



**MetroHealth**

Devoted to Hope, Health, and Humanity

# TRAUMA REPORT 2021





## A MESSAGE FROM THE MEDICAL DIRECTOR

It is an honor and privilege to serve as the Trauma Medical Director for MetroHealth. Over the last year we have made significant strides in providing the highest quality trauma and burn care across Northeast Ohio and beyond. With our EMS and trauma partners, we continue to successfully transport patients, providing the highest level of care as quickly and as close to home as possible. Our yearly report highlights our 2021 volumes, accomplishments and outcomes in delivering trauma and burn care to adults and children at MetroHealth.

We continue to save lives and give people hope for the future. We continue to educate future caregivers. We continue to demonstrate that working together as a team provides the best care for our patients. This past year our team provided trauma and burn care when access to health care was most challenging while also providing care to COVID-19 patients. We look forward to serving the community for many years to come.



**Jeffrey Claridge, MD**  
Medical Director





## ABOUT THE METROHEALTH TRAUMA CENTER

The MetroHealth Trauma Center, located in Cleveland, Ohio, is one of the busiest in the nation.

Our team of doctors, nurses and other health care professionals has decades of experience with our American College of Surgeons-certified trauma center and American Burn Association-verified burn center treating adults and children.



### OUR TRAUMA TEAM

Our team includes board-certified surgeons, physician assistants, nurse practitioners, trauma and burn program managers, trauma coordinators, and data specialists.

## LEVEL I ADULT AND LEVEL II PEDIATRIC TRAUMA CARE

The MetroHealth Medical Center is Northeast Ohio's leading Level I Adult and Level II Pediatric Trauma Center.

MetroHealth's Level I Trauma Center provides the highest level of care for the most critically injured patients 24/7, seven days a week.

We also partner with community hospitals to improve care for patients who need treatment at a Level I trauma center. This ensures patients with severe injuries are quickly identified and treated at the appropriate level of care.

### OUR LEVEL I TRAUMA CENTER PROVIDES:

- Direct-to-operating room option for patients needing lifesaving surgery with no delay
- Trauma surgeons and emergency medicine physicians in hospital 24/7
- Designated trauma bays
- Designated trauma operating suites equipped and staffed 24/7
- Coordinated response from a multidisciplinary trauma team
- Imaging capabilities 24/7
- Anesthesiologist in-hospital 24/7
- 24/7 blood bank operation
- Inpatient surgical and trauma intensive care unit designed exclusively for the severely injured trauma patient
- Trauma rehabilitation services providing early intervention to traumatic brain injury and spinal cord injury patients
- In-depth trauma research, education, and injury prevention programs

## PEDIATRIC LEVEL II TRAUMA CARE

MetroHealth Medical Center is a Pediatric Level II Trauma Center verified through the American College of Surgeons Verification program.

The verification process promotes the development of trauma centers in which participants provide not only the hospital resources necessary for trauma care, but the entire spectrum of care to meet the needs of all injured patients.

The spectrum encompasses the prehospital phase through the rehabilitation process. To be a verified trauma center, MetroHealth meets the essential criteria that ensure trauma capability and institutional performance. MetroHealth has served the greater Cleveland area for over 20 years, committing to pursuing best outcomes for every patient we treat. Our trauma and burn programs provide care for all injured children, from neonates to adolescents.

The Trauma Center admits over 100 injured children a year, providing extensive critical care in collaboration with multiple specialists at MetroHealth.

We aim to continuously evaluate and improve the quality of care for trauma patients by participating in the American College of Surgeons Trauma Quality Improvement Program. We use the current Resources for Optimal Care of the Injured patient manual as a guideline to determine if the Level II criteria has been met.

CDC says getting care at a Level I Trauma Center can lower risk of death by **25%**



**24 x 7**  
in-hospital coverage



Ohio's only adult and pediatric trauma and burn center

**1st** verified trauma center in Northeast Ohio



## LEVEL III TRAUMA CARE

### PARMA LEVEL III TRAUMA CENTER

Trauma care got a little closer to home for residents and workers in Parma and surrounding communities when MetroHealth Parma Medical Center officially became a provisional Level III Adult Trauma Center, effective October 5, 2020.

