UPSTATE
UNIVERSITY HOSPITAL

Trauma Center
750 East Adams Street
Syracuse, NY 13210

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UPSTATE UNIVERSITY HOSPITAL | *Trauma Center*

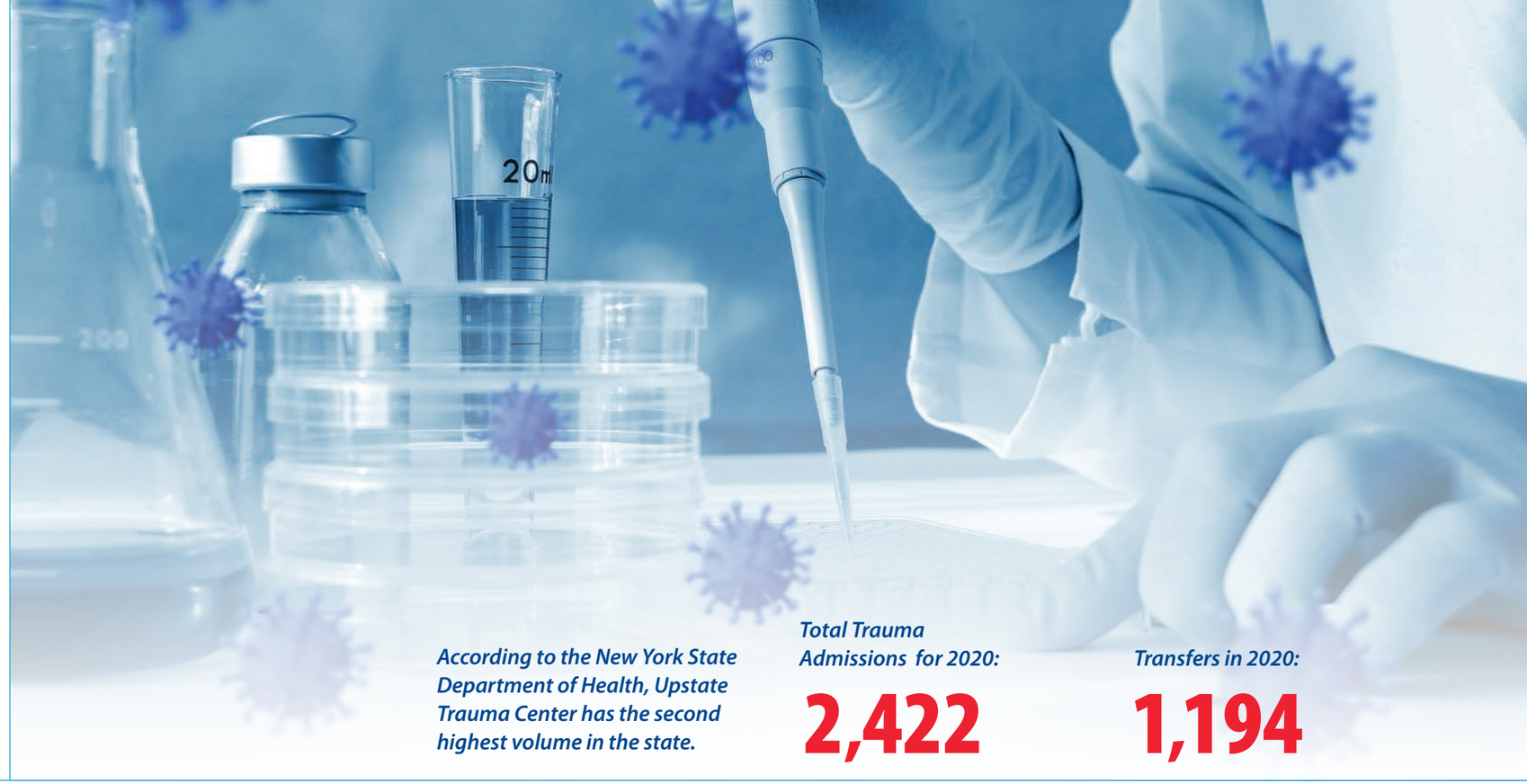
2020 YEAR IN REVIEW

AN OVERVIEW OF UPSTATE'S **ADULT TRAUMA CENTER PROGRAM** FOR 2020

The Region's Only Level-One **Trauma Center**

TREATING TRAUMA

Amid a Global Pandemic



According to the New York State Department of Health, Upstate Trauma Center has the second highest volume in the state.

