



ANNUAL REPORT

*RIGHT **PATIENT.** RIGHT **PLACE.** RIGHT **TIME.***

2019

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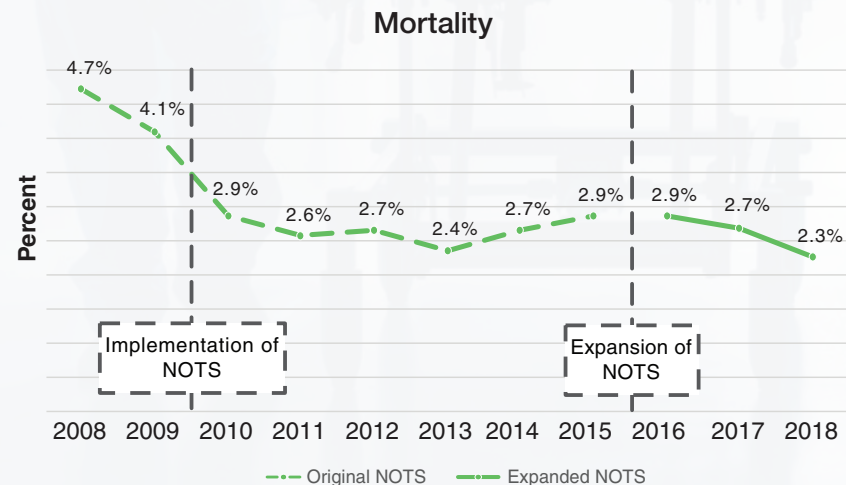


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Throughout this report, you will see graphs that look across many years of NOTS data. To demonstrate the expansion of NOTS in 2016, these graphs contain a dotted line (representing “original NOTS”) and a solid line (representing “expanded NOTS”). The hospitals included in the dotted line are: Cleveland Clinic Fairview Hospital, Cleveland Clinic Hillcrest Hospital and MetroHealth Medical Center. The solid line includes, in addition to these three hospitals: Cleveland Clinic Akron General, Southwest General Health Center, University Hospitals Cleveland Medical Center, University Hospitals Rainbow Babies and Children’s Hospital, University Hospitals Geauga Medical Center, University Hospitals Portage Medical Center, and University Hospitals St. John Medical Center.

NOTS MISSION STATEMENT

To provide the highest **quality of care** to patients across the region by rigorously evaluating and improving outcomes, optimizing resources and providing education utilizing a collaborative approach with hospitals, emergency medical services and the public health services.



RIGHT PATIENT. RIGHT PLACE. RIGHT TIME.

EXECUTIVE SUMMARY



The American College of Surgeons (ACS) was formed over a hundred years ago to improve the quality of care for patients receiving surgical care. This effort initially began as a way to assure the quality of care provided by hospitals, which eventually morphed into what has become The Joint Commission.

Early on the ACS recognized the need to improve the quality of care of the injured patient. The disparity of care provided within the early critical period immediately following a major trauma was recognized as an opportunity to overcome, to impact care. This goal has largely been implemented by standardization of care and education of caregivers through protocols and educational outreach.

The Northern Ohio Trauma System (NOTS) is a consortium of hospitals in Northeast Ohio that have formed an alliance to advance the quality of care of the injured, building on the ACS model of protocol development, data acquisition, education, and quality review. Part of our educational mission involves sharing the data collected by the System with the public to allow transparency of outcomes and foster community dialogue around the care of trauma patients. The ACS has also continued to advance its mission of quality

reporting and education through a new outcomes tool, Trauma Quality Improvement Program (TQIP). This program allows a nationwide data reporting system where trauma centers can compare their patient outcomes with other similar hospitals.

The success of NOTS has partly been demonstrated by its expansion to include the developing trauma system of University Hospitals in 2017. Cooperation and data reporting with quality review is a hallmark of any trauma system, and the cooperation of all of the hospital systems in Northeast Ohio is a remarkable achievement and signifies to the public our concerted effort to provide the best trauma care throughout our community. In recognition of our educational mission, we are pleased to provide this current snapshot of trauma data in our community.

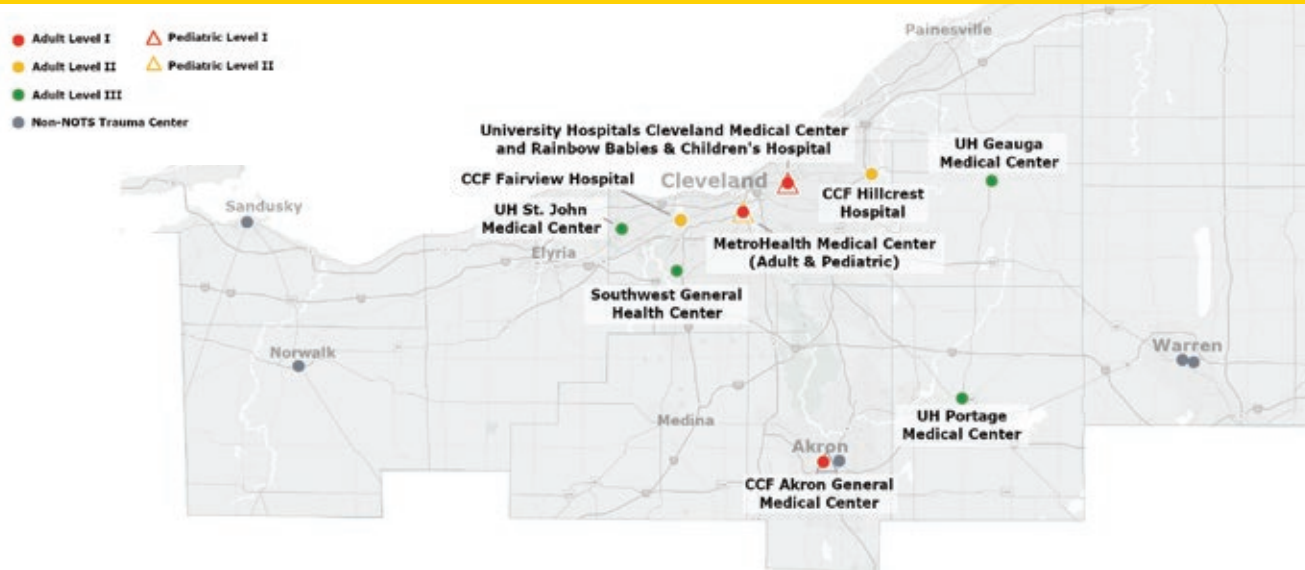
Sincerely,

Matthew Walsh, MD, FACS

NOTS TRAUMA HOSPITALS

Adult and Pediatric Trauma Centers

- University Hospitals Cleveland Medical Center (Level I Adult)
- University Hospitals Rainbow Babies and Children's Hospital (Level I Peds)
- **MetroHealth Medical Center (Level I Adult, Level II Peds)**
- Cleveland Clinic Akron General (Level I Adult)
- University Hospitals Geauga Medical Center (Level III)
- University Hospitals Portage Medical Center (Level III)
- **Southwest General Health Center (Level III)**
- **Cleveland Clinic Fairview Hospital (Level II)**
- **Cleveland Clinic Hillcrest Hospital (Level II)**
- University Hospitals St. John Medical Center (Level III)



DO YOU KNOW THE DIFFERENCE?

Level I Trauma Care

These facilities have resources available 24/7 to care for injured patients. Key elements include 24-hour coverage by general surgeons and prompt availability of care in varying specialties such as orthopaedic surgery, neurosurgery, plastic surgery, anesthesiology, emergency medicine, radiology, internal medicine, oral and maxillofacial surgery, otolaryngology and critical care, which are needed to adequately respond and care for various forms of trauma that a patient may suffer.

Level I hospitals need to meet a volume requirement, maintain surgical directed critical care services, participate in training of residents, conduct trauma research, and be a leader in education and outreach.



DO YOU KNOW THE DIFFERENCE?



Level II Trauma Care

These facilities function similar to a Level I trauma center. Level II's need to have resources available 24/7 to care for the majority of injured patients, just like a Level I. If the Level II is unable to keep the patient, they send them to a Level I for definitive care.

Level II facilities accept patients transferred from Level III facilities. In addition, Level II facilities take part in community injury prevention and outreach education initiatives, and are involved with local and state government issues related to trauma care and prevention.



Level III Trauma Care

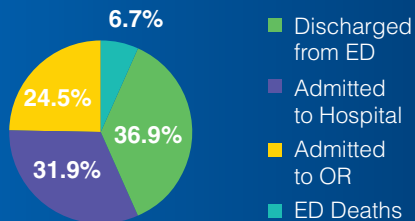
These facilities, often community hospitals, generally have resources available to treat and stabilize the majority of injured patients. However, these resources may not be available 24/7.



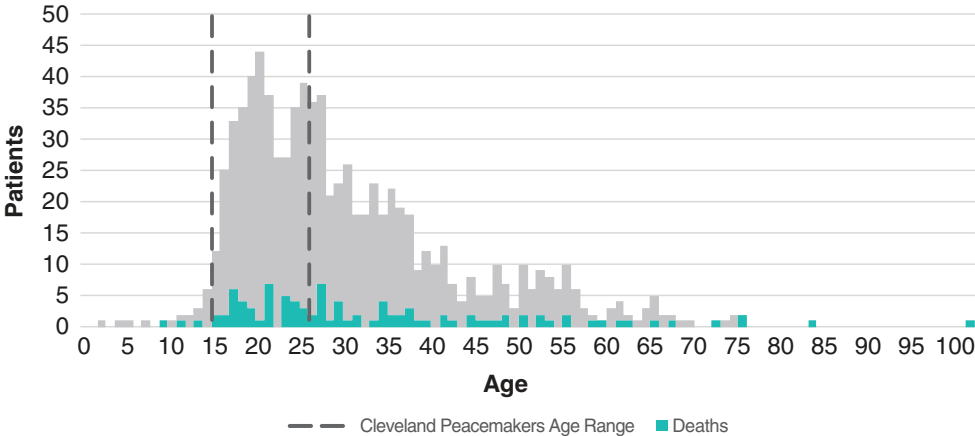
GUNSHOT WOUND SPOTLIGHT

- There were 838 GSWs seen in 2018 (compared to 1,049 in 2017)
- 88% of GSW patients were male
- 36.9% were discharged from the ED
- 24.5% were taken directly to the OR from the ED
- Of those who were admitted, 43% went directly to the OR
- Of those who were admitted, 45% had a stay in the ICU, with an average ICU stay of 6.1 days
- The mortality rate of those who were admitted was 9.2%

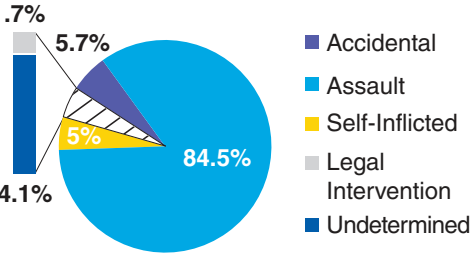
GSWs: By ED Disposition



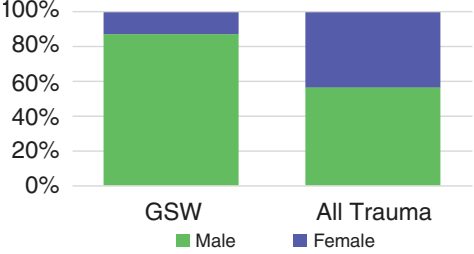
GSWs: By Age



GSWs: By Intent



GSWs vs. All Trauma: By Gender

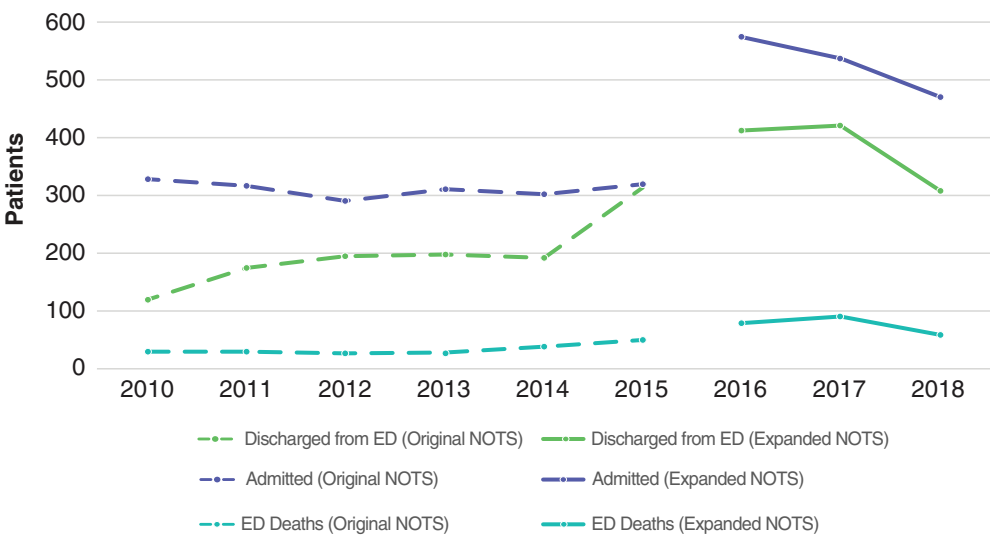


From Left to Right:
 Sharyna Cloud, Dwayne Nelson, Carlos Williams,
 Andrea Martemus-Peters

