

2023

Annual Report

Transforming Trauma Care



TRAUMA
Center

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Highlights:

- **Patient Care:** The Trauma Service at OHSU treated 4166 patients in 2023
- **Injury:** Same level falls were the leading cause of injury,
- **Age:** Patients over the age of 65 account for 36.5 percent of all trauma patients
- **Army Civilian (AMCT3):** Funding from the Mission Zero grant was used to hire a Military Civilian Partnership Coordinator to build the Strategic Military Advanced Readiness Training (SMART) program at OHSU.
- **Trunkey Center** Published 31 manuscripts and received \$ 8.3 million in funding

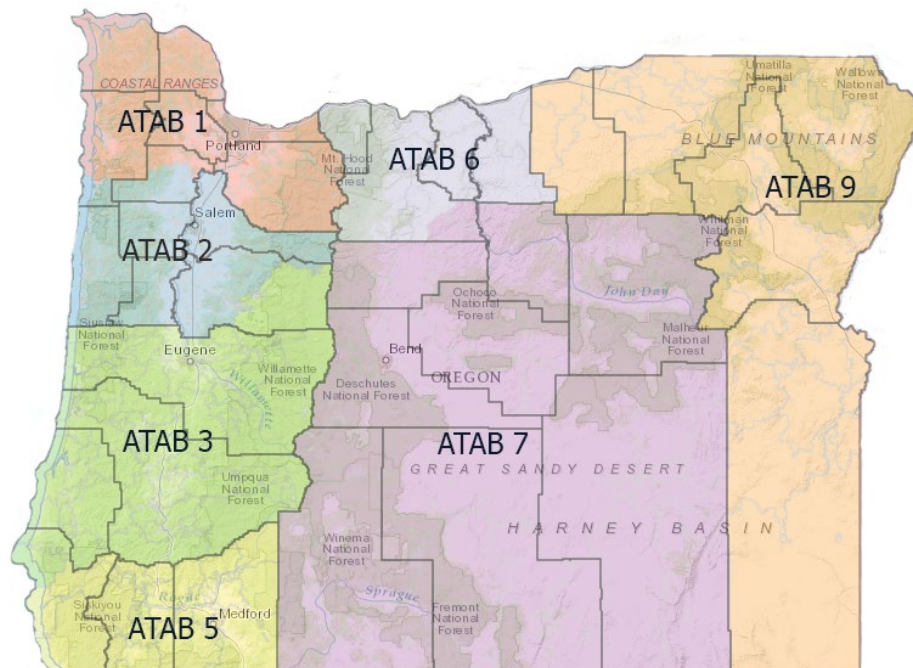


Photo by Aaron Bieleck, EdComm

OHSU Trauma System Background

Oregon’s statewide trauma system is based on landmark legislation. The state Legislature passed statutory authority in 1985 as ORS 431.607 – 431.633, under the leadership of the president of the Oregon Senate, John Kitzhaber, M.D., and signed into law by Governor Victor Atiyeh. With the implementation of the trauma system in May 1988, only two Oregon hospitals, OHSU and Legacy Emanuel Medical Center, were designated as Level I trauma centers. Injured individuals in the four-county metropolitan regions identified by pre-hospital rescue personnel or emergency medical technicians as meeting the criteria for severe injury are transported to one of these Level I centers. The Oregon Trauma System continues to grow and expand services to all injured Oregonians. In 2018, the first two level 1 Pediatric Trauma Centers, Doernbecher Children’s Hospital and Randel Children’s Hospital, joined the state-wide trauma system: both are American College of Surgeons verified Level 1 Trauma Centers.

Published research comparing inter-hospital transfer practices before and after implementation showed improvement in rapid transfer of critically injured patients to Level 1 and 2 trauma centers as well as improved survival.



[Map retrieved from OHA Website](#)

2023 OHSU Trauma Center Summary

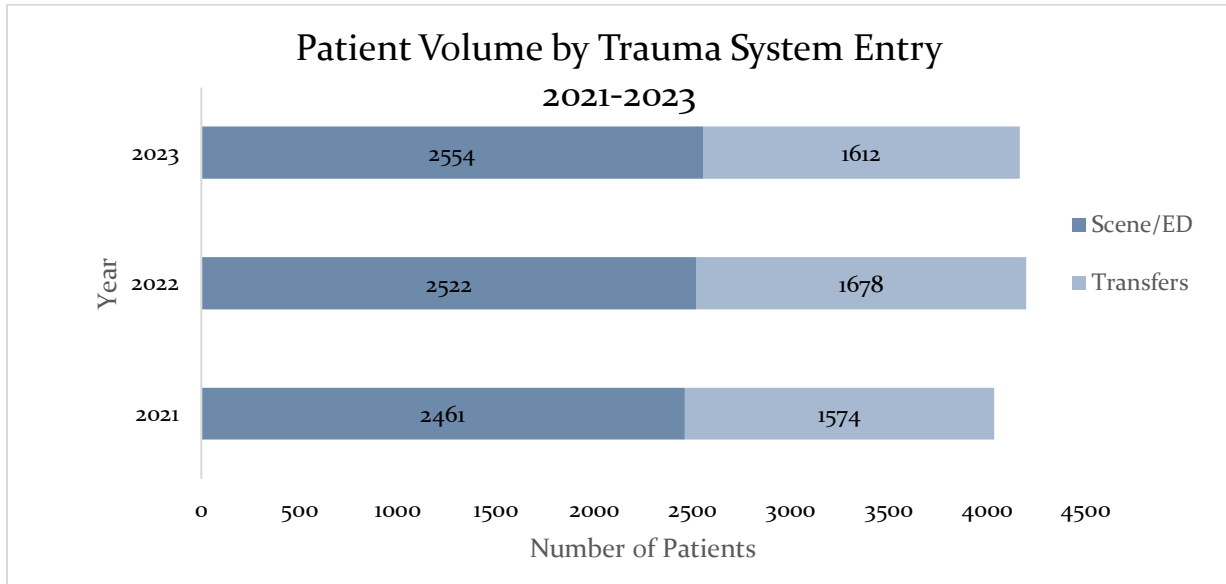
- 4166 patients were treated at OHSU for traumatic injury
- 2554 patients (61.3 percent) were brought to OHSU from the scene of injury (a slight increase from 2022); 1612 (38.7 percent) were transferred from another hospital (a slight decrease from 2022)
- Same level falls (25.8 percent) were the leading cause of injury, followed by high mechanism falls (19.5 percent), and finally motor vehicle collisions (19.3 percent) were the most common mechanism of injury for all patients
- Same level falls were the leading cause of death (29.4 percent)
- Penetrating trauma decreased to 8% of all trauma
- Injured patients remain predominantly male (63.9 percent), a slight decrease from the previous year



Helicopter taking off from OHSU Helipad. Photo courtesy of Dr. Philbert Van

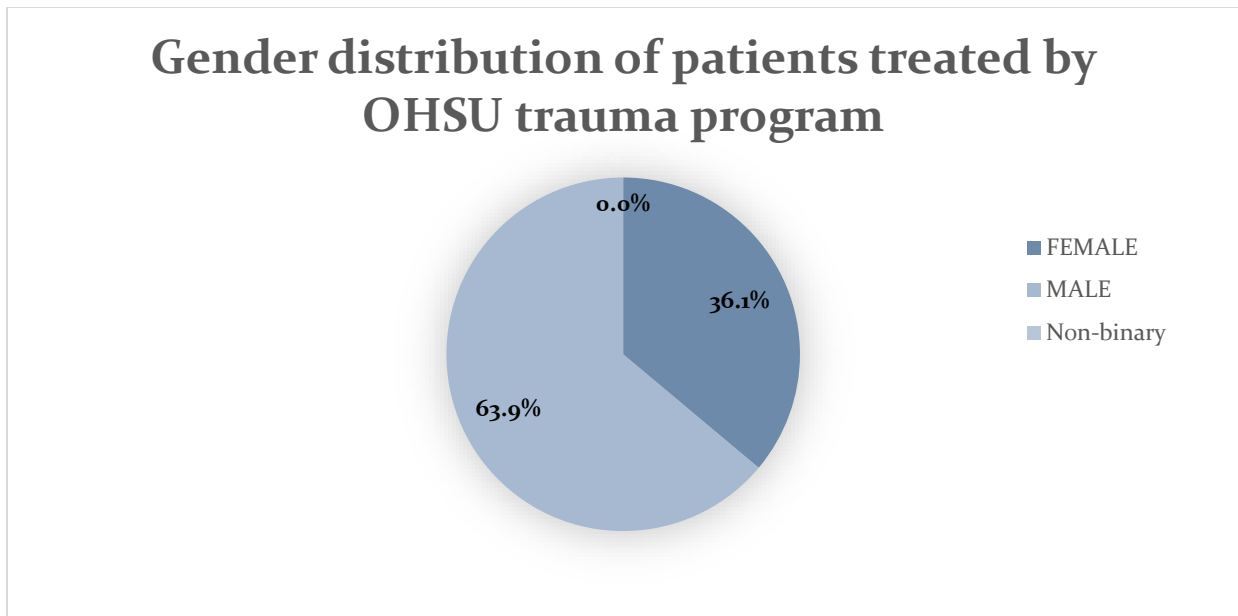
Trauma Statistics

Figure 1. Patient volume 2021-2023



In 2023, the OHSU Trauma Program total patient volume decreased by 34 patients, representing a 0.8 percent decrease from the previous year.

