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MetroHealth Trauma: Caring for Our Community

The MetroHealth System is pleased to present our first trauma outcomes report, which in addition to highlighting our outstanding record, provides a comprehensive overview of the many services our trauma center offers the Northern Ohio region.

As one of the nation’s premier trauma centers, patients rely on us for the latest approaches to evidence-based treatment and rehabilitation of traumatic injuries.

As you will see in the enclosed report, our strong relationship with you — our local emergency medical personnel and providers, fire and police departments and government and civic leaders — helps us to achieve MetroHealth’s overall mission, which is to lead the way to a healthier community through service, teaching, discovery and teamwork.

More specifically, our collaborative, research-based and state-of-the-art trauma care results in reduced morbidity and mortality and increased patient satisfaction. We hope you find the report that follows informative and we look forward to working with you as MetroHealth serves the trauma patients of Northern Ohio.

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The MetroHealth System
Trauma, Critical Care, Burns and Acute Care Surgery

With more than 20 years of experience, MetroHealth’s Level I Adult Trauma Center provides severely injured and ill patients the best chance of survival and recovery.

Along with a Level I Adult and Level II Pediatric Trauma Center, we house a verified adult and pediatric burn center and state-of-the-art critical care units. Our team of physicians, nurses and other specialists are ready to address a full spectrum of traumatic injuries in patients of all ages.

READY ACCESS TO CARE, ALL UNDER ONE ROOF
Our American College of Surgeons verified trauma center is located within our technologically advanced Critical Care Pavilion, under the same roof as our emergency department, intensive care unit and burn center, ensuring patients close proximity to the care they need.

Most of our trauma patients enter MetroHealth through our emergency department, which is open 24 hours a day, 365 days a year. Our emergency medicine specialists, often with the help of advanced imaging equipment, can quickly and accurately diagnose traumatic injuries so patients can be immediately referred to our trauma center.

The trauma center features a trauma operating room, where our trauma surgeons often work closely with orthopaedic surgeons, neurosurgeons, plastic surgeons, interventional radiologists and other health providers to simultaneously care for patients with multiple injuries and with high levels of severity. The operating room is ready to receive patients any time of day or night, and we pride ourselves on an emergency department to operating room time of less than ten minutes.

Overall, the trauma center receives 6,000 patients and has more than 3,000 trauma-related admissions annually. Notably, caring for more than 40 patients in one night is not unusual for our doctors.

After treatment for trauma, many people need care at MetroHealth’s surgical intensive care unit, which sees more than 2,000 critically ill surgical patients annually. In addition to intensivists, who specialize in critical care medicine, the unit features at least one critical care nurse for every two patients and a respiratory therapist, available 24 hours a day.

When needed, around-the-clock care is also available at our adult and pediatric burn center, verified by the American Burn Association and the American College of Surgeons Committee on Trauma. The center treats more than 1,700 burn patients every year with a multidisciplinary team that includes physicians and nurses who specialize in burn care, physical and occupational therapists, dietitians, pharmacists and clergy, among others. Patients may also receive care through the outpatient burn care clinic.
The higher the ISS, the more severe the injury. Patients with an ISS greater than or equal to 25 are the most severely injured. These patients have an approximate mortality of 50% and may be in the hospital for weeks, or even months.

The burn center treats more than 1,700 patients every year with a multidisciplinary team that includes physicians and nurses who specialize in burn care, physical and occupational therapists, dietitians, pharmacists and clergy, among others.
RAPID ACCESS TO CARE AT THE RIGHT FACILITY
For the last six years, MetroHealth has been a member of the Northern Ohio Trauma System (NOTS), a collaboration with Cleveland Clinic and Southwest General Hospital that ensures each patient receives appropriate care at the right facility as quickly as possible.

Further safeguarding rapid access to care, MetroHealth is home to Metro Life Flight, the first air medical program in the area, and a dedicated critical care ground transport ambulance.

REHABILITATION AND SUPPORT
While the immediate treatment of traumatic injuries is paramount, inpatient and outpatient rehabilitation, which includes physical, occupational and speech therapy, are also vital components of our services.

We also offer patients and their family members psychological and social support through our Trauma Survivors Network program.

RESEARCH AND EDUCATION
Additionally, research and education help to form the foundation of our comprehensive trauma care services. Many of our physicians, who also hold faculty positions at Case Western Reserve University School of Medicine, actively participate in research with the goal of improving trauma outcomes for our patients. Moreover, training and education of our area first responders ensures they have the skills, knowledge and experience to contend with medical emergencies.

Preventing trauma is another one of our priorities. Trauma prevention programs for young children, teenagers and older adults aim to reduce injuries in the local community. Topics addressed range from fire and pedestrian safety to distracted driving to fall and violence prevention. We believe our prevention initiatives are key to keeping citizens in the Northern Ohio region healthy and safe.