Parma's dense population, MetroHealth's trauma expertise, and the MetroHealth Parma Medical Center's emergency, surgical and inpatient care capabilities all were contributing factors for seeking Level III Adult Trauma Center designation from the American College of Surgeons.

### LEVEL III TRAUMA PARTNERSHIPS – Mercy Health – Lorain Hospital and Fisher-Titus Medical Center

MetroHealth has partnered with Mercy Health — Lorain Hospital and Fisher-Titus Medical Center to bring our acclaimed trauma care closer to home for residents in Lorain and Huron counties.

MetroHealth's highly skilled and experienced Level I Adult Trauma providers now work in collaboration with Mercy Health Lorain to operate the Level III Trauma Center.

MetroHealth also provides training and education for Mercy Health Lorain nurses and other staff to build upon Mercy's high standards for care.

The partnership with Fisher-Titus Health involves co-management of the existing Level III Trauma Center at Fisher-Titus in Huron County with MetroHealth physicians and operational leadership. Specialized MetroHealth trauma surgeons work in collaboration with Fisher-Titus physicians and staff to provide trauma care for patients. A MetroHealth medical director and trauma program manager manage day-to-day trauma operations.

## COMPREHENSIVE BURN CARE CENTER

From the onset of any burn injury until the day a patient is fully healed, burn care requires a specialized team to manage these unique injuries. The MetroHealth burn care team begins with our first responders and continues with our support groups long after a person is healed. The MetroHealth Burn Care Center is one of two verified adult and pediatric burn centers in Ohio. We obtain verification every three years through the American Burn Association, and received verification in 2021, valid through 2023.

With over 50 years of burn care experience, our center treats both adults and children for more than 1,700 burn injuries a year, including those caused by electricity, lightning, chemicals and smoke inhalation. We also treat injuries not always thought of as burns, such as frostbite. With recent advances in care, many people survive burns covering over 75% of their bodies.

### PREPARING FIRST RESPONDERS

Good burn care starts well before the patient arrives at MetroHealth Medical Center, Ohio's only adult and pediatric trauma and burn center.

That's why MetroHealth's team is so passionate about its continuing education series that teaches the region's first responders about how to assess the severity of burns, dress wounds and transport patients—all of which are crucial to ensuring the best recovery for patients with severe burn injuries. In addition, the burn center also hosts the American Burn Association's Advanced Burn Life Support Course several times each year. This in-depth, 8-hour course readies nurses, providers and medics to treat a critical burn injury.

## TRAUMA STATS:

**1,400**

trauma, burn and  
emergency general  
surgeries performed

**6,000**

trauma patients  
cared for at MetroHealth

An additional 1,000 trauma  
patients were operated on  
by other specialties:

Orthopedics  
Neurosurgery  
Vascular  
General Surgery  
Plastic Surgery

Urology  
ENT  
Ophthalmology  
Oral Surgery

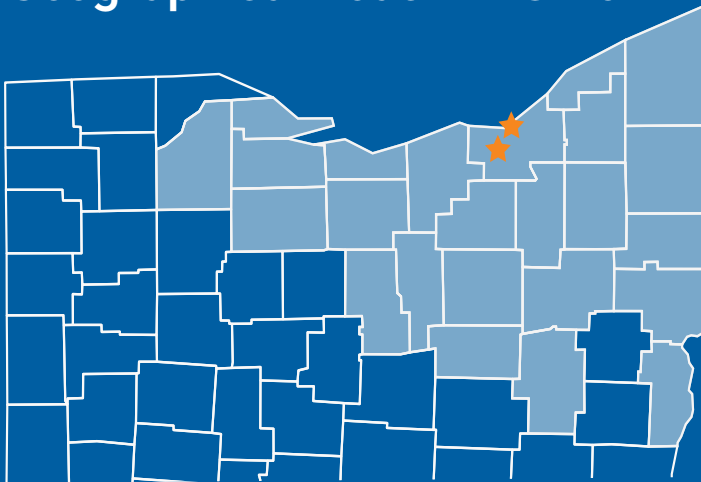
**70%**

of our trauma  
activations  
discharged home

**4,000**

trauma patients cared for  
through our partnerships

### MetroHealth Trauma and Burn Geographical Reach in Ohio



EMS partnerships  
continued excellent  
transport and care  
of our patients

**75%**

of patients were  
brought direct  
from scene

**25%**

of patients were  
transferred from  
other facilities

### Most Common Injuries for Trauma Activations

**42%**

Falls

**22%**

Motor Vehicle  
Accidents

**8%**

Gun Shot  
Wounds

**3%**

Motorcycle  
Accidents

**3%**

Burns

## BURN STATS:

**240** burn patient admissions

**213** burn surgeries

**85%** discharged home

Over **3,500** burn outpatient visits

**Most commonly treated issues include:**

Burns

Scar revision

Frostbite

Electrical injury

Burn and smoke inhalation



## SHARING EXPERTISE AND SAVING LIVES

At the time of her devastating motorcycle accident in June 2021, Christine Sabel was just minutes from MetroHealth's Level 1 Adult Trauma Center. She also was minutes away from death.

Christine, 48, and her boyfriend had been riding alongside each other, approaching a freeway interchange, when a malfunction prevented her from turning the handlebars. She was thrown from her bike, hit a guardrail, and was impaled before landing in a ravine.

Ken, Christine's boyfriend, flagged down a Westlake police officer who immediately prepared tourniquets for her right leg and arm. Others who stopped to assist included a MetroHealth pediatric trauma surgeon and an off-duty state trooper.

MetroHealth trauma surgeon Laura Kreiner, MD, and her team were waiting for Christine's arrival.

"When we read the incoming page/trauma alert, we were not expecting what we saw in Christine," Dr. Kreiner recalls.

**“But from the moment she arrived here, it was all about getting her to the right place at the right time.”**

The trauma surgery team quickly evaluated Christine's injuries. A broken pelvis; a broken leg; a mauled and broken arm; a torn thigh; broken ribs; and deep cuts through her stomach and chest.

Dr. Kreiner's team rushed Christine to the operating room and stabilized her intestinal and chest injuries. It was the first of more than a dozen operations in those initial days.

Orthopedic surgeons who specialize in the hand and upper extremities handled five of those surgeries. They contended with deep open wounds and tendon loss, along with stabilizing and fixing broken bones.

Adrienne Lee, MD, came in from home to handle the first of those surgeries. As with subsequent operations, the various teams worked as much as possible with each other to lessen the frequency Christine needed to go under anesthesia.

"We have a nice camaraderie and respect for each other," Dr. Lee says of working with her trauma and emergency department colleagues. "As much as we can do to facilitate and expedite the process, we do it."

Dr. Lee later invited the plastic/reconstructive surgery team to join her in the operating room, where they rearranged skin to cover Christine's wounds, setting the stage for successful reconstructive breast surgery months later.

Whether or not Christine's leg could be saved was an immediate concern for orthopedic surgeon Ari D. Levine, MD. She had sustained a lot of soft tissue damage along with a severely broken bone.

"Our goal was to do everything we could to allow her to keep her leg," he said. They did just that.

"Christine's care is a perfect illustration of how many different parts of MetroHealth touch a patient to make sure that we can get them out of the hospital," says Dr. Kreiner. "All of these things have to fall together perfectly."



When Christine woke up a few days later, she met her Trauma ICU care team. The nurse who removed her breathing tube. Another nurse who left Christine's side only to console and reassure her family. They and many others comprise the Trauma ICU team that in 2021 earned its second Silver Beacon Award from the American Association of Critical-Care Nurses.

"When I think of MetroHealth, my first thought is trauma," Christine says. "That's what I associate MetroHealth with," she says. "If you have something traumatic happen, that's where you want to be."

And MetroHealth is exactly where Christine wanted to be.

After three weeks at MetroHealth, Christine went to an acute long-term care hospital near her home in Mentor.

Inspired by visits she received from peer visitors with MetroHealth's Trauma Recovery Center, she is ready to join its volunteer ranks.

