabilitation Center provides a full range of inpatient services and programs to support patients facing a variety of diagnoses including, but not limited to:

- Orthopedic (multiple traumas, fractures, spinal surgeries)
- Amputation
- Spinal cord injury (traumatic, non-traumatic, complete and incomplete)
- Stroke
- Brain injury

POST-TRAUMA CARE *continued*

- Cardiac
- Neurological conditions (Parkinson's disease, multiple sclerosis, Guillain-Barré syndrome)
- General debility

From admission through discharge and beyond, the Parkview Rehabilitation Center offers a holistic approach to healing. The primary goal of the Parkview Rehabilitation Center is to guide patients in their recovery from illness or trauma by providing the best, most comprehensive therapy to restore independence, increase functionality and mobility, and ensure patient satisfaction.

Patients admitted to the Parkview Rehabilitation Center receive treatment from an experienced team of experts whose purpose is to provide superior, coordinated care in a wide variety of areas, including:

- Neurology
- Physiatry
- Physical Therapy
- Occupational Therapy
- Speech Therapy
- Neuropsychology
- Nursing
- Nutrition/Dietetics
- Case Coordination/Social Work

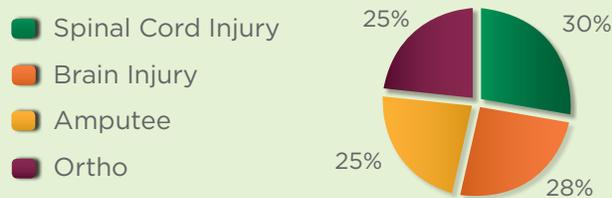
Our rehabilitation services do not end at discharge. The continuum of care refers to the range of services provided by Parkview Health, which are available to address the health and wellness needs of our patients after discharge. We offer outpatient therapy for those who have been discharged from the hospital setting as well as home health therapy for patients who require at-home treatment, to help ensure continued functionality and mobility after leaving the Parkview Rehabilitation Center. ■



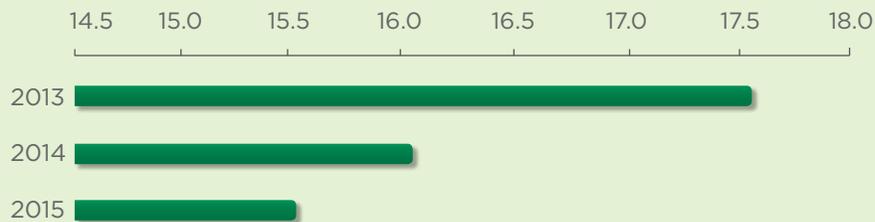
Trauma Patients Discharge Destination from Rehab 2015



Trauma Patients Admitted to Rehab 2015



Average Length of Stay in Rehab (in days)



OUTREACH AND EDUCATION



A verified trauma center is one component of a trauma system, which includes a broad network of emergency medical providers, firefighters and law enforcement personnel who care for individuals with life-threatening injuries. The Parkview Trauma Centers have a robust outreach program designed to enhance the quality of trauma patient care by supporting ongoing clinical education for members of the trauma system.

Parkview provides instruction and hosts educational opportunities featuring industry experts. Trauma-related educational events are presented throughout the year to area community hospitals, fire departments and emergency medical service providers. These courses are offered at each group's location. Presentations are customized to the audience, with the objective of improving the care of injured people. Since 1989, Parkview Trauma Centers have provided trauma-related education to area physicians, nurses, pre-hospital providers and other allied health providers.

The learning events have been held at organizations in 30 counties across northeast Indiana, northwest Ohio and south-central Michigan. More than 1,000 providers participated in trauma-related education in 2015.

In November 2011, Parkview Trauma Centers began offering a trauma team-building course called the Rural Trauma Team Development Course (RTTDC®) to area community hospitals. The course was created by the American College of Surgeons Committee on Trauma via the Ad Hoc Rural Trauma Committee. The goal of this educational course is to equip clinical and emergency services personnel to provide quality trauma care in the rural setting. Since 2011, more than 300 providers from 14 rural hospitals have successfully completed the course.

In February of 2011, Parkview Trauma Services began offering the Advanced Trauma Care for Nurses (ATCN) course. This clinically intensive course, created by the Society of Trauma Nurses, is offered annually in

conjunction with the Advanced Trauma Life Support Course for physicians. Since 2011, 91 emergency department, intensive care unit, operating room and flight nurses have successfully completed our ATCN course.