We have programs in place to help prevent the most common types of trauma. For falls, the most common cause of injury for those over 65, our nationally recognized “A Matter of Balance” program helps to educate the public to help prevent falls in older adults. To help prevent motor vehicle collisions, we work with the Save a Life Tour, participating in powerful interactive presentations about drunk and distracted driving that helps to highlight the potential devastating consequences of those actions.
MetroHealth is a leader in advancing the future of trauma care through research. This is demonstrated through efforts in research with funding from the Department of Defense (DOD), and National Institutes of Health (NIH). MetroHealth publishes 10 peer reviewed research publications that are in collaboration with multiple institutions each year.

A blunt trauma, such as a motor vehicle collision, results in mostly internal injuries. Penetrating traumas involve an object piercing the skin, such as a stab or gunshot wound.
Caring for Patients Across the Continuum

Healthcare providers at MetroHealth describe trauma as a disease requiring a continuum of care. Medical services at the scene of injury and immediate care at the trauma center are an important but relatively small part of what our health system offers patients.

From prevention of injuries to outpatient rehabilitation, our providers aim to enhance the safety of people within the local community and to improve the outcomes of our trauma patients.

Our trauma specialists believe that educating the public about safety is key to reducing the rate of traumatic injuries. MetroHealth is actively involved in sponsoring and providing safety awareness and training programs for young children, teenagers and older adults. Some of the many topics addressed include fire and pedestrian safety, distracted driving and fall and violence prevention.

MetroHealth also offers training and outreach to community emergency medical services, fire departments, law enforcement officials and other first responders. Continuing education and prehospital patient care protocols help responders provide the best triage at the scene and in transit. Our collaboration with the Northern Ohio Trauma System (NOTS) ensures that each patient is transferred to the facility that offers the most appropriate care.

Most of our patients enter the trauma center after a medical assessment by emergency department physicians. After being provided evidence-based, state-of-the-art care by a team of specialists that may include traumatologists, orthopaedic surgeons, neurosurgeons and plastic surgeons, about half of patients are transferred to our intensive care unit. Here, they receive around-the-clock care from our intensivists, dedicated nurses and respiratory therapists.

After receiving care at the trauma center or intensive care unit, patients are often referred to inpatient rehabilitation. Our physiatrists and physical therapists help patients get out of bed and become functionally mobile with the objective of having them return home as soon as possible.

Patients who are severely injured are referred to our inpatient rehabilitation facility for spinal cord injury, traumatic brain injury, multi-fracture and multisystem injuries. Inpatient physical, occupational and speech therapy are all available, as are outpatient rehabilitation services that further help patients return to the activities of daily living, improving their quality of life.

Helping patients and their families throughout the entire healing process, from acute care through ongoing recovery, is the Trauma Survivors Network (TSN). It is the only such program in Ohio that provides patients and their families with psychological support and guidance with the physical healing process after a serious injury. The network reflects one of MetroHealth’s goals for trauma patients, which is to create a better and more rapid healing experience.
MetroHealth also offers training and outreach to community emergency medical services, fire departments, law enforcement officials and other first responders.

Hospital Disposition

0% 10% 20% 30% 40% 50% 60% 70%

ACUTE CARE FACILITY
INTERMEDIATE CARE FACILITY
CHILD PROTECTIVE AGENCY
ANOTHER TYPE OF INPATIENT FACILITY
CORRECTIONAL FACILITY/COURT/LAW ENFORCEMENT
HOSPICE
LONG-TERM CARE
LEFT AGAINST MEDICAL ADVICE
MENTAL HEALTH/PSYCHIATRIC HOSPITAL (INPATIENT)
HOME WITH SERVICES
MORGUE
REHAB (INPATIENT)
SKILLED NURSING FACILITY
HOME OR SELF CARE (ROUTINE DISCHARGE)

2015
Prehospital Services

Prehospital care is one of the many complex, moving parts of MetroHealth’s comprehensive trauma services. Its role is to link community emergency medical services, fire departments, law enforcement and other first responders directly to our trauma center to better ensure public safety.

OUTREACH AND EDUCATION

Our prehospital education services ensure that first responders have the skills, knowledge and experience to contend with the medical or traumatic emergencies they may encounter in the community. Together, our emergency medicine physicians, trauma surgeons, pediatric critical care specialists, Metro Life Flight personnel, simulation center staff, nurses and pharmacists all play a role in preparing and educating our public safety forces.

Continuing education training takes place in the form of lectures, high fidelity simulation training and help with quality analysis of all aspects of prehospital care. These programs not only enhance regional pre-hospital care, they also build relationships with agencies that cover the MetroHealth service area. Some of our many courses include: Paramedic Refresher, International Trauma Life Support, Tactical EMS and Avon Lake Active Shooter Simulation (with Metro Life Flight).

Notably, the MetroHealth’s Simulation Center, Emergency Department and audiovisual department have been instrumental in creating a training module for the City of Cleveland Police Department through which all officers have received medical training consisting of basic life-saving care to provide initial on-the-scene care of critical injuries.

The skills police officers have learned may also be useful if injured in the line of duty. They and other first responders have immediate access to experienced, high-level trauma care.

Our specialists also assist with developing patient care protocols. For example, MetroHealth established a protocol for the City of Cleveland regarding when first responders should place patients in cervical immobilization with a cervical collar and backboard. In some populations, this immobilization can be harmful.