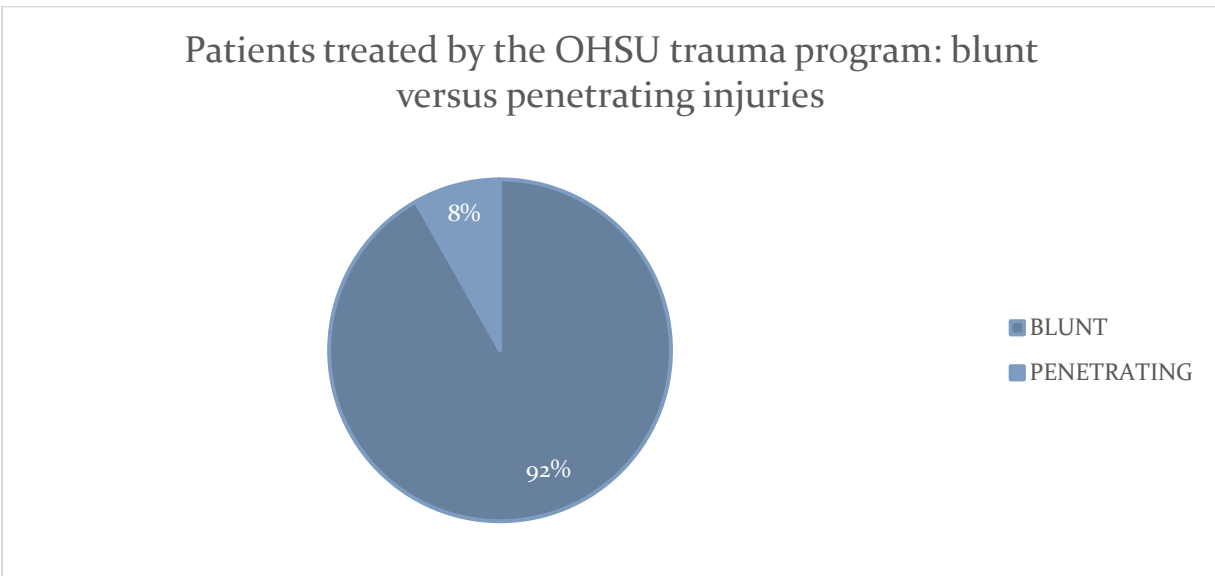
Figure 2. Gender distribution of patients treated by the OHSU Trauma Program



Within the trauma registry in 2023, four patients declared non-binary status.

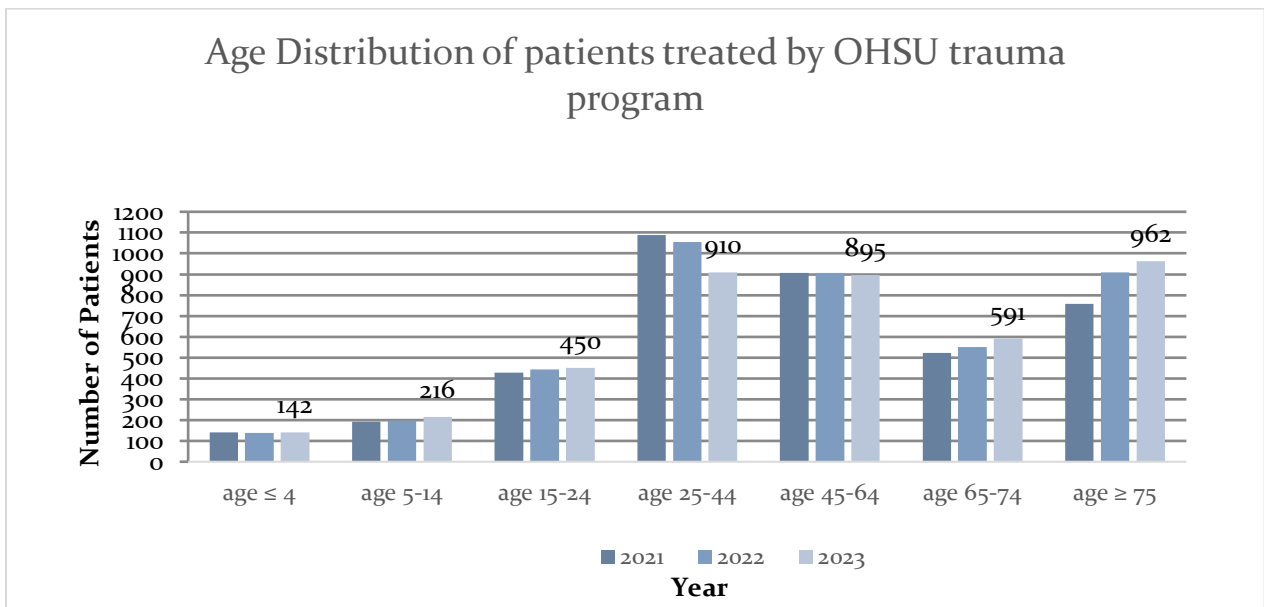
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Figure 3. Patients treated by the OHSU Trauma Program: blunt versus penetrating injuries



The rate of penetrating trauma decreased compared to 2022, we saw a slight decrease of 40 patient cases with penetrating injury in 2023.

Figure 4. Age distribution of patients treated by the OHSU Trauma Program



The majority of patients treated were between the ages of 25-64 (43.3 percent), followed by patients age greater than 75 (23.1 percent).

Figure 5. Incidence by age of patients treated by the OHSU Trauma Program

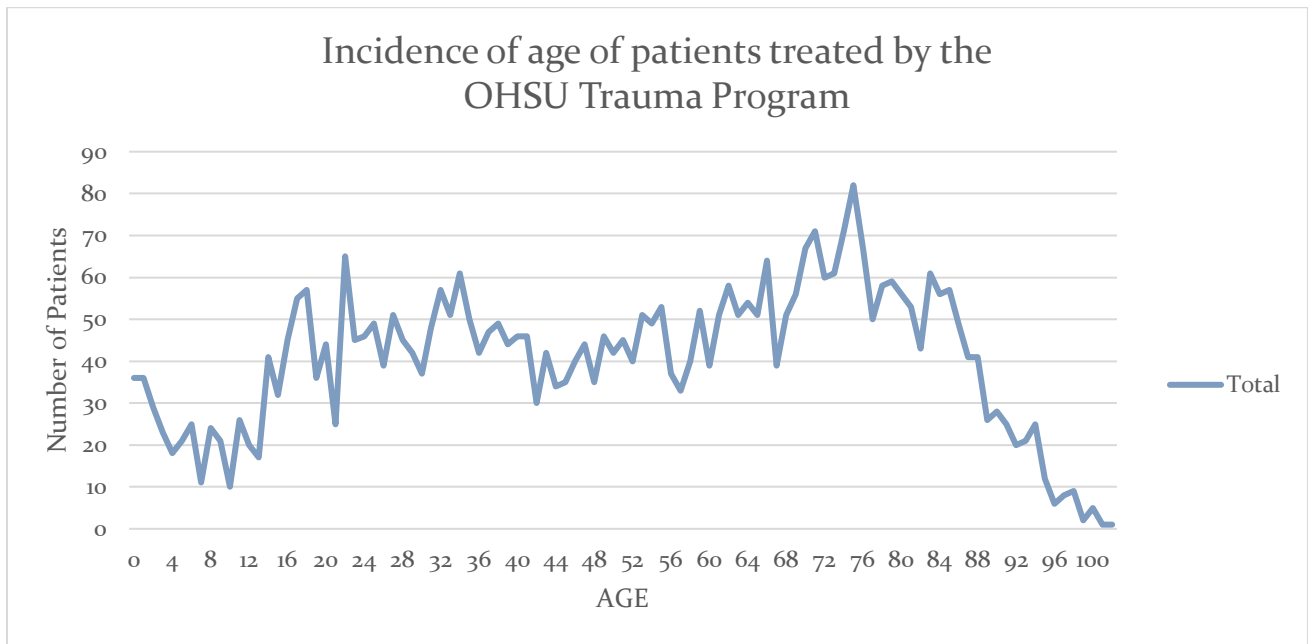
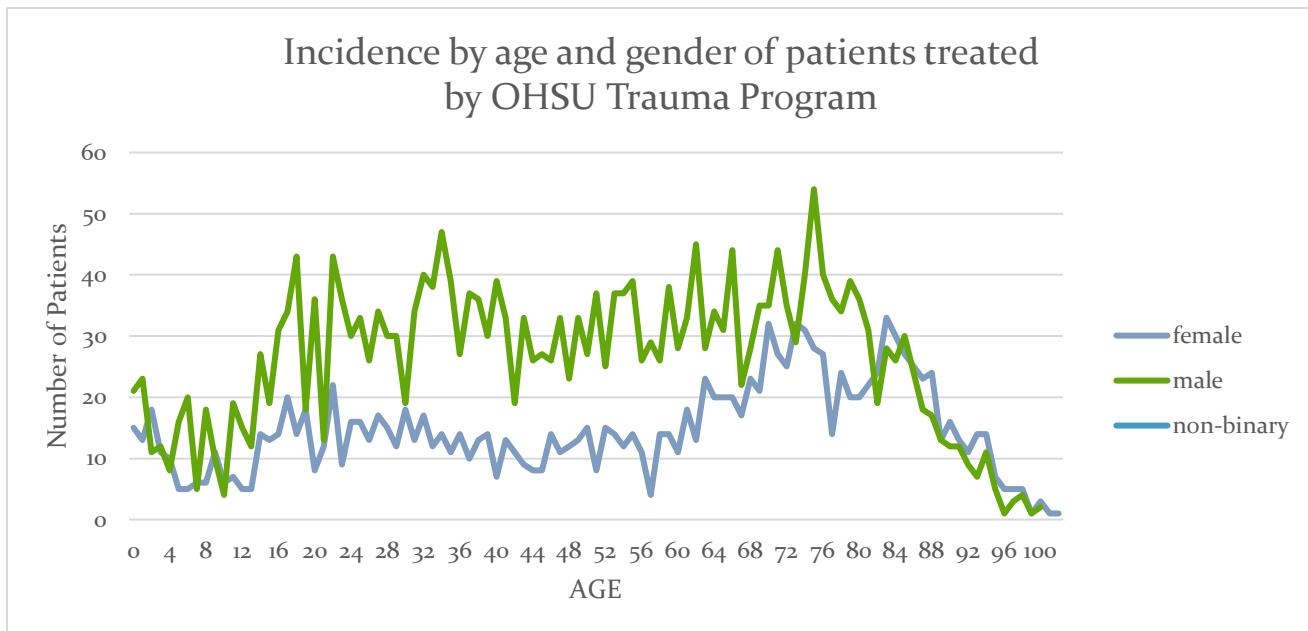


Figure 6. Incidence by age and gender of patients treated by the OHSU Trauma Program