Other ongoing education programs include the following:

- Annual Child Maltreatment Symposium in the spring focuses on recognizing and responding to young victims of abuse. The intended audience includes all healthcare professionals, as well as school teachers and other public individuals who have frequent interactions with children.
- Annual Pre-hospital Emergency Response Symposium in the fall focuses on keeping emergency first-responding providers up-to-date on current practices related to caring for patients prior to arriving at the hospital.
- Annual Trauma Symposium in May highlights a variety of topics related to trauma care of adults and children.
- Annual Pediatric Trauma Symposium in November focuses solely on care of the injured child. The intended audience includes the entire team of healthcare professionals who care for injured children.
- Trauma Grand Rounds is a live monthly educational event open to the region's healthcare providers who are interested in developing their knowledge of trauma care. Trauma cases from the previous month are reviewed to celebrate trauma team success and identify opportunities for improvement. More than 300 providers participated in the educational offering in 2015.
- Monthly trauma case studies review all aspects of care, from triage at the trauma scene to discharge from the trauma centers. The case studies enable participants to earn continuing education credit.
- Trauma simulations are presented monthly to provide a realistic training experience using high-fidelity adult and pediatric human patient simulators to practice trauma care under controlled conditions without lives being at stake. The focus is on teamwork and communication, as well as clinical trauma care. Nearly 300 physicians, nurses, patient care technicians and pre-hospital personnel participated in 2015.
- Pre-hospital Skills Workshops offer monthly educational offerings focused on the pre-hospital trauma provider. These workshops provide an opportunity to maintain and enhance the pre-hospital provider's hands-on skill, technique and knowledge.
- Trauma MD newsletters communicate Performance Improvement and Patient Safety (PIPS) educational material to physicians who care for victims of traumatic injury at Parkview Trauma Centers.
- A robust trauma education extranet page offers numerous trauma-related educational activities and resources in multiple formats, including audio, video, podcasts, webinars, images and links to additional information.
- Follow-up letters are sent to pre-hospital personnel and community hospital emergency department staff members who cared for patients referred to Parkview Trauma Centers. The purpose of these continuum of care letters — which include identified injuries, procedures and outcomes — is to aid in performance improvement. More than 2,100 follow-up letters were sent to providers in 2015. ■

OUTREACH AND EDUCATION *continued*

Volume (and Percentage) of All Patients from Scene or Transferred to Parkview Trauma Centers

2010 - 2015*

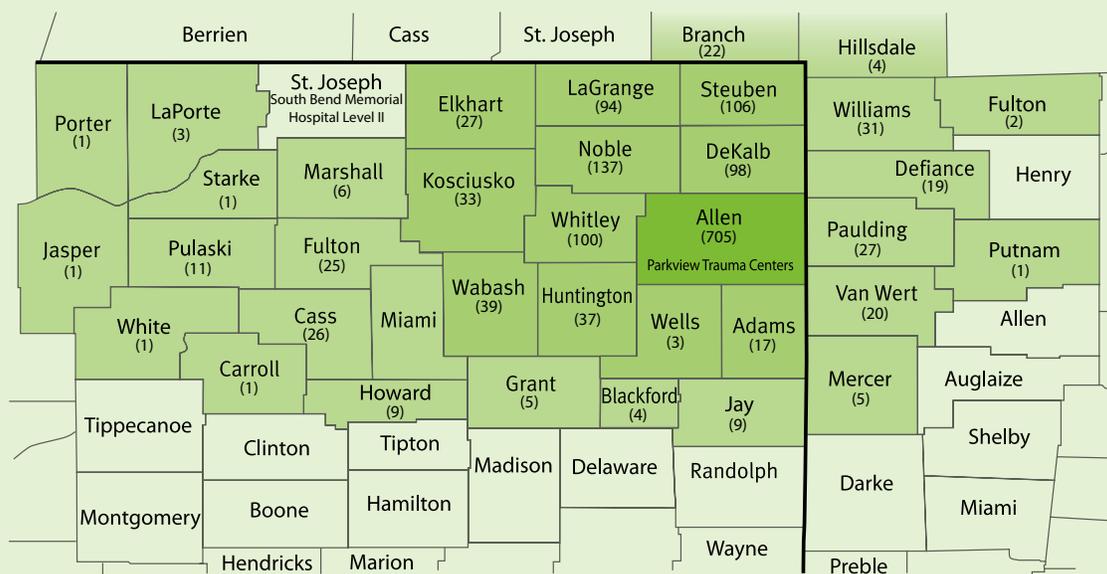
■ Scene ■ Transferred from Another Hospital



* Excludes 56 isolated hip fracture cases without full chart abstraction.