Our prehospital service specialists also provide outreach to first responders to help them psychologically process encounters with patients that result in negative outcomes. Counseling can support responders who are grieving or contending with any other emotions. Providing a case review of the patient and addressing any improvements in care or how to cope with a similar situation in the future may also be valuable.

METRO LIFE FLIGHT AND GROUND TRANSPORT

As the first air medical program in the area, Metro Life Flight has a 34-year history of providing the highest level of care when transporting patients in Northeast Ohio.

Metro Life Flight consists of three helicopter bases around the region and transports about 1,600 patients a year. An around-the-clock critical care ground transport ambulance based at MetroHealth transports more than 1,500 patients annually.

Each Metro Life Flight mission is completed with two pilots, both instrument rated, to maximize safety and enhance ability to fly in difficult weather conditions.

Our transport team consists of an outstanding group of flight nurses, physicians, medics, communication specialists, pilots, mechanics and support personnel who work closely with emergency medical services and referring hospitals.

While MetroHealth transports patients to any appropriate tertiary care facility, our hospital continually strives to provide ease of access to all of our partners through our auto-launch and auto-accept programs. Auto-launch is the rapid dispatch of a helicopter before collecting additional information, such as patient destination, while auto-accept immediately transports specific patient populations — for example, those with acute traumatic injury or abdominal aortic aneurysm — to our facility.

Metro Life Flight helicopters also carry state-of-the-art equipment, including portable ultrasound units on all transport vehicles so providers can assess patients for life-threatening hemorrhage and pneumothorax injuries. This enables emergency response to make better patient care decisions and interventions in critical care situations. Moreover, as a not-for-profit organization, the cost of emergency transport is manageable for our patients.
In 2010, MetroHealth formed the Northern Ohio Trauma System (NOTS) with Cleveland Clinic and Southwest General Hospital. Injuries and violence are the leading cause of death in people younger than 45, outpacing any other disease, including cancer, HIV or influenza, according to the Centers for Disease Control and Prevention (CDC). However, the Health Resources & Services Administration (HRSA) has recognized that regions in the United States with trauma systems experience a substantial decrease in morbidity and mortality from injury. With this knowledge, and the desire to improve patient outcomes, MetroHealth joined the Northern Ohio Trauma System (NOTS). Established in 2010, NOTS is a collaboration among MetroHealth, Cleveland Clinic, Southwest General Hospital and public health leadership. Under NOTS, the most serious trauma patients are often treated at MetroHealth’s Level I Adult Trauma Center. Level II Trauma Centers are located at Cleveland Clinic’s Hillcrest Hospital and Fairview Hospital, while Level III Center care is available at Southwest General. Another 13 participating hospitals offer emergency department services. The mission of NOTS is to provide the highest quality care to patients across the region by rigorously evaluating and improving outcomes, optimizing resources and providing education using a collaborative approach with hospitals, emergency medical services and public health services. Through NOTS, survival rates for patients who experience a traumatic injury have increased. The goal of NOTS and MetroHealth is to continue to work diligently to decrease morbidity and mortality and improve patient outcomes. Our overall outcomes are shown in the figure below.
As part of the story of MetroHealth working with NOTS and improving outcomes, we would like to share the outcomes of patients who required emergent surgery for abdominal injuries. These operations are termed trauma exploratory laparotomies (ExLaps) and are done on patients who have intra-abdominal injuries that require emergent surgical intervention to potentially save their lives and improve outcomes.

The study involved all patients who had ExLaps before and after NOTS. The two groups were very well matched with regard to similar ages, mechanism of injury and injury severity scores.

As part of the protocol and changes with NOTS, these patients were preferentially sent to MetroHealth, the Level I trauma provider for NOTS. Thus, 96% of patients went to MetroHealth after the creation of NOTS.

The overall outcomes demonstrate a significant reduction in mortality. Mortality dropped from 20% to 13% after the creation of NOTS. NOTS and MetroHealth collaborated in getting the most injured patients to MetroHealth for urgent operations resulting in a 35% relative reduction of mortality. Simply put, this means more lives are saved every year because of NOTS and MetroHealth’s leadership in urgently caring for injured patients. This work has been accepted for publication in the Journal of Trauma.
Emergency Department

MetroHealth has the busiest full service emergency department in Northern Ohio, treating more than 100,000 patients annually, with one third of these being children.

THE BUSIEST IN THE REGION
The department, open 24 hours a day, 365 days a year, is fully staffed with attending physicians who specialize in emergency medicine, trained emergency nurses and other highly skilled personnel. Many of our doctors hold certifications in subspecialties such as pediatric emergency medicine, toxicology, emergency medical services and ultrasonography.

ADVANCED TECHNOLOGY
MetroHealth’s emergency medicine specialists use advanced imaging equipment, including computed tomography and ultrasound to diagnose internal injuries quickly and accurately. A rapid bedside ultrasound examination is especially useful for assessing patients for internal bleeding in the chest or abdomen, requiring rapid referral to trauma care.

Additionally, a digital medical information system, with online medical records and paperless ordering for labs, radiology and admissions, helps to streamline emergency medicine care.