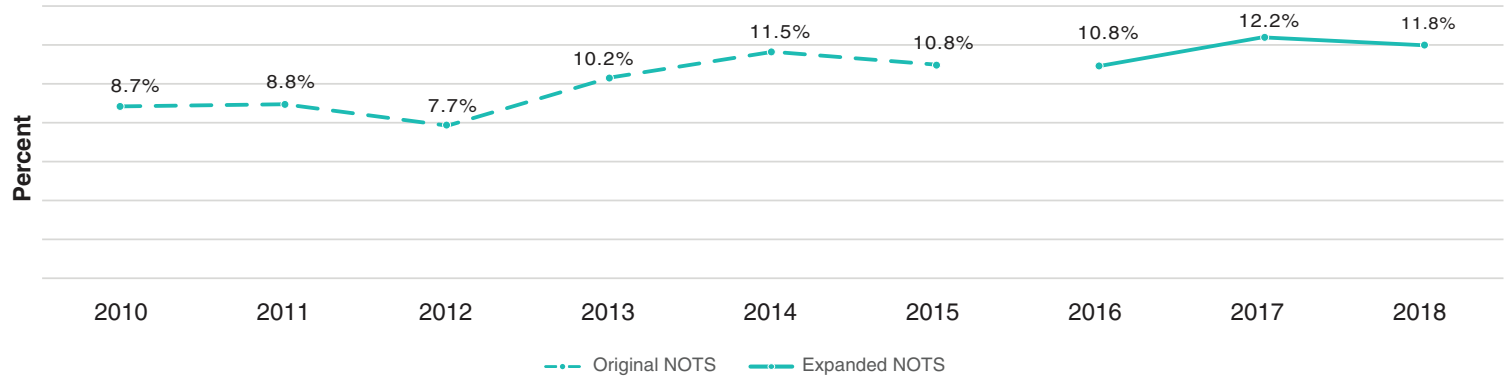
The Cleveland Peacemakers Alliance is an independent, neighborhood-based organization focused on preventing violence.

GUNSHOT WOUND SPOTLIGHT

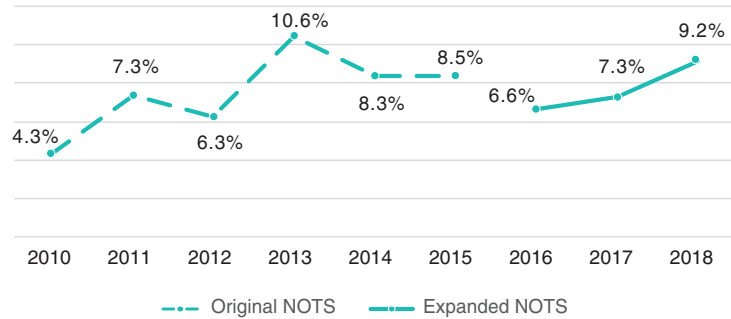
GSWs: By Year and ED Disposition



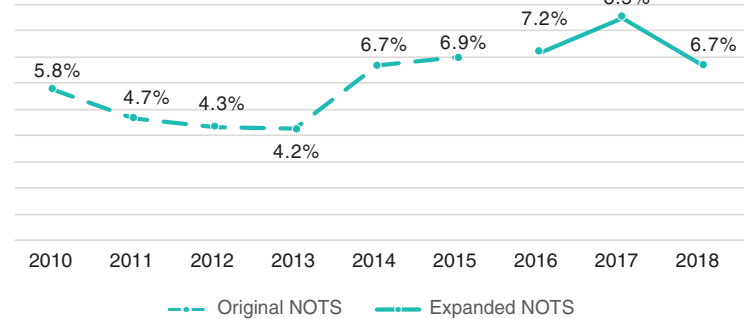
GSWs: Mortality by Year



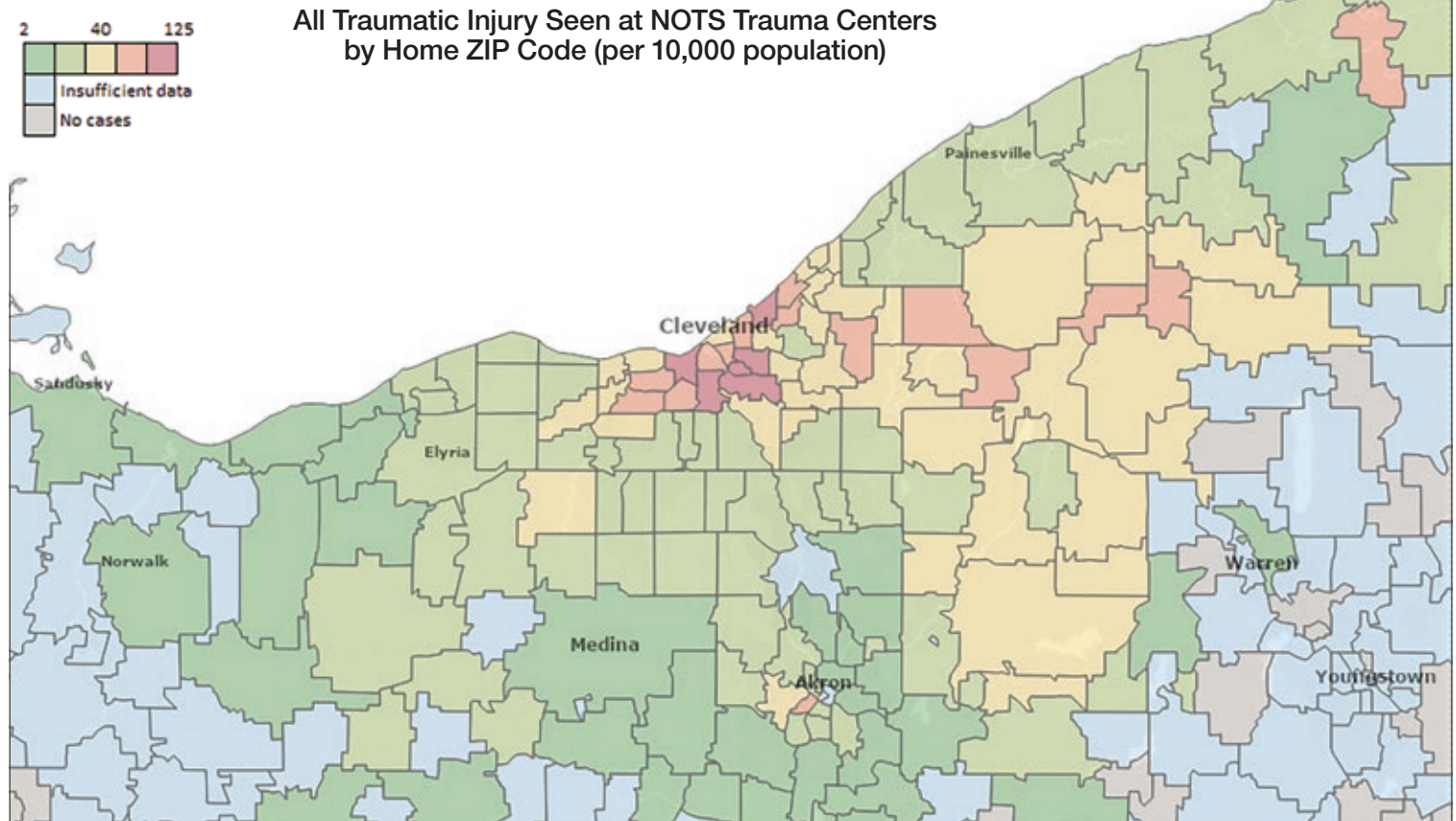
GSWs: Admitted Mortality by Year



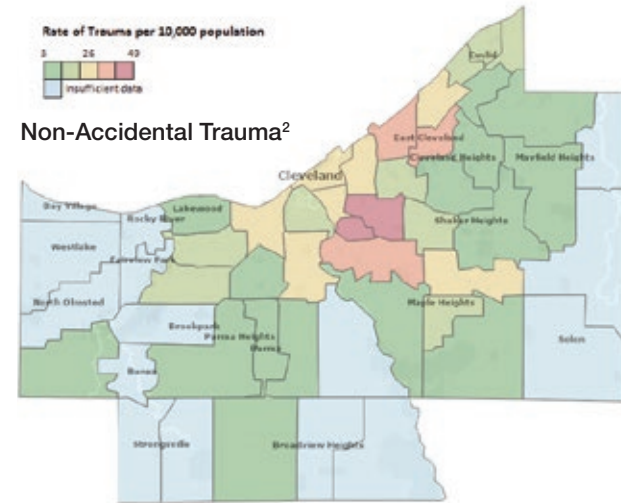
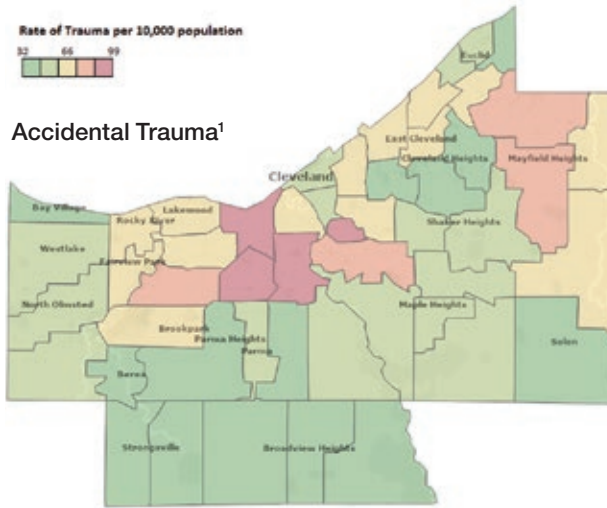
GSWs: ED Mortality by Year



GEOGRAPHY: ALL TRAUMA 2018 DATA



Accidental and Non-Accidental Trauma by Home ZIP Code in Cuyahoga County (per 10,000 population)

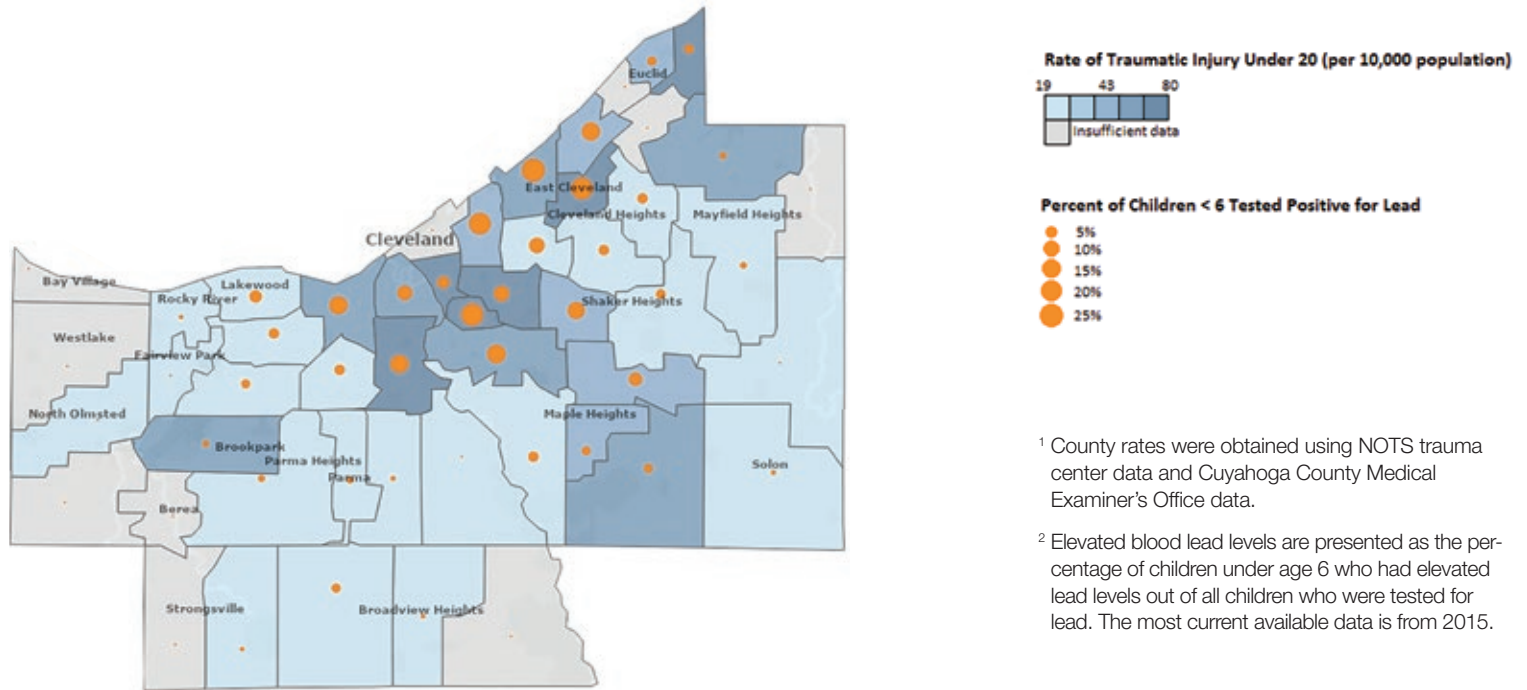


¹Accidental Trauma are mechanisms that were unintentional. Most often, these are fall or MVC injuries.