Month, day and time

Figure 7. Distribution of patients by month

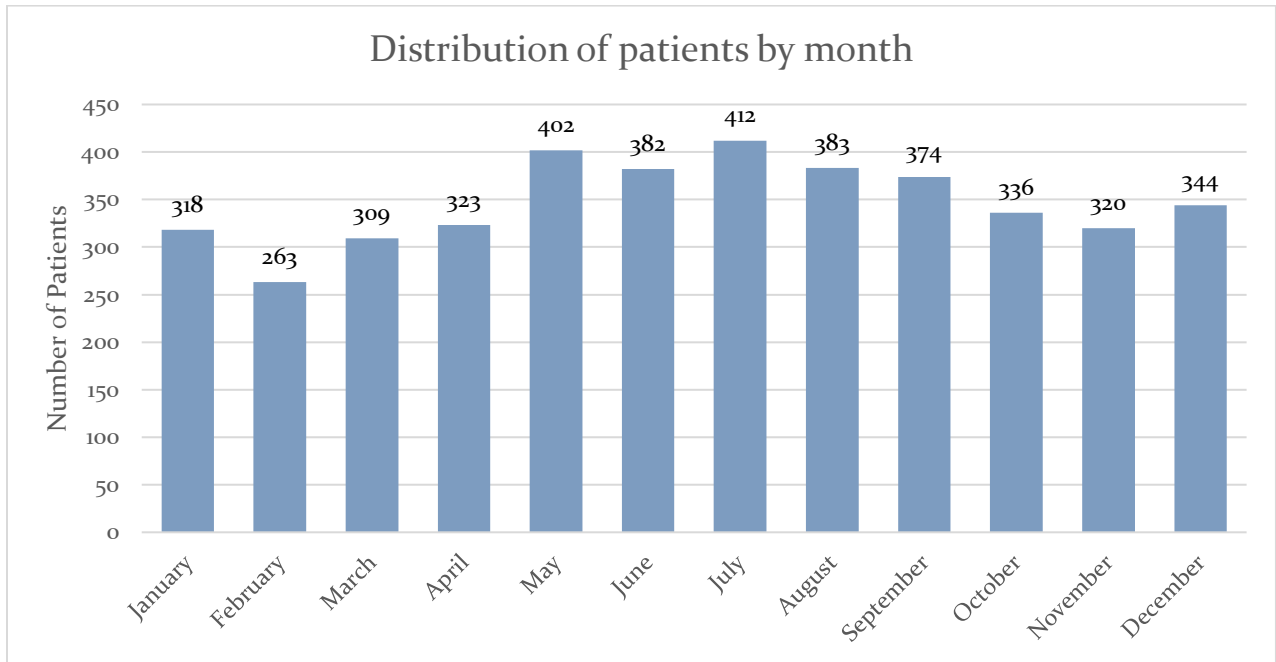
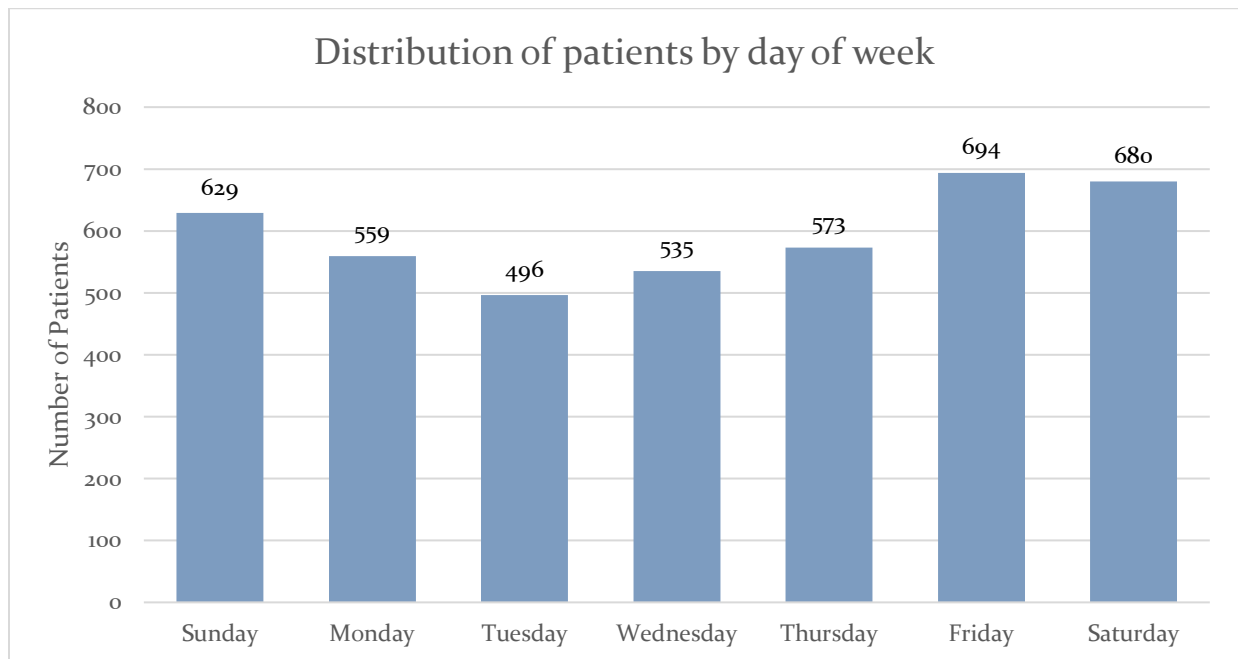
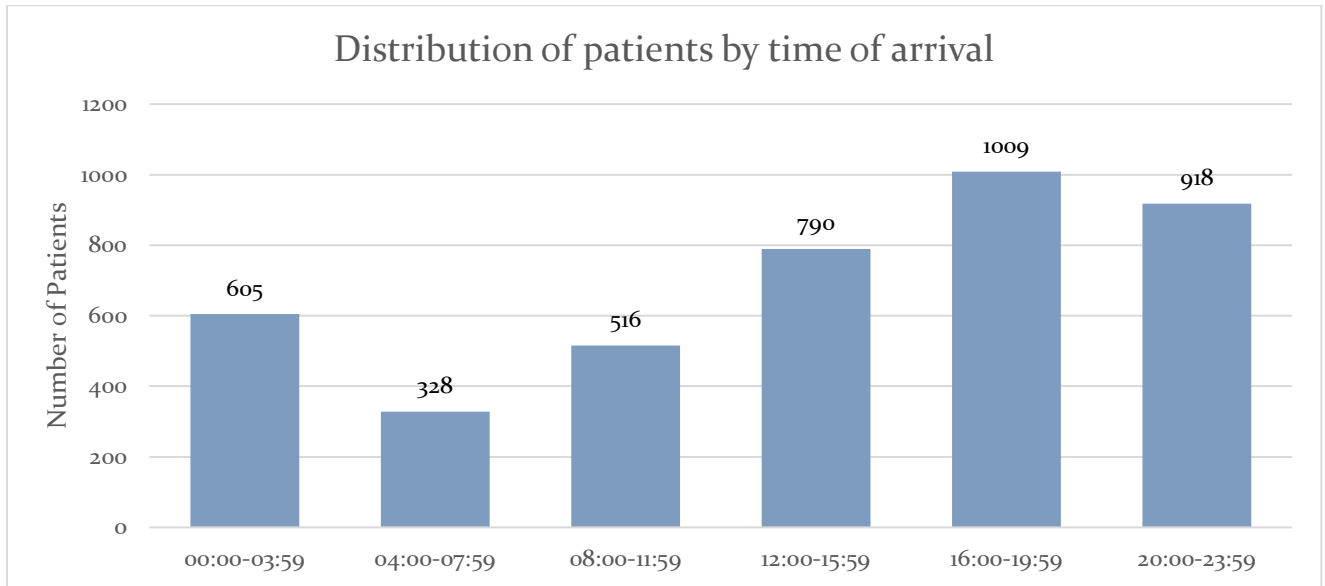


Figure 8. Distribution of patients by day of week



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Figure 9. Distribution of patients by time of arrival



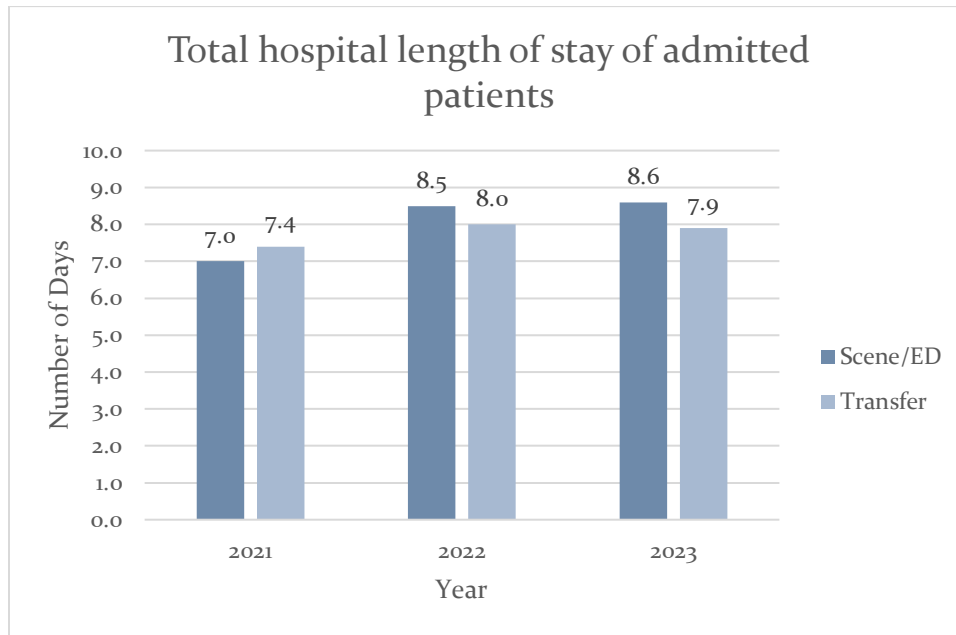
July, May, August, and June were the busiest months for trauma in 2023, with July having the largest trauma volume over the past few years. Weekends and evenings remain the busiest times for trauma patients presenting to OHSU.



Photo by Aaron Bieleck, EdComm

Length of stay

Figure 10. Total hospital length of stay of admitted patients



OHSU Trauma has seen an increase in total length of stay for patients admitted from scene/ED compared to transfer patients.



Photo by Aaron Bieleck, EdComm

Trauma Team Response

In 2018, the OHSU Trauma Program changed to a two-tiered system to evaluate injured patients. We continue to monitor over and under triage levels of all cases using the Cribari matrix. The level of activation is based on information provided by pre-hospital personnel and indicates the staff response to the trauma bay (Tables I and II). In the Portland metropolitan area, paramedics evaluate patients at the scene of injury and enter them into the trauma system if they meet established field triage criteria for serious injury. Our analyses indicate patients can be safely and efficiently treated with a limited team response, saving full trauma team activations for those truly critically injured patients.

