



# PARKVIEW TRAUMA 2021

ANNUAL REPORT

 **PARKVIEW**  
ADULT TRAUMA CENTER

 **PARKVIEW**  
PEDIATRIC TRAUMA CENTER

# INTRODUCTION

**A long-time leader in the care of injured patients, Parkview remains dedicated to providing the highest level of trauma care in our region. Our Level II Adult and Level II Pediatric Trauma Centers provide 24/7, specialized care to the victims of automobile crashes, farming injuries, falls, disasters, gunshot wounds and mass casualty events.**

From trauma readiness training to continuous performance improvement, Parkview remains committed to keeping our community safe and improving outcomes throughout our region. We maintain a robust trauma patient data registry, provide injury prevention education to our communities, pursue innovative trauma research and sponsor educational outreach programs for our professional colleagues. Although trauma can strike without warning, Parkview stands ready to respond.

In 2021, Parkview has continued to lead the way in providing outstanding trauma care. See below for a few recent achievements and highlights.

## HIGHLIGHTS

### **Difficult Airway Response Team (DART) formed**

To improve difficult airway management outside the operating room, the trauma program developed a multidisciplinary, comprehensive Difficult Airway Response Team (DART) at Parkview Regional Medical Center. Along with a standardized team response and protocol development, supply carts were developed to assist the response team, providing the tools they need at the bedside.

### **Virtual trauma education**

Once the limitations of the pandemic were evident, Parkview seamlessly transitioned to an all-virtual program of outreach/education for trauma professionals. Using video-conferencing tools, the trauma program was able to deliver its annual pediatric trauma symposium, geriatric symposium and child maltreatment symposium to trauma professionals.

### **Record increase in trauma patients**

2020 saw a record number of injured patients seeking care at Parkview trauma centers, and the beginning of 2021 was no different, with a 25% increase in the first quarter. This record number of injuries and violence led us to seek further injury prevention strategies related to child maltreatment, gun violence, suicide and domestic violence and other preventable injuries. Gap analyses are underway in all forms of injury prevention to determine best practices for community awareness, policy and education to impact change.

Through it all, Parkview remains focused on all aspects of trauma care and is committed to improving patient outcomes throughout our region.

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# PARKVIEW PHYSICIANS GROUP — TRAUMA & ACUTE CARE SURGERY TEAM



**William Beck, MD**



**Raymond Cava, MD, FACS**



**Janette Holub, MD**



**Joseph Muller, MD, FACS**



**Kevin Pei, MD, MHSEd, FACS**



**Dustin Petersen, MD, FACS**



**Lindsay Riegle, MD, FACS**



**Steven Santanello, DO**



**Lashonda Williams, MD, FACS**

## PPG - Trauma & Acute Care Surgery Advanced Practice Providers

**Beth Burns, MSN, FNP-C CCRN, TCRN, EMT-B**  
**Elizabeth Daseler, MSN, FNP-C**  
**Taylor Hill, MSN, FNP-C**  
**Julianne Hunter, MSN, FNP-C**  
**Danielle Kammer, MSN, FNP-C**  
**Amanda Macias, MSN, FNP-C**  
**Amy Pond, PA-C**  
**Grant Tyler, MSN, FNP-C**  
**E. Nicole Underwood, MSN, FNP-C**  
**Megan Weber, MSN, FNP-C**

## PPG - Trauma & Acute Care Surgery RNs

**Ashley Brown, BSN, RN**  
**Megan Drabenstot, BSN, RN**  
**Jacqueline Rumschlag, BSN, RN**  
**Felicia Treesh, BSN, RN**  
**Jacob Shively, BSN, RN**  
**Samantha Vergara, BSN, RN**  
**Emily Waldron, BSN, RN**

# CLINICAL DEFINITIONS

## What qualifies as a trauma?

Trauma resulting in injury may be characterized by abnormal energy transfer involving mechanical energy (moving objects), thermal, electrical, chemical and radiation; the catastrophic injuries arising from automobile crashes are the result of transfer of energy between the victim and a stationary object (the ground) or a moving object (another vehicle).

## Who is a trauma patient?

Trauma patients include individuals with an injury diagnosis of ICD-9 codes 800.00 - 959.90, excluding ICD-9 codes 905 - 909 (late effects of injuries) and 930 - 939 (foreign bodies entering through orifice).

# RATING SCALES

## Injury Severity Score (ISS)

ISS is an anatomical scoring system designed to provide an overall score for trauma patients with multiple injuries. The ISS is the sum of squares of the three highest abbreviated injury scale scores for injuries to different body regions (head/neck, face, thorax, abdomen and pelvic contents, extremities and external).

ISS takes values from 0 to 75 and correlates with mortality, morbidity and hospital length of stay.

## Glasgow Coma Scale (GCS)

The GCS is a standard measure to quantify level of consciousness in head injury patients. It is composed of three parameters: best eye response (4), best verbal response (5) and best motor response (6). The lowest GCS total is a 3 and the best score is a 15.



*Left to right:*

**David Goertzen, MD, Ortho NorthEast, and Alicia Floor, BSN, RN, Nursing Manager, Parkview Regional Medical Center**

# REGISTRY

A trauma registry is an electronic database with uniform data elements that describe the injury event, demographics, prehospital information, diagnosis, care, outcomes and cost of treatment. The registry database is used to collect, organize and analyze information on the trauma patient population. This is essential to providing a trauma service in a healthcare system. Parkview's trauma registry began in 1991. Trauma Program Nurses with clinical knowledge and experience in EMS, Emergency Medicine and Intensive Care handle the data retrieval. Over 260 data points are abstracted from a single patient's chart and entered into the database. Trauma charts are reviewed daily to ensure accurate and timely collection.

The data has many applications but is primarily utilized to monitor the continuum of care, from injury prevention through outcomes measurement. Currently, the Parkview trauma registry manages data for more than 70,000 patients. Data points and the way these data points are collected are regularly updated.

Abbreviated Injury Scale (AIS) is an anatomical coding system created to classify and describe the severity of injuries. It represents the threat to life associated with the injury and ensures coding uniformity.

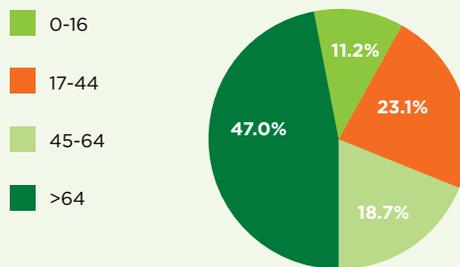
The Parkview trauma registry contributes daily clinical information to staff, quarterly to the Trauma Quality Improvement Program (TQIP) and Indiana State Department of Health (ISDH), and yearly to the National Trauma Data Bank (NTDB). Contribution to larger databases allows Parkview to identify trends in quality measurement, shape public policy and benchmark at national, state and regional levels. Collectively, this facilitates Parkview's continued commitment to striving to improve performance standards.

Data collection is the foundation of the trauma program. The data provides essential information for analysis and evaluation of patient care. The trauma registrars concurrently collect data and obtain necessary information to identify opportunities for improvement. This provides a mechanism for overall patient care and system evaluation.



Left to right:  
**Becky Sickafoose, BSN, RN, CEN, CPEN, Trauma Program Nurse, Trauma Services;** **Shanna Lemen, BSN, RN, CAISS, TCRN, Trauma Program Nurse, Trauma Services**

## Age of All Injured Patients, 2020

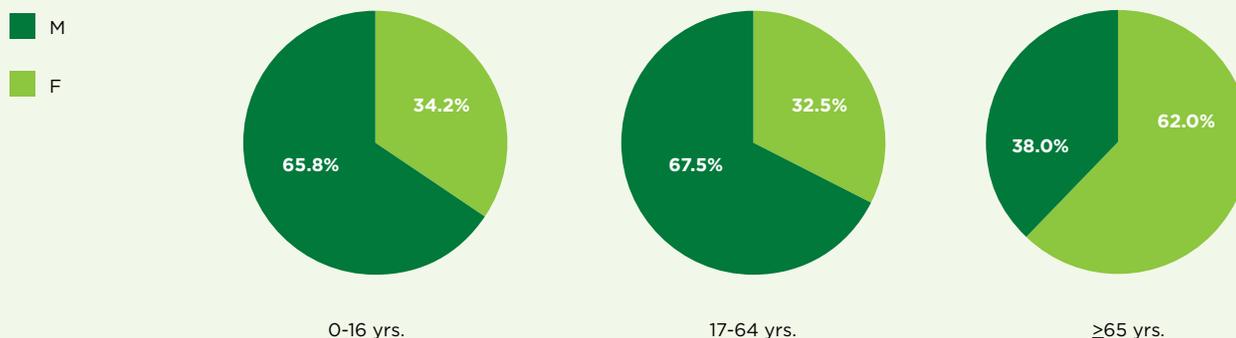




In car:  
**Lauren Quandt, MSN-RN, CEN, TCRN, Pediatric Trauma Coordinator and Injury Prevention Specialist**

In van:  
**Melissa Crance, Administrative Secretary, Trauma, Acute Care Surgery and Injury Prevention**