Total Trauma Admissions for 2020:

2,422

Transfers in 2020:

1,194

A letter from Upstate's Trauma Program Leadership

The year 2020. Locally and around the globe, everyone had to adjust and adapt to the world we were now living in. And the same applied to the region's only Level I trauma center. We had to adjust and adapt - and we did. Throughout this pandemic, our team has remained prepared to provide the highest level of trauma care around the clock, 24/7/365 – just as we would at any other time – and all while incorporating COVID guidelines into our care protocol to keep our patients and staff safe.

At the onset of the pandemic, we experienced a slight dip in our trauma volume. But that lasted for just two to three weeks before a swift return to "normal" in terms of the number of injured patients treated. And that pace maintained for the duration of 2020.

Despite the pandemic, our teams remained present and available without any disruption in service to incoming trauma patients. Our Emergency Departments never closed to trauma patients, and Upstate was able to provide all treatment and services required to maintain our Level 1 trauma designation. That meant that, among other requirements, CTs, MRIs, and x-rays were available around the clock and our operating rooms remained staffed and ready - so any trauma patient needed surgery would be in the OR within 15 minutes of their arrival to our hospital.

Despite the challenges, we remained steadfast in our commitment to the highest quality of care. We grew our team by adding an Associate Trauma Medical Director and started recruiting for a second Performance Improvement Coordinator.

Additionally, we continued to participate in the TQIP (Trauma Quality Improvement Program) which enabled us to receive benchmarked reports on a variety of performance measures. These measures allowed us to continue to improving our program while advancing our care.

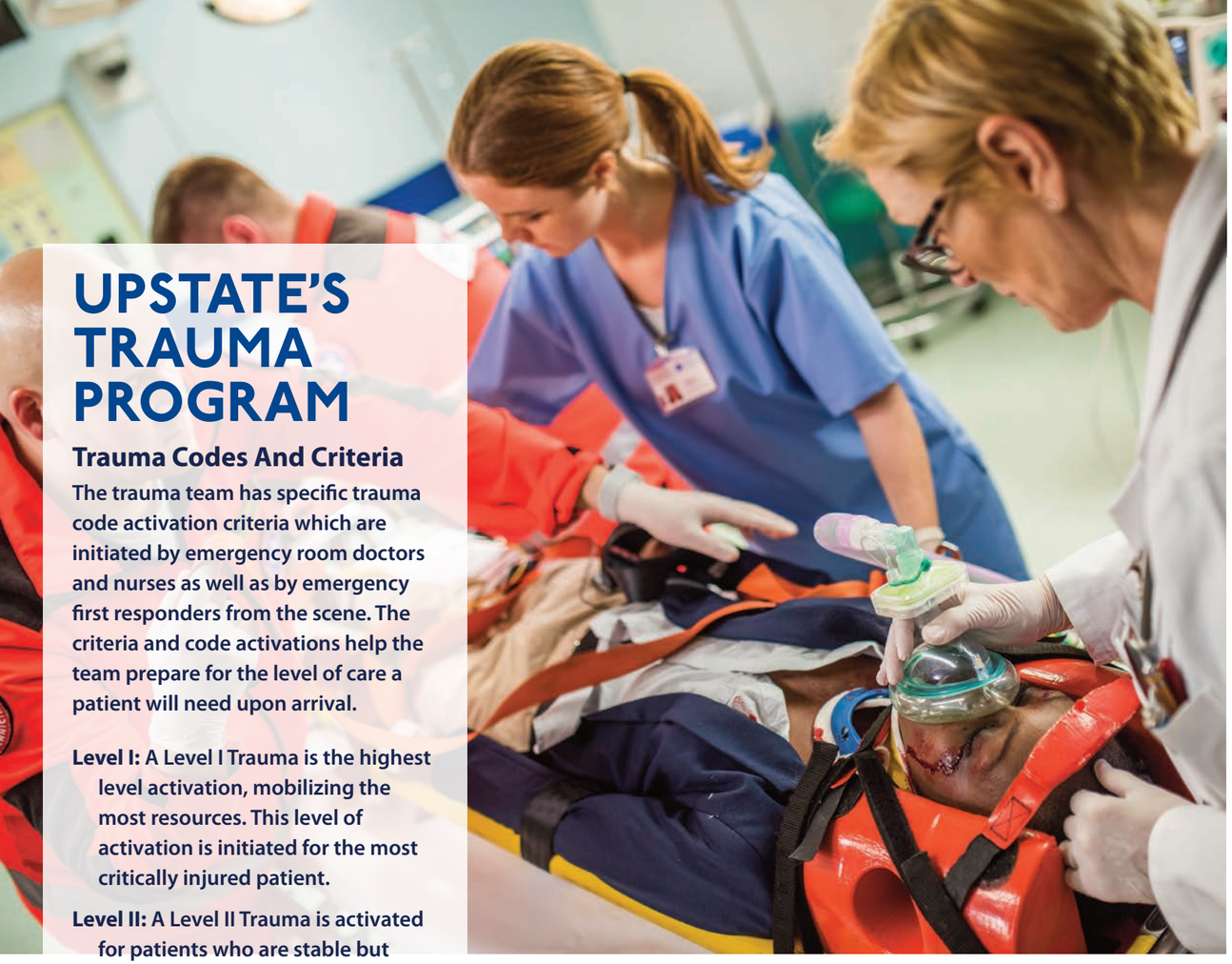
As a level 1 program, bringing patients the latest innovations in trauma care is vital. In 2020, those innovations included TEG (thromboelastography) and REBOA (resuscitative endovascular balloon occlusion of the aorta). While the first is a method of testing the efficiency of blood coagulation, the latter is a minimally invasive technique using a balloon catheter to temporarily occlude large vessels in support of hemorrhage control.