Table I. OHSU trauma team configuration based on triage criteria

Full	Modified
Staff trauma surgeon	
Staff anesthesiologist	
Staff ED physician	Staff ED physician
Trauma chief resident	Trauma chief resident
Emergency medicine resident	Emergency medicine resident
Respiratory care practitioner	Respiratory care practitioner
Primary trauma nurse	Primary trauma nurse
Trauma recording nurse	
Procedure nurse	Procedure nurse
Transportation aide	

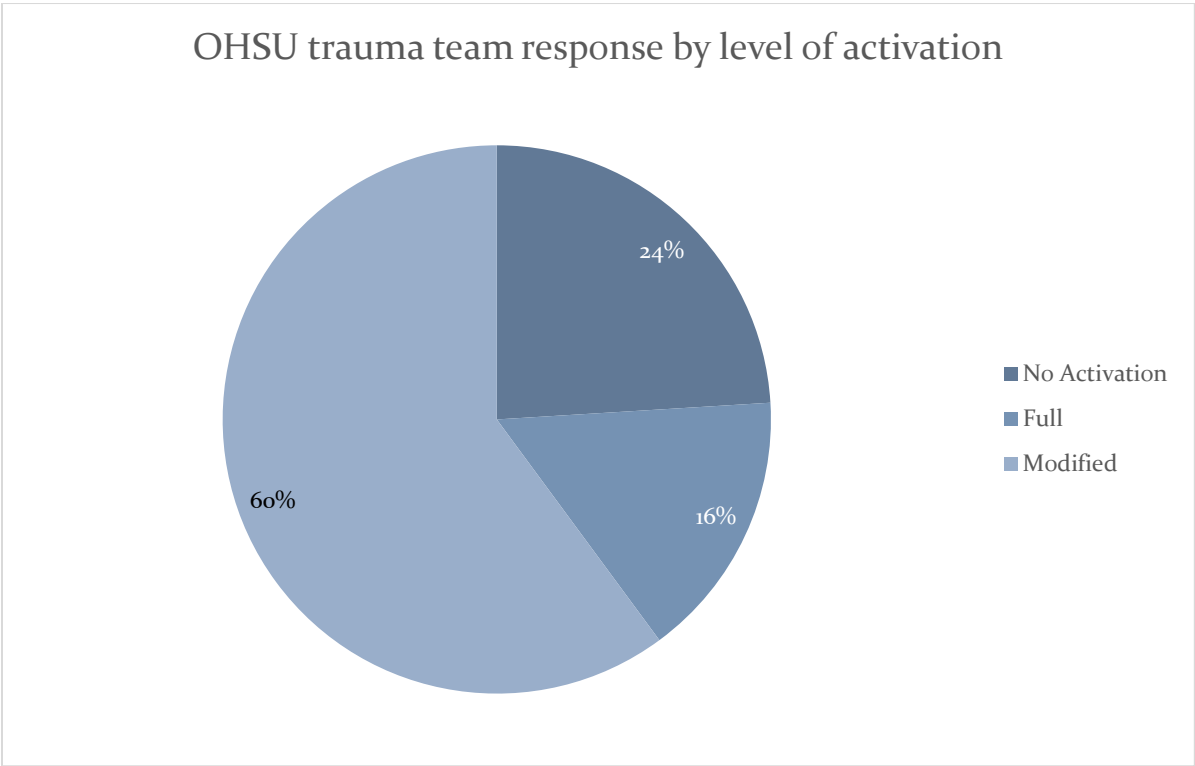
ED = Emergency department



Photo by Aaron Bieleck, EdComm

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Figure 11. OHSU trauma team response by level of activation

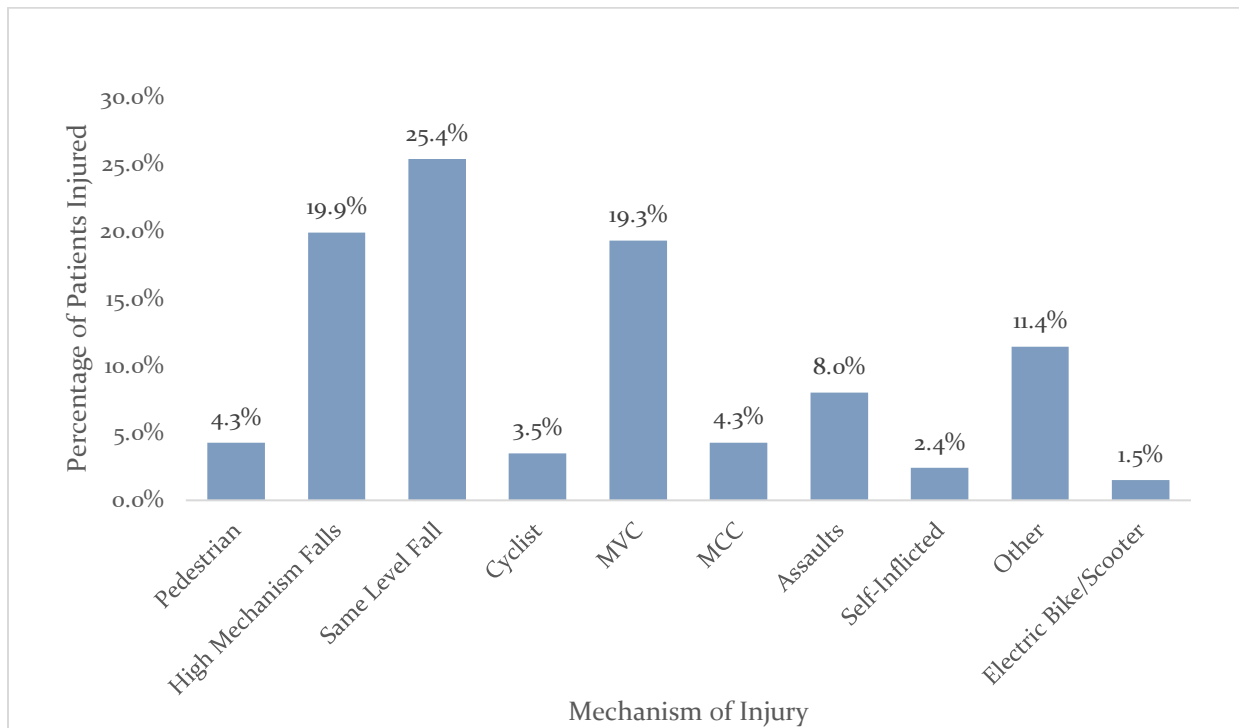


Non-activated trauma patients meet registry inclusion criteria based on the Oregon Health Authority definition and do not require immediate care or resuscitation; these patients may receive a trauma consult or be seen by other surgical services.

Mechanism of injury

In 2023, same-level falls surpassed, high mechanism falls and motor vehicle collisions as the leading mechanism of injury, aligning with national data. However, motor vehicle collisions remain the leading cause of injury for patients ages 15-44.

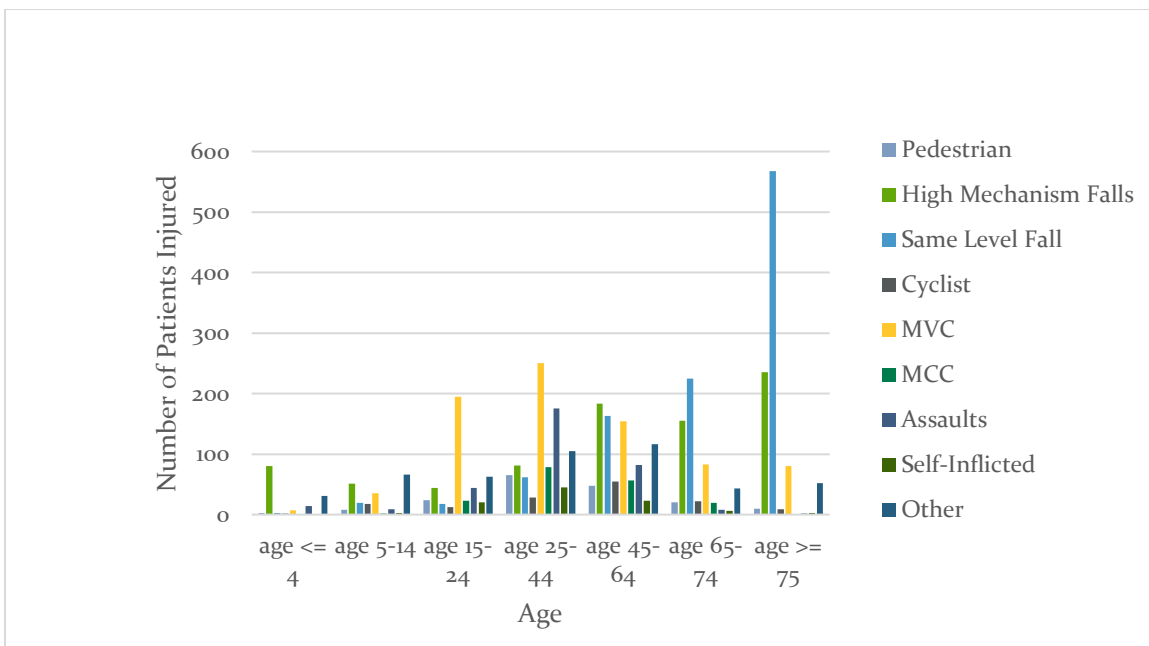
Figure 12. Causes of injury for patients seen by the OHSU Trauma Program



Same level falls include slips and trips or walking on ice and snow. High Mechanism falls include falls from height, ladders, an animal, and other.