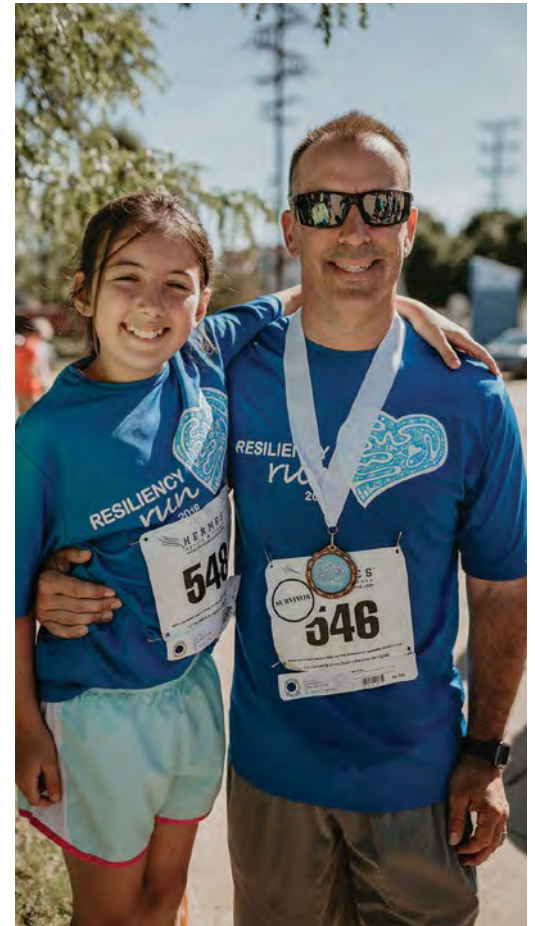
"It's been an amazing journey," says Christine, who continues to receive physical therapy. "I've been very, very fortunate. There have been so many blessings. I believe the people that have entered my life ... we have been able to heal each other in some way."



# COMMUNITY OUTREACH

## RESILIENCY RUN

The MetroHealth Trauma and Burn Care Center has hosted a 5K Run/1-mile Walk annually since the inception of the event in 2017. The unfortunate truth is that traumatic and burn injuries are common in our community, but so are strength and recovery. The Resiliency Run was created to honor these positive attributes. This event also acknowledges the caregivers who provide a steady hand of healing along the way. Moving into the sixth annual event, we look forward to hosting 500+ runners, walkers and trotters to our celebration at the Cleveland Metroparks Zoo.



# SHARING EXPERTISE AND SAVING LIVES



The caregivers at MetroHealth’s Trauma and Burn Care Centers are deeply committed to sharing their expertise when it comes to treating complex injuries. This community-focused outreach includes educational opportunities for first responders, nurses, physicians, surgeons and other professionals. Programs include:

**Advanced Trauma Life Support (ATLS®) Course:**

Using a curriculum developed by the American College of Surgeons Committee on Trauma, MetroHealth’s trauma surgeons and emergency medicine physicians teach skills for professionals caring for injured patients during the initial phase of care.

**International Trauma Life Support (ITLS®) Course:**

This course for pre-hospital personnel closely parallels ATLS® and is taught by our EMS coordinators.

**Trauma Nursing Core Course (TNCC™):**

This course—taught by MetroHealth’s trauma and emergency medicine nurses—is designed specifically for nurses caring for trauma patients.

**NEW FOR 2021 – Trauma Tuesdays at 2 p.m.:**

During each weekly session, an attending MetroHealth trauma surgeon explores a trauma case that highlights all phases of a critically injured patient’s care, from pre-admission to inpatient trauma care and rehabilitation.

**NEW FOR 2021 – Basic Trauma Critical Care Course**

**Education Series:** Led by MetroHealth clinical nurse specialists and trauma program managers, this series reviews the pathophysiology, patient assessment, management and sequelae of specific injury patterns. All inpatient nurses can access this prerecorded lecture series.

As an academic medical center, MetroHealth also provides robust educational programs for its surgical residents, trauma and surgical critical care fellows, and any surgeon looking to enhance their life saving skillset. For example, each session of The Advanced Surgical Skills for Exposure in Trauma (ASSET™) Course begins with a short case-based overview followed by a hands-on exposure performed by students under the guidance of trauma faculty.

# DIVISION RESEARCH

The Division of Trauma Surgery at MetroHealth had a very productive research year.

## HIGHLIGHTS

MetroHealth hosted its first EAST-supported multicenter trial, Scanning the Aged to Minimize Missed Injury, run by Vanessa P. Ho, MD, MPH, (principal investigator) and Sami K. Kishawi, MD (resident research scholar).