### Age and Sex, All Injured Patients, 2020

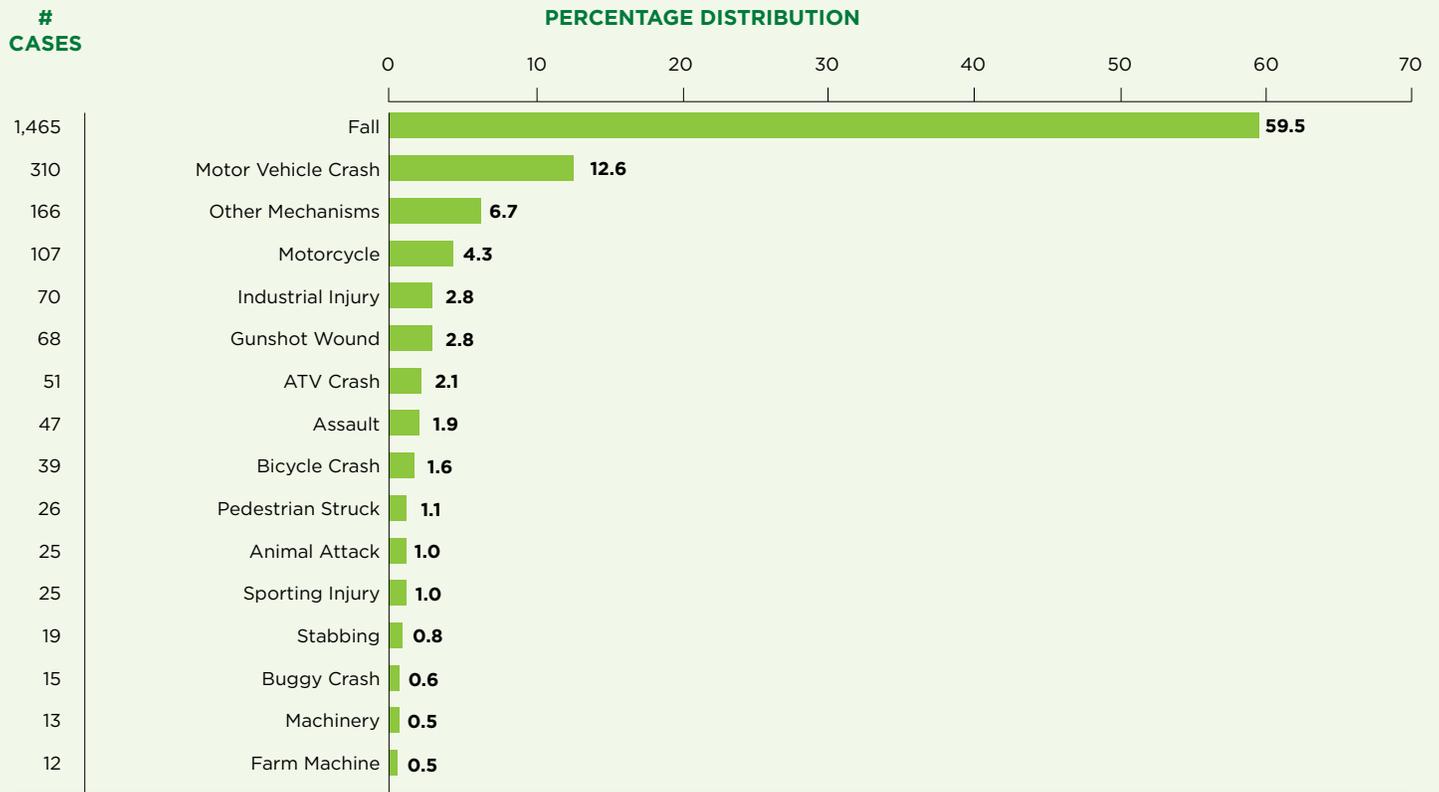


### Trauma Type, All Injured Patients, 2020\*



\* Excluded 10 cases with Thermal Trauma.

## Mechanism of Injury, All Ages, 2020



Note: 13 cases with unknown mechanism of injury.



**Nicole Bishir, BSN, RN,** *Geriatric Trauma Coordinator, Trauma Services*



**Lisa Hollister, DNP, MSN, RN,** *Director, Trauma, Acute Care Surgery and Injury Prevention*

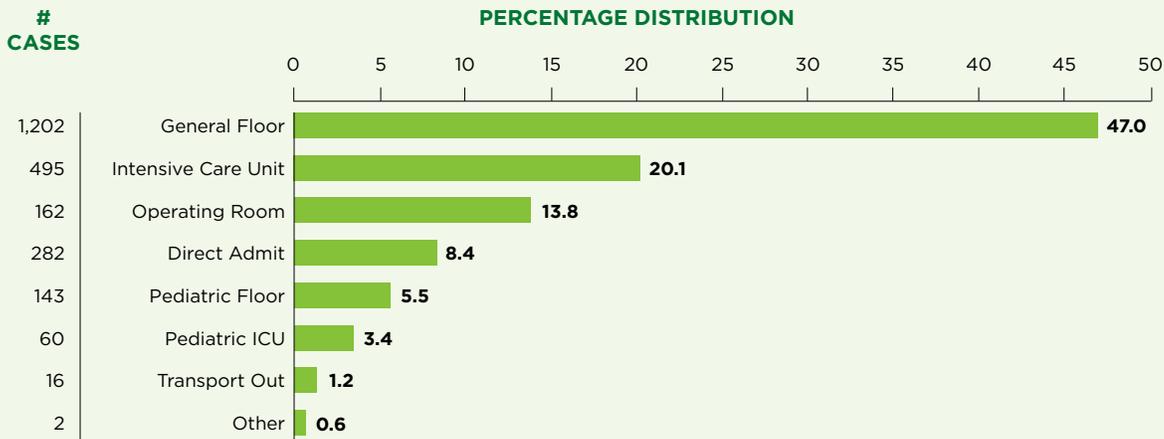


**Jacqueline Yates-Feller, MBA, NREMT-P, PI,** *Community Hospital Trauma Coordinator*

## Trend of Trauma Admission by Type, 2016-2020

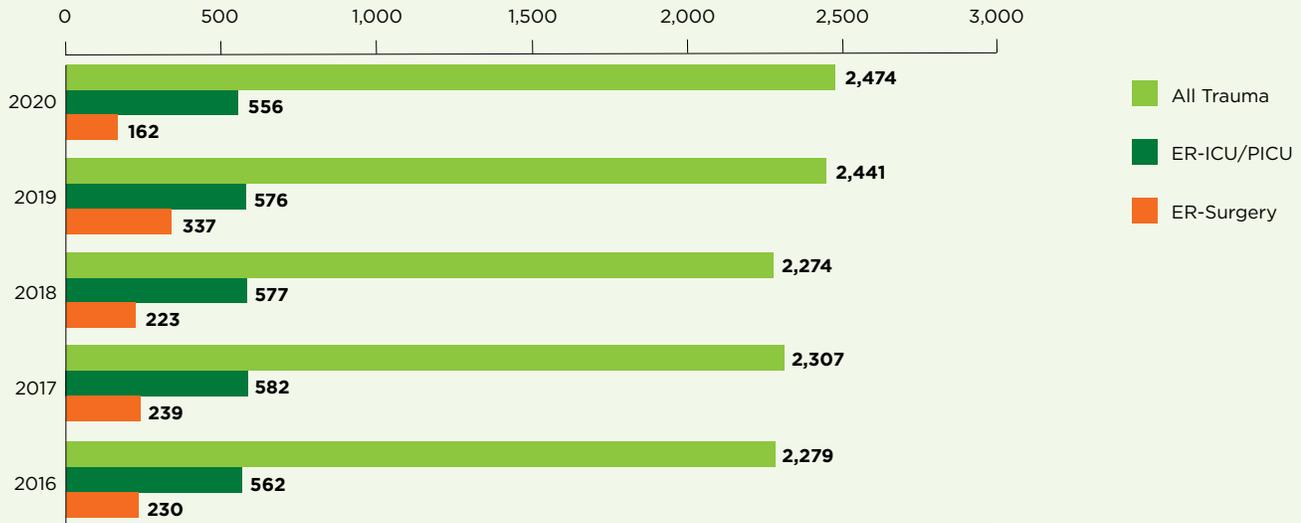


## ER Disposition All Ages, 2020

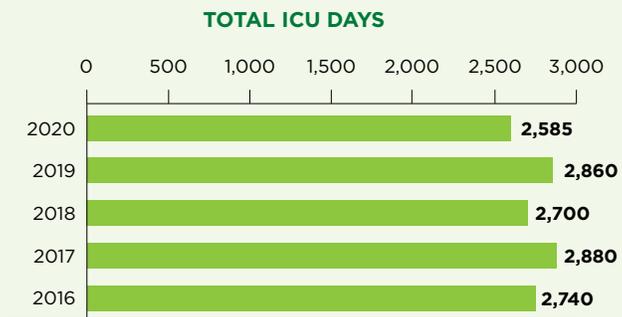
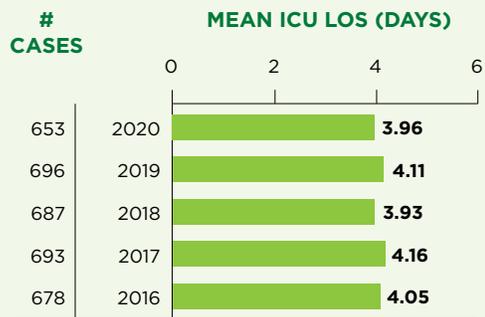


# REGISTRY *continued*

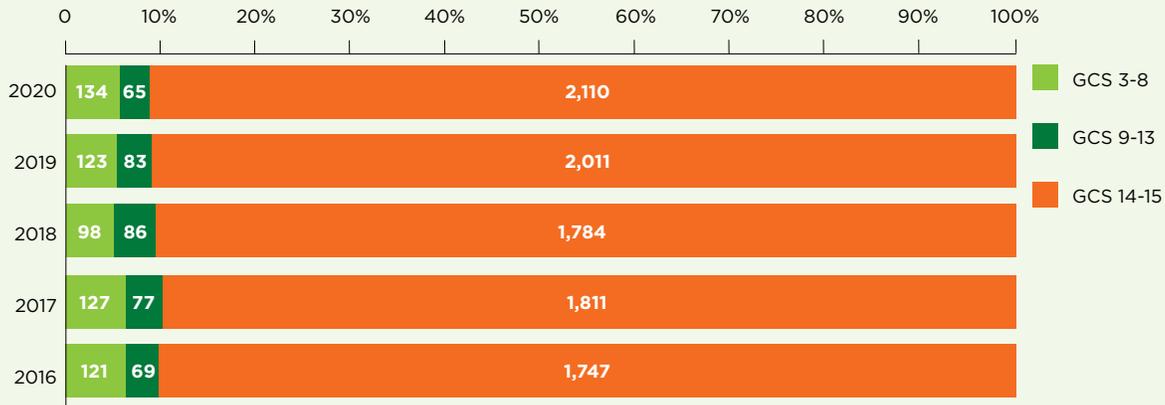
## Volume of All Ages Admitted from ER to ICU and OR, 2016-2020



## ICU Length of Stay (LOS) All Ages, 2016-2020



## Volume (and %) of All Patients Admission Glasgow Coma Score (GCS), 2016-2020\*



\* Excludes cases for which GCS is unknown.