²Non-Accidental Trauma includes injury mechanisms related to assault, intentional self-harm, and legal intervention. Cuyahoga County Medical Examiner's Office data is included in this map to account for non-accidental trauma that wasn't seen at a trauma center.

GEOGRAPHY: ALL TRAUMA 2018 DATA

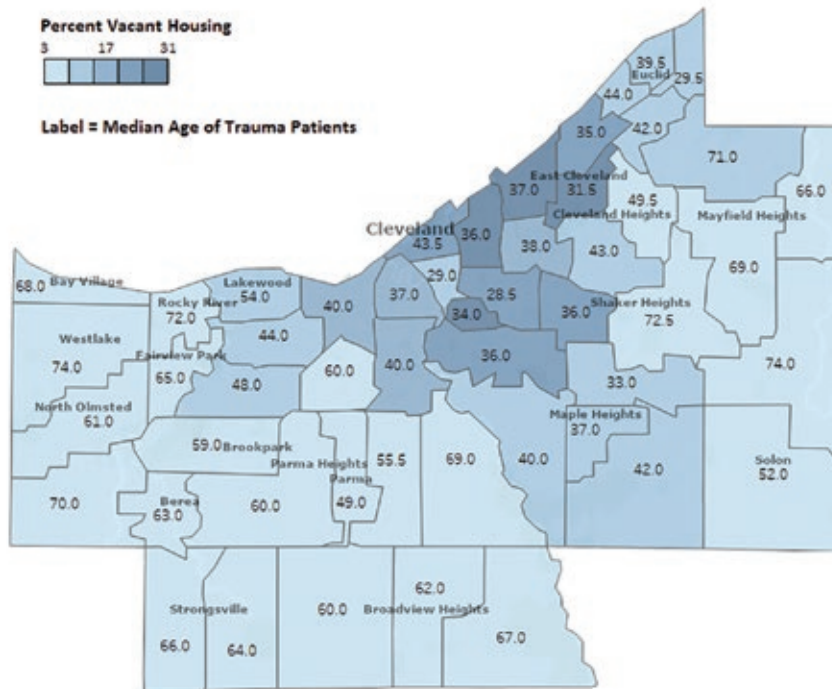
Rate of Traumatic Injury Under Age 20¹ (per 10,000 population)
and Percentage of Childhood Elevated Blood Lead Levels²



¹ County rates were obtained using NOTS trauma center data and Cuyahoga County Medical Examiner's Office data.

² Elevated blood lead levels are presented as the percentage of children under age 6 who had elevated lead levels out of all children who were tested for lead. The most current available data is from 2015.

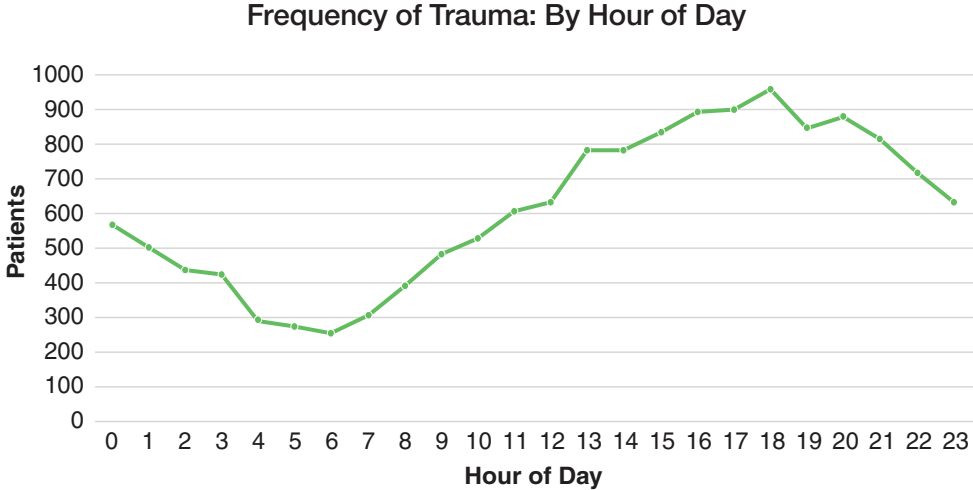
Percent of Vacant Housing and Median Age of Trauma Patients by ZIP Code (Cuyahoga County)



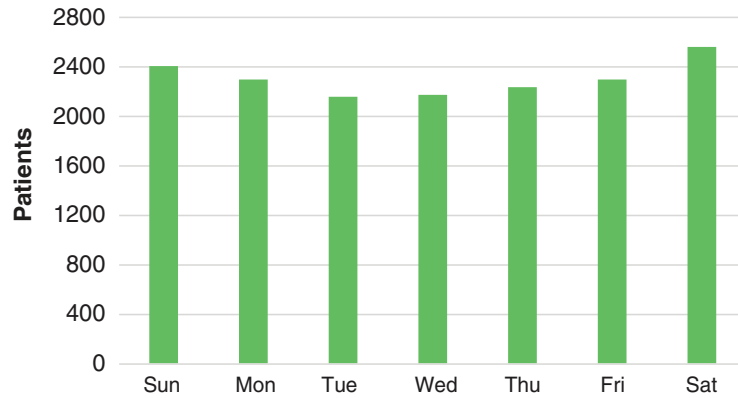
Housing unit vacancy data was obtained from the 2010 U.S. Census. Areas with a higher percent of vacant housing units tend to have a lower average age of traumatic injury in their residents. Median age was calculated using all trauma patients seen at NOTS trauma centers. Therefore, this includes all injury mechanisms.

The median age of all trauma patients who reside in Cuyahoga County is 48 years. However, much like other health indicators, this varies widely by ZIP code. The 44104 ZIP code had the youngest trauma patients on average (28.5 years), while the 44145 ZIP code had the oldest trauma patients on average (74 years).