County of Injury Occurrence in Catchment Area

2015



RESEARCH



Left to right:
Dazar Opoku, MPH, Trauma Data Specialist, Trauma Services, Parkview Regional Medical Center; **Thein-Hlaing Zhu, MBBS, DPTM, FRCP, FACE**, Trauma Epidemiologist, Trauma Services, Parkview Regional Medical Center

Parkview Adult and Pediatric Trauma Centers have implemented a number of trauma research projects. The research personnel also participate in other non-trauma research projects in design and/or data analysis. In addition, the personnel assist the Midwest Alliance for Health Education (MAHE) student research fellowship program as preceptors and provide supervision for their manuscript and poster preparations.

Project 1: Effectiveness of the Rural Trauma Team Development Course (RTTDC®) for Educating Nurses and Other Healthcare Providers in Rural Community Hospitals

The following research was recently in the *Journal of Trauma Nursing*, January 2016, pages 13–22.

The key points of the article:

- The RTTDC is perceived as valuable and educational by rural healthcare providers
- Knowledge improvement in nurses and other healthcare providers through the course could speed up the decision to transfer severely injured patients to a high level of trauma care
- Reduction in decision time of transfer from rural community hospitals to a verified trauma center could decrease trauma morbidity and mortality

Parkview Adult and Pediatric Trauma Centers have been providing RTTDC education to raise the standard of trauma care at rural hospitals since November 2011. In the year under report, further data analysis on the RTTDC research project was done to assess the early transfer of trauma patients from rural emergency departments at the four Parkview community hospitals (PCHs) to Parkview Trauma Centers (PTC).

We used a pre- and post-study design by querying the trauma registry, as well as Allscripts ED data that were transferred out from PCHs to PTC within six months before and after RTTDC education (six-month pre-/post-education group) and 12 months before and after education (12-month pre-/post-education group). Emergency department time (EDT) was obtained from Allscripts and used as a primary measure to indicate the time from patient arrival at a community hospital to the time of decision to transfer to PTC. EDT is an appropriate indicator for early transfer from referring hospitals to a verified trauma center. However, there may be a waiting time in which communication occurs between the trauma center and the transport agency before actually transferring the patient. We therefore also used the ED length of stay (LOS) at the referring hospital as a proxy measure to assess early transfer to the trauma center in question.

RESEARCH *continued*

The overall reduction of 21.7 minutes of EDT and 18.5 minutes of ED LOS were observed in the six-month group, and 21.6 minutes of EDT and 20.4 minutes of ED LOS in the 12-month pre-/post-education group. After controlling for covariates, there was a significant reduction of 28 minutes in EDT (95% CI: -57, -0.1) in the six-month group and 29 minutes (95% CI: -53, -6) in the 12-month education group. (See *the table below.*) In using the ED LOS as the indicator, there was a non-significant reduction of 29 minutes (95% CI: -60, +2) in the six-month group and a significant

reduction of 43 minutes (95% CI: -72, -14) in the 12-month education group.

Improved knowledge and experience in rural trauma care among healthcare providers through the provision of RTTDC education reduces either the EDT or ED LOS. The research findings from the project were presented as a poster at the fifth annual American College of Surgeons (ACS) TQIP conference in Chicago, Ill., in November 2014.

Multiple Linear Regression Analysis for Predictors of Emergency Department Time at Referring Hospitals

	6 Months Pre-/Post-RTTDC Education		12 Months Pre-/Post-RTTDC Education	
	Reduction/Increase	95% CI	Reduction/Increase	95% CI
Intercept	23.5	-124.0, 171.0	-209.4	-503.4, 84.64
Education (Pre vs. Post)	-28	-57, -0.1	-29	-53, -6
TTA (No vs. Yes)	-42	-76, -7	-52	-80, -24
EMS Time	0.8	-0.1, 1.7	1.3	0.6, 2.0
Age, Years (< 55 vs. ≥ 55)	45	14, 77	22	-3.0, 48

RTTDC = Rural Trauma Team Development Course

CI = Confidence Interval

EMS Time = Time in minutes taken by EMS from notification to hospital arrival

TTA = Trauma Team Activation

Project 2: Rural Trauma Epidemiologic Study in Northeast Indiana

Parkview Adult and Pediatric Trauma Centers conducted a population-based epidemiologic study in a rural community with the assistance of two college students from the Midwest Alliance for Health Education (MAHE) student research fellowship program. Injury morbidity and mortality rates are important health indicators in communities.