ENSURING READY ACCESS TO THE RIGHT CARE
To ensure ready access to care, the emergency department is housed within our newly expanded Critical Care Pavilion, under the same roof as our Level I Adult Trauma Center, acute surgery operating rooms, burn center and intensive care and critical care units.

The emergency department also works with our Comprehensive Stroke Center, certified by The Joint Commission, to provide immediate care for all types of complex stroke patients, including those with ischemic stroke or intracerebral hemorrhage.

Moreover, our state-of-the-art cardiac catheterization lab enables our interventional cardiologists to immediately treat heart attack and heart failure patients.

Our emergency medicine physicians also collaborate with MetroHealth orthopaedic surgeons, neurologists, pulmonary critical care specialists, plastic surgeons, obstetricians, ophthalmologists and psychiatrists to provide the right care for our patients.
EXPANDING SERVICE WITHIN THE COMMUNITY

To further serve the Northern Ohio region, MetroHealth has opened three additional emergency departments in Cleveland Heights and Parma in former HealthSpan facilities, as well as in Brecksville.

These community emergency departments are staffed by the highly qualified, board-certified doctors and nurses from the main MetroHealth campus. In addition to having the same types of in-house imaging equipment, these emergency departments have observation units and resuscitation bays. These two emergency departments are among 15 non-trauma center locations in Northeast Ohio that work with the Northern Ohio Trauma System (NOTS).

Our newest emergency department opened at the recently completed MetroHealth Brecksville Health and Surgery Center. In addition to high quality emergency medicine care, the new facility features a helipad so trauma patients can be stabilized on-site and taken by Metro Life Flight to MetroHealth for necessary trauma care.

This expansion supports MetroHealth’s commitment to improving access to care for people living in Cuyahoga County.

Arrival by Time of Day

<table>
<thead>
<tr>
<th>Time Period</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00 A.M. - 7:59 A.M.</td>
<td>47.28%</td>
</tr>
<tr>
<td>8:00 A.M. - 3:59 P.M.</td>
<td>31.63%</td>
</tr>
<tr>
<td>4:00 P.M. - 11:59 P.M.</td>
<td>20.63%</td>
</tr>
</tbody>
</table>

Our trauma service serves patients 24 hours a day, seven days a week, 365 days of the year, with most patients arriving between 4:00 p.m. and midnight.

RESEARCH AND EDUCATION

Our research and education programs reflect the experience of our emergency medicine physicians and their continued drive to improve patient care.

Emergency department physicians collaborate with MetroHealth’s traumatologists to determine how trauma care impacts our patients. For example, together, their research found that NOTS has saved lives within the Northern Ohio region.

MetroHealth, in collaboration with Case Western Reserve University School of Medicine and Cleveland Clinic, also offers an emergency medicine residency program, which has graduated many residents with excellent clinical and leadership skills into both academic and community practices.

Additionally, a fellowship in emergency medical ultrasound trains future leaders in this specialty through the development of academic, clinical and administrative skills in this highly specialized field of medicine.
Orthopaedic Trauma

Orthopaedic traumatologists are an integral part of comprehensive trauma service. MetroHealth commonly sees patients with multiple and complex orthopaedic injuries, requiring a specialized team of surgeons.

ORTHOPAEDIC SPECIALISTS DEDICATED TO TRAUMA CARE

For nearly 40 years, one of the orthopaedic department’s primary goals has been to provide a full array of orthopaedic trauma services. Our physicians are fellowship-trained, specializing in orthopaedic traumatology, hand and upper extremity injuries, spinal cord injury and pediatric orthopaedic traumatology. Together, they provide the largest team of full-time orthopaedic traumatologists in Northern Ohio.

Several of our orthopaedists, including a traumatologist, a hand and upper extremity specialist and a spinal cord injury specialist, are on call 24 hours a day. We work closely with the entire multidisciplinary trauma team and we are recognized among the best trauma programs in the country.

OFFERING A FULL RANGE OF PROCEDURES

In addition to the treatment of multi-fractures and complex fractures, our specialists manage pelvic and acetabular fractures, fractures of the wrists, hands, arms, elbows, shoulders, legs, ankles and feet as well as joint, tendon, muscle, arterial and nerve repair. Post-traumatic reconstruction is also available.

To stabilize and manage patients with spinal cord injuries, our orthopaedic spine traumatologists closely collaborate with MetroHealth neurosurgeons.

EARLY APPROPRIATE CARE

Providing prompt management of our orthopaedic trauma patients is critical. MetroHealth’s orthopaedic trauma specialists were the primary developers of an early appropriate care model for orthopaedic injuries. Researchers have found that treatment of major fractures within 24 hours of injury significantly reduced hospital stay, ICU stay and pulmonary complications such as pneumonia and acute respiratory distress syndrome.

Our orthopaedic traumatologists also provide acute treatment of complex spinal cord injuries through the early appropriate care program. This allows for safe early mobilization and rapid involvement in a rehabilitation program.