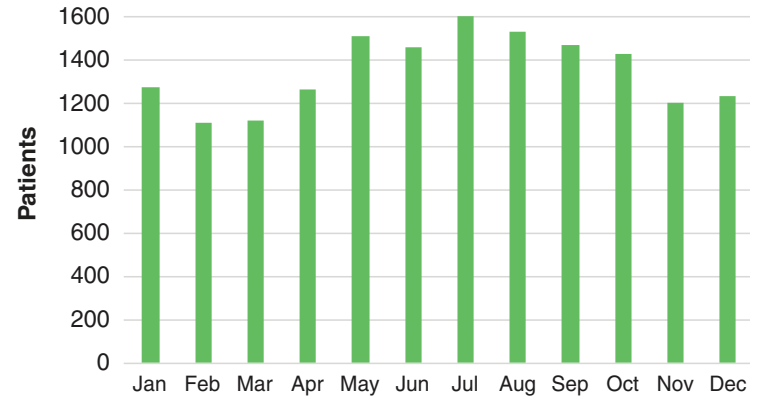
FREQUENCY OF TRAUMA



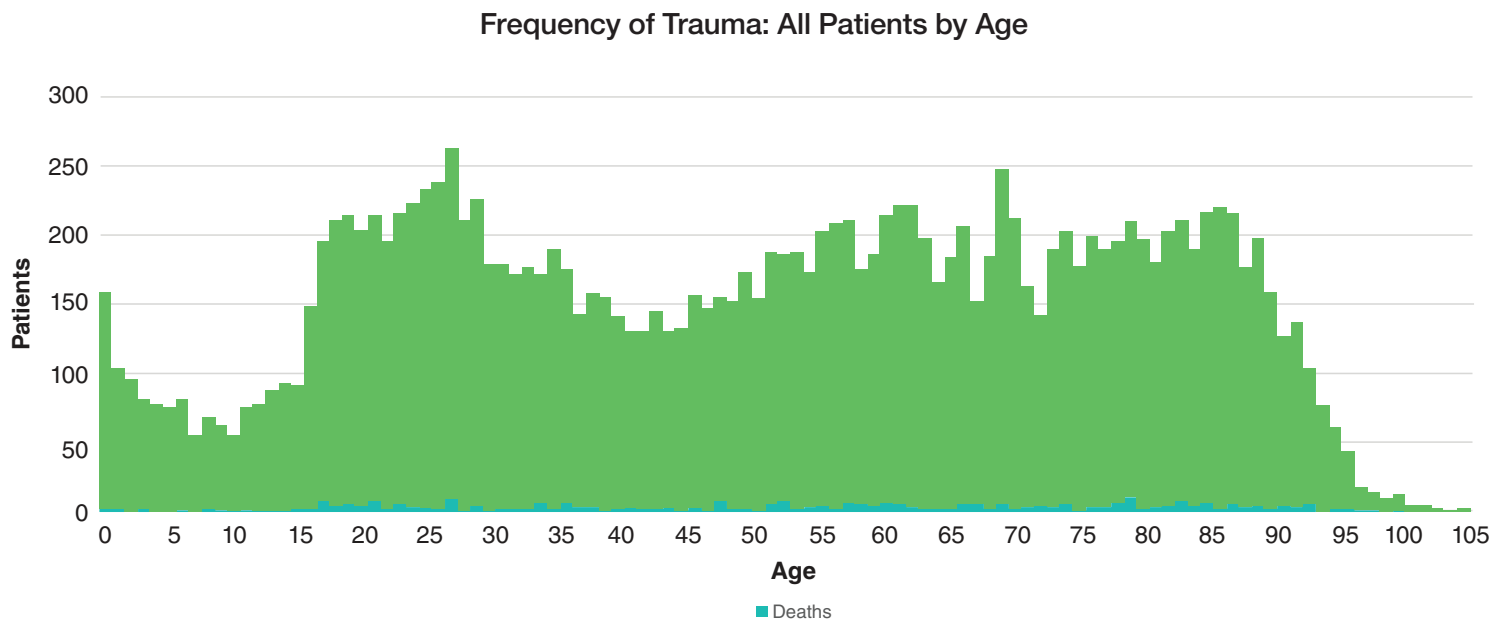
Frequency of Trauma: By Day of Week



Frequency of Trauma: By Month



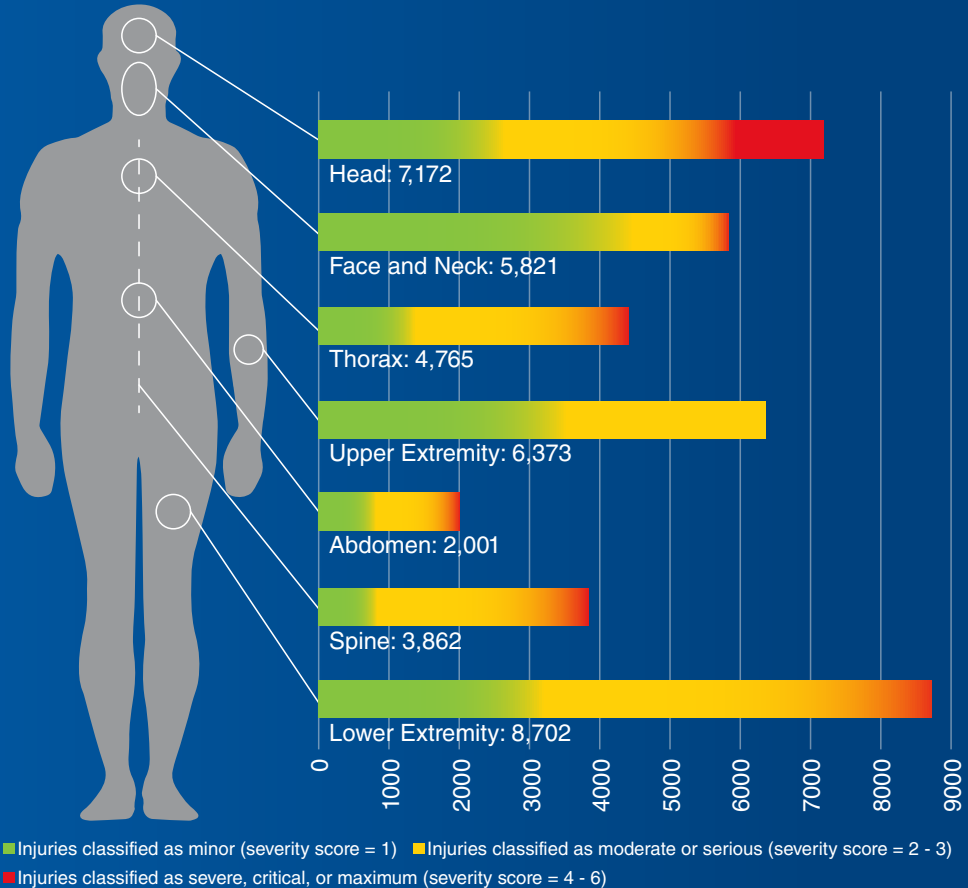
FREQUENCY OF TRAUMA



INJURIES

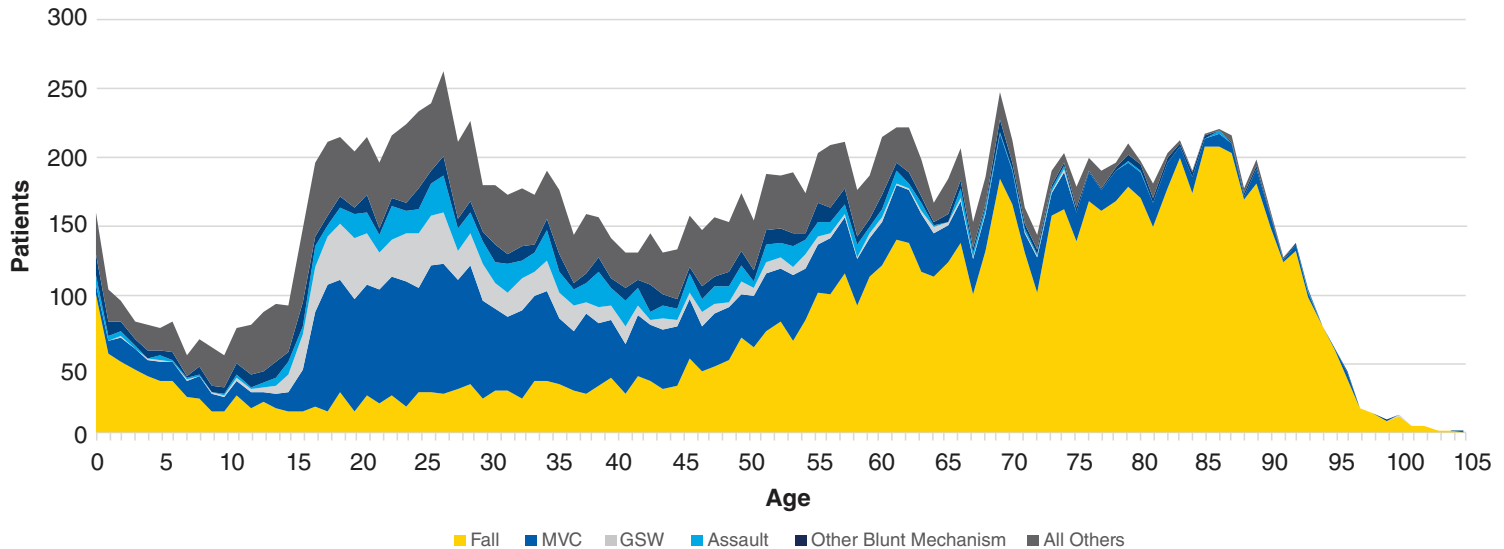
The trauma patient can have many individual injuries. 2018 data reflected over 38,000 fully coded injuries, at an average of 2.7 injuries per patient. Each injury is assigned a score for severity of the injury, ranging from 1—minor and often encompassing bumps and bruises—to 6—maximum and virtually not survivable.

This severity scoring is used to calculate the Injury Severity Score (ISS), which is a measure of how badly injured a patient is. The ISS falls on a scale from 1 (very minor) to 75 (maximum injuries almost certainly resulting in death). The higher an ISS, the higher the likelihood that the patient will not survive their injuries. Pages 35 - 38 explore mortality rates for different ISS groups.



MECHANISM OF INJURY 2018 DATA

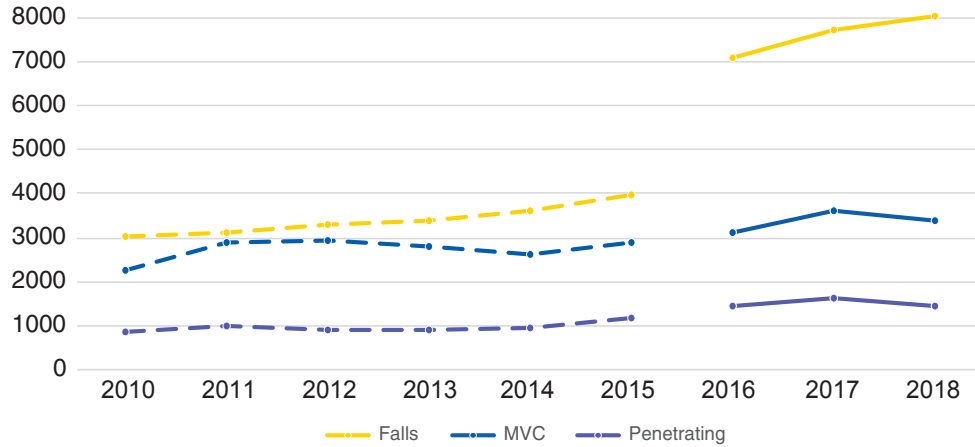
Top Mechanisms of Injury



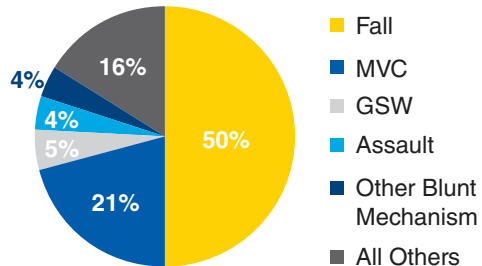
Note: "Other Blunt Mechanism" refers to other blunt force trauma that does not fit neatly into another mechanism category. The most common injuries in this category include: "other cause of strike by thrown, projected, or falling object," "striking against or struck by other objects," and "caught, crushed, jammed, or pinched between moving objects."

"All Others" includes Asphyxiation, Hanging, MVC vs. Pedestrian, Bicycle, ATV, Horse and Rider, Stab, Drown, Watercraft, Bite, Sport, Burn, and all otherwise unclassified.

Top Mechanisms of Injury: By Year



All Patients

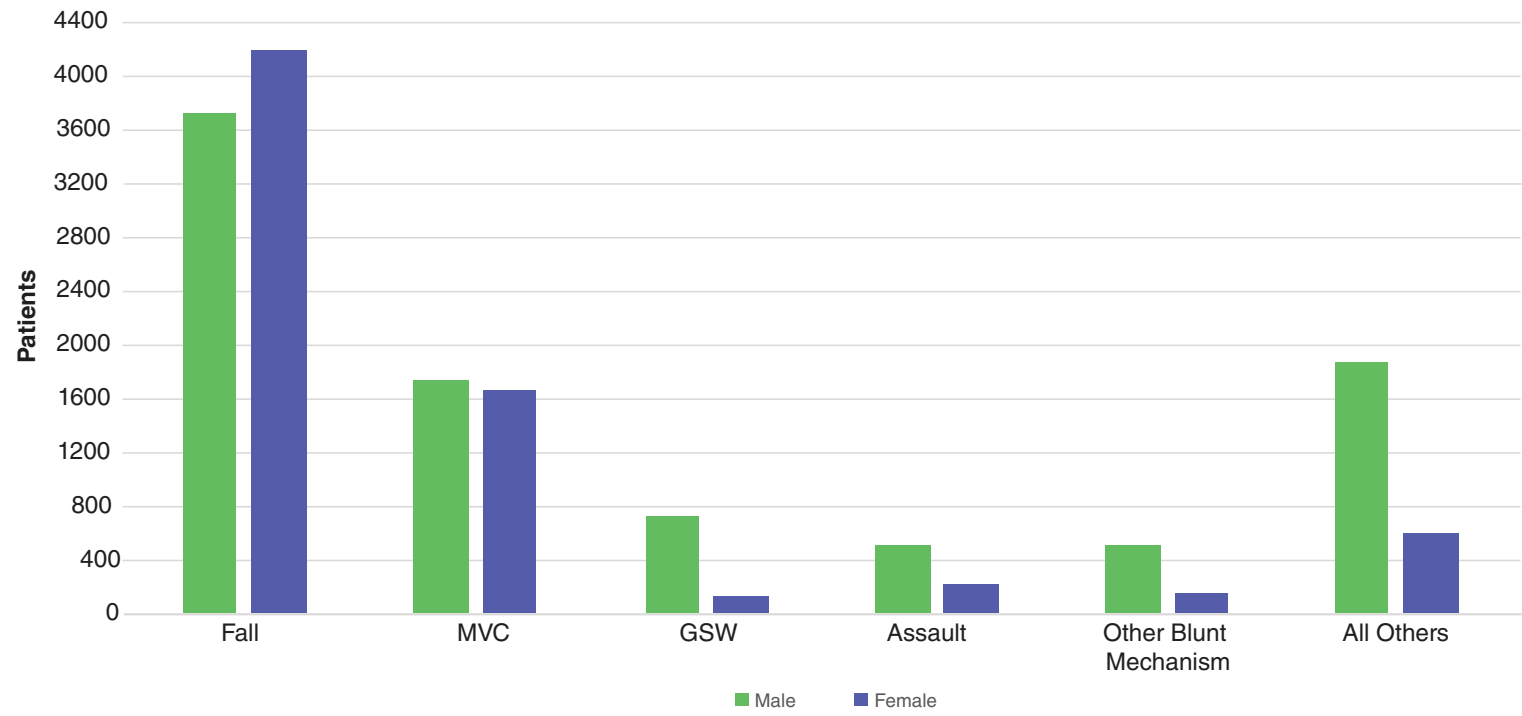


Note: "All Others" includes Asphyxiation, Hanging, MVC vs. Pedestrian, Bicycle, ATV, Horse and Rider, Stab, Drown, Watercraft, Bite, Sport, Burn, and all otherwise unclassified.



MECHANISM OF INJURY 2018 DATA

Mechanisms of Injury: By Gender



Note: "All Others" includes Asphyxiation, Hanging, MVC vs. Pedestrian, Bicycle, ATV, Horse and Rider, Stab, Drown, Watercraft, Bite, Sport, Burn, and all otherwise unclassified.