Despite a global pandemic, our program also maintained our commitment to education, outreach, and injury prevention safely by adapting many of our activities to a virtual platform. We were able to offer access to educational programs including TCAR, TNCC, and ATLS and safely "visit" many of our referral hospitals and EMS agencies thanks to the miracle of technology.

We are excited to share our year in review with you and looking forward to continuing our commitment to the highest level of trauma care.

William Marx, DO, FACS
Trauma Medical Director

Jolene Kittle, MS, RN, ACCNS-AG, NE-BC, TCRN, CCRN-K, CEN, CFRN
Trauma Program Manager



UPSTATE'S TRAUMA PROGRAM

Trauma Codes And Criteria

The trauma team has specific trauma code activation criteria which are initiated by emergency room doctors and nurses as well as by emergency first responders from the scene. The criteria and code activations help the team prepare for the level of care a patient will need upon arrival.

Level I: A Level I Trauma is the highest level activation, mobilizing the most resources. This level of activation is initiated for the most critically injured patient.

Level II: A Level II Trauma is activated for patients who are stable but sustained or have the potential to have sustained severe injuries.

In both situations, the team is ready, and the full system prepares including the ICU, diagnostic areas, Operating Room and procedural areas, for whatever immediate care the patient needs.

Trauma Team Activations 2020

Activation Level	Number of Activations
Level 1	552
Level 2	615
Total	**1167**

In New York State, the Department of Health designates a hospital as a trauma centers only if that hospital meets stringent criteria for verification established by the American College of Surgeons.