\* Excludes cases with isolated hip fractures from 2014.

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

## Volume (and %) of All Ages Injury Severity Score (ISS), 2016-2020\*



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

\* Excludes cases for which ISS is unknown.



Sarah Hoepfner and Lauren Quandt demonstrating how to use a tourniquet.



**Jennifer Konger, MHA, BSN, RN, Manager,**  
*Community Hospital Trauma Program*



**Sarah Hoepfner, MSN, RN, CCRN, TCRN,**  
*Supervisor, Trauma, Acute Care Surgery and  
Injury Prevention*



**Kellie Girardot, MSN, RN, Trauma Clinical**  
*Nurse Specialist*



**Lauren Quandt, MSN, RN-BC, CEN, TCRN,**  
*Injury Prevention and Pediatric Coordinator*

# PREVENTION

Parkview trauma prevention programs have been stable supporters of multiple communities in northeast Indiana, having reached more than 180,000 people through social media, outreach, distribution of merchandise and events both hosted and attended by trauma prevention staff.

## Stop the Bleed

Parkview Trauma Centers have partnered with the communities of Indiana and Ohio to provide Stop the Bleed training to accompany legislation that mandates the training of personnel and bleeding control equipment in every school. This education is provided at no charge. Many schools within Allen County have elected to train all of their staff in bleeding control techniques, and Parkview Trauma Centers coordinate and provide this training through multiple specialties including EMS providers, nurses and advanced practice providers. In addition to staff, elementary and high school students have also had the opportunity to engage in training that empowers them to take action in a life-threatening situation. Finally, Stop the Bleed is offered free of cost to the community with open registration to multiple sessions throughout the year. Businesses including factories, construction workers and licensed safety personnel often take advantage of these sessions and the chance to interact with health professionals.

## Don't Text & Drive

Parkview's Don't Text & Drive (DT&D) campaign raised 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 outreach program to the community helps save lives by raising public awareness.

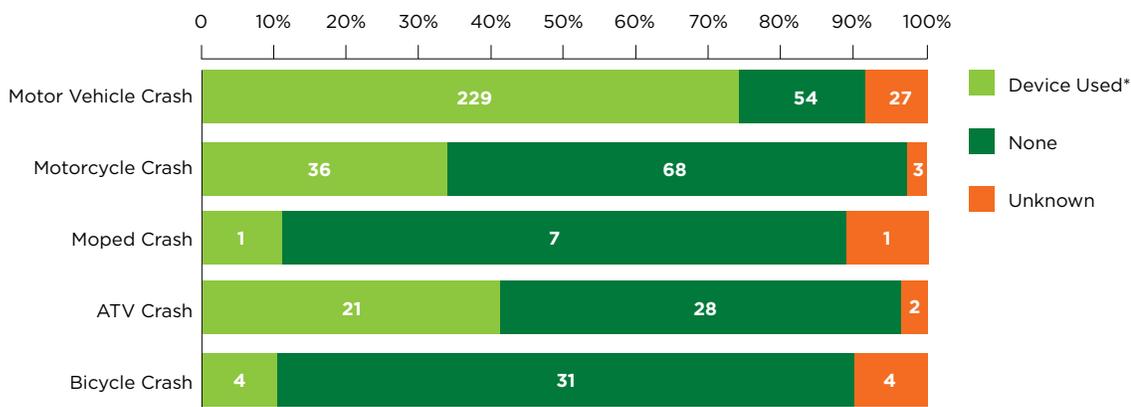
The Don't Text & Drive campaign was featured in events throughout Allen County and surrounding communities. Parkview continues to collaborate with Evans Toyota, Fort Wayne, as well as the Indiana State Police to share the Don't Text & Drive and Share the Road campaigns.

## Share the Road

Parkview Trauma Centers implemented the growing Share the Road program to help protect and prevent injuries within the community. With increased traffic on

(continued)

## Protective Devices Used in Selected Crash Types, All Injuries, 2020



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

# PREVENTION *continued*

the roads, motorists and other travelers need to become more alert and aware of the variety of commuters. Parkview has been working closely with the City of Fort Wayne and surrounding communities to magnify the importance of sharing the road with pedestrians, bicyclists, motorcyclists and Amish buggy passengers. Public outreach includes public service announcements and billboards designed with runners, motorcyclists, cyclists and Amish buggies in mind.

Early in 2020, Share the Road yard signs were distributed at the Fort Wayne Farm Show, where more than 30,000 attendees from rural communities were able to pick up free signs to share in surrounding communities. Parkview Trauma Centers took the Share the Road campaign throughout Allen County and surrounding communities. The Share the Road vehicle was utilized as a chase car for several yearly cycle events organized by the city and various charities. If you see this vehicle on the road, watch for cyclists nearby!

## Bike Helmet Safety and 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 provides

safety-certified bike helmets and helmet fitting to ensure the proper fit for each individual. Approximately 400 helmets are sold yearly at the safety store, while nearly 200 helmets are provided at no cost to Allen County children. 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**  
**Open Tuesdays, 10 a.m. – 1 p.m.**  
**and 4 – 7 p.m.**  
**(260) 373-7201**  
**1818 Carew Street, Suite 140**  
**Fort Wayne, IN 46805**

## Bus Safety

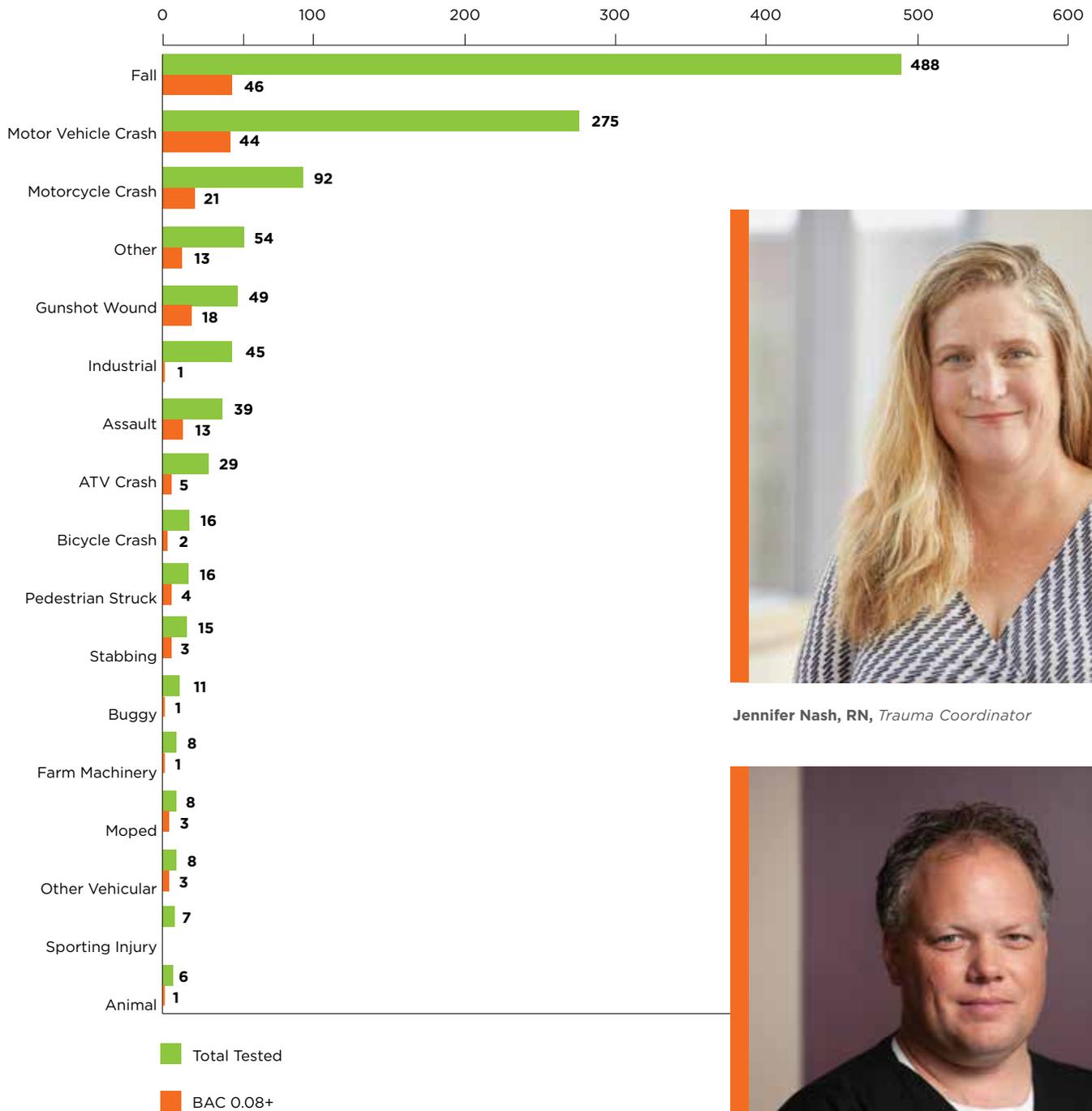
Parkview partnered with the local public school systems for a new bus safety initiative that included an awareness campaign for automobile drivers to stop when necessary for school bus stop signs. The awareness campaign included law enforcement initiatives, billboards, yard signs and more.