Mechanism of Injury by Age Group

Mechanism	<15	15-20	21-40	41-65	66-80	>80	Total
Fall - Same Level	112	53	218	954	1397	1865	4599
MVC	179	368	1374	951	345	150	3367
Fall - Under 10ft	325	26	258	757	599	577	2542
GSW	19	189	475	141	14		838
Assault	36	68	346	233	27	6	716
Other Blunt	106	52	175	215	54	33	635
Fall - Not Further Specified	17		15	91	154	301	578
MVC vs. Pedestrian	70	47	141	149	54	11	472
Fall - 10ft or More	88	29	114	152	57	14	454
Motorcycle	27		154	218	41	0	440
Other Penetrating	18	29	111	149	16		323
Bicycle	48	34	72	127	29		310
Stabbing	23		181	92	6		302
ATV	36	35	97	50	15		233
Biting	36	22		102			160
Sport Injury	66	41	24	12	7		150
Burn	30	12	30	48	19		139
Unknown	22	17		13	13	6	71
Horse and Rider	18	12		19	7		56
Hanging	9		16	6	0	0	31
Drowning	12		7			0	19
Asphyxiation	11						11
Watercraft	0	10				0	10
Totals	1247	1054	3845	4485	2841	2984	16456

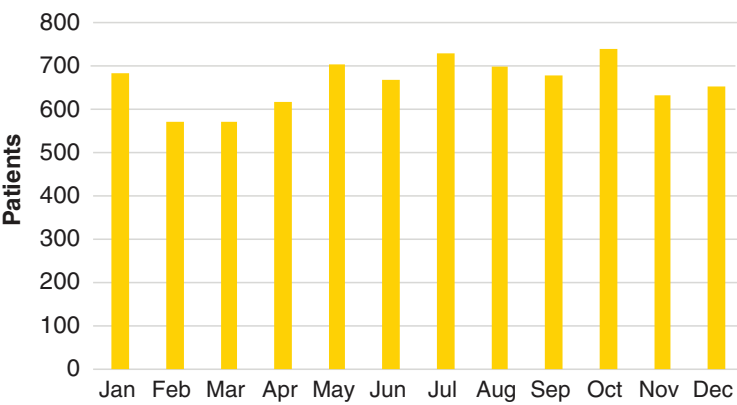
Mechanism of Injury by ISS Group

Mechanism	<9	9-14	15-24	25+
Fall - Same Level	1938	1552	233	114
MVC	1628	489	200	102
Fall - Under 10ft	1212	630	176	86
GSW	309	210	98	112
Assault	319	119	27	18
Other Blunt	387	115	28	14
Fall - Not Further Specified	239	176	35	27
MVC vs. Pedestrian	218	71	35	26
Fall - 10ft or More	198	109	32	31
Motorcycle	205	101	42	38
Other Penetrating	186	20	2	1
Bicycle	145	50	19	8
Stabbing	184	31	11	9
ATV	125	69	21	5
Biting	67	1	2	0
Sport Injury	103	21	2	2
Burn	43	6	3	1
Unknown	27	20	5	4
Horse and Rider	42	8	5	1
Hanging	6	5	1	5
Drowning	1	5	1	10
Asphyxiation	2	3	1	2
Watercraft	2	3	1	0
Totals	7543	3808	977	616

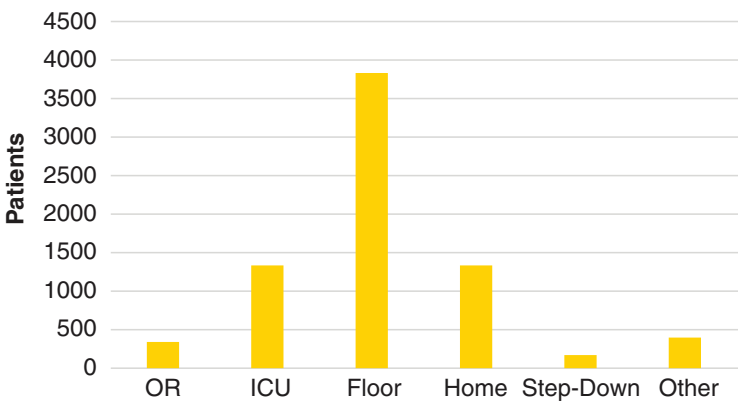
Note: Due to small case counts in some categories, some cells had to be combined to protect patient privacy.

MECHANISM OF INJURY 2018 DATA

Falls: By Month

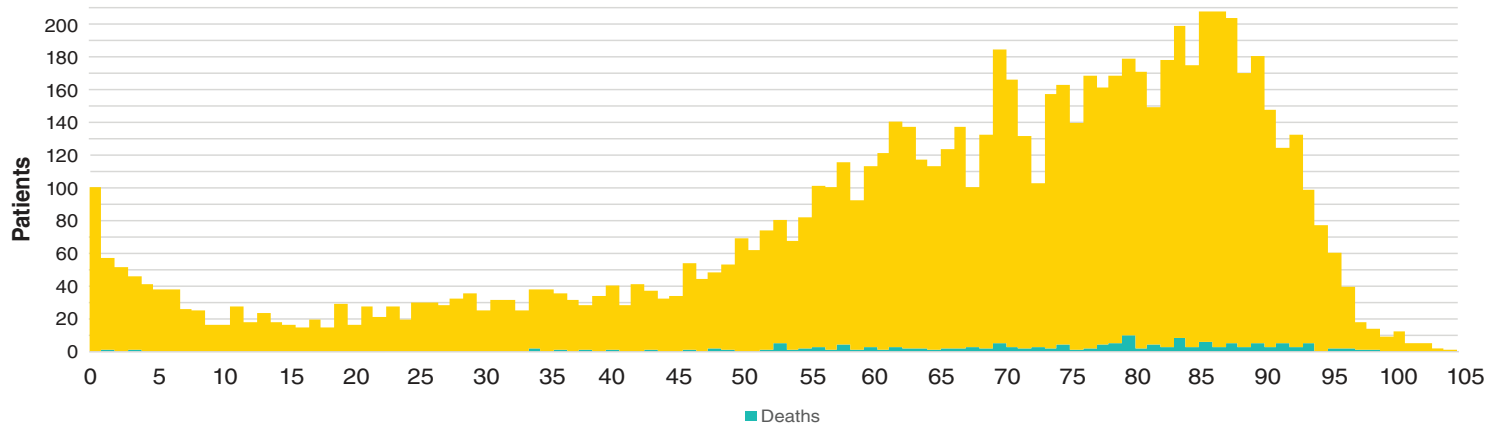


Falls: By ED Disposition

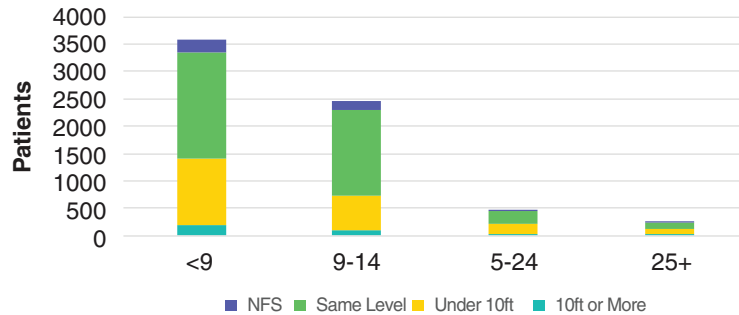


Note: "Step-Down" includes Step-Down Unit, and Telemetry. "Other" includes Observation, Special Procedures, AMA, Correctional Facility, Morgue, Acute Care Facility, or other inpatient facility.

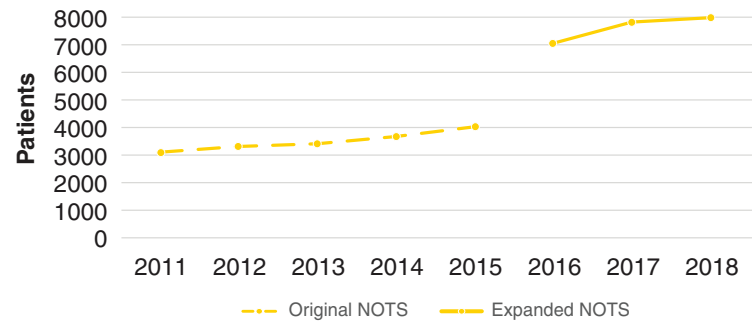
Falls: By Age



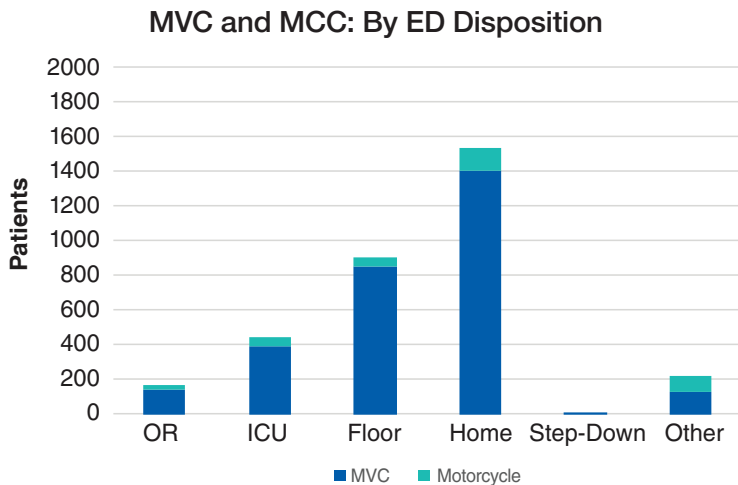
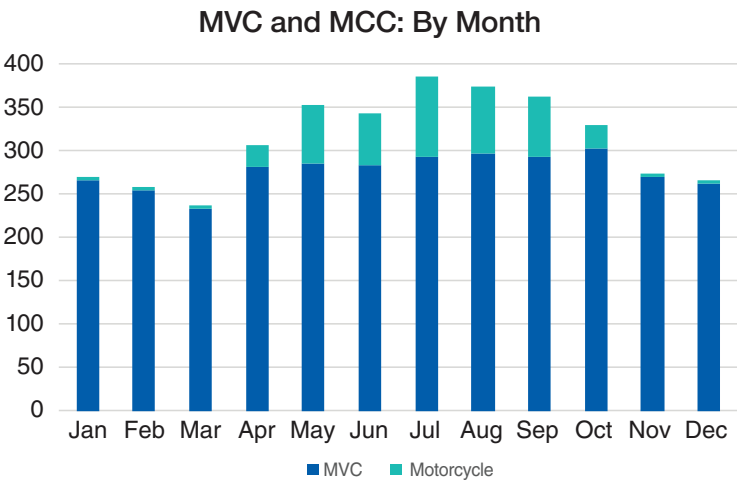
Falls: By Injury Severity Score (ISS)



Falls: By Year

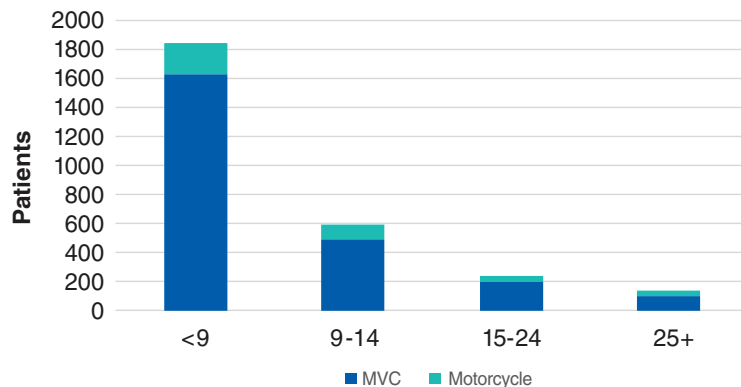


MOTOR VEHICLE AND MOTORCYCLE CRASH

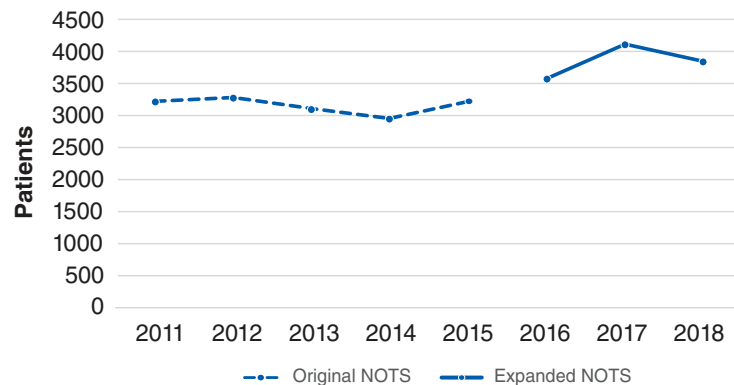


Note: "Step-Down" includes Step-Down Unit, and Telemetry. "Other" includes Observation, Special Procedures, AMA, Correctional Facility, Morgue, Acute Care Facility, or other inpatient facility.