The general objectives of the study were to:

- Elicit the epidemiologic features of rural trauma in northeast Indiana that may reflect to a matured trauma system
- Elucidate the magnitude of trauma problems in the region
- Help in setting priorities for injury prevention and control efforts, for example, in high-risk age groups by cause of injury

The specific objectives of the study were to:

- Determine trauma incidence and mortality rates by cause, sex and age
- Determine place of injury by cause and age

In 2013, Parkview Decision Support supplied the emergency department (ED) with trauma visits to six Parkview hospitals (Parkview Huntington, Parkview Whitley, Parkview Noble, Parkview LaGrange, Parkview Randallia and Parkview Regional Medical Center). The visits included residents of four counties: Huntington, Whitley, Noble and LaGrange counties in northeast Indiana. The demographic data for the year 2013 was obtained from the U.S. Census. The project was approved by expedited review by Parkview Health IRB. The data analysis was done with SPSS version 23 on ICD-9 E-codes focusing on cause and location of injury. This analysis was mainly done on

first visits to the ED.

The trauma incidence rate (IR) per 1,000 residents for the four counties was 51.4 (95% confidence interval: 47.8, 54.8). The leading causes of injury ranked in order of percentage were: falls, 32.9% (IR 16.9); striking or struck by object, 17.5% (IR 9.0); cut/piercing, 10.3% (IR 5.3); overexertion/strain, 9.9% (IR 5.1); and motor vehicle collisions, 7.6% (IR 3.9). (See table on the opposite page.)

The IR for falls (54.5) was greatest in ages 75 years and above. Ages 10-14 years had the highest IR for object strikes (18.2); ages 15-24 years had the highest IR for motor vehicle collisions (9.1) and cuts (8.8). IR for falls in females age 75 years and above was 62.8 vs. 41.3 in males. Injuries mostly occurred at home in the youngest (0-4 years, 77.1%) and oldest subjects (65 years+, 70.7%), at recreation and sports events for ages 10-14 years (46.9%) and on roadways for ages 15-34 years (21.9%).

The findings were displayed as two posters at the 28th Annual Student Research Presentation Reception on August 5, 2015, at the Parkview Mirro Center for Research and Innovation in Fort Wayne, Ind. One poster was titled "Rural Trauma Part I: Causes and Magnitude of Trauma Incidence." The other was titled "Rural Trauma Part I: Injury Rates on Cause by Age and Sex."

The findings were accepted for poster presentation at the 6th International Epidemiology Congress for the Americas in Miami, Fla., on June 21-24, 2016. ■

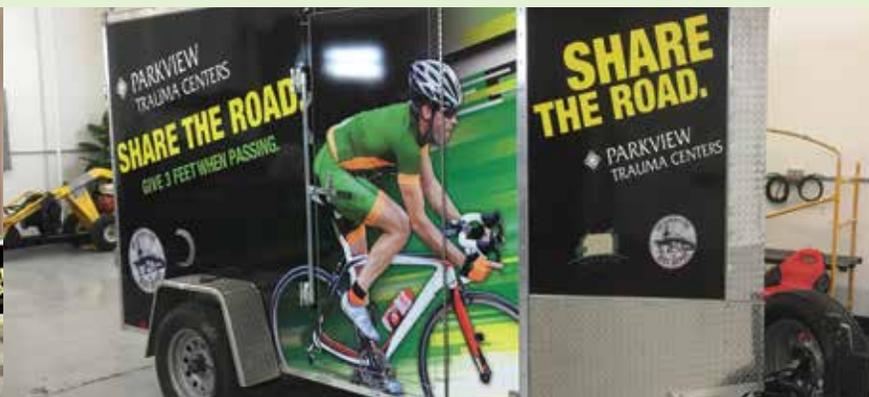
Janette Holub, MD, Trauma Surgeon



RESEARCH *continued*

Rank Order and Incidence Rate of External Cause of Injury per 1,000 Residents in the Rural Trauma Epidemiologic Study in 2013