A CLOSE COLLABORATION WITH REHABILITATIVE SPECIALISTS

Physical and occupational therapy at the MetroHealth Rehabilitation Institute of Ohio is also a crucial part of taking care of our orthopaedic patients. Moreover, MetroHealth is nationally recognized for its spinal cord injury rehabilitation service, in which a single physical medicine and rehabilitation physician specializing in spinal cord injury provides continuity of care throughout the recovery process.

We also provide state-of-the-art care for spinal cord injuries through our functional electrical stimulation program, which is dedicated to restoring movement and achieving maximum function through the stimulation of nerves and muscles with electrical currents.

RESEARCH AND EDUCATION

In addition to continuing to study the outcomes of our early appropriate care program, orthopaedic researchers are participating in several Major Extremity Trauma Research Consortium (METRC) studies.

For example, FIXIT is evaluating hospital readmissions for patients with severe open shin fractures who undergo “internal fixation,” where the bone is fixed in place with a nail down the middle of the bone or a plate on top of the bone but under the skin versus “external ring fixation,” where the bone is fixed using pins attached to rings and rods outside of the leg.

Our orthopaedic trauma specialists also hold faculty positions at Case Western Reserve University School of Medicine and provide residency training for University Hospitals Health System and the Cleveland Clinic Foundation. Moreover, MetroHealth provides training for other orthopaedic programs by sponsoring elective rotations for residents in the Meridia System and the Summa Health Care System. As part of our dedication to training the next generation of physicians, we also offer one of the top orthopaedic trauma fellowships in the country. This fellowship is fully accredited by the Orthopedic Trauma Association and funded by Arbeitsgemeinschaft für Osteosynthesefragen (AO) North America Foundation.
Pediatric Trauma

In addition to a Level I Adult Trauma Center and an adult and pediatric verified burn center, MetroHealth features a Level II Pediatric Trauma Center, making us unique in the Northern Ohio region in our ability to keep family members together in the event of multiple members with traumatic injuries.
COMPREHENSIVE AROUND-THE-CLOCK SERVICES

More than 400 trauma patients were seen in MetroHealth’s emergency department in 2015, and approximately 150 of these individuals were admitted to the pediatric trauma service for their injuries.

By definition, our Level II Pediatric Trauma Center provides 24-hour immediate coverage by general surgeons, orthopaedic surgeons, neurosurgeons, anesthesiologists, emergency medicine specialists, radiologists and intensivists.

Tertiary care needs such as cardiac surgery and hemodialysis are also available at MetroHealth.

Children receive a team approach to care. Our specialists meet weekly to discuss and coordinate the care and recovery of our pediatric trauma patients.

Notably, MetroHealth has the only pediatric intensive care unit (PICU) on Cleveland’s West Side. The patient- and family-centered unit is on the same floor as trauma services, providing immediate and coordinated access for critically ill children who need the highest level of minute-to-minute medical care.

The PICU’s dedicated team of specialists includes pediatric intensivists, nurses, respiratory therapists, child life specialists, social workers and other support staff.

Advanced technology includes state-of-the-art ventilators as well as invasive and non-invasive monitoring. Pediatric procedural sedation services are also available to ensure children’s anxiety and comfort are addressed while they are receiving care.

After their traumatic or critical medical needs are addressed, children may receive additional care in MetroHealth’s general pediatric unit. Rehabilitative services, including physical, occupational and speech therapy, are also readily available with the goal of returning children to their homes as soon as possible.

Our designated pediatric trauma coordinators are available to families to help them navigate the many medical services available at MetroHealth during a child’s care and recovery. This service is especially valuable to young patients with multiple injuries who may be seeing numerous specialists or who need extensive follow-up.

EDUCATION A PART OF CARE

As a Level II Pediatric Trauma Center, MetroHealth provides trauma prevention education programs for the community, continuing medical education and incorporates a comprehensive quality assessment and improvement program.

A quality unique to MetroHealth is our focus on injury prevention in the pediatric population. For example, our hands-on safety awareness initiative, Safety-to-Go, helps preschoolers, kindergartners and children in grades 1 through 6 avoid injury, while our Save a Life Tour focuses on prevention of distracted driving in teens.
Rehabilitation

While the immediate objective of MetroHealth’s trauma physicians is to address patients’ acute injuries, the ultimate goals are to help individuals return to the activities of daily living within their homes and communities and restore their quality of life.

RESTORING FUNCTION AND QUALITY OF LIFE

Helping patients regain their quality of life is possible through the MetroHealth Rehabilitation Institute of Ohio, a Commission on the Accreditation of Rehabilitation Facilities (CARF) and Magnet-accredited rehabilitation hospital in Northern Ohio. The Institute is directly integrated with our Level I Adult Trauma Center, a Joint Commission-certified Comprehensive Stroke Center and a federally designated Spinal Cord Injury Model Systems Center. These designations reflect higher patient satisfaction and better patient outcomes.

INPATIENT AND OUTPATIENT PROGRAMS

Our physiatrists (rehabilitation physicians) serve as consultants while patients are still in the trauma unit for traumatic brain injury, spinal cord injury, multi-system trauma and multi-fracture trauma and in the general medical and surgical units for stroke and other disabling conditions. We help patients get up and out of bed and become functionally mobile as soon as possible, with the objective of having them return home from the acute hospital.