Diagnostic Adjuncts in the Assessment of Hypovolemia: Is it All a Shot in the Dark, a study led by Perna Ladha, MD, throughout 2021, was awarded the coveted Best Abstract by an AAS Member Award at the 2022 Academic Surgical Congress.

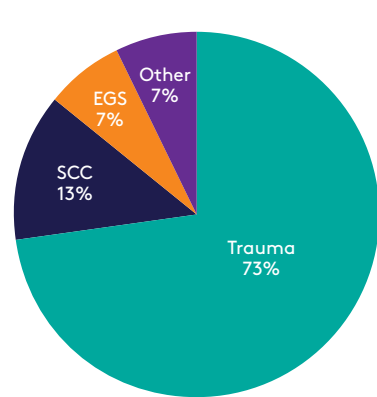
## PUBLICATIONS

In 2021, the group published 24 peer-reviewed manuscripts and had another six manuscripts accepted for publication.

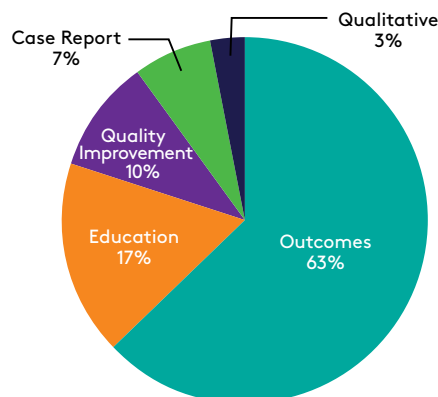
Of these manuscripts, 73% were trauma related, 13% were related to surgical critical care, 7% dealt with emergency general surgery and another 7% were related to non-trauma general surgery.

The most common journals in which the group published were the Journal of Trauma and Acute Care Surgery, The American Surgeon, and the Journal of Surgical Research.

In addition, five invited and non-peer reviewed publications, including chapters and reviews, were published in 2021.



PUBLICATIONS



PRESENTATIONS

## PRESENTATIONS

Members of the trauma group presented eleven projects at five different conferences in 2021. Another twelve were presented in the first three months of 2022, building on projects completed in 2021.

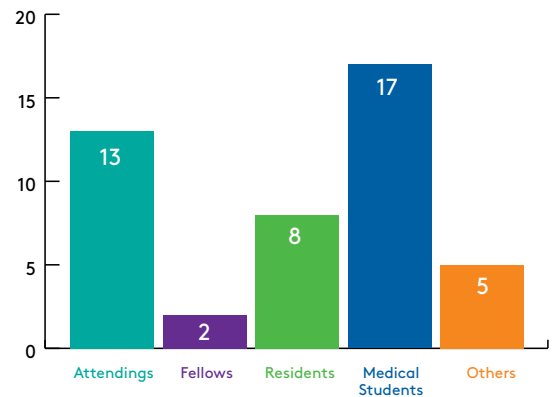
Two posters also were presented at AAST.

MetroHealth's Division of Trauma Surgery was represented at AAST, ASC, SCCM, SIS, EAST and the AcademyHealth Annual Research Meeting (ARM).

## PERSONNEL

In 2021, the research group included at least 45 active participants. Medical students were the group's largest contingent, accounting for nearly 40% of the group's membership. Students from Case Western Reserve University School of Medicine and Northeast Ohio Medical University played a role in dozens of projects.

Members from other research groups and networks frequently collaborated with the trauma research group, including the neurotrauma research group, Trauma Recovery Services and Allen Scholars from nearby University Hospitals Cleveland Medical Center's Department of Surgery.



PERSONNEL



## ABOUT METROHEALTH

Founded in 1837, MetroHealth operates four hospitals, four emergency departments, and more than 20 health centers and 40 additional sites throughout Cuyahoga County. The system serves more than 300,000 patients, annually—two-thirds of whom are uninsured or covered by Medicare or Medicaid. As Cuyahoga County's safety-net health system, MetroHealth plays an essential role in the region, caring for anyone and everyone, regardless of an ability to pay. The system's more than 8,000 employees go to work each day with a mission of service—to their patients and to the community. At MetroHealth, we are leading the way to a healthier you and a healthier community through service, teaching, discovery, and teamwork. **For more information, visit [metrohealth.org](https://metrohealth.org)**

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