Rank	Description	ICD-9-CM E-Code	Number	Percent	Rate
1	Falls	880-888	2,625	32.92	16.86
2	Struck by Object	916-918	1,399	17.54	8.99
3	Cutting/Piercing	920	817	10.24	5.25
4	Overexertion/Strain	927	787	9.87	5.07
5	Motor Vehicle Collision	810-825	609	7.64	3.91
6	Insect/Animal Bite/Sting	905-906	294	3.69	1.89
7	Foreign Bodies	914-915	216	2.71	1.39
8	Other Road Vehicles	826-829, 846-848	165	2.07	1.06
9	Homicide/Assault Contact with Hot/Corrosive	960-969	154	1.93	0.99
10	Substance	924	100	1.25	0.64
11	Suicide	950-959	28	0.35	0.18
12	Burns	890-899, 924, 926	25	0.31	0.16
13	Air, Water, Rail Transport	800-807, 830-838, 840-845	3	0.04	0.02
14	Legal Intervention	970-978	2	0.03	0.01
15	Poisoning	850-869	1	0.01	0.01
16	War Unspecified Unintentional Undetermined	990-999	1 738 12	0.01 9.87 0.15	0.01 4.75 0.08
	Total Cases	800-999	7976	100.00	51.36
	Total Population		155,290		



PREVENTION



Parkview Trauma Centers and Fort Wayne Outfitters promote the “Share the Road” message for both adults and youth.

Joseph Muller, MD, Trauma Surgeon

Trauma prevention programs reveal the Parkview Adult and Pediatric Trauma Centers’ continuing commitment to reducing the number of lives impacted by life-threatening injuries.

Don’t Text & Drive

Parkview’s Don’t Text & Drive (DT&D) campaign began raising awareness about the dangers of distracted driving years before national campaigns proliferated. Parkview Trauma Centers have been deeply involved in the program, which continues to mature year after year. The program is an outreach to the community to help save lives by raising public awareness.

Parkview continues to collaborate with Evans Toyota, Fort Wayne as well as the Indiana State Police to share the messages of the Don’t Text & Drive and Share the Road campaigns.

Don’t Text & Drive Seminars for Teens and Parents

Parkview Trauma Centers periodically sponsor free seminars to help equip young drivers and their parents with the tools they need to become more focused, safer drivers. Powerful

testimonials from people who have lost loved ones to distracted driving crashes prompt frank conversation.

Laws governing distracted driving are also discussed, and seminar participants experience the dangerous nature of distracted driving firsthand while using a driving simulator provided by Drive Alive.

Share the Road

Parkview Trauma Centers have implemented the growing Share the Road program to help protect and prevent injuries within the community. With the increased activity that is taking place on the road systems, motorists and other travelers alike need to become more alert and aware of the variety of commuters. Parkview has been working closely with the City of Fort Wayne to magnify the importance of sharing the road with pedestrians, bicyclists, motorcyclists and Amish buggy passengers. Public outreach includes a public service announcement and billboards designed with runners, motorcyclists, cyclists and Amish buggies in mind. The latest mobile advertisement for this program is the Share the Road vehicle wrapped in artwork that helps remind motorists to be aware.

PREVENTION *continued*

Bike Helmet Safety and the Parkview Safety Store

The Parkview Safety Store, located at the Carew Medical Building, offers injury-prevention merchandise and safety supplies to enhance public safety. The store also provides safety-certified bike helmets and fittings to ensure the proper fit for each individual. Apparel and other items supporting Parkview's Don't Text & Drive and Share the Road campaigns are available for purchase at the store.

Parkview Safety Store

(260) 373-7201

1818 Carew Street, Suite 140

Parkview Hospital Randallia campus

Fort Wayne, IN 46805

Tuesdays, 10 a.m. – 1 p.m. and 4 – 7 p.m.

Don't Drink and Drive

In order to reduce the number of deaths and severe, long-term disabilities from crashes due to drinking and driving, Parkview Trauma Centers offer free presentations and displays to schools and community organizations. Presentations offer a personal story involving loss of life due to drunk driving. The very powerful presentations are known for capturing the attention of even restless teens. "Fatal vision" glasses are also available for participants, enabling them to safely experience the sensation of driving drunk to fully understand how intoxication impairs vision and reflexes.

Provision of Trauma Prevention Education Program

Members of the Public Attending Presentations/Program Displays
2015



Multiplier Effect

Trauma prevention is a collaborative effort that reaches across departments and disciplines. Parkview Trauma Centers convened a task force to multiply the impact of the range of programs aimed at reduction of injuries. Trauma staff members and a prevention specialist are available to provide education on all of these programs.

Child Maltreatment Team

Parkview has initiated an expert team whose members are available at a moment's notice when abuse, neglect or other maltreatment is suspected. The trauma pediatric coordinator serves as a liaison to the team, which includes child life specialists and members from pediatric critical care, pediatric emergency medicine, trauma surgery and pediatric psychiatry.