Program	Public Awareness	Attendance at a Presentation	Program Display	Total
Share the Road	18,137	1,912	569	20,618
Don't Text & Drive	65,605	1,748	2,308	69,661
Other (Stop the Bleed, gun safety, falls, Don't Drink and Drive, suicide prevention)	673	3,309	50,218	54,200
<b>Total</b>	<b>84,415</b>	<b>6,969</b>	<b>53,095</b>	<b>144,479</b>

*Billboards for Share the Road and Don't Text & Drive have been strategically placed throughout northeast Indiana. They have reached 5,098,808 Indiana drivers.*

*Don't Text & Drive includes Facebook.*

## Blood Alcohol Concentration (BAC) Level in Selected Mechanisms for Injured Patients, 2020



**Jennifer Nash, RN, Trauma Coordinator**



**Chris Scheumann, RN, CCRN, CEN, NREMT-P, PI**  
 Trauma Outreach Coordinator, Parkview Hospital

# PREHOSPITAL

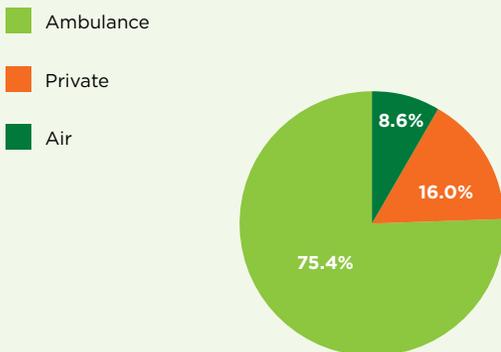
When an injury occurs requiring emergency medical care, the community often calls 9-1-1 and highly trained prehospital providers respond. Bystanders' reactions and rapid responses to the scene can greatly impact the chances of patient survival and overall outcome. Prehospital providers include emergency dispatchers, police, fire, emergency medical responders (EMR), basic emergency medical technicians (EMT), advanced emergency medical technicians (AEMT) and emergency medical technician paramedics (EMTP). These providers possess various skill levels and can make the difference between life and death. Examples of skills the prehospital team provides include pre-arrival bystander instructions, scene safety and securement, first aid, basic life support, advanced life support and transportation.

In addition to emergency medical providers, community paramedic programs, also known as mobile integrated healthcare (MIH), serve the northeast Indiana community with various initiatives. MIH programs connect individuals accessing the EMS system to the most appropriate healthcare providers and social

services. This includes linking the frequent and lower acuity caller with an appropriate level of service, improving integration with behavioral health and referring individuals to community-based services and other activities. MIH programs assist trauma care services by providing initiatives such as fall, suicide and abuse prevention programs.

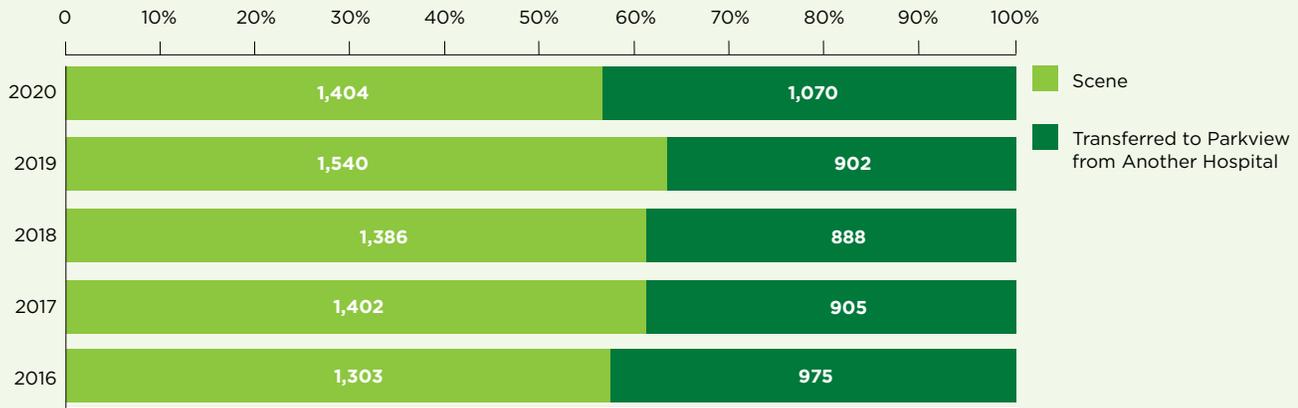
These skilled providers are an integral part of the trauma team. The regional prehospital providers of northeast Indiana, northwest Ohio and southern Michigan are offered and receive trauma education in person and virtually by the Parkview Trauma Services education team. In addition, trauma education is offered and provided to bystanders who play a vital role in patient outcomes through early recognition of emergency treatment prior to formally trained emergency prehospital staff. Without this team of caring, compassionate and highly skilled people, individuals experiencing traumatic injuries would likely suffer worse outcomes.

## Mode of Transportation to Parkview Trauma Centers, 2020

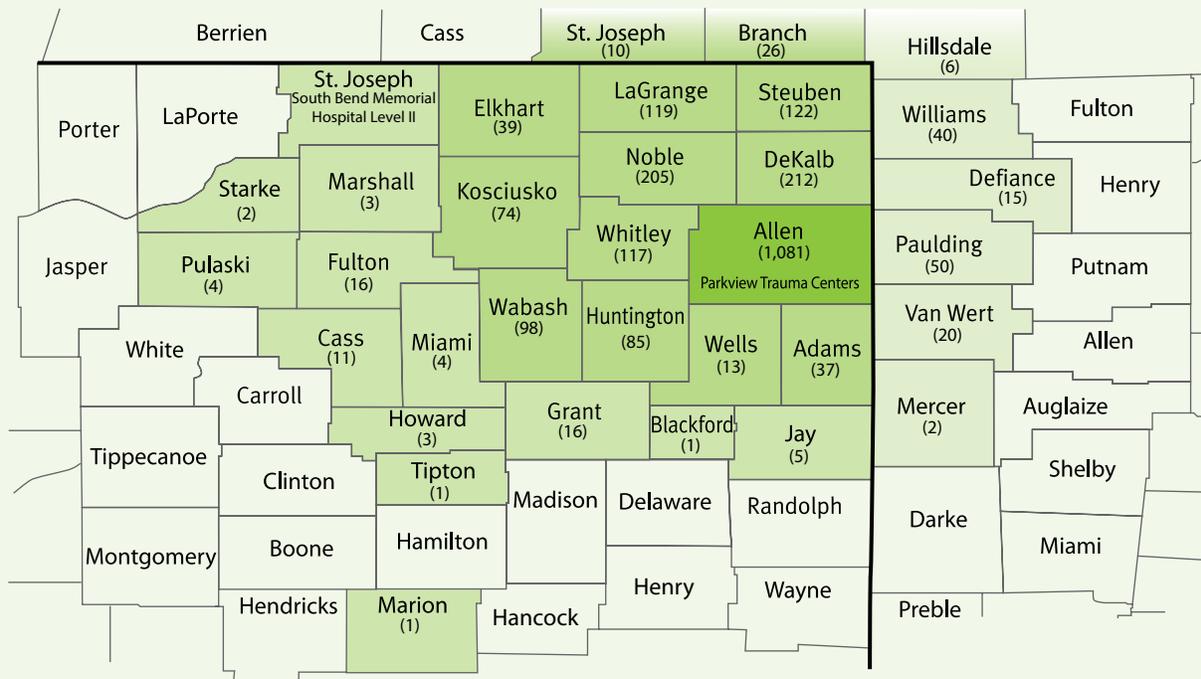


Note: There were 2 cases with arrival by police.

## Volume (and %) of All Patients from Scene or Transferred to Parkview Trauma Centers, 2016-2020



## County of Injury Occurrence in Catchment Area, 2020



\* Excludes 24 cases with unknown county and 12 cases out of state.

# PEDIATRICS

As a pediatric trauma center, Parkview maintains dedicated resources for the care of injured children. Children experience trauma differently than adults, requiring a unique response from a team of specialists including neurosurgery, orthopedic surgery, emergency medicine and pediatric critical care physicians. Parkview Regional Medical Center has been verified as a pediatric trauma center by the American College of Surgeons since 2003, the first pediatric trauma center in Indiana outside of Indianapolis, and is dedicated to achieving the best outcomes through its commitment to data collection, injury prevention, outreach, performance improvement, professional trauma education and research.

## Child Maltreatment

Throughout 2020 and into 2021, the pediatric trauma center has continued to focus on the identification, treatment and prevention of child maltreatment across our region. Our child maltreatment team includes physicians, nurses, social workers, chaplaincy, leadership, community nursing and radiology. The team meets monthly to discuss current statistics within Allen County and the region. Multiple avenues of research and community engagement have been explored throughout the year, including a study with Purdue University regarding the effects of opioid use prenatally through the first three years of life; and a collaboration with the Allen County Department of Child Services and PPG pediatricians to aid in the proper identification of and documentation for litigation of abuse and neglect against children. Data is also shared with the Parkview

community hospitals that refer patients to Parkview Regional Medical Center for assessment and treatment.