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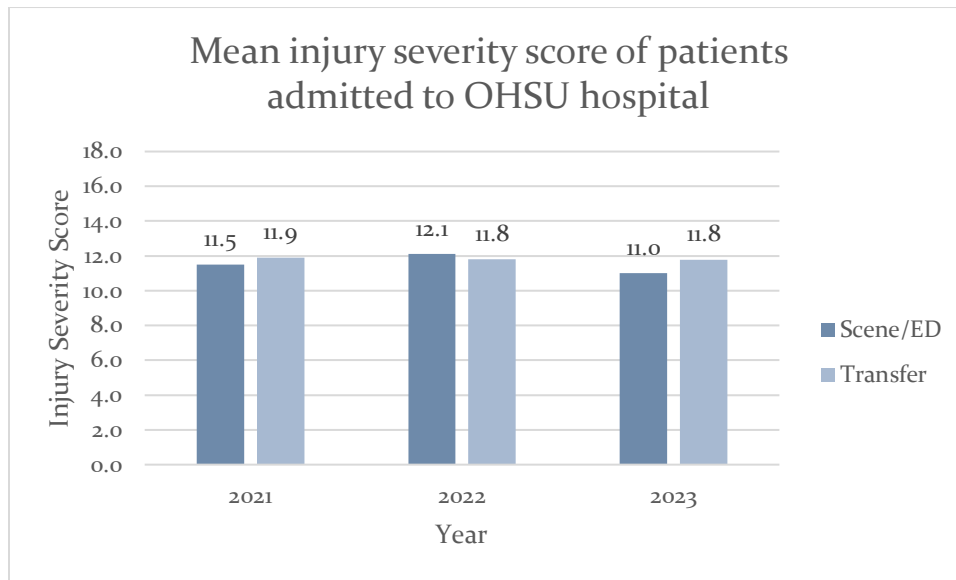
Figure 13: Incidents by injury type and age group



Team debrief after in-situ simulation training - Photo by Aaron Bieleck, EdComm

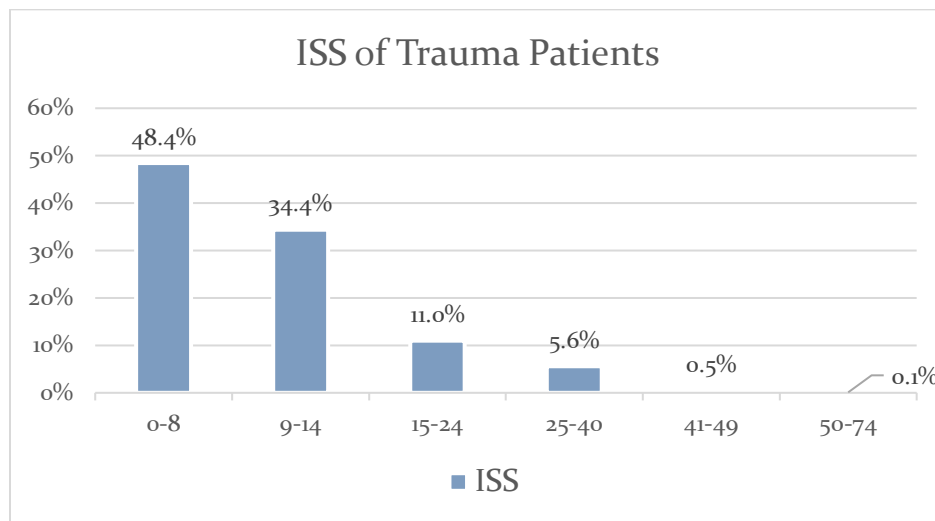
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Figure 14 Mean injury severity score (ISS) of patients admitted to OHSU Hospital



On average, patients transferred from other hospitals were slightly more injured than those admitted from the scene. Data review shows a slight decrease in the mean ISS for patients indicating they were less injured overall than in previous years.

Figure 15 Rate of ISS of Trauma Patients

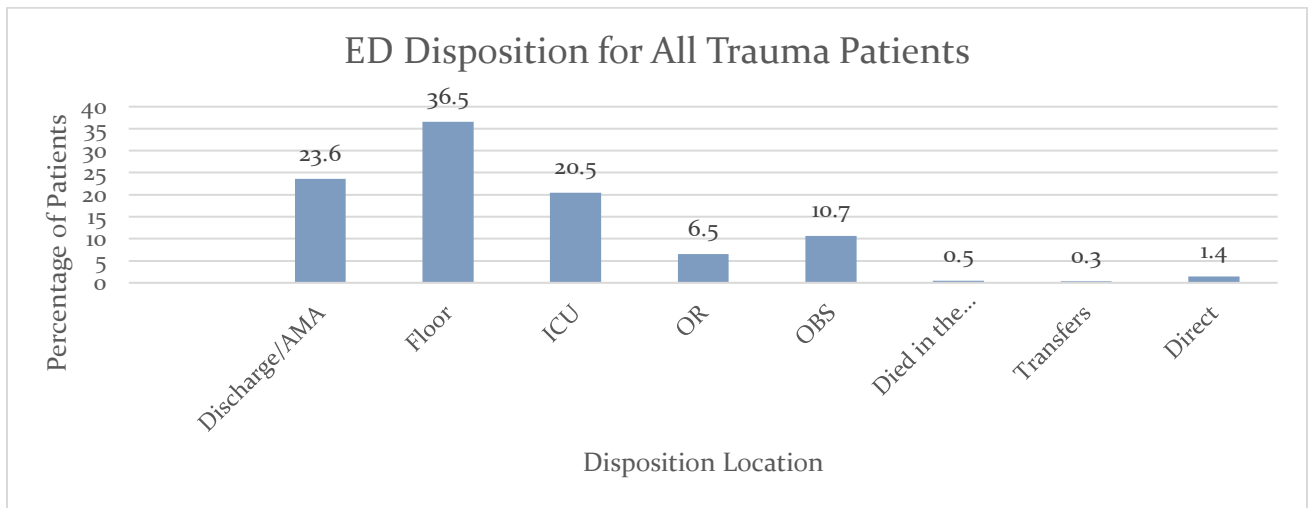


In 2023, 717 patients (17.2 percent) had an ISS greater than 15, representing moderate to severe injury. In 2023, 2017 patients were treated at OHSU with ISS less than 9: these patients have isolated injuries and meet Oregon Health Authority and National Trauma Data Bank trauma registry inclusion criteria.

Hospital admissions via OHSU Trauma Program

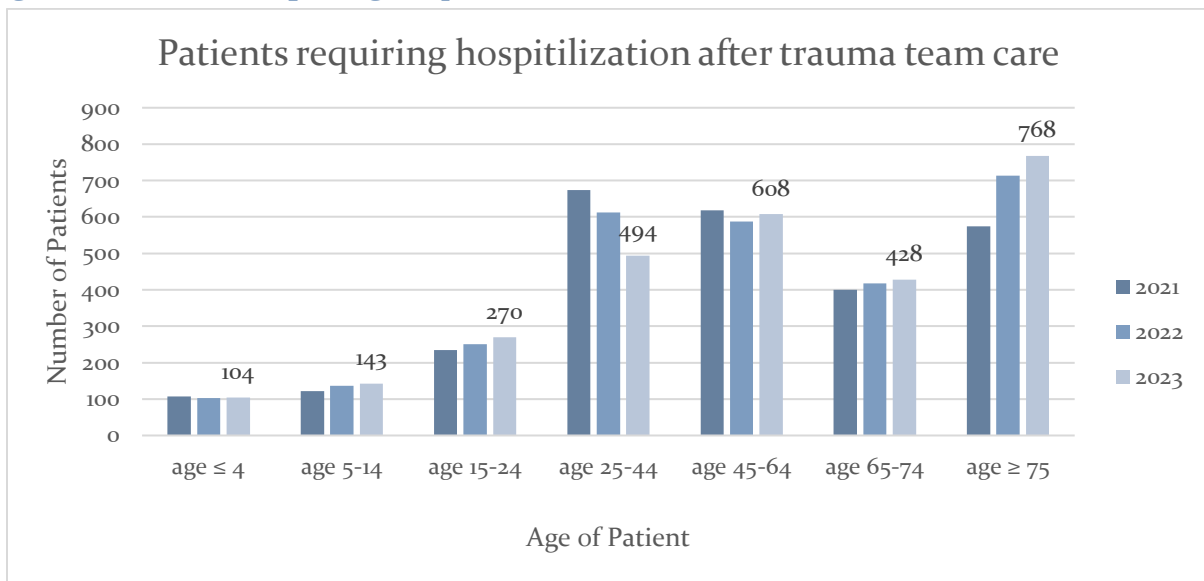
In 2023, OHSU admitted 2731 patients (67.7 percent) to OHSU, an increase of 509 patients, elderly patients were more likely to require hospital admission.

Figure 16. ED Disposition



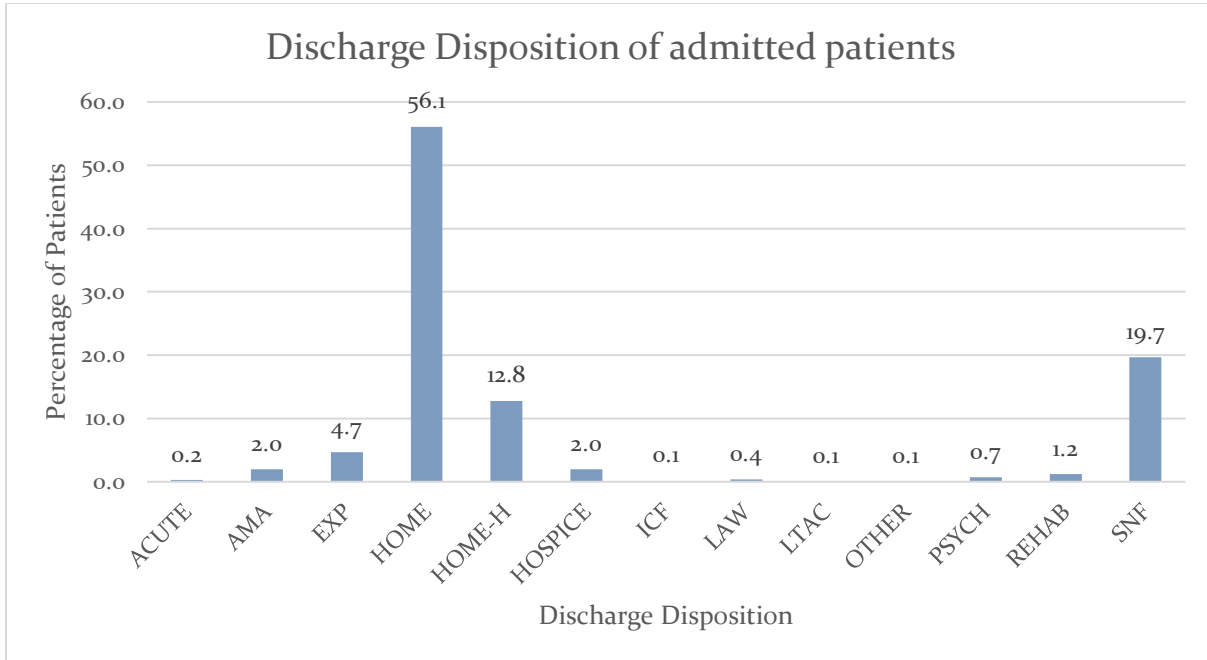
The majority of patients required admission to the ward (36.5 percent) followed by the Intensive Care Unit (ICU) (20.5 percent), with over 23.6 percent of patients leaving from the ED.