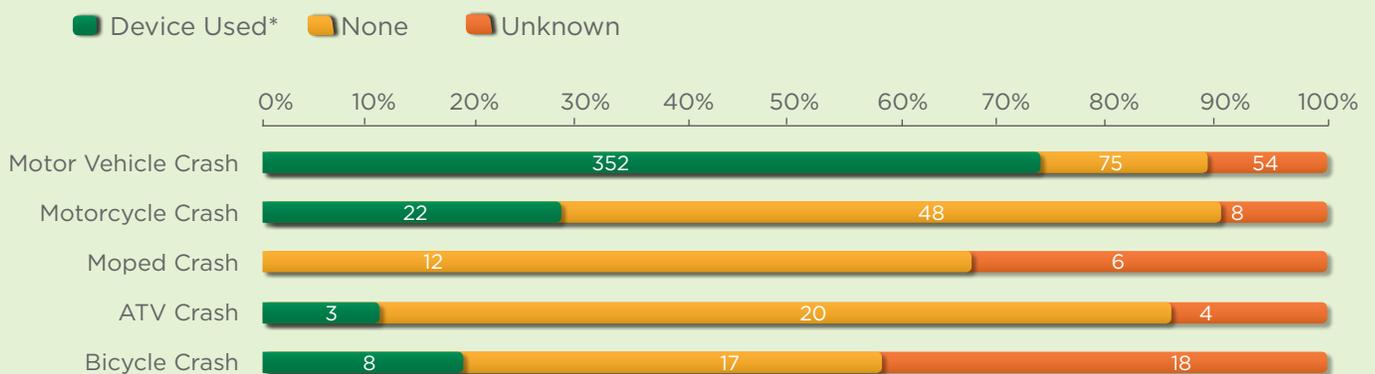
Safe Sleep

In recent years, SIDS (Sudden Infant Death Syndrome) has been linked to unsafe sleep practices such as co-sleeping (infants sleeping with their parents in bed) and suffocation from inappropriate bedding. Under the guidance of Parkview's Safe Slumber program, registered nurses from Parkview Community Nursing educate parents-to-be on the hazards of unsafe sleep practices and provide tips on creating a safe sleep environment. The program also supplies cribs to families who need a safe place for their infant to sleep.

Car Seat Safety

Parkview provides free car seat inspections to aid parents in ensuring their children are properly restrained in safety-approved car seats whenever they're on the road. Inspections are offered by appointment and at some community events.

Protective Devices Used in Selected Crashes, All Trauma 2015



*Multiple devices used in a single vehicle crash are counted as one.

PREVENTION *continued*

ThinkFirst

Parkview helps elementary and high school students recognize dangerous behaviors and avoid life-threatening or permanently disabling injuries through ThinkFirst presentations in the classroom.

ThinkFirst is a National Injury Prevention Foundation program, and presentations are geared to specific age groups, with subject matter for younger children aimed at encouraging use of safety habits at an early age, and more serious discussion for teens. Individuals who have suffered brain or spinal cord injuries speak honestly with teens about risky behaviors and how their lives have been impacted by paralysis or brain damage. A rehab nurse facilitates discussion. Also covered are violence prevention, dealing with peer pressure and bullying, and safety in sports and recreation. Presentations are provided through Parkview Rehabilitation Center — in partnership with Fort Wayne Neurological Center — and Parkview Community Nursing.

Safety Camps

Parkview collaborates with emergency services providers as well as health and wellness organizations in several counties of its service area to provide one-day safety camps for youngsters. These camps provide fun, interactive activities that teach grade-school children about safety with regard to water, fire, household hazards, recreation, strangers and pets. They also give the children a chance to learn about basic health topics and talk with first responders and law enforcement officers.

Driver Rehabilitation

Medical conditions, effects of aging and other factors can erode a person's ability to safely operate a vehicle. Parkview Outpatient Therapy's Driver Rehabilitation program helps older adults and others regain their driving skills and avoid accidents. Occupational therapists, who are certified driver rehab specialists, evaluate each person's physical condition



Steven Santanello, DO, Trauma Surgeon

and cognition, provide on-the-road driving assessments and make recommendations for any education, equipment or other resources needed. These may include driving aids, behind-the-wheel training, vehicle modification and alternative transportation.