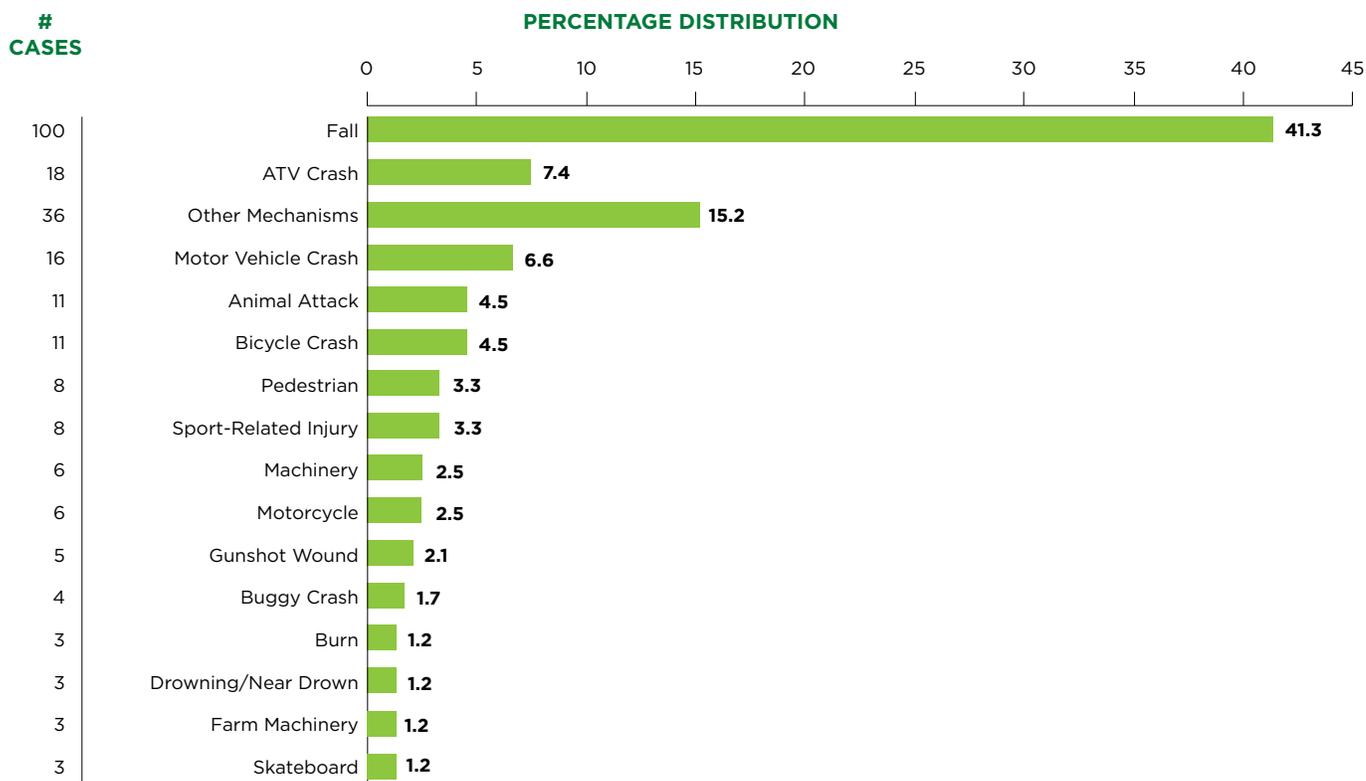
Parkview community nursing continues to trend the patterns of injury and alters their education or teaching strategies accordingly. Community nursing is also available to help patients and families that may be facing an acute crisis, which could lead to abuse or neglect, by offering resources and meeting with families identified to be in distress. By producing a system-based approach, the child maltreatment team and trauma services share resources and collaborate in difficult situations to ensure the safety of the children under Parkview's care. As a result, Parkview has increased the reporting of potential child maltreatment and responds to concerns about abuse and neglect internally at all Parkview hospitals, as well as by local authorities and child protective services.

## Volume (and %) of Pediatric Patients (Ages 0-14) Injury Severity Score (ISS), 2016-2020\*



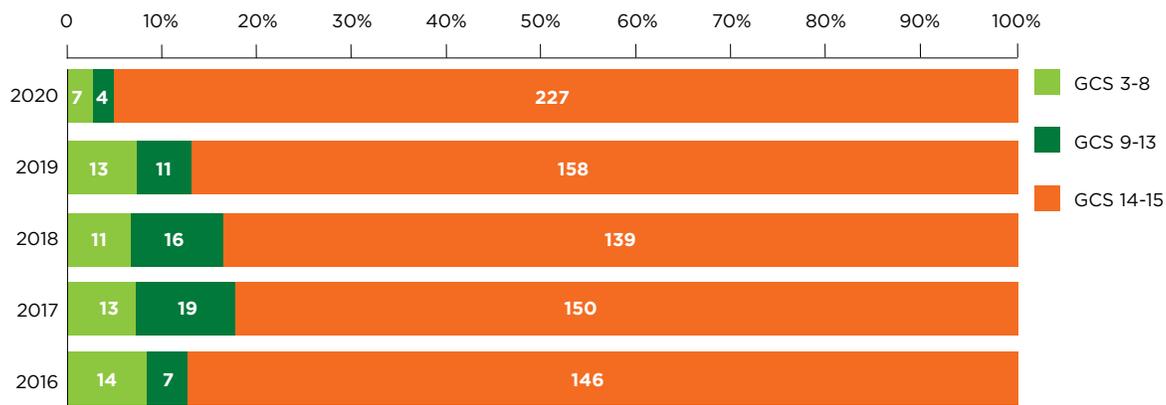
ISS > 15 can include life threatening, critical or fatal injuries.  
 \* Excludes cases for which ISS is unknown.

## Mechanism of Injury Pediatric Patients (Ages 0-14 Years), 2020



Note: 3 cases with unknown mechanism of injury.

## Volume (and %) of Pediatric Patients (Ages 0-14) Admission Glasgow Coma Score (GCS), 2016-2020\*



\* Excludes cases for which GCS is unknown.  
 GCS, 3-8 = Possible severe head injury; GCS, 9-13 = Possible moderate head injury;  
 GCS, 14-15 = Possible mild head injury

## PEDIATRICS *continued*

### Pediatric Trauma Education

The Parkview Pediatric Trauma Center continues to support both staff and community members throughout the state of Indiana by providing education related to pediatric trauma topics, free of charge.

Parkview hosts the annual Child Maltreatment Symposium, sponsored by the Isaac Campbell Kidd Fund, in an ongoing effort to protect Hoosier children from abuse and neglect. Health professionals, teachers, social workers and other community members have had the opportunity to network with each other and learn about various topics, including but not limited to:

- Mandatory reporting
- Human trafficking
- COVID and return to school
- Adverse childhood events
- Effects of the opioid epidemic on families
- A yearly review of abuse and neglect statistics for northeast Indiana
- Healthier Moms and Babies success stories
- Collaborative sessions with the Indiana Department of Child Services leadership
- Infant physical abuse prevention — National Center for Shaken Baby Syndrome

The Parkview Pediatric Trauma Center provides an annual Pediatric Trauma Symposium. Nurses, physicians, pharmacy, leadership, students and prehospital

providers engage in a variety of pediatric-related topics that have been identified while caring for children throughout the system. Education has included:

- Orthopedic injuries related to improper restraint
- Management of pediatric blunt abdominal trauma
- Violent crimes against children
- Complex pediatric case studies
- Suicide awareness and prevention
- Indiana state pediatric injury prevention updates
- Analgesia and sedation
- Management of complex facial fractures

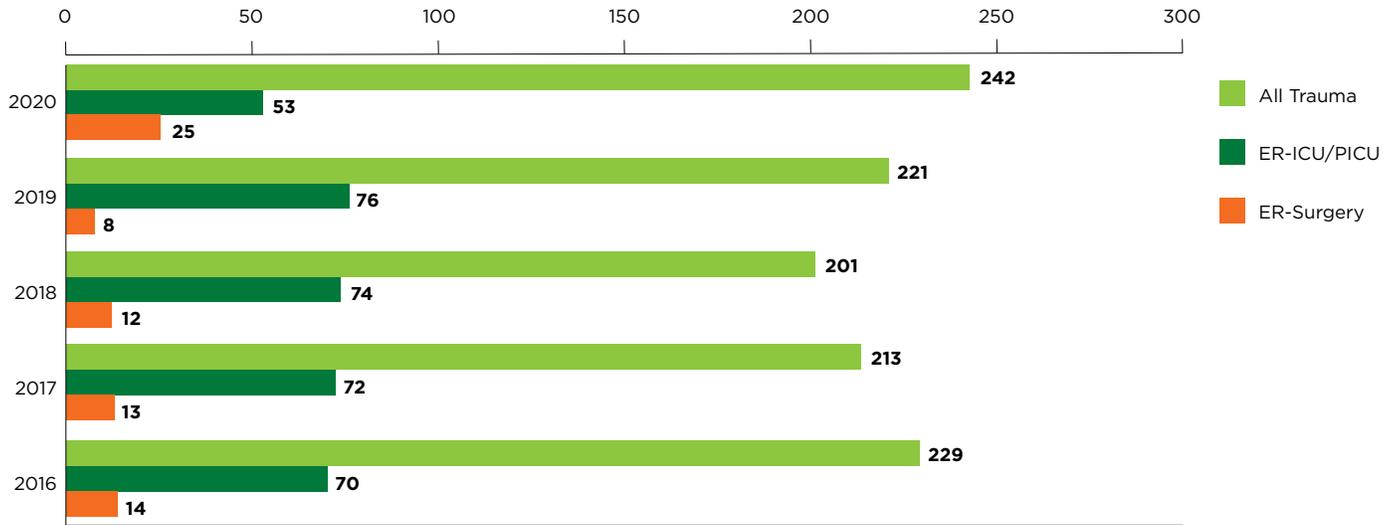
In addition to symposiums, the pediatric trauma center has established a pediatric trauma simulation program that allows staff from the emergency department, lab, radiology, surgery, chaplaincy, social work, trauma services, pediatric critical care, pediatric intensive care unit and anesthesia to simulate care for our highest-level pediatric patients. An emphasis on closed loop communication, identification and treatment of life-threatening injuries, and massive transfusion has allowed staff to demonstrate teamwork and improve patient outcomes. The trauma team also works in collaboration with Cincinnati Children's Hospital and their medical director, Dr. Richard Falcone, to experience and learn pediatric trauma care from regional partners.