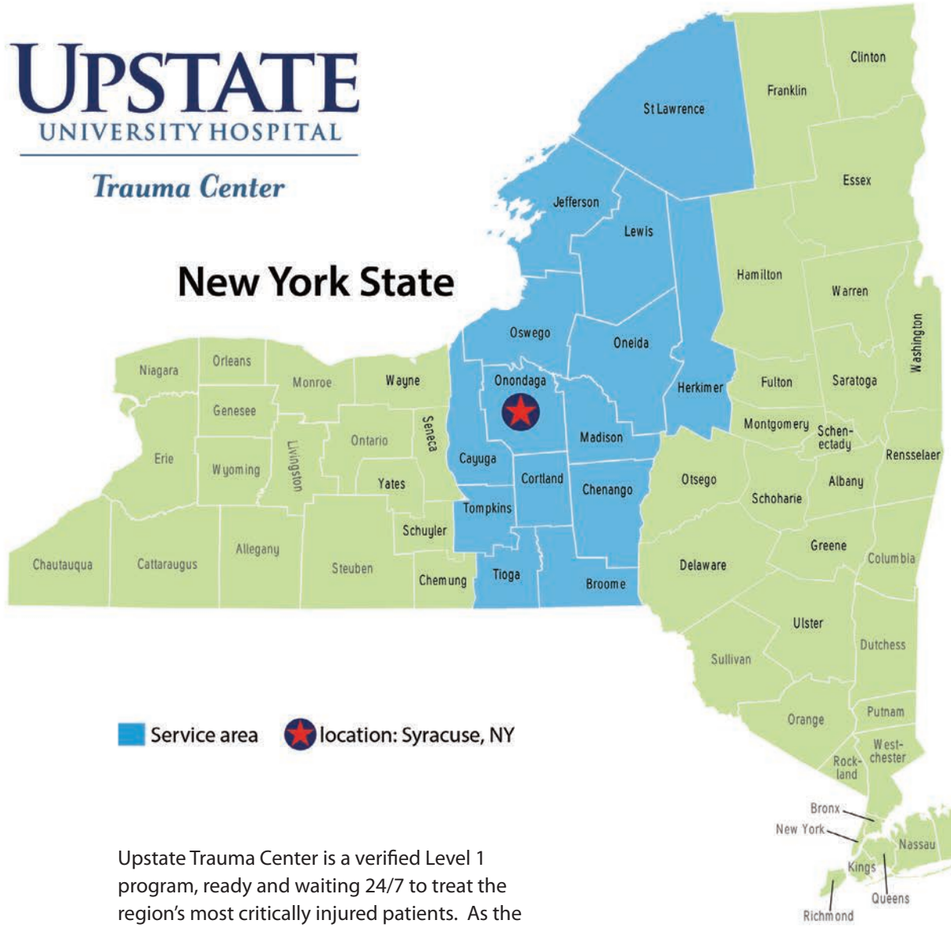
Upstate's program is a designated, verified Level I trauma center. It is the only Level 1 trauma center in a 14 -county region, serving 1.7 million people and approximately 28 referral hospitals.

Our team is prepared to care for the most severely injured patients around the clock.

From the moment that patient arrives, trauma-trained Emergency Department physicians and nurses are at the patient's side. If needed, trauma surgeons are available within 15 minutes of the patient's arrival to the ER.

As a Level 1 center, all technology and treatment options are available 24/7 and specialty services - including neurosurgery and orthopedics - are also available within minutes when requested.

UPSTATE UNIVERSITY HOSPITAL
Trauma Center



Upstate Trauma Center is a verified Level 1 program, ready and waiting 24/7 to treat the region's most critically injured patients. As the only Level 1 in the region, Upstate services a 14-county area that is home to 1.7 million people and includes 28 referral hospitals.

Upstate trauma surgeons on the helipad atop Upstate University Hospital.

Pictured, from left: Rahul Dudhani, MD; Crystal Whitney, MD; Amie Lucia, DO; William Marx, DO; Jessica Summers, MD; Robert Cooney, MD; Moustafa Hassan, MD; Roseanna Guzman-Curtis, MD; Joan Dolinak, MD; Michael Luca, DO.

COMPLEX AND CRITICALLY ILL

The team that cares for the sickest of the sick is recognized for doing it well

The following article appeared in Upstate Health magazine's winter 2021 edition, by Amber Smith.

It's 8 a.m. on a Friday. Members of Upstate University Hospital's trauma team, dressed in cranberry scrubs, gather in a conference room. Some have been here all night. Some are coming in fresh.

They discuss the progress of each of the current patients whose injuries have left them hospitalized. Later, the team visits each patient: a snowmobiler who crashed, a pedestrian run over by a car, a man who slipped from his roof, and more.

"When we're on duty, we're on call for the entire Central New York region. Twenty four hours a day, seven days a week, 365 days a year, with a response time of under 15 minutes — now that's dedication! Anybody with a major injury, complex surgical problem or who is critically ill, comes here," explains Robert Cooney, MD, Upstate's chief of surgery and a member of the trauma team.

Being a Level One trauma center means that an operating room is always on standby, along with every medical and surgical specialist a trauma patient might need. Upstate's adult trauma service, for anyone 15 and older, evaluates more than 6,000 trauma patients each year. Between 2,600 and 2,700 are admitted. Another 800 children under age 15 are admitted by the pediatric trauma team.