Figure 17. Patients requiring hospitalization after trauma team resuscitation



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Figure 18. Disposition of admitted patients after hospital discharge



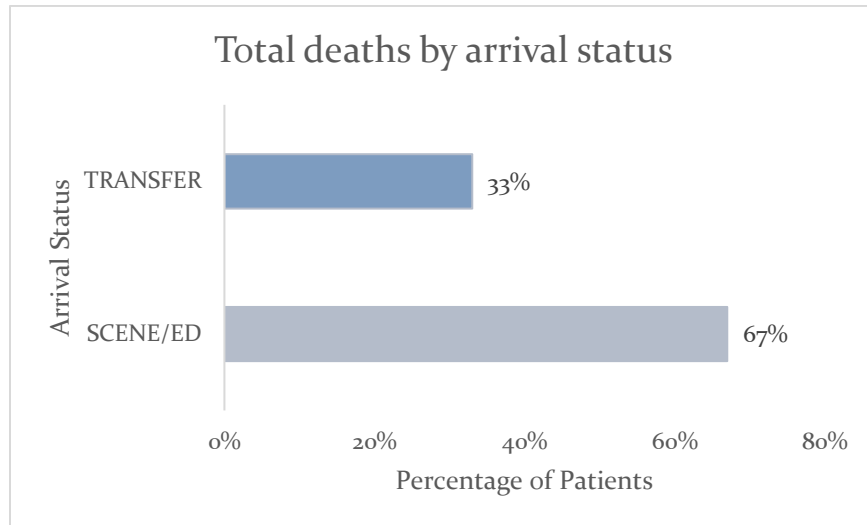
The majority of trauma patients (56.1 percent) discharged home following their hospitalization, with a skilled nursing facility and home with home health support being the other most common discharge dispositions.



TSICU Clinical Rounds - Photo by Aaron Bieleck, EdComm

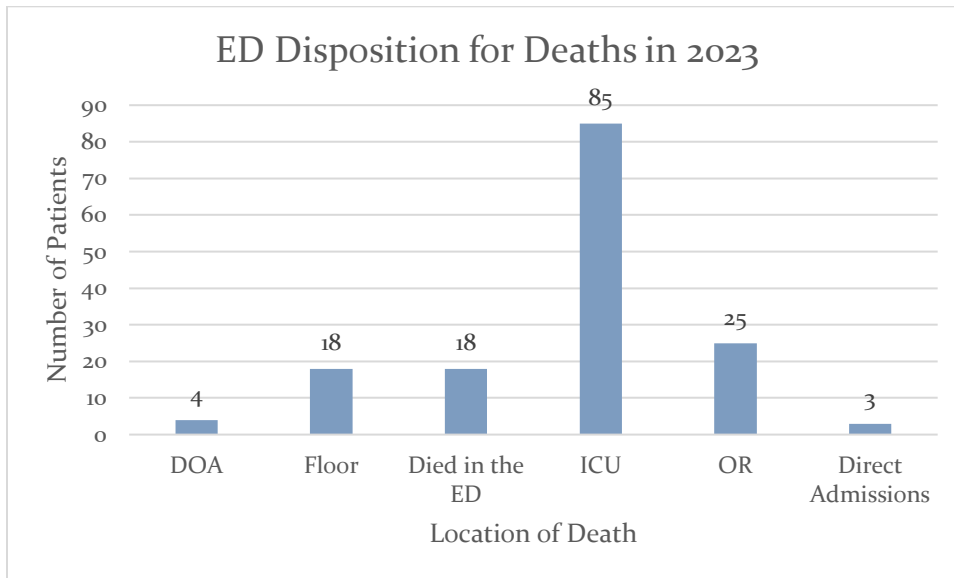
Mortality

Figure 19. Total deaths by arrival status



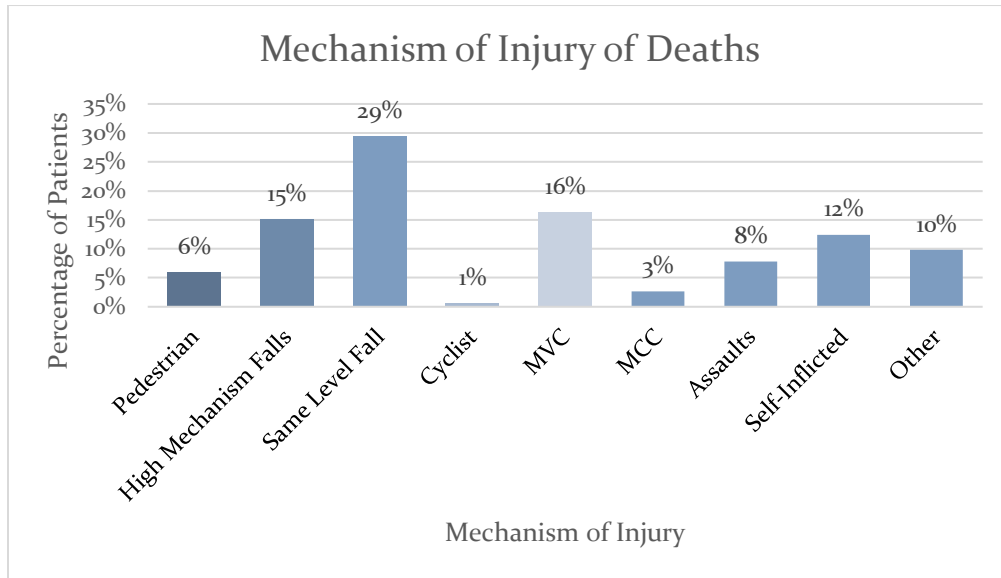
In 2023, 153 patients (3.7 percent) died: four patients died on arrival to OHSU, 18 died in the ED, and 25 in the OR.

Figure 20. ED Disposition for Deaths in 2023



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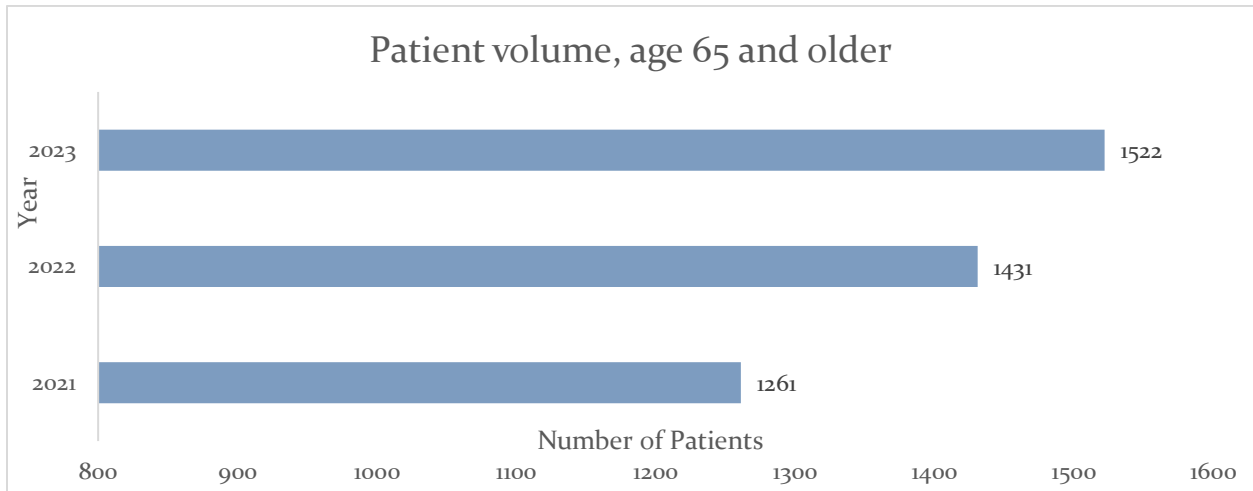
Figure 21. Cause of death



Same level falls are the leading cause of death, accounting for twenty-nine percent of all deaths in 2023.

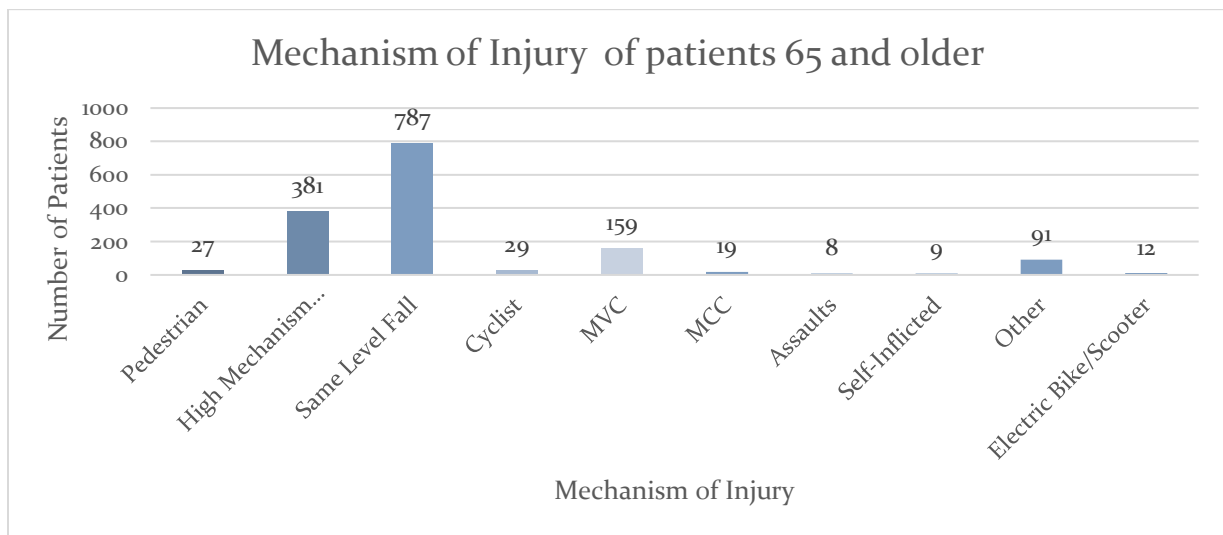
Care for patients aged 65 and older

Figure 22. Patient volume, age 65 and older



In 2023, OHSU Trauma treated 1522 patients (36.5 percent) aged 65 and older. Of these, 624 (41 percent) were transferred to OHSU from another hospital or clinic. Most of the patients were injured in same level falls (787 patients or 51.7 percent). Of the 1522 injured patients treated at OHSU, 1172 (77 percent) required hospital admission.

Figure 23. Mechanism of injury, patients 65 and older



Falls represent the leading cause of injury for patients age 65 and older: same level falls are the leading mechanism of injury at 51.7 percent, followed by high mechanism falls (falls from height, ladder falls, and other) representing 25 percent.