*Left to right:*

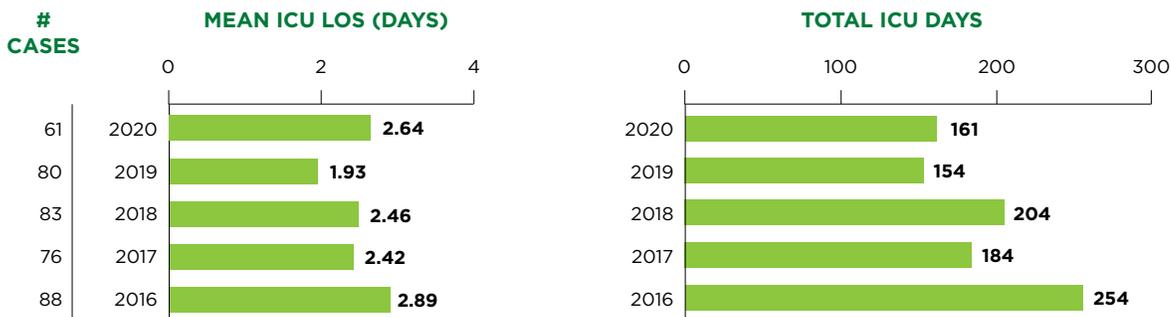
**Dazar Opoku, BSC, MPH, Trauma Data Specialist, Trauma Services;**  
**Thein-Hlaing Zhu, MBBS, DPTM, FRCP, FACE, Trauma Epidemiologist,**  
*Trauma Services*



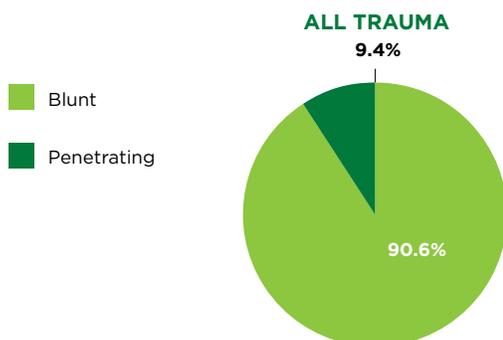
## Volume of Pediatric Patients (Ages 0-14) Admitted from ER to ICU and OR, 2016-2020



## ICU Length of Stay (LOS) Pediatric Trauma (Ages 0-14), 2016-2020



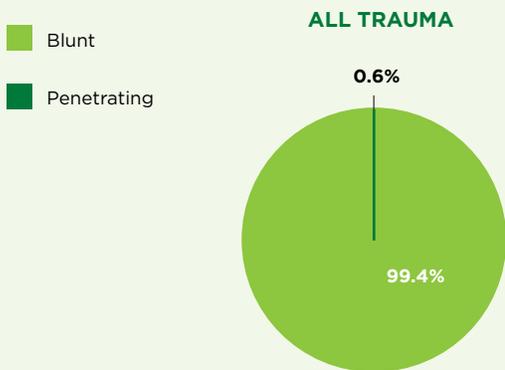
## Trauma Type Pediatric Patients, 2020\*



\* Excluded 2 cases with Thermal Trauma.

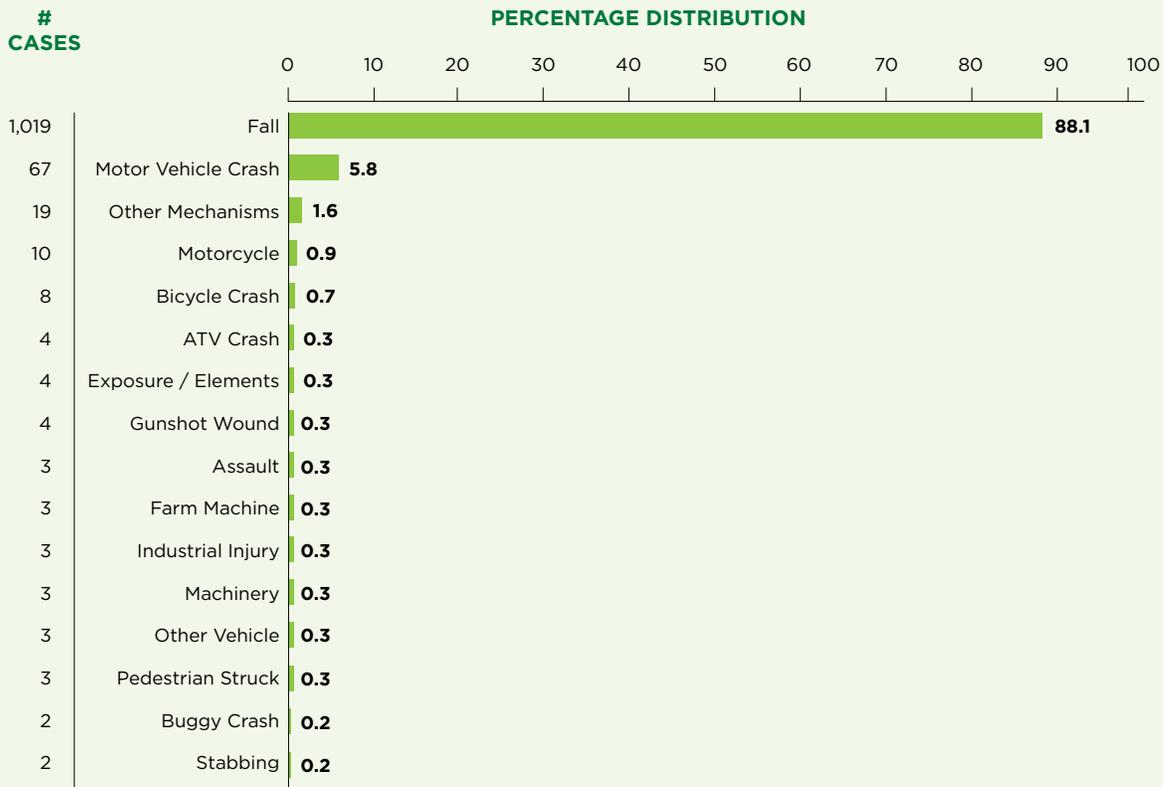
# GERIATRICS

## Trauma Type Geriatric Patients (Ages ≥ 65), 2020



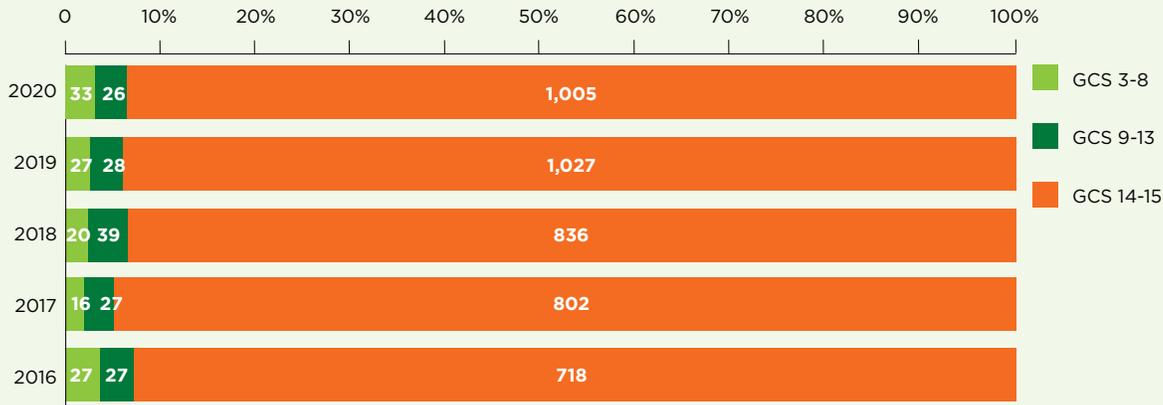
\* Excluded 4 cases with Thermal Trauma.

## Mechanism of Injury Geriatric Patients, Ages ≥ 65 Years, 2020



Note: 2 cases with unknown mechanism of injury.

## Volume (and %) of Geriatric Patients (Ages ≥ 65) Admission Glasgow Coma Score (GCS), 2016-2020



Note: There were 2 cases with arrival by police.