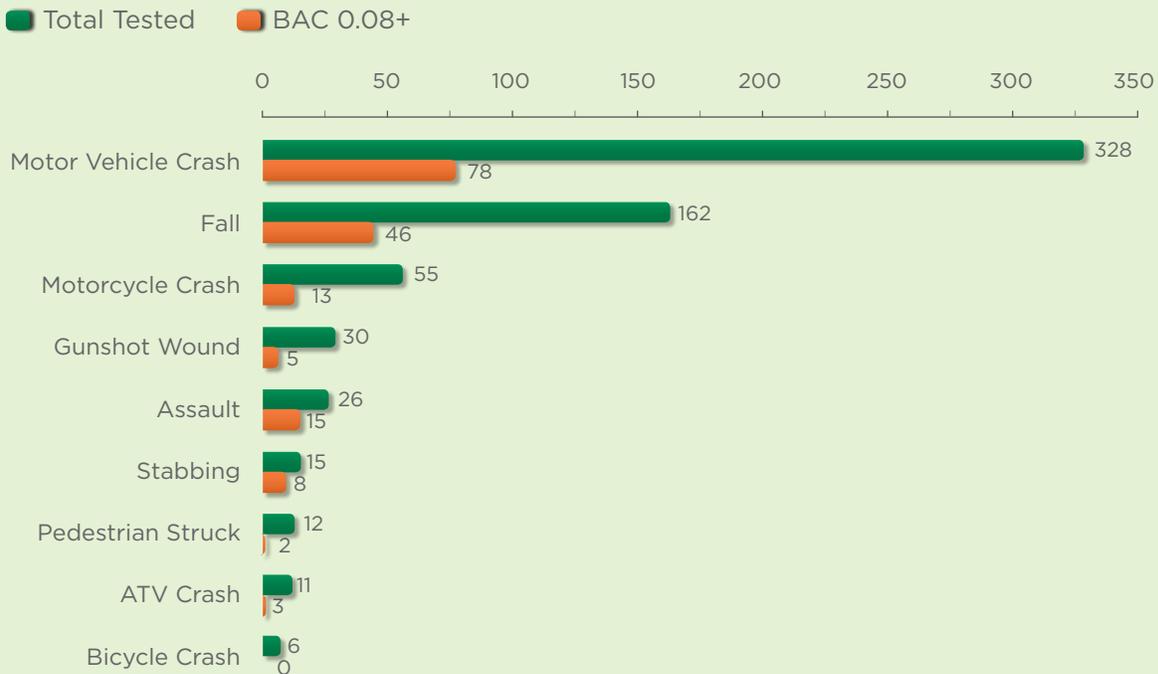
Fall Prevention

Many older adults restrict their activities because they are concerned about the possibility of falling. Indeed, falls are among the most numerous injuries treated at Parkview

Trauma Centers. A designated nurse practitioner oversees a geriatric fall prevention program to help better educate this population with inpatient and outpatient follow-up.

Parkview Center on Aging & Health offers a fall prevention program enabling patients to determine their risk for a fall. In addition, Parkview Senior Services offers an eight-session “A Matter of Balance” workshop that emphasizes practical strategies for managing falls, such as eliminating household tripping hazards and increasing activity levels. ■

Blood Alcohol Concentration (BAC) Level in Selected Patients 2015



Note: BAC equal to or greater than 0.08 level is considered legally intoxicated.

COMMUNITY HOSPITALS



Jennifer Konger, RN, BSN, *Community Trauma Program Manager, Parkview Trauma Centers*

Parkview Noble Hospital

The team at Parkview Noble Hospital works diligently to provide consistently excellent care to patients suffering traumatic injuries. In a collaborative effort, EMS, physicians, physician assistants, registered nurses, emergency department techs, lab techs, radiology techs and respiratory therapists work together to systemically assess, stabilize, treat and triage each patient efficiently and appropriately. Optimal care is ensured utilizing state-of-the-art technology and evidence-based medicine, including immediate bedside sonographic assessment. Just as medicine constantly changes and advances, Parkview Noble Hospital seeks to advance to the highest standards of trauma care.

Parkview LaGrange Hospital

LaGrange County continues to experience a variety of traumatically injured patients. Because of this, the knowledgeable and caring staff at Parkview LaGrange emergency department and Parkview LaGrange EMS are skilled at triage and trauma care of injured patients. Traumatic injuries indigenous to LaGrange County arise from increases in the seasonal tourist population, major interstate traffic and people who are vulnerable due to their mode of transportation, which includes horse-drawn buggy, bicycle and foot traffic. With the highest Amish population in Indiana and the increasing popularity of the Pumpkinvine Nature Trail (a bicycle and walking path that connects Shipshewana, Goshen and Elkhart), Parkview LaGrange Hospital continues to support the Share the Road trauma prevention campaign that serves to heighten the awareness of other modes of transportation on the roads of LaGrange County.