Army Military Civilian Trauma Training Team (AMCT³)

In 2016, the National Academy of Science, Engineering and Medicine produced a report titled “A National Trauma Care System: Integrating Military and Civilian Trauma Systems to Achieve Zero Preventable Deaths After Injury”. A critical part of this national movement is the integration of active-duty personnel in busy civilian trauma centers with the goal of maintaining combat readiness especially during times of low operational tempo. Most of the healthcare delivered in military medical treatment facilities is related to maintenance of health in relatively healthy warfighters and delivery of care to beneficiaries. Few facilities have active trauma programs. Therefore, during periods of low operational tempo, it is necessary for active military health providers to work in civilian trauma centers. The program is titled Army Military Civilian Trauma Training Team or AMCT³. OHSU was chosen due its rich history of collaboration with the military and the strong presence of military career personnel. Our second cohort of AMCT³ soldiers was assigned to OHSU in 2022 which included a portion of a Forward Resuscitation Surgical Detachment (FRSD) was assigned to OHSU.

Legislation to fund civilian trauma centers that house these programs, known as Mission Zero was signed into law and OHSU received grant funding supporting our Military Civilian Coordinator. Our Military Civilian Program Coordinator was integral in the expansion of our Military Civilian Program in 2023, developing the Strategic Medical Asset Readiness Training (SMART). The training is a two-week clinical experience and skills sustainment program for enlisted Army medics, nurses and OR techs. Participants rotate through the ED, ICUs, and other specialty units, along with didactic case study and skills practice experiences. In 2023, OHSU hosted 3 SMART rotations, training 23 participants.



Dr. Jacob Swann teaching of the SMART participants - Photo by Rebecca Brown

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Military Civilian Program Coordinator Rebecca Brown received an award from Army AMSSP Director Cynthia Barrigan and MAJ Hillary Battles at the annual Military Civilian Program summit at Vanderbilt University Medical Center, for her work developing the OHSU SMART Program.

Surgical Critical Care Fellowship

The Surgical Critical Care fellowship was founded over 20 years ago and remains the only fellowship committed to training trauma surgeons in Oregon. Since its inception, the fellowship has grown to accept four fellows each year. Fellows are selected during a competitive application cycle, for academic year 2022/23, OHSU received 128 candidate applications, accepting 4 fellows.

The fellowship is composed of a one-year training program housed at the only University-based quaternary medical center in Oregon. Fellowship rotations are designed to provide exposure to a broad range of critically injured and critically ill patients.

Fellows spend six months rotating on the Trauma Surgical Intensive Care Unit (TSICU) where they work with teams of Advanced Practice Providers, residents and attending trauma surgeons. Fellows also work closely with a multi-professional team of nurses, respiratory therapists, pharmacists, therapists, chaplains, and social workers. Fellows are responsible for leading continuity and management of critically ill patients in the TSICU. These patients include trauma patients as well as surgical services such as emergency general surgery, oncology, hepatobiliary, minimally invasive, colorectal, transplant, OB/GYN, and bariatric surgery. In addition to their clinical duties, they have well as medical student and resident education.

Fellows complete a 6-week rotation in the Portland VA Medical Center Surgical ICU. Fellows lead the management of critically ill cardiothoracic and surgical patients at PVAMC. During their remaining time, fellows have the opportunity to select electives in critical care units including pediatrics, medicine, cardiothoracic surgery, burns, and neurosurgery. Additional opportunities are available in radiology and echocardiography and more.

Administrative responsibilities include formulating and implementing new ICU policies and guidelines, choosing up-to-date and relevant articles for the journal club, participating in the ICU quality committee, leading ICU curriculum lectures to the residents, and presenting grand rounds during the fellowship.



2023 Surgical Critical Care Fellows. From Left to Right Dr. P. Cmorej, Dr. N. Bedrin, Dr. H. Hayes, and Dr. L. Kiraly (Missing Dr. K. Deveckki)

Trauma Education

The OHSU Trauma Center continued their Trauma Outreach Education Initiatives in 2023.

Fall Trauma Nursing Conference

- 325 participants
- Participants from 15 states and 1 province
- Virtual format results in an archive of record presentations for ongoing review

32nd Northwest States Trauma Conference

- 149 participants, including: 17 physicians, 5 advanced practice providers, 107 registered nurses, 14 EMT/EMT-P, and 3 undefined registrations
- Participants from 26 states and 1 province
- Virtual format results in an archive of record presentations for ongoing review

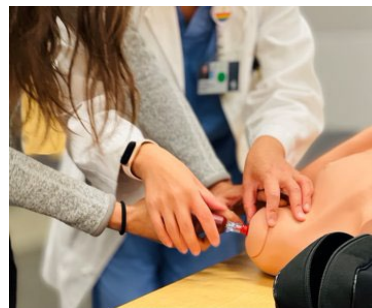
Weekly Trauma Conference

The Trauma and Acute Care Surgery Service hosts weekly Trauma Conference. Chief residents present trauma and emergency general surgery (EGS) cases to a multi-disciplinary participant group. In 2021, Trauma Conference was opened to all trauma centers across Oregon to increase state-wide engagement and education. Collaborative multi-center trauma case presentations highlight care across the continuum from rural to referring to definitive Level 1 trauma care.

Trauma Education Courses

Advanced Trauma Life Support® (ATLS®)

- 8 ATLS provider/refresher courses were held
 - 114 participants completed the training
- 1 ATLS instructor course was held – 3 new instructors were trained



ATLS skill station training. Photos courtesy of Elizabeth Herber

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Rural Trauma Team Development Course (RTTDC)

- RTTDC courses restarted in 2022, no course requests were received in 2023
- We actively meet with trauma centers monthly and let them know we are available for RTTDC upon request

Definitive Surgical Trauma Care Course (DSTC)

- Second annual course was held, OSHU remains the only site hosting DSTC
- 12 surgeon and 7 perioperative/surgical tech participants
 - 2 pre-deployment Army surgical teams participated (2 army surgeons/2 surgical scrub techs)



DSTC Faculty and Participant Photo - Photo by Aaron Bieleck, EdComm

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Multi-Disciplinary Simulation

A collaborative simulation was completed with multidisciplinary input from the Emergency Medicine, Trauma, Pediatrics, Emergency Communications Center, Maternal Fetal Medicine, Neo-Natal ICU, Nursing, Allied Health, and Simulation Education Staff. This simulation was based on a clinical case that led to updates in management of a pregnant trauma patient. During one of our regularly scheduled in-situ simulations, the multi-disciplinary team was brought together to test our system and ensure that we are building experience with high stakes/low frequency events when caring for a traumatically injured pregnant patient. This education session demonstrated extremely strong cross departmental collaboration, interprofessional education, and clinical care provided at OHSU. Following this education experience, we are proud to say that our updated clinical guideline ensures when a pregnant trauma patient arrives to the ED the necessary clinical teams arrive to the patient's bedside as part of the trauma response.



Photo by Aaron Bieleck, EdComm

Injury Prevention

OHSU Trauma Injury Prevention Program transformed in 2023. We welcomed Sarah Gold, RN, BSN, CEN to the full-time Injury Prevention Coordinator role in July 2023. The transition to a person with a nursing background provided opportunity to view injury prevention from a clinical perspective and patient education approach. Throughout the fall of 2023, the program started to grow: attending and hosting multiple community events, including our Fall Risk Screening event that now takes place twice a year. Regularly scheduled Stop the Bleed courses in the community and on campus were a priority and participation in the Oregon Department of Transportation Advisory Panel occurred.

We strengthened our connection with Healing Hurt People, our hospital-linked violence interruption program, serving victims of penetrating trauma in our high-risk communities. OHSU also became a member of the Trauma Survivor's Network and began work on bringing this amazing program to OHSU patients and their families. We continued our work of staff education and our work with substance abuse, using the Screening, Brief Intervention, and Referral to Treatment (SBIRT) model. 2023 saw a lot of change and the beginnings of great things to come.



Trauma Program team preparing for Fall Risk screening, Photo courtesy of Heather Wong

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Activity	# Participants
<p>Oregon Department of Transportation Advisory Panel</p> <ul style="list-style-type: none"> • 8 members of the health care community presented to the panel, 4 were from OHSU. • Partnership: ODOT 	
<p>Stop the Bleed</p> <ul style="list-style-type: none"> • Program objectives: increase number of instructors available to teach courses, establish regular course opportunities, reach out to increase amount of ad hoc courses we teach. Increase amount of bleeding control kits in the community in the hands of people who know how to use them effectively. • Bleeding Control Kits Sold - 18 	65
<p>Colton Community Days</p> <ul style="list-style-type: none"> • Description: tabled at annual community event. • Objective: provide fall prevention information, driver and pedestrian safety and Stop the Bleed information. 	150
<p>Medication Take Back and Safety Event</p> <ul style="list-style-type: none"> • Description: Public event where they could drop off unwanted medications for disposal. Information provided on safe medication and firearm storage, Stop the Bleed, naloxone prescriptions, unintentional poisonings and suicide prevention. • Objective: safe disposal of unwanted medications, increase knowledge of and access to safe firearm and medication storage, education on poison emergencies and naloxone. 	47
<p>Fall Risk Screening Event</p> <ul style="list-style-type: none"> • 58 Fall Risk Assessments Completed • 58 Educational Handouts Provided • 26 Study Participants Enrolled. 	58
<p>Trauma Surgical Intensive Care Unit Education Day Presentation</p> <ul style="list-style-type: none"> • Description: Presentation on multiple injury prevention topics. • Objectives: Educate nurses on SBIRT, Healing Hurt People, and fall prevention 	70

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Healing Hurt People

In March 2022 the OHSU and Healing Hurt People (HHP) partner program went live with referral for patients of color who are victims of gun shot or stab wounds ages 10-50 treated for these injuries at OHSU. HHP Intensive Case Managers (ICM) respond to OHSU when consulted within four hours. HHP staff are onboarded through the Office of Visitors and Volunteers, completing OHSU training, receive OHSU badge, and are considered part of the patient's care team. As part of our partnership with HHP, we train their staff in Stop the Bleed and provide them with bleeding control kits.

HHP staff and coordinators are connected to the community and often know of the incident as soon as it happens, often know the victims and their families. HHP's wrap-around services include but are not limited to: providing immediate relief needs, relocation services, referrals for therapy, client and family support, and transition/recovery support.