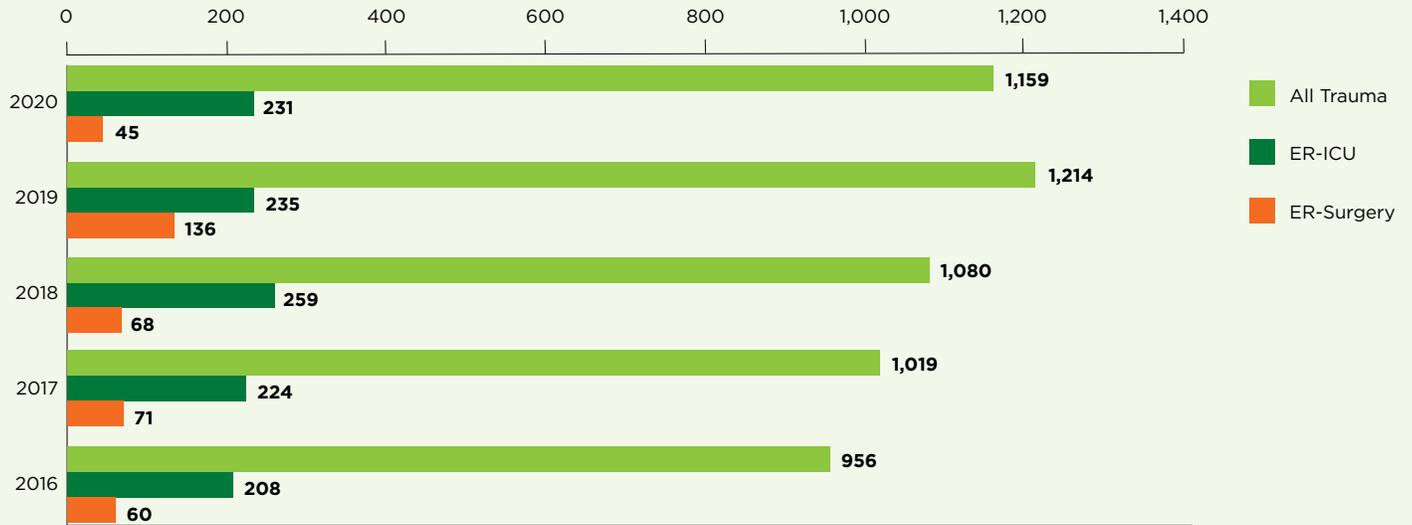
## Volume (and %) of Geriatric Patients (Ages ≥ 65 Years) Injury Severity Score (ISS), 2016-2020\*



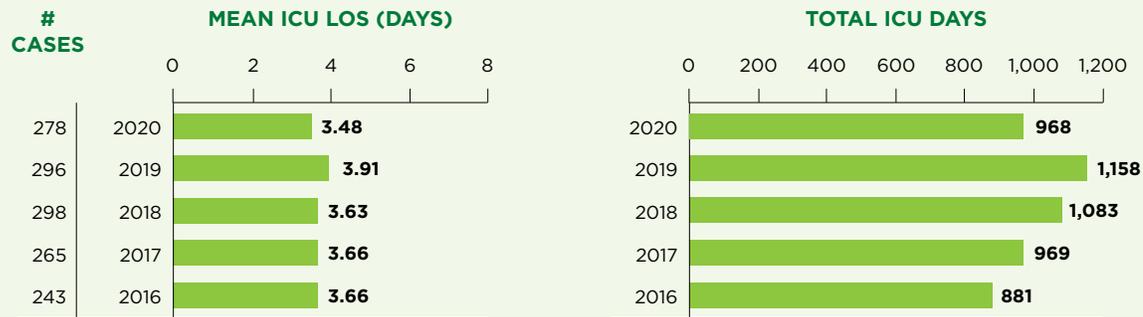
ISS > 15 can include life threatening, critical or fatal injuries.  
 \* Excludes cases for which ISS is unknown.

# GERIATRICS *continued*

## Volume of Geriatric Patients (Ages ≥ 65) Admitted from ER to ICU or Surgery, 2016-2020



## ICU Length of Stay (LOS) Geriatric Trauma (Ages ≥ 65), 2016-2020



# MASS CASUALTY AND DISASTER PREPAREDNESS

2020 was a year of uncertainty with the parallel pandemics of COVID-19 and injury. At Parkview, we learned to always be prepared for the unthinkable with mass casualty incident (MCI) plans in place and regular preparation exercises (see Trauma Research section for a recently published study). A MCI may result from multiple situations, such as a tornado, mass shooting, car crash, etc.

Parkview Trauma Centers have a Mass Casualty Committee that applies best practice in mass casualty preparedness and trauma care. The committee is a multidisciplinary team that brings different areas of expertise to the table. An MCI requires a system response at a moment's notice or no notice. The systematic process is drilled and evaluated in order to hardwire our plans, as well as discover opportunities to consistently improve.

The fear of a mass casualty event taxing a hospital's ability to provide care to all patients is the driving force for incident planning and drilling. It is the "insurance policy" for if or when it happens. Along with caring for injured victims, there may be an influx of media, volunteers, walking wounded and concerned family members. The Mass Casualty Committee pre-determines locations for these individuals to prevent unnecessary crowding and allow the patients to be treated efficiently.

Resources and supplies are critical components in mass casualty planning. Pre-stocked disaster carts

are ready at a moment's notice. Each cart is equipped with abundant supplies appropriate for any type of mass casualty victim and delivered to the pre-planned hospital locations. This system allows rapid treatment to all mass casualty victims.

Along with MCI planning, Parkview Trauma Centers provide community education on the national Stop the Bleed program. Stop the Bleed provides knowledge on how to recognize life-threatening bleeding and intervene effectively. We teach when and how to apply direct pressure to a wound, wound packing and the application of a tourniquet. Safety kits with supplies are available at the Parkview Safety Store.

Parkview collaborates with multiple outside organizations, the health department and the district Health Care Coalition to prepare our regional MCI response. When disaster strikes, we believe all hands should be on deck. As a leader in trauma care in our region, Parkview Trauma Centers provide an example for our community in times of uncertainty.

*Left to right:*

**Joseph Muller, MD, Trauma & Acute Care Surgeon;** **Alicia Floor, RN, STICU;**  
**Eric Olsen, MD, Emergency Medicine;**  
**Lashonda Williams, MD, Trauma & Acute Care Surgeon**



# TRAUMA PERFORMANCE IMPROVEMENT AND PATIENT SAFETY



Lindsay Riegle, MD, FACS

The necessity for high quality and safe healthcare is the leading objective at Parkview Trauma Centers. High quality and safe healthcare are the means by which individuals and hospitals increase the likelihood of attaining desired health outcomes, while remaining consistent with emerging clinical expertise and best practices. The goals of trauma performance improvement and patient safety (TPIPS) are twofold: to determine the effects the delivered healthcare had on the desired outcome and to assess the degree to which the healthcare system and providers adhere to the process, based on the most up-to-date scientific evidence and patient preference. Variations in the system or process are important to identify and develop a plan to correct in a real-time format. For this to occur, it is of utmost importance to adopt highly reliable performance improvement techniques that will identify inefficiencies, ineffective care and preventable events that will lead to changes and improvements in the trauma care system.

The Parkview Adult and Pediatric Trauma Programs have instituted a well-established, multidisciplinary,

tiered model to recognize, assess and correct all opportunities in the trauma care system. Our goal is to continuously improve the desired outcomes in trauma care. This is established through a robust internal and external process for every trauma patient and supported by a trauma registry that has been in place for 30 years. Internally, every trauma patient's care is reviewed on multiple levels to ensure the care is appropriate, effective and has achieved the desired outcome. There are multiple trauma care guidelines that are derived and updated with the highest quality of evidence. Externally, Parkview Trauma Centers submit data for benchmarking — locally, regionally and nationally. Parkview Trauma Centers have been a proud participant in the Trauma Quality Improvement Program (TQIP) for more than 10 years and were honored to be in the first group of hospitals to begin submitting to this national benchmarking system. The information obtained from both the internal and external review systems is utilized to continuously improve the delivery of care and outcome of our injured patients.

# COMMUNITY HOSPITAL TRAUMA PROGRAM

In addition to Parkview Regional Medical Center, Parkview Health consists of a hospital in downtown Fort Wayne, six rural community hospitals and one stand-alone emergency department. All of these facilities represent the Parkview Health Trauma Program. The newest member of Parkview's trauma system is Parkview DeKalb Hospital in Auburn, Indiana.

As part of Parkview Health's Trauma Program, standards of care and trauma guidelines are practiced consistently throughout the trauma system. This ensures quality trauma care is provided quickly to every patient, every time. Examples of these standards of care include timely IV antibiotic administration to patients with open fractures, rapid triage and transfer of severely injured trauma patients and decreasing radiation exposure to our pediatric trauma population.

Every patient with an injury that presents to a Parkview Health hospital is reviewed for timely and effective care. Opportunities for improvement are identified quickly and addressed. Follow-up is provided to EMS and Emergency Department teams for continuous performance improvement. Open communication strengthens the trauma system and ensures excellent trauma care is provided to every patient.



# OUTREACH AND EDUCATION

Trauma outreach involves providing trauma center expertise, information and leadership to institutions, agencies and individuals within a region for the purpose of improving the care of injured patients. The goals of the trauma outreach program include:

- Improving regional outcomes of major trauma by the dissemination of knowledge and expertise regarding the care of injured patients.
- Participating with regional agencies, organizations and providers in improving the regional trauma care system.
- Facilitating access to trauma center resources, such as educational and/or prevention programs, performance improvement, consultation and referrals.
- Supporting educational programs of regional facilities and trauma healthcare personnel.

*Reference: Resources for Optimal Care of the Injured Patient 2014*

## Advanced Trauma Life Support (ATLS) for physicians and physician extenders

This course is a trauma team-teaching, interactive learning experience designed for physicians and advanced practice providers who care for injured patients. The course provides the learner with trauma common knowledge and an organized, systemic team approach for the evaluation and management of the seriously injured by using scenario-based interactive learning. In addition, emergent lifesaving surgical skills are acquired through a five-step training method using high-fidelity simulation mannequins.