"If you look at our emergency surgery outcomes, we are one of the top hospitals in the country," Cooney proudly notes. "We have an outstand-ing team of trauma and emergency surgery specialists."

Nationally ranked

The American College of Surgeons National Surgical Quality Improvement Program recognized Upstate for merito-rious outcomes for high-risk surgical patients in 2018. Cooney is proud

of this recognition because it comes from "the most highly regarded quality assessment program for surgical outcomes in the country," partly because the data collected goes beyond a patient's hospital stay.

Composite scores are based on a weighted formula that combines eight outcomes. They include mortality, unplanned intubation (insertion of a tube into the windpipe to aid breath-ing), ventilator use for more than 48 hours, kidney failure, cardiac incidents (such as heart attack or cardiac arrest), development of pneumonia, surgical site infections and urinary tract infections.

Trauma was the third leading cause of death in the United States in 2019, behind heart disease and cancer. Trauma care is a high-adrenaline specialty, with interventions that can save lives. Doctors who specialize

in trauma must be expert surgeons, even though treatment is constantly evolving and sometimes doesn't involve operating. All nine of the trauma surgeons at Upstate are also board-certified in critical care medicine.

"Because this is Syracuse, we have a zone defense," Cooney quips, in reference to the style of basketball defense for which Syracuse University is known. He means that his team is qualified to care for the wide variety of patients in the surgical intensive care unit, many of whom are not victims of trauma.

Patients transferred from smaller hospitals

Among the patients the team is caring for today, for example, are two elderly women who needed complex abdominal surgeries, and a critically ill young woman with severe heart failure in need of a high-risk surgery. All were transferred to Upstate from smaller, outlying hospitals. Such transfers account for about one-third of the trauma service's patients.

"We take care of the sickest patients in the region who need surgery, and I think this quality designation shows that we do a great job of doing that," Cooney says.

The trauma team depends upon a big infrastructure: caregivers from neuro-surgery, orthopedics, vascular surgery, radiology, the emergency department and others, depending on the needs of each patient.

And because they practice at an academic medical center, the surgeons and resident doctors are constantly teaching and learning, helping to advance the specialty of trauma care –and ultimately save more lives.

Each day, the team visits the hospitalized trauma patients together.

Auto and snowmobile accidents; falls from roofs

On this day, they see a pedestrian who broke multiple bones when he was hit by a car. Both of the man's legs are wrapped in splints. His spine was repaired. His pelvis was stabilized. He's been here for two weeks so far and had many ups and downs.

The plan is to finally get him out of bed today. He will also be evaluated for his ability to swallow on his own – and maybe have the tube removed from his throat.

Another patient is a man who slipped on ice and fell from his roof while trying to install an antenna.

"It's my hip that hurts," the man tells Cooney. "I swore it was broken." But it was only bruised.

Cooney asks the man how physical therapy is proceeding. "The guy's a monster," the man says, lovingly, of his therapist. Soon he'll be able to continue healing at home.

Then there's the snowmobiler who is recovering from a crash that left him with broken ribs, a lacerated liver, a collapsed lung and an injured spleen.

Cooney uses a stethoscope to listen to the man's bowel sounds, and he gently taps his abdomen, which sounds like a drum. He suspects the intestines are distended with air. To be sure that this is nothing serious, Cooney orders an X-ray.

"IF YOU LOOK AT OUR EMERGENCY SURGERY OUTCOMES, WE ARE ONE OF THE TOP HOSPITALS IN THE COUNTRY."

–ROBERT COONEY, MD, PROFESSOR AND CHAIR OF SURGERY

Revolutionary techniques

The man's belly was full of blood when he arrived at the hospital. Surgeons would have drained it — if they had operated to remove his spleen.

Instead, an interventional radiologist "embolized" the organ using a catheter (hollow tube), coils and clotting mate-rials. It's a procedure that has revolu-tionized how doctors treat patients with splenic trauma, Cooney says, and one example of how treatments evolve over time. He says not to worry about the excess blood in the belly; it will be reabsorbed by the body as the man heals.