Parkview Wabash Hospital

Parkview Wabash is the newest member of the Parkview community hospital family. The current hospital is located in the heart of Wabash, but will soon be relocated along Highway 24 for easier and quicker access. Wabash is a critical-access hospital. Its team members have worked diligently over the past 12 months to implement trauma guidelines to improve trauma patient triage and trauma care. The team at Parkview Wabash and the Wabash City Fire Department participated in the Rural Trauma Team Development Course in early 2015. The course reinforced their trauma triage criteria and strengthened their trauma care skills.

Parkview Hospital Randallia

Parkview Randallia has served area residents at its current location since 1953. Randallia continues to be the busiest emergency department in the region. Multiple trauma patients are evaluated on a daily basis. Trauma team activation allows the trauma team to rapidly assess and treat the injured patients to optimize their overall care. Parkview Randallia monitors multiple quality metrics on every trauma patient in order to provide excellent care every day. Trauma activation timeframes, time to computerized scanning and time to disposition/transfer are just a few of the quality metrics that are monitored to ensure the flow of trauma care is consistent throughout Allen County.

Parkview Huntington Hospital

Parkview Huntington Hospital is dedicated to providing optimal patient care to injured patients. A dedicated orthopedic surgeon is there to treat injuries in a timely manner and allow patients to get care within their own community. Falls are the leading cause of injury, with a large number of these patients presenting with an orthopedic injury. Fall prevention is highlighted bi-annually at their Healthy Steps community event.

Parkview Whitley Hospital

Parkview Whitley Hospital strives to provide excellent care to injured patients. The Parkview Whitley emergency department collaborates with Whitley EMS personnel to triage each injured patient. Such an approach is critical in order for each patient to receive the most appropriate care. ■



Lea Barnes, RN, BSN, CEN, Nursing Manager, Parkview Whitley Emergency Department

TRAUMA SERVICES TEAM

Raymond Cava, MD, FACS, Trauma Medical Director, Pediatric Trauma Medical Director and Pediatric ICU Co-medical Director, Parkview Regional Medical Center; and Acute Care/Trauma Surgeon, Parkview Physicians Group — Surgical Specialists

Dawood Dalaly, DO, Trauma Surgeon, STICU Medical Director

Richard A. Falcone, Jr., MD, MPH, Pediatric Trauma Consultant, Parkview Pediatric Trauma Center; and Pediatric Trauma Medical Director, Cincinnati Children's Hospital Medical Center

Lisa Hollister, RN, MSN, Director, Trauma and Acute Care Surgery

Melissa Crance, Trauma Administrative Assistant

Kellie Girardot, RN, BSN, Pediatric Trauma Coordinator, Trauma CNS-Fellow

Thein Hlaing-Zhu, MB BS, DPTM, FRCP, FACE, Trauma Epidemiologist

Sarah Hoepfner, RN, BSN, Adult Trauma Coordinator and Trauma Performance Improvement Specialist

Melissa Holley, RN, BSN, Trauma Program Nurse

Jennifer Konger, RN, BSN, Manager, Community Trauma Program

Shanna Lemen, RN, BSN, Trauma Program Nurse

Candice Nichols, NP, Geriatric Fracture Coordinator

Dazar Opoku, MPH, Trauma Data Specialist

Christopher Scheumann, RN, BSN, Trauma Outreach Coordinator

Jacqueline Yates-Feller, NREMT-P, NCEE, BSM, Community Trauma Program Coordinator

Janette Holub, MD, Trauma Surgeon, PPG — Surgical Specialists

Lawrence Lottenberg, MD, Trauma Surgeon, PPG — Surgical Specialists

Joseph Muller, MD, Trauma Surgeon, PPG — Surgical Specialists

Lindsay Riegler, MD, Trauma Surgeon, PPG — Surgical Specialists

Steven Santanello, DO, Trauma Surgeon, PPG — Surgical Specialists

Beth Burns, NP

Elizabeth Daseler, NP

Megan Hamilton, NP

Taylor Hill, NP

Bryan Mathieson, NP

Grant Tyler, NP

Nicole Underwood, NP

Brandy Young, NP

LeeAnn Booher, LPN, nurse extender

Jennifer Dowd, RN, BSN, nurse extender

Danielle Kammer, RN, BSN, nurse extender

Melanie McClain, RN, BSN, nurse extender

Brittony Rogers, RN, BSN, nurse extender