Patients who are severely injured or disabled, and initially treated at other health systems, are additionally referred to our acute inpatient rehabilitation program based at the MetroHealth Old Brooklyn Health Center. The center features the only dedicated spinal cord injury/multi-trauma, traumatic brain injury and stroke rehabilitation units in the region. In 2015, nearly half of the 803 acute inpatient rehabilitation patients were referred from the MetroHealth Trauma Center.

Acute inpatient rehabilitation programs generally last two to four weeks for spinal cord injury, three weeks for traumatic brain injury, multi-fracture and multisystem injuries, and two to three weeks for stroke and other disabling conditions. During this time, our physiatrists manage any ongoing medical issues, including ventilator management, to ensure patients are stable enough to receive intensive physical, occupational and speech therapies. Once patients are mobile and able to participate in their activities of daily living, including eating, dressing, bathing and toileting, they are ready to return home.

Nearly all individuals receive follow-up outpatient care, which includes helping them with more complex activities such as money management, household chores, going back to school or work, and community reintegration. Patients also continue to see their trauma, surgical, medical and rehabilitation specialists for follow-up care.
STATE-OF-THE-ART FUNCTIONAL ELECTRICAL STIMULATION

MetroHealth is a key partner of the internationally acclaimed Functional Electrical Stimulation (FES) Center in collaboration with Case Western Reserve University and the Louis Stokes Cleveland Veterans Affairs Medical Center.

Our orthopaedic surgeons, neurosurgeons, physiatrists, engineers, scientists and therapists are among the first to implant sophisticated FES systems for the treatment of paralysis caused by spinal cord injury. MetroHealth is the only center that offers this unique intervention.

The systems entail the use of small, artificially generated electrical currents that are safely and selectively applied to the central or peripheral nervous system to replace the actions of neurons that have been damaged by traumatic injury.

FES systems can help restore function for patients with arm or leg paralysis, breathing problems, loss of bowel or bladder function and problems with sexual function.

These systems can also be used to stabilize the spine so patients can sit up or stand.

With more than $25 million in National Institutes of Health (NIH) grants, researchers are now investigating FES for treating traumatic brain injury, stroke and cerebral palsy using implantable and non-implantable systems.

As MetroHealth and our partners develop this technology to maturity, it will be disseminated to other centers, building on MetroHealth’s experience to bring this remarkable technology to the greatest number of patients.

A FOCUS ON EDUCATION

MetroHealth is actively involved in the training of the next generation of rehabilitation clinicians, with a resident training program and a spinal cord injury fellowship, both of which are accredited by the Accreditation Council on Graduate Medical Education. MetroHealth also provides training for medical, engineering, science and allied health students from Case Western Reserve University School of Medicine and across the region and nation.
Launched in May 2013, MetroHealth’s Trauma Survivors Network (TSN) is the only such program in Ohio that helps patients and their families psychologically and physically heal after the shock of a serious injury.

ONGOING HEALING FOR PATIENTS AND THEIR FAMILIES

The TSN maintains a healthy and productive connection between the acute side of care and ongoing recovery, creating a better and faster healing experience for patients.

The American Trauma Society (ATS), the Johns Hopkins Bloomberg School of Public Health and the Johns Hopkins University School of Medicine developed the TSN. Established as a grant-funded initiative through the ATS, MetroHealth has fully adopted the program and has expanded its curriculum. Only five other hospitals in the United States offer a Trauma Survivors Network.

As of 2013, the TSN has counseled 1,350 patients and families, provided 1,250 peer visits and logged more than 1,000 volunteer hours.

MetroHealth’s TSN consists of a stable of 15 to 20 volunteers, with four to seven being active at any one time, depending on the specific needs of patients. For example, a volunteer who is the lone survivor of a car accident may counsel a patient who is faced with the same trauma. A volunteer who is a bilateral amputee will counsel a current patient who is contending with a similar outcome.

PEER VISITOR AND SUPPORT PROGRAMS

The TSN features a peer visitor program that brings former patients and their family members together with current patients to assist them with a healing process that starts in the hospital and continues after returning home.

Peer visitors are on the front lines of care with MetroHealth nurses, physicians and care teams, providing support in real time. Having peer visitors present in the hospital room not only is a source of support for patients, but also allows providers to focus on the clinical aspects of care.

The TSN also provides an array of support groups for anybody who has been involved in a trauma. These range from a general trauma group to groups for patients who have suffered from traumatic brain injury or to injuries resulting in amputation.

CONNECTING WITH FIRST RESPONDERS

Another component of the TSN is offering support and outreach to the community’s first responders and connecting them with the patients they have served. Seeing what happens to patients after saving their lives provides responders with a sense of how their work positively impacts others. These meetings are also therapeutic for patients because they have an opportunity to thank first responders, creating a sense of closure.

RECOVERY COACHING

Recovery coaching offers inpatient and outpatient education to help individuals with their journey throughout the physical healing process, with the navigation of...
services and support. For example, coaching addresses details such as what to expect during follow-up appointments, potential recovery timelines, healthy coping mechanisms and where to go for additional supports and services.