HHP data for OHSU Patients:

- 47 referrals
- 46 accepted services (gift card, temporary relocation, emergency support, referred resources)
- 14 accepted long-term services:
 - 8 have completed/graduated their program
 - 6 are currently continuing
 - 5 are actively attended/attending trauma therapy
- Zero have recidivated



Stop the Bleed Training with our Healing Hurt People Partners

Dr. Donald D. Trunkey Center for Civilian and Combat Casualty Care

Launched in April 2020 in honor of the late emeritus OHSU chair of surgery Dr. Donald D. Trunkey, the **Donald D. Trunkey Center for Civilian and Combat Casualty Care** is on a mission to synergize and advance trauma research, innovation, and patient care across OHSU and the Pacific Northwest. To date, the Center, led by Martin Schreiber, M.D., has created a research consortium that spans across 18 different departments and 3 schools at OHSU, regional research hubs like the Veterans Administration and Pacific Northwest National Laboratory, and numerous industry partners.

The **Trunkey Center Seminar Series** has served as a centerpiece of activity and helped catalyze the Center's growth. Each month the Seminar Series brings together around 100 researchers working across trauma-related disciplines, highlights cutting edge research in the field, and serves as a focal point for new collaborations. Speakers include basic scientists, clinicians, engineers, epidemiologists, and public health experts, many of whom were brought together for the first time by the Trunkey Center. The series has a central role to play as the Center continues to grow and amplify research in trauma by fostering interdisciplinary collaboration, increasing research funding, and accelerating bench to bedside discoveries.

Join the [Trunkey Center mailing list](#) to receive news updates and invitations to the Trunkey Center monthly seminar series.



Photo courtesy of the Donald D. Trunkey Center

Trunkey Center - Trauma & Acute Care Surgery Research

In 2023, the Trunkey Center Research Laboratory received \$8.4M in research funding from the Department of Defense, Department of Health and Human Services, National Institutes of Health, and industry. The center also continues to partner with consortiums such as CNTR, LITES, and WTA on trauma research projects.

The Trunkey Center's 2023 studies involving both human subjects and animal research include:

- Brain Oxygen Optimization in Severe Traumatic Brain Injury – Phase 3 (BOOST-3)
- Implementing Best-Practice, Patient-Centered Venous Thromboembolism (VTE) Prevention in Trauma Center
- Allogeneic Bone Marrow-derived human Mesenchymal Stromal Cells for the Treatment of Acute Respiratory Distress Syndrome after Trauma
- Non-Invasive Diagnosis of Extremity Compartment Syndrome Using Sheer Wave Elastography and Micro-Vascular Flow Imaging
- Non-Invasive Monitoring of Traumatic Brain Injury Progression Using the Infrascanner-1
- Prehospital Kcentra for Hemorrhagic Shock
- In-patient Kcentra use for Trauma Patients
- Prehospital Airway Control Trial (PACT)
- Use of Whole Blood vs. Components for Massive Transfusions
- Use of Virtual Reality as a Distraction Technique to Limit Opiate Use in Traumatic and Surgical Wound Dressing Management
- Strategy to Avoid Excessive Oxygen for Critically Ill Trauma Patients (SAVE-O2)
- Predictors of Low-Risk Phenotypes after Traumatic Brain Injury Incorporating Proteomic Biomarker Signatures (PROTIPS)
- Blood Volume Analysis in Trauma Patients
- Morel-Lavallee Lesions Diagnostic and Treatment – A Multicenter, Prospective Observational Study
- Chilled Platelets Study
- Phase 2/3 Study for the Evaluation of Safety and Efficacy of Humacyte's Human Acellular Vessel for Vascular Replacement or Reconstruction in Patients with Life or Limb-threatening Vascular Trauma
- Study of four-factor prothrombin complex concentrate, OCTAPLEX, in patients with acute major bleeding on direct oral anticoagulant (DOAC) therapy with factor Xa inhibitor
- Phase 3 Trial of PROTHROMPLEX TOTAL for Reversal of Direct Oral Factor Xa Inhibitor-induced Anticoagulation
- Gamma Prime Fibrinogen as a Biomarker for Inflammatory Disease Progression
- Developing a Novel Therapy for Rhabdomyolysis (swine study)
- Freeze Dried Platelet Extracellular Vesicles as a Hemostatic Adjunct to Resuscitation for Prolonged Field Care (rat study)

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In addition to enrolling in prospective studies, Dr. Schreiber and his team also conducts retrospective analyses on various topics such as TXA, transfusion, and coagulopathy. This allows the Trunkey Center to continually ask novel questions, and then work to answer those questions with an ever-growing cohort of data.

Publications in 2023

1. Sperry JL, Cotton BA, Luther JF, Cannon JW, Schreiber MA, Moore EE, Namias N, Minei JP, Wisniewski SR, Guyette FX; Shock, Whole Blood, and Assessment of Traumatic Brain Injury (SWAT) Study Group. Whole Blood Resuscitation and Association with Survival in Injured Patients with an Elevated Probability of Mortality. *J Am Coll Surg*. 2023 Aug 1;237(2):206-219. doi: 10.1097/XCS.0000000000000708. Epub 2023 Apr 11. PMID: 37039365; PMCID: PMC10344433.
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7. Hoyos Gomez T, El Haddi SJ, Grimstead-Arnold SL, Schreiber MA. The effect of the Belmont rapid infuser on cold stored whole blood coagulability. *Injury*. 2023 Jan;54(1):29-31. doi: 10.1016/j.injury.2022.09.033. Epub 2022 Sep 21. PMID: 36180259.

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10. Price MA, Villarreal CL, Moreno AN, Flayter R, Herrera-Escobar JP, Sims CA, Bulger EM; National Trauma Research Action Plan (NTRAP) Regulatory Challenges Panel. Developing a National Trauma Research Action Plan: Results from the regulatory challenges Delphi survey. *J Trauma Acute Care Surg.* 2024 Apr 1;96(4):658-665. doi: 10.1097/TA.0000000000004185. Epub 2023 Nov 30. PMID: 38031274.
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13. Buxton H, Marr MC, Hernandez A, Vijanderan J, Brasel K, Cook M, Moreland-Capuia A. Peer-to-Peer Trauma-Informed Training for Surgical Residents Facilitated by Psychiatry Residents. *Acad Psychiatry.* 2023 Feb;47(1):59-62. doi: 10.1007/s40596-022-01648-7. Epub 2022 May 17. PMID: 35579850; PMCID: PMC9669278.
14. Cook MR, Schultz Reed K, Crannell WC, Brasel KJ, Siegel TR. Integrating Surgical Palliative Care Into the Full Spectrum of Medical Education. *Am Surg.* 2023 May;89(5):1338-1342. doi: 10.1177/00031348231157418. Epub 2023 Feb 15. PMID: 36793013.
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- membrane oxygenation: Heparin versus bivalirudin. *Eur J Haematol*. 2024 Apr;112(4):566-576. doi: 10.1111/ejh.14146. Epub 2023 Dec 13. PMID: 38088062; PMCID: PMC11034845.
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29. Schultz K, Howard S, Moreno K, Siegel T, Zonies D, Brasel K, Cook M. What Should the Surgeons Do at the Family Meeting: A Multi-Disciplinary Qualitative Description of Surgeon Participation in Palliative Care Discussions. *J Surg Educ*. 2023 Jan;80(1):110-118. doi: 10.1016/j.jsurg.2022.08.008. Epub 2022 Sep 9. PMID: 36089480.
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Trauma and Acute Care Surgery Faculty



Martin Schreiber, M.D., Chief of Trauma

Speaking topics: Transfusion; Resuscitation; What you need to know about DVTs; Lessons learned in the War on Terror; Modern methods of hemorrhage control; Blast injury; Novel blood products; Modulation of coagulation; Thromboelastometry and trauma



Karen Brasel, M.D., M.P.H.

Speaking topics: Post traumatic stress disorder; Ethics in trauma



Albert Chi, M.D.

Speaking topics: Targeted muscle re-innervation and advanced prosthetics



Mackenzie Cook, M.D.

Speaking topics: Long-term outcomes after injury; Curriculum development in surgical education and optimizing autonomy for trainees



Heather Hoops, M.D.

Speaking topics: Necrotizing soft tissue infections, Faculty development in surgical education: letters of recommendations, how to help the struggling learner, and team dynamics and leadership.



Tatiana Hoyos Gomez, M.D.



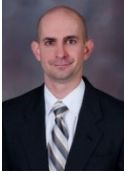
Laszlo Kiraly, M.D.

Speaking topics: Surgical nutrition; Education of medical students and residents

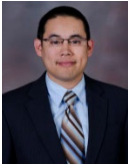
Transforming Trauma Care



Darren Malinoski, M.D.
Speaking topics: General trauma; Organ donation



Mitch Sally, M.D.
Speaking topics: Inflammation and response to injury; Organ donation;
Mechanical ventilation



Phil Van, M.D.
Speaking topics: Military trauma care; General trauma



David Zonies, M.D.
Speaking topics: ECMO; Military trauma care; Advanced ventilator management

Trauma Nursing Faculty



Heather Wong, MHS, BSN, RN
Trauma Program Director



Jody Berryhill, BSN, RN
Trauma Coordinator



Sarah Gold, BSN, RN
Injury Prevention Coordinator

Trauma Program Administration (Adult)



Elizabeth Herber
Conference and Education Coordinator
Trauma Program Administrative Coordinator

Trauma Advanced Practice Providers



Kristy Aghayan
Trauma Physician Assistant



Amy Biedenbach
Trauma Physician Assistant



Joshua Bowley
Trauma Physician Assistant



Alexis Croucher
Trauma Nurse Practitioner



Laura Dillon
Trauma Physician Assistant



Lynn Eastes
Trauma Nurse Practitioner



Mindy Hamilton
Trauma Nurse Practitioner

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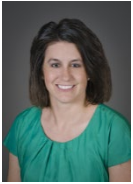
Kristen Haynes
Trauma Nurse Practitioner



Kyle Hoyer
Trauma Physician Assistant



Jessica Jurkovich
Trauma Nurse Practitioner



Nicole Kirker
Trauma Nurse Practitioner



Micheale Kolesnikov
Trauma Nurse Practitioner



Ryan McMahon
Trauma Physician Assistant



Stacey Mermigos
Trauma Physician Assistant



Erica Olson
Trauma Nurse Practitioner

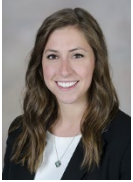
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Adrian Ramos
Trauma Nurse Practitioner



Lauren Ramsperger
Trauma Physician Assistant



Emma Schaus
Trauma Physician Assistant



Brandon Sheets
Trauma Nurse Practitioner



Amanda Staudt
Trauma Nurse Practitioner



Sally Wright
Trauma Physician Assistant