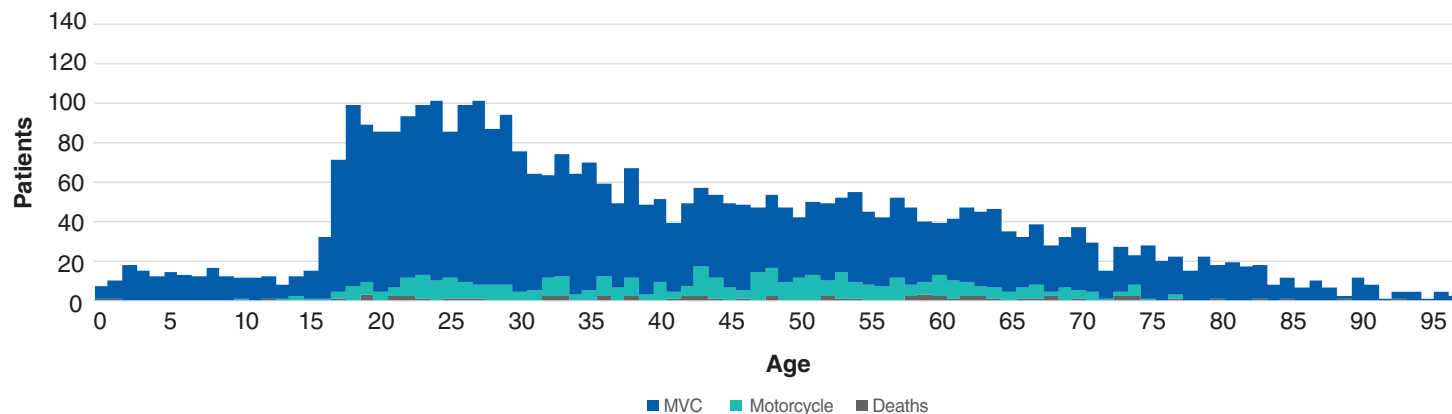
MVC and MCC: By Injury Severity Score (ISS)



MVC and MCC: By Year



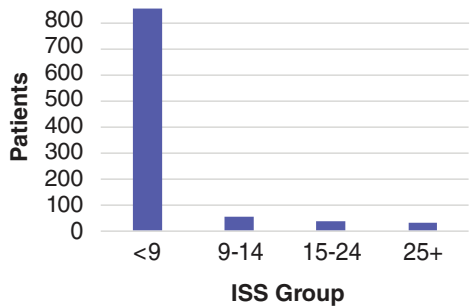
MVC and MCC: By Age



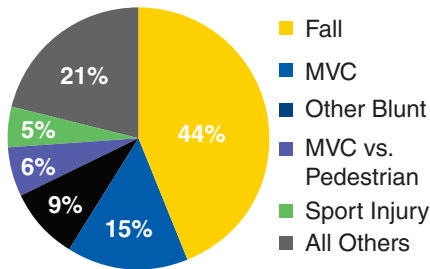
PEDIATRIC AND ADOLESCENT: 14 YEARS OF AGE AND YOUNGER



Pediatric Trauma:
By Injury Severity Score (ISS)



Pediatric Mechanism of Injury

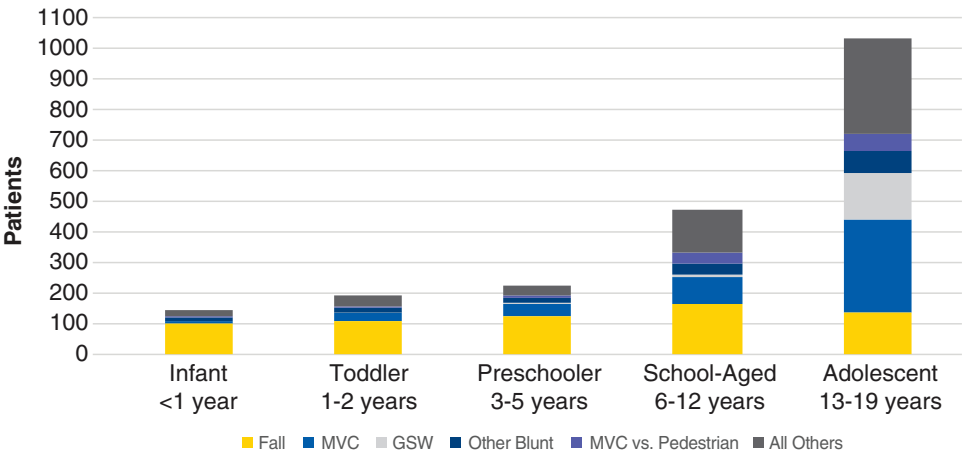


Mechanism of Injury	Patients
Fall	540
MVC	179
Other Blunt	106
MVC vs. Pedestrian	70
Sport Injury	66
Bicycle	48
Assault	36
Biting	36
Off Road/Other Vehicle	36
Burn	30
GSW	19
Horse and Rider	18
Other Penetrating	18
Drowning	7
All Others*	16
Total	1225

*"All Others" includes mechanisms with too few cases to be presented on their own: Asphyxiation, Hanging, Motorcycle, and Stabbing

PEDIATRIC AND ADOLESCENT: 19 YEARS OF AGE AND YOUNGER

Pediatric Mechanism of Injury: By Age Group



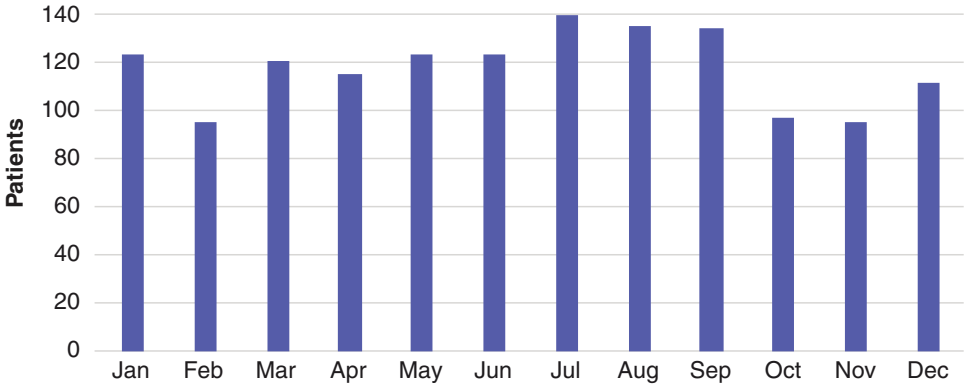
Pediatric Mechanism	Infant <1 year	Toddler 1-2 years	Preschooler 3-5 years	School-Aged 6-12 years	Adolescent 13-19 years
Fall	100	108	125	166	135
MVC	7	28	41	86	304
GSW	0		10		154
Other Blunt	15	17	15	38	68
MVC vs. Pedestrian		6	11	36	57
All Others	21	37	30	138	311

Note: Due to small case counts in some categories, some cells had to be combined to protect patient privacy.

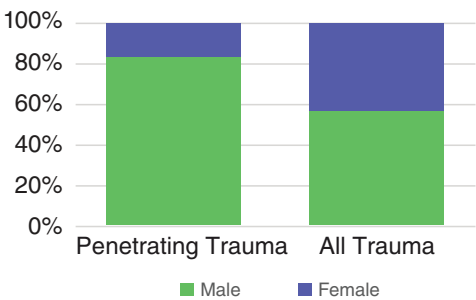


PENETRATING TRAUMA

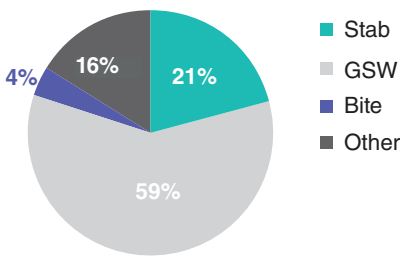
Penetrating Trauma: By Month



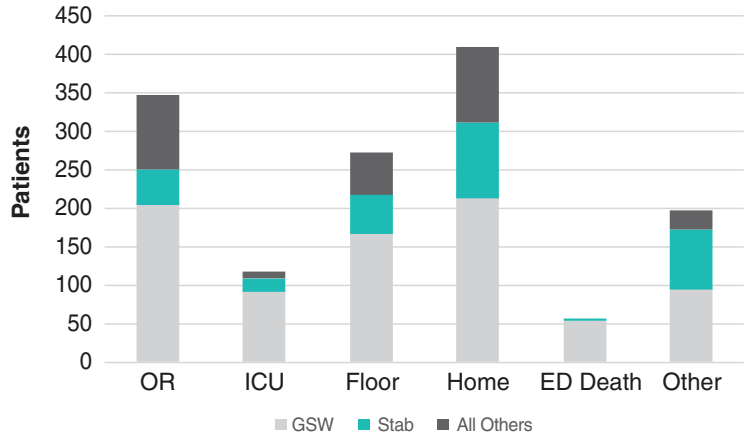
Penetrating Trauma vs. All Trauma: By Gender



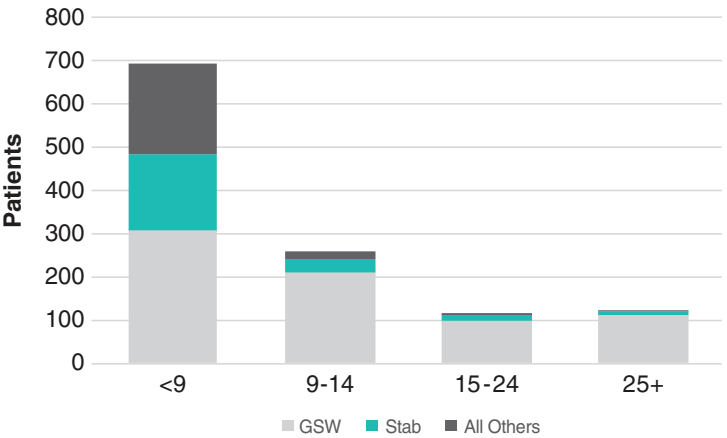
Penetrating Trauma: By Type



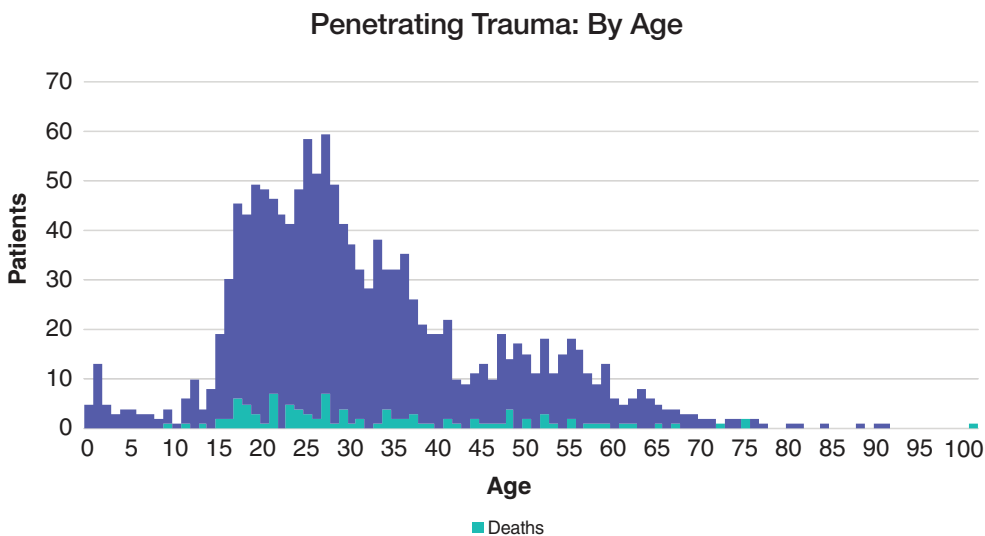
Penetrating Trauma: By ED Disposition and Mechanism



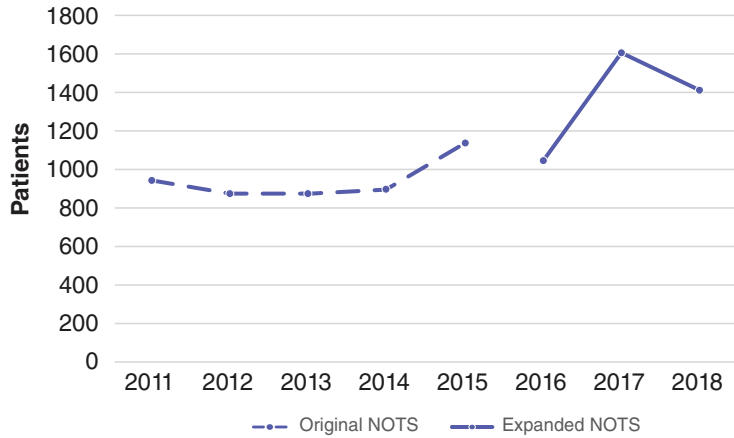
Penetrating Trauma: By Injury Severity Score (ISS) and Mechanism