## Advanced Trauma Care for Nurses (ATCN)

This course is taught concurrently with the Advanced Trauma Life Support (ATLS) course for physicians. The advanced trauma course is designed for nurses working in the emergency department, intensive care, flight and EMS, as well as the operating room. In 2020, 25 nurses successfully completed the ATCN course.

## Trauma Nursing Core Course (TNCC)

This course provides basic trauma education and psychomotor skills for nurses who care for injured patients. The trauma nursing process is used to standardize the approach to trauma care and is reflected in the course manual and the skills stations.

## Trauma Grand Rounds

This monthly educational event is presented live at Parkview Regional Medical Center and also streamed

live online for those who cannot attend in person. The presentations are recorded as well and posted online for viewing anytime by those unavailable for live attendance.

## Trauma Simulation Training

This realistic training experience utilizes 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 clinical trauma care. The training takes place live in the emergency departments at Parkview Regional Medical Center, Parkview Randallia Hospital, as well as in the laboratory setting in the Parkview Mirro Center for Research and Innovation Simulation Lab.

## Annual Trauma Symposium

The 30th Annual Trauma Symposium was held on May 8, 2019, and was attended by over 200 regional trauma care providers. This symposium focuses on educating providers with up-to-date trauma care research and clinical applications. National speakers presented the following topics: Penetrating Neck Injuries, Management of Coagulopathy with Traumatic Brain Injury, Mass Casualty Incidents and Local Initiatives, Selective Surgical Management of Penetrating Trauma, Traumatic Obstetrical Emergencies, Cardiogenic Shock in Trauma, Non-Lethal Police Injuries: What the Healthcare Professional Should Know, Goal-Directed Whole Blood Trauma Resuscitation, Rescue Task Force, Tactical Trauma Care and Stop The Bleed — An Interactive Experience. The 31st Annual Trauma Symposium originally scheduled for May 13, 2020, was postponed until 2021 due to the COVID-19 pandemic.

## Pediatric Trauma Symposium

The 10th Annual Pediatric Trauma Symposium was held virtually in three separate sessions in November 2020 and was virtually attended by over 100 regional trauma care providers. This educational symposium focuses on educating providers with up-to-date trauma care research and clinical applications in caring for injured children. Topics included: Management of Pediatric Thoracic Trauma, Emerging Neurosurgical Topics and Pediatric-Specific Assessment & Blunt Abdominal Trauma: Updates on the Care of Pediatric Patients with Blunt Liver, Spleen and Pancreatic Injury.

## Child Maltreatment Symposium

The 8th Annual Child Maltreatment Symposium was held virtually in three separate sessions in July 2020 and was virtually attended by over 200 regional trauma care providers, as well as other community stakeholders. This educational symposium focuses on educating providers with up-to-date trauma care research and clinical applications in recognizing and caring for children who are victims of child abuse and neglect. Topics included: The Social, Mental, Physical & Intellectual Benefits of Children Attending School, Department of Children Services: Their Vision and Human Trafficking: Healthcare Provider Awareness and Recognition.

## Geriatric Trauma Symposium

The 4th Annual Geriatric Trauma Symposium was held virtually in three separate sessions in October 2020 and was virtually attended by over 100 regional trauma care providers. This educational symposium focuses on educating providers with up-to-date trauma care research and clinical applications in caring for injured adults over 65 years of age. Topics included: Planning for End of Life Wishes, The Beer's Criteria: Medication Assessment in Geriatric Patients and How Theory Informs Our Understanding of Suicide in Older Adults.

## Stop the Bleed

The Stop the Bleed campaign raises awareness of lifesaving strategies, provides public access to bleeding control tools and empowers bystanders to act as immediate responders. Massive bleeding from any cause, but particularly from an active shooter or explosive event where a delayed response can result in death. Victims can die from uncontrolled bleeding within five to ten minutes. In the same way that the general public learns and performs CPR, the public can learn proper bleeding control techniques, including how to use their hands, dressings and tourniquets. Anyone at the scene can act as an immediate responder and save lives if they know what to do. In 2019, the Parkview Trauma Services team taught Stop the Bleed to more than 1,300 individuals in over 30 different organizations.

## Online Trauma Education

Trauma educational opportunities are available on demand 24/7/365 on the Parkview Trauma Outreach Education website as well as the Parkview Trauma Education YouTube page. Audio, video, podcasts, webinars, images, multimedia presentations, links

to other online trauma resources and the monthly Trauma Case Study are available via the extranet. In addition, a monthly email called the Trauma eBlast! is sent to over 4,000 regional trauma care providers. The Trauma eBlast! contains current trauma-related topics and offers providers continuing education credit for completing online educational content.

## Trauma Follow-up Letters

When an injured patient arrives at Parkview Trauma Centers and is activated as a trauma patient by the emergency department team, we provide written follow-up in the form of a letter to referring hospitals and prehospital personnel who cared for the injured patient. These letters contain injuries identified, procedures completed, outcomes as well as any opportunities for improvement identified. In 2020, 1,400 follow-up letters were sent to regional providers in Indiana, Ohio and Michigan.

## Regional/State/National Trauma Committee Participation

Parkview Trauma Services is actively involved with numerous external trauma-related committees that meet regularly to help prevent trauma from occurring while improving the outcomes of injured people. Some examples of committees we were involved with in 2020 include:

- Northeast Indiana Regional EMS Protocol Committee
- Northeast Indiana EMS Primary Instructor Workgroup
- Indiana EMS Education Workgroup
- Trauma Center Association of America
- Indiana State Trauma Care Committee (ISTCC)
- ISTCC Performance Improvement Subcommittee
- ISTCC System Subcommittee
- ISTCC Injury Prevention Subcommittee
- Indiana Trauma Network
- Indiana Trauma Data Registry
- Indiana District 3 Healthcare Coalition
- Indiana District 3 Trauma Regional Advisory Council
- Northeast Indiana Regional EMS Providers Workgroup
- Fort Wayne Trails Committee
- Various ad hoc committees

## STUDY 1: Effectiveness of Multimodal Pain Therapy on Reducing Opioid Use in Surgical Geriatric Hip Fracture Patients

Kellie Girardot, MSN, RN; Lisa Hollister, MSN, RN; Thein Hlaing Zhu, MBSS, MPH; Sarah Hoepfner, MSN, RN; Dazar Opoku, MPH; Jason Heisler, DO; Tabitha Bane, MSN, RN

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doi: 10.1097/JTN.0000000000000516

### Abstract

**Background:** There is a need for appropriate pain control in the geriatric hip fracture population to prevent diminished function, increased mortality and opioid dependence. Multimodal pain therapy is one method for reducing pain postoperatively while also decreasing opioid use in the geriatric hip fracture patient. This study aimed to determine whether multimodal pain therapy could decrease opioid use without increasing pain scores in surgical geriatric hip fracture patients.

**Methods:** This was a before-and-after cohort study. The hospital implemented multimodal pain control order sets with a standardized pain regimen and performed retrospective chart review pre- and postorder set implementation for analysis.

**Results:** A total of 248 patients were enrolled in the study: 131 in the preorder set group and 117 in the postorder set group. The mean postoperative oral morphine equivalent (OME) was significantly lower in the postorder set group than in the preorder set group (45.1 mg vs. 63.4 mg, respectively,  $p = .03$ ). Compared with the preorder set group, total OME and postoperative OME were decreased by 22.6% (95% confidence interval [CI] -44.9, -3.8), 1-tailed  $p < .01$ , and 53.6% (95% CI -103.4, -16.1), 1-tailed  $p < .01$  respectively, in the postorder set group. There was not a statistically significant difference in mean pain scores at 6, 24 and 48 hr. postoperatively ( $p = .53, .10$  and  $.99$ ), respectively.

**Conclusion:** Implementing a multimodal approach to pain management may help reduce opioid use and may be a critical maneuver in averting the national opioid epidemic.

## STUDY 2: Mass Casualty Mini Drills on Trauma Surgery Department Staff Knowledge: An Educational Improvement Study

Lisa M. Hollister, DNP, MSN, RN; Thein Zhu, MBBS, FACE, FRCP; Nancy Edwards, PhD, ANP-BC, FAANP; Becky Good, DNP, RN, FNP-BC; Sarah Hoepfner, MSN, RN, CCRN, TCRN

*Journal of Trauma Nursing*, 28(2):135-141, March/April 2021.

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### Abstract

**Background:** Over the last decade, the United States has witnessed an increase in mass casualty incidents (MCIs). The outcome of an MCI depends upon hospital preparedness, yet many hospitals are unfamiliar with their facility MCI procedure. Educational training drills may be one method to improve staff knowledge of policy and procedure.

**Objective:** This study aimed to improve knowledge gained through educational MCI mini drills of institutional mass casualty policy and procedure in surgery department staff at a level II trauma center.

**Methods:** A pre-/posttest design was utilized. The hospital implemented MCI mini training drills as a quality improvement project using Plan-Do-Study-Act iterative cycles with prospective data collection. Knowledge scores were measured using a 12-item surgery department MCI policy and procedure questionnaire that was developed by the author and leadership.

**Results:** A one-way analysis of covariance analysis in participants that mini drilled more than once indicated significant effect on mean cycle score differences among three cycles  $F_{(2,21)} = 12.96, p = .00$ . Multiple comparison using Games–Howell indicated the mean score for Cycle 4 ( $M = 96.15, SD = 6.54$ ) was significantly different from Cycle 3 ( $M = 59.71, SD = 25.15$ ). Gender, shift and credentials of participants influenced knowledge improvement.

**Conclusion:** Implementation of hospital MCI mini drills improved staff knowledge of institutional mass casualty policy and procedure in the surgery department and may be applied to surgery departments with similar policy, procedure and participant characteristics. Hospital mass casualty response education and preparation is essential to saving lives.

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