Coaching, which is available throughout the entirety of the physical healing journey, also helps patients to determine when more clinical care is necessary.

RESEARCH INITIATIVES

MetroHealth is participating in the Trauma and Collaborative Care Study, sponsored by the Major Extremity Trauma Research Consortium (METRC), to evaluate collaborative care efficacy, which includes TSN services. This research, which is being conducted in patients following major limb trauma, is ongoing and data is currently being evaluated.

To date, through METRC and related MetroHealth studies, researchers have found that patients who have received TSN services have experienced an increase in overall satisfaction compared to patients who have not.

Researchers at MetroHealth have also evaluated the post-discharge phone call process, a part of recovery coaching, by reaching out to patients over an eight-week period three to five days after leaving the hospital. These calls encourage patients to be engaged in their follow-up care, remind them of their next appointments and answer any questions they might have. Calls resulted in a 75 percent increase in trauma clinic follow-up appointments, from 2014-2015.

Overall, MetroHealth’s collaborative care research reflects how providers are helping patients to engage in the health system and to take responsibility for their own recovery and care.
Prevention

Prevention is the first step toward avoiding traumatic injuries, which is why it serves as a fundamental component of our trauma system’s continuum of care.

A METHODICAL APPROACH TO AVOIDING TRAUMATIC INJURIES

MetroHealth adheres to the American College of Surgeons’ Resources For Optimal Care of the Injured Patient, otherwise known as the “orange book,” which recommends that verified trauma centers have an organized and effective approach to injury prevention and prioritize these efforts based on local trauma registry and epidemiologic data.

Primary prevention involves preventing the occurrence of an injury by reducing exposure to and risk factors for trauma. Our methodology for preventing injuries includes defining the problem — or the who, what, where, when and how an injury occurs — identifying determinants of various injuries, conducting surveillance and data analysis, identifying, implementing and testing prevention strategies, and changing policies and practices to achieve successful solutions.

FALLS PREVENTION

Referencing evidence-based programs that emphasize strength and balance, our physicians, nurses and other team members provide education to inpatients, as well as outreach at local senior centers, health fairs and outpatient facilities, to help prevent falls throughout the community. The initiative also encourages having medications and vision assessed, as well as eliminating hazards in the home, to help prevent falls.

MetroHealth encourages first responders to play a part in preventing falls because they are the first medical personnel to see a person’s home and can conduct a home safety check and offer advice on making easy modifications, such as moving rugs, fixing stair railings, installing grab bars and improving lighting.

DRIVING SAFETY

In addition to addressing driving under the influence as a critical part of driving safety, MetroHealth focuses on distracted driving with a Save a Life Tour. This is a national high-impact impaired and distracted driving simulator program presented at local high schools. Our Trauma Critical Care physicians and Trauma Program Coordinators also talk about the consequences of texting while driving and ask students to sign a pledge to not text and drive.

One of the goals for 2016 is to better target adults who are texting and driving by encouraging primary care physicians to discuss the problem with their patients.
SAFETY-TO-GO

MetroHealth’s Division of Trauma, Critical Care, Burn and Acute Care Surgery, in collaboration with the Cleveland Municipal School District and the local not-for-profit organization Safety-To-Go, recently launched a hands-on safety awareness and training program for preschoolers, kindergarteners and children in elementary grades 1 through 6 in Cuyahoga and other nearby counties.

Through the Safety-to-Go initiative, school children learn about railroad track safety, pedestrian, water and bike safety, stranger danger, anti-bullying, contacting 911, as well as gun, fire, seatbelt and bus safety. Instructors use a variety of teaching methods, including hands-on activities, books, songs, videos and role-playing.

Safety-to-Go staff also set up a portable Safety Community in local school gyms or multipurpose rooms. This customizable community includes features such as a working traffic light, a miniature hospital, fire department and crosswalks. Instructors guide children riding a tricycle and wearing a helmet through the Safety Community to reinforce lessons taught to them earlier in the day.

MetroHealth’s Division of Trauma, Critical Care, Burn and Acute Care Surgery is the Platinum Safety Sponsor for the 2016/2017 Cleveland Municipal School District school year, bringing the program to 20 kindergarten classes within the district.

VIOLENCE PREVENTION

Research has proven there is a window of opportunity to change the trajectory of victims of violence while they are recovering from their traumatic injuries.

MetroHealth, along with the Northern Ohio Trauma System (NOTS), is committed to injury and violence prevention through utilization of evidence-based programs that are successful in decreasing recidivism, increasing youth enrollment in schools, assisting with job placement and receiving social services — all which lead to putting victims of violence on a different pathway. Both MetroHealth and NOTS work continuously to improve the lives of the community we serve.

MetroHealth’s goal is to target adults who are texting and driving by encouraging primary care physicians to discuss the problem with their patients.
Looking Ahead: The Future of Trauma

MetroHealth will continue to serve area trauma patients under the roof of its newly-completed Critical Care Pavilion, a 100,000 square-foot vertical expansion that is the first completed step of MetroHealth’s main campus transformation.