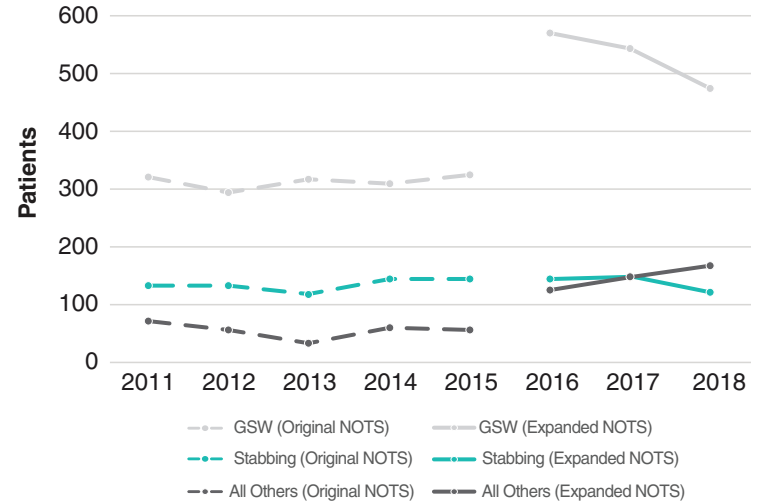
PENETRATING TRAUMA



Penetrating Trauma: Total By Year

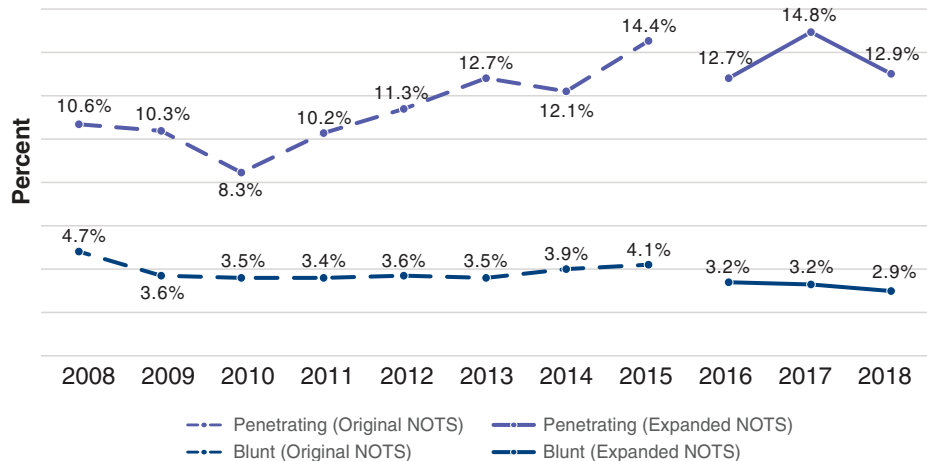


Admitted Penetrating Trauma: By Type and Year



OUTCOMES: ADMITTED PATIENTS AND ED DEATHS

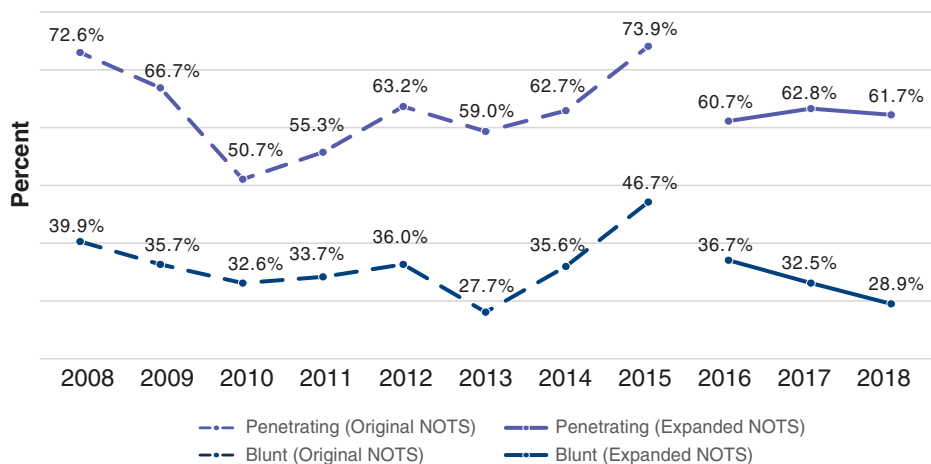
The figures on these pages show the trends of mortality in the NOTS region over time. Data includes all trauma admission and ED deaths secondary to trauma, and is separated based on blunt and penetrating injuries. Blunt injuries are mechanisms of injury such as falls or motor vehicle crashes. Penetrating injuries mainly include gunshot wounds or stabbings. Included is the number of patients (n) by each category for each year. It is important to keep in mind the change in the overall NOTS patient population and injury trends that may have occurred with the expansion of the System in 2016. Therefore, caution must be taken when comparing trends before and after the NOTS expansion.



Mortality: All Admitted Patients and ED Deaths

This first figure shows mortality over time for patients of all Injury Severity Scores (ISS). In 2018, the region saw 8,743 patients with blunt injuries and 799 patients with penetrating injuries. The mortality percentages are not adjusted for injury severity or any other factors. Overall counts of injuries decreased in 2018 for the first time since 2013. Mortality percentage from both blunt and penetrating injuries went down between 2017 and 2018.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Blunt (n)	4515	4583	4951	4443	4440	4266	4647	4821	8739	9282	8743
Penetrating (n)	663	697	637	581	495	479	530	561	896	918	799



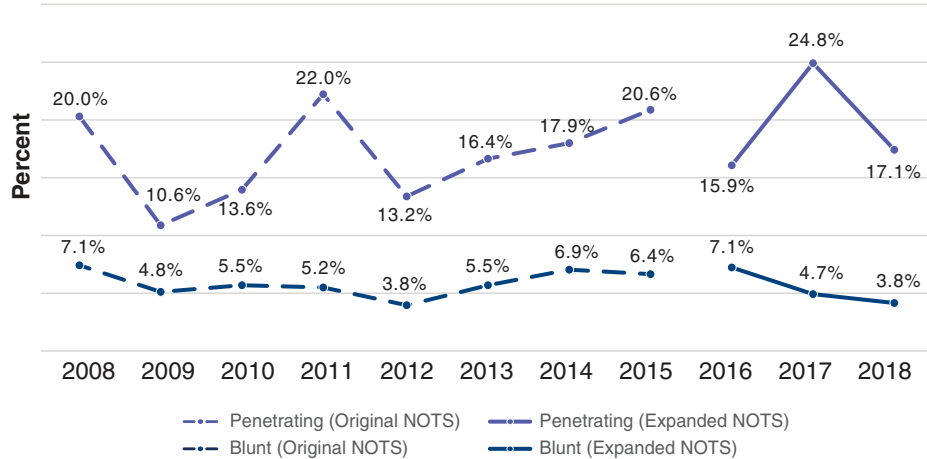
Mortality: Admitted Patients and ED Deaths With ISS of 25+

This figure represents the patients with the highest severity of injury: an ISS of 25 or higher. A large percentage of these patients have life-threatening injuries and a markedly reduced likelihood of survival. A general rule of thumb is that roughly 50% of patients with an ISS $\geq$ 25 do not survive their injuries. In 2018, both blunt and penetrating mortality decreased in this group of patients.

Of note, part of the trauma surgeon's job is to respect family and patient wishes and recognize that it is our responsibility to allow people to die comfortably. At this time, we do not monitor how often we honor patient and family wishes to provide comfort care only and withhold life-sustaining therapy.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Blunt (n)	308	283	288	249	239	238	236	244	370	480	460
Penetrating (n)	73	96	73	76	76	83	83	88	141	148	120

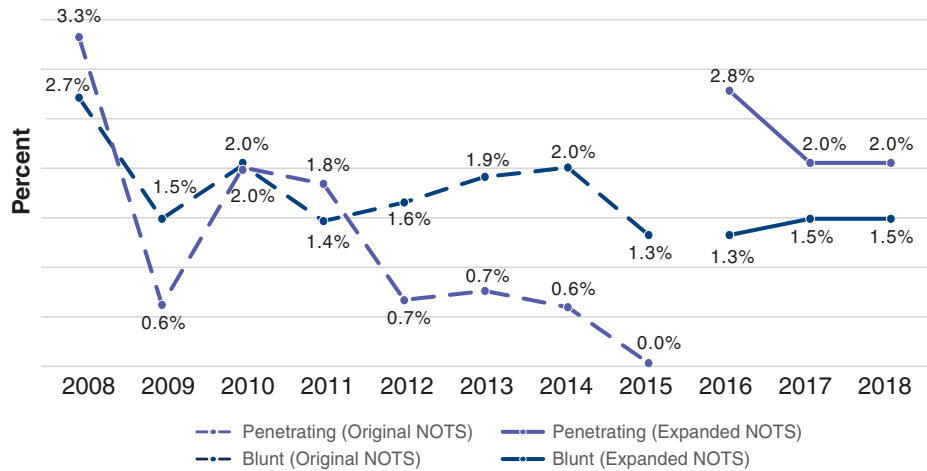
OUTCOMES: ADMITTED PATIENTS AND ED DEATHS



Mortality: Admitted Patients and ED Deaths With ISS of 15-24

This group represents patients with a moderate severity of injury. At the inception of NOTS, our specific goal was to improve the outcomes of this patient group. Though we may never reduce the number to zero, striving to do that is still our goal. Mortality for blunt injuries has been decreasing slightly since 2016, and currently matches the lowest level on record with NOTS for this patient group. Mortality for penetrating injuries decreased in 2018, returning to more a historically normal level after a spike in 2017.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Blunt (n)	392	394	434	501	476	457	467	486	745	867	815
Penetrating (n)	60	66	44	50	53	67	56	68	90	105	111



Mortality: Admitted Patients and ED Deaths With ISS of 9-14

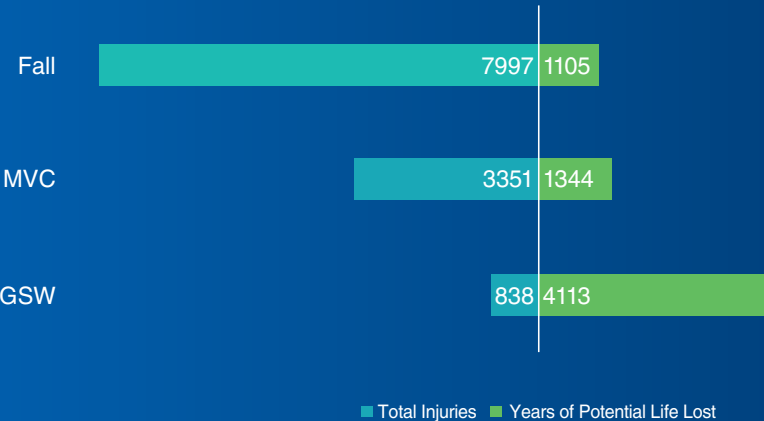
Patients with a minor ISS of 9-14 are numerous, while deaths are relatively rare. Deaths in this patient group often have contributing co-morbid health conditions. In 2018, penetrating mortality for this group remained the same from 2017, while blunt mortality decreased slightly.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Blunt (n)	1156	1226	1373	1173	1282	1164	1316	1454	3021	3347	3206
Penetrating (n)	151	167	153	165	153	137	171	163	263	296	247

We would like to stress that we are sharing data in order to be transparent and highlight our successes as well as identify further opportunities for improvement. The most important thing to recognize is that while we talk about this as data, we must remember that we are talking about patients' lives. Every life matters and we would like to take a moment to humbly express our sympathy to all the families who have been affected by the loss of a loved one as a result of a traumatic injury.

YEARS OF POTENTIAL LIFE LOST (YPLL)

Years of Potential Life Lost for Top 3 Mechanisms of Injury



Years of potential life lost (YPLL) is a measure of the years a person would have lived had they not died prematurely. This is used to give an idea of population burden of disease. For example, a high amount YPLLs can point to lost contributions a person could have made to society. In these calculations, 75 years was used as the reference life expectancy.

We looked at YPLLs for the top three mechanisms of injury in 2018: falls, motor vehicle collisions (MVC), and gunshot wounds (GSW). YPLLs were inversely proportional to total injuries of that mechanism, with falls having the most injuries but fewest YPLLs and GSWs having to least injuries but highest YPLLs. This is because falls tend to be more fatal in older individuals and GSWs in general occur more often in younger individuals.

	Total Injuries	Deaths	Mortality	YPLL*	Mean YPLL per Death
Fall	7997	156	2.0%	1105	7.1
MVC	3351	51	1.5%	1344	26.4
GSW	838	99	11.8%	4113	41.5

*This YPLL calculation assumes a 75-year life expectancy

NOTS COMMITTEES

Quality Committee

The mission of the Quality Committee is to reduce inappropriate variation in care and to improve patient safety. The Committee evaluates the overall care process to minimize risk of harm related to the care process of a patient.

In 2018, the Committee reviewed 26 cases. Loop closure to address the care process included:

- Education on the NOTS regional imaging guideline
- A regional coverage list for eye and hand
- Burn education

To name a few highlights from 2018:

- NOTS became one of the first regionals involved in the ACS Trauma Quality Improvement Program (TQIP)
- This marked a pivotal year in voting to establish the new NOTS Research Committee

NEW Research Committee

Chair: Olivia C. Houck, MPH

Co-Chair: Jeffrey A. Claridge, MD, MS, FACS

The Research Committee will be responsible for reviewing research proposals utilizing NOTS regional data and providing oversight for said research. NOTS is unique in the amount of data maintained in our regional database that can contribute to advancement of knowledge in the field of trauma surgery. This Committee will facilitate the robust utilization of this database, putting NOTS at the forefront of regional data review. We are excited to explore the research possibilities at our fingertips.

This Committee has equal representation from all hospitals systems within NOTS and from our community partners.

TRAUMA QUALITY IMPROVEMENT PROGRAM (ACS TQIP)



2018: NOTS Becomes a TQIP Collaborative

“A group of Trauma Quality Improvement Program (TQIP) hospitals in either a specified geographic area or a hospital system working together with the shared goal of trauma system quality improvement.”

Benefits

- Receive risk-adjusted benchmarking for the NOTS region
- Discover opportunities for system-level trauma quality improvement
- Bring stakeholders together to improve trauma care outcomes across the region
- Identify and share best practices among hospitals within the Collaborative
- Receive ongoing educational opportunities from the ACS

Deliverables

- Semi-annual benchmark report that illustrates how the NOTS region is doing in many different areas of trauma care.
- NOTS assists each hospital in reviewing their report, takes a deep dive into the data and helps validate the data.

2018 TQIP COLLABORATIVES

Collaborative Name	Type	Administrator/Sponsor	Trauma Centers*
Arkansas	State	Arkansas Department of Health	3
Committee on Trauma Region III (DE, PA, MD, DC, WV, VA)	Region	Participating hospitals	17
Florida	State	Florida Department of Health	29
Georgia	State	Georgia Trauma Care Network Commission/ Georgia COT	15
HCA Healthcare	Hospital System	HCA Healthcare	38
Louisiana	State	Louisiana Emergency Response Network	5
Los Angeles County	Region	Los Angeles County EMS Agency	14
Michigan Trauma Quality Improvement Program	State	Blue Cross Blue Shield of Michigan /Blue Care Network	29
New York	State	Participating hospitals	17
North Carolina	State	North Carolina Committee on Trauma Chapter	9
Northern Ohio	Region	Northern Ohio Trauma System	5
Pennsylvania	State	Pennsylvania Trauma Systems Foundation	28
Texas	State	Texas EMS, Trauma & Acute Care Foundation	36

*The number of trauma centers in each collaborative is subject to change

NOTS REGIONAL VIOLENCE INTERRUPTER PROGRAM



From left to right:

Andrea Martemus- Peters, MSSA, LSW
NOTS Violence/Injury Prevention Coordinator

Sharyna C. Cloud, MPA
Director of Cleveland Peacemakers Alliance

We are happy to report that the NOTS hospital-based violence prevention program is functioning well at the two Level 1 trauma hospitals- MetroHealth and University Hospitals. The motto “one program two sites” has demonstrated the value of collaboration between hospital systems. Cleveland Peacemakers Alliance contracted staff of violence interrupters and the case manager are identified as the trauma response team members.

The trauma response team has been able to support family members during very emotional times as the patient is taken swiftly to the operating room due to the seriousness of their conditions. Team members are often the bridge to communication between the hospital staff and family members. When appropriate, they are present at the patient's bedside in the trauma bay immediately upon the patient's arrival, offering support.

This past year the trauma response team has received training on conflict mediation, trauma informed care and Stop The Bleed training from the NOTS EMS Coordinator and a Rainbow Babies & Children's staff member. The team attended the National Network of Hospital-Based Violence Intervention Program/ Healing Justice Alliance annual conference.

This two-day conference brings together programs from across the country and Europe to learn best practices for programming success. The trauma response team has been invited on several occasions to talk with nursing students and new hospital staff members. The Violence Injury Prevention Coordinator has been a panel guest at many local forums to discuss the program and participates on local committees about violence prevention.

As the patient remains on the Peacemakers' caseload, they are linked to community resources that include counseling, job referral, financial education, continuing education and whatever the client identifies as a goal. Referrals have been made to Frontline Services, Circle Health, May Dugan and MetroHealth's Trauma Recovery Center.



VIOLENCE INTERRUPTER PROGRAM

From left to right:

Dwayne Nelson, Andrea Marternus-Peters, Mar'yum Patterson, Sharyna C. Cloud, Carlos Williams

VIOLENCE INTERRUPTER PROGRAM: EVALUATION OF ENGAGEMENT AND PATIENT SATISFACTION

Brian Young, MD; Andrea Martemus-Peters, MSSA, LSW; Joshua George, MPH; Kristen Conrad-Schnetzer, DO; Danielle Rossler, MBA, BSN; Jeffrey A. Claridge, MD, MS, FACS

Introduction

A violence intervention initiative, the Violence Interrupter (VI) program was initiated in our trauma system for victims of non-domestic assault aged 15-24. Anecdotal evidence has suggested decreased trauma recidivism and improved patient satisfaction, but no formal evaluation has taken place. We sought to evaluate engagement, patient-perceived effectiveness, and changes in violent thought and behavior following intervention.

Methods

We performed a prospective observational study of victims of non-domestic assault aged 18-24 in 2018 identified by daily trauma service census. Prisoners were excluded. A de-identified phone survey was administered 2-4 weeks post discharge. Intention-to-treat analysis compared patients approached by the VI program to those not approached.

Results

We identified 67 patients: 96% were male; 70% were approached to participate and 58% consented. A survey was completed in 17 (25%) patients with 64% unreachable and 10% refusing to participate. Past victimization was noted in 35% of respondents. Of patients who recalled being approached, 83% believed VI was doing a good job. VI positively influenced responses to questions on violent thoughts and behavior according to 67% of participating respondents. For all respondents, 64% were interested in enrolling in or continuing the program.

Conclusion

Early data indicates that the Violence Interrupter program is engaging its target population. Victims of violent trauma were difficult to reach but were willing to participate when contacted. The proportion of patients who were unreachable is concerning for effectiveness outside of the hospital, but patient impressions were mostly positive with continued interest in participation.



Brian Young, MD
NOTS Research Resident

NOTS STOP THE BLEED REGIONAL INITIATIVE

Over the past two years NOTS has taken the lead in providing Stop the Bleed training throughout the region. The NOTS staff has organized nearly 150 courses accounting for over 1500 persons educated in these life saving techniques. These courses were held at schools, churches and for civic groups as well as at health care institutions and police and fire departments. The NOTS staff has also supported other agencies regionally by assisting their instructors with Stop the Bleed training.



SAVE A LIFE



BLEEDINGCONTROL.ORG



For class information call: 216-778-2266

NOTS ADVISORY BOARD

NOTS, at its inception, was a collaboration among health care systems with the goal of getting the “right patient to the right place at the right time.” As NOTS has matured, our mission has expanded beyond the walls of our own institutions to include health care providers throughout the region. In the past two years we have expanded even further as we launched the Stop the Bleed campaign for school teachers, law enforcement and civilians throughout the region we serve.



Robert Wyllie, MD

Chief Medical Operating Officer
Systemwide Medical Operations
Associate Chief of Staff
Professor, Lerner College of Medicine
Cleveland Clinic



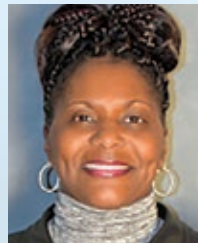
Bradford L. Borden, MD, FACEP

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Chairman, Department of Orthopaedic Surgery, MetroHealth Medical Center
Professor of Orthopaedics, Case Western Reserve University School of Medicine



Dan Ellenberger

Director, EMS Institute
University Hospitals Cleveland



Brandy Carney

Chief
Cuyahoga County Public Safety & Justice Services

GLOSSARY OF TERMS

Adolescents: Patients ages 13-19 years.

Cause of Death: For the purpose of national mortality statistics, every death is attributed to one underlying condition, based on information reported on the death certificate, and uses the international rules for selecting the underlying cause of death from the condition stated on the death certificate. For injury deaths, the underlying cause is defined as the circumstance of the accident or violence that produced the fatal injury.

Coroner: A person whose standard role is to confirm and certify the death of an individual within a jurisdiction. A Coroner may also conduct or order an inquest into the manner or cause of death, and investigate or confirm the identity of an unknown person who has been found dead within the Coroner's jurisdiction.

Drowning: This category includes injuries from drowning/near drowning and submersion with and without involvement of watercraft.

Emergency Department (ED): A medical treatment facility specializing in emergency medicine and the acute care of patients who present without prior appointment, either by their own means or by that of an ambulance. The emergency department is usually found in a hospital or other primary care center.

ICD-10 Code: The International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) is a system used by physicians and other health care providers to classify and code all diagnoses, symptoms and procedures recorded in conjunction with hospital care in the United States.

Frequency: The number of times an event occurs.

Geriatric: Patient ages 65 and older.

Gunshot Wounds (GSW): This category includes injuries from firearms, including unintentional, suicide, homicide, legal intervention and undetermined intent.

Homicide: The killing or intent to kill of one person by another.

Incidence: The number of instances of illness or injury during a given period of time in a specified population.

Injury: Any unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical or chemical energy or from the absence of such essentials as heat or oxygen. According to the Injury Surveillance Guidelines, an injury is the physical damage that results when a human body is suddenly or briefly subjected to intolerable levels of energy. Injury can be a bodily lesion resulting from acute exposure to energy in an amount that exceeds the threshold of physiological tolerance, or it can be an impairment of function resulting from a lack of one or more vital elements (air, water, or warmth), as in strangulation, drowning, or freezing. The time between exposure to the energy and the appearance of an injury is short. The energy causing an injury may be one of the following:

- Mechanical
- Radiant
- Thermal
- Electrical
- Chemical

International Classification for Diseases (ICD): The ICD provides the ground rules for coding and classifying cause of death data.

Injury Severity Score (ISS): The Injury Severity Score (ISS) is an established medical score to assess trauma severity. It correlates with mortality, morbidity and hospitalization time after trauma. It is used to define the term major trauma. A major trauma (or polytrauma) is defined as the Injury Severity Score being greater than 15.

Major Trauma: A patient with injuries that result in death, intensive care admission, major operations of the head, chest or abdomen, a hospital stay of three or more days, or an ISS of greater than 15.

Minor Trauma: A patient who is entered into the trauma system, has an ISS of less than or equal to 15, and survives until hospital discharge.

Mechanism of Injury (MOI): The manner in which a physical injury occurred (e.g., fall from a height, ground-level fall, high- or low-speed motor vehicle accident, ejection from a vehicle, vehicle rollover). The MOI is used to estimate the forces involved in trauma and, thus, the potential severity for wounding, fractures, and internal organ damage that a patient may suffer as a result of the injury.

Mortality: Deaths caused by injury and disease. Usually expressed as a rate, meaning the number of deaths in a certain population in a given time period divided by the size of the population.

Morbidity: Number of persons, nonfatally injured or disabled. Usually expressed as a rate, meaning the number of nonfatal injuries in a certain population in a given time period divided by the size of the population.

Pedestrian: This category includes injuries among pedestrians hit by a train, a motor vehicle while not in a traffic or another means of transportation.

Pediatric: Patients ages 0-15 years.

Penetrating: This category includes injuries caused by cutting and piercing instruments: knives, swords, daggers, power lawn mowers, power hand tools, household appliances.

Risk Factors: Characteristics of people, behavior or environment that increase the chance of disease or injury occurring. Examples: alcohol use, poverty, gender.

Struck By/Against: This category includes injuries resulting from being struck by or striking against objects or persons. This category includes being struck (unintentionally) by a falling object, being struck or striking objects or persons (sports) and injuries sustained in an unarmed fight or brawl.

Years of Potential Life Lost: The concept of years of potential life lost involves estimating the average time a person would have lived had he or she not died prematurely.



NOTS Transfer Center: 216-778-7850

NOTS 2019 Annual Report

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