CONTINUING TO SERVE PATIENTS WITH FACILITY EXPANSIONS

Two floors and 85 Intensive Care Unit (ICU) rooms were added to the existing Level I Adult Trauma Center, emergency department and surgical operating rooms on the West 25th Street main campus. The new ICU rooms house MetroHealth’s trauma, burn and most critically ill patients.

Each of the 85 patient rooms is single-occupancy, with dedicated space to accommodate family members who may want to stay overnight. The rooms were designed to create a soothing atmosphere and include floors that minimize noise, lighting to support a patient’s sleep and wake cycles and floor-to-ceiling windows to allow for natural light.

The expansion also features multidisciplinary collaboration areas, where physicians, nurses and other health team members can discuss treatment plans, medication rooms featuring Pyxis MedStation® automated dispensing systems and simulation stations that provide hands-on training and a run-through of patient care.
The MetroHealth System has also opened three Emergency Departments in Brecksville, Cleveland Heights and Parma, increasing our presence throughout Northern Ohio.

This expansion supports MetroHealth’s commitment to improving access to care for every resident of Cuyahoga County. The three emergency departments are under the direction of MetroHealth’s Department of Emergency Medicine and are among 15 non-trauma center locations in Northeast Ohio that work with the Northern Ohio Trauma System (NOTS).

RAISING THE BAR WITH RESEARCH

Our physicians will continue to raise the bar in trauma research with the goal of improving patient outcomes.

For example, the Prehospital Air Medical Plasma (PAMPer) Trial is a four-year study that is evaluating emergency treatment after traumatic injury when the patient condition may not allow time for consent. MetroHealth Medical Center and Case Western Reserve University are one of only six centers chosen by the U.S. Department of Defense to participate in this project. Metro Life Flight is enrolling patients with blunt or penetrating trauma and hemorrhagic shock who are being transported to MetroHealth.

Among other outcomes, the PAMPer study will determine the effect of infusing two units of AB universal donor plasma during air medical transport on 30-day mortality in patients with hemorrhagic shock versus standard medical care, which is waiting until arrival at the trauma center emergency department to administer plasma.

In other research, our orthopaedic traumatologists continue to study the outcomes of their early appropriate care program, in which treatment of major fractures within 24 hours of injury appears to significantly reduce the need for aggressive treatment, hospital stay, ICU stay and pulmonary complications.

Physiatrists at our MetroHealth Rehabilitation Institute of Ohio, who have more than $25 million in National Institutes of Health (NIH) grants, will investigate functional electrical stimulation for treating traumatic brain injury and stroke.

MetroHealth researchers will also continue participating in several Major Extremity Trauma Research Consortium (METRC) studies. Examples include evaluating hospital readmission rates for patients undergoing internal versus external fixation for severe open shin fracture and assessing collaborative care efficacy in patients following major limb trauma.

TRAINING THE NEXT GENERATION

As part of our investment in the future of trauma care, MetroHealth physicians are actively training the next generation of traumatologists and rehabilitation medicine specialists.

For example, the Division of Trauma, Critical Care, Burns and Acute Care Surgery at MetroHealth sponsors a surgical critical care/trauma fellowship and a burn research fellowship. Additionally, the Department of Orthopaedic Surgery offers an orthopaedic traumatology fellowship, in which physicians in training are exposed to patients with multiple injuries, pelvic and acetabular injuries, complex articular fractures and post-traumatic reconstruction.

MetroHealth Medical Center is also a co-sponsor of the Combined Cleveland Hand Fellowship with Cleveland Clinic. With this program, physicians rotate through trauma, hand reconstruction, neuromuscular restoration, shoulder and elbow repair and other service lines.

MetroHealth also participates in a spine fellowship program with Case Western University. During their rotation at MetroHealth, trainees are involved in the management of the spine trauma service.

Rehabilitative medicine training is also an important part of laying the foundation for the future care of trauma patients. During a physical and rehabilitation medicine residency, students care for patients in specialized units for spinal cord injury and trauma, brain injury and stroke rehabilitation at the MetroHealth Rehabilitation Institute of Ohio.

MetroHealth, in conjunction with the Department of Physical Medicine & Rehabilitation at Case Western Reserve University, also offers a fellowship in spinal cord injury medicine. This fellowship provides specialized training in the prevention, diagnosis, treatment and management of traumatic and non-traumatic spinal cord injury.

THE BOTTOM LINE

Through the continued expansion of our services for the Northern Ohio region, our pursuit of new knowledge regarding patient outcomes and the training of future generations of physicians, MetroHealth strives to provide the best medical care possible for its trauma patients.
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CLINICAL EXPERTISE
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• Bariatric Surgery
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SPECIALTY AREA: Surgical Critical Care
Trauma coordinators and managers support the trauma service as a whole, coordinating day-to-day activities within the department. They review all patients who are on the trauma service and monitor for any performance issues, as required by the American College of Surgeons. The trauma program managers also coordinate American College of Surgeons site surveys every three years.

After discharge, the trauma coordinators and managers help with patient follow-up and ensure patients have the appropriate follow-up care. MetroHealth Medical Center recently launched a poly trauma clinic to better serve our patients, allowing for a single follow-up visit instead of multiple appointments with different sub-specialties.