It's a raw, late winter day, and the conference room table contains a tub of pretzels and a box of half-eaten Thin Mint cookies, sustenance for surgeons who on busy days will not have a chance to sit and eat a proper meal. They cannot predict when traumatic injuries will occur, but when weather is cold or rainy, there is usually a dip.

On this day, Cooney and two resident doctors, a physician assistant, a nurse and some medical students gather to discuss medical issues that relate to some of the patients who are currently hospitalized.

For instance: management of the open abdomen.

It used to be, trauma surgeons would fix everything that was wrong with a trauma patient in one lengthy and taxing surgery, even if the patient was unstable and not doing well.

Now, survivability is higher for many patients if the surgeons focus on stopping the bleeding, getting rid of any contamination and letting the pa-tients stabilize before bringing them back to the operating room for more definitive surgical repairs. Sometimes it makes sense to leave their wounds open during this process, usually 24 to 36 hours.

Up to 25 percent of trauma patients who undergo abdominal surgery should have their incisions left open while they are healing in the intensive care unit, says resident physician Matthew Sporn, MD. This allows for better control of their blood pressure, changing of packing, access to vascular shunts to help remove excess fluids, and a better ability for doctors to assess the bowel's viability.

The group also talks about methods to control bleeding. "Damage control resuscitation" is the use of blood and plasma (the liquid part of the blood) to treat patients who are in danger of bleeding to death before they get to the hospital. Should paramedics carry plasma to trauma patients, as is done on battlefields?

Cooney acknowledges that "more rapid use of blood and blood products has been shown to reduce bleeding-related complications and mortality." As knowledge evolves and new research is published, new protocols will need to be put into place, he explains.

He goes on to describe a modern way to stop life-threatening bleeding, once the patient arrives at the hospital. REBOA stands for resuscitative endovascular balloon occlusion of the aorta.

A vascular surgeon developed the procedure that involves inserting a catheter through an artery in the leg, threading it to the appropriate spot and inflating a balloon to stanch arterial bleeding.

Cooney says patients are alive today because of REBOA. He says the new procedure is much faster than the way surgeons used to stanch bleeding — by cutting into a patient's chest to clamp the great vessel that comes from the heart — and another example of how the field of trauma care continues to grow.

IMPROVING CARE

2020 Innovations

The Upstate University Hospital Trauma Center strives to make changes that will continually lead to better patient outcomes, system performance, and professional development.

Traumatic Brain Injury Project

Timeliness of trauma care reduces morbidity and mortality.

Upstate's program is always looking for opportunities to improve, and as a result continually evaluates the care provided using a performance improvement process.

Patients with head injuries were a focus in 2020.

To better identify these patients, new trauma activation criteria was developed. The changes emphasized the importance of these patients being seen by not only neuro-critical care or neurosurgery, but also the trauma service, as these patients often have multi-system injuries. Consultation criteria and Fast Track Options were added to assure that the patient receives a trauma consult, even if they are a direct admission to the Neurology Service.

Registry Revamp

Trauma registrars are critical members of the trauma team. It's their responsibility to ensure accurate data is input into the trauma registry. The program relies on this information to continually monitor, evaluate, and improve care that is provided to trauma patients.

The data is also used to develop injury prevention programs, provide education, and conduct research.

The workload of the registrars has increased significantly due to increased trauma patient volume and revised regulatory requirements.

This necessitated an increase in personnel - resulting in the hire of two additional registrars in 2020.

An evaluation of the current workflow was conducted and improvement opportunities were identified. Changes were made to allow the registrars to work more efficiently, improve oversight of the data, and improve accuracy.

This has led to a reduction in the back log of records, greater concurrency and increased accuracy.

NEW REGISTRARS
Joanne Salvagno
Susan Candee

REBOA

REBOA is one of the latest technologies introduced to our trauma center.

REBOA stands for resuscitative endovascular balloon occlusion of the aorta and is a minimally invasive catheter that can be life-saving for patients presenting in hemorrhagic shock from severe trauma.

The catheter has a balloon at its end which can be inflated to occlude the aorta temporarily to slow down bleeding. This affords our trauma team precious time while preparations are made for definitive care in the operating room or endovascular suite.

While the concept of aortic occlusion is not completely new (aortic balloon occlusion was first described in 1954 during the Korean War by Dr. C.W. Hughes), continuous improvements in endovascular technology have allowed for more widespread use of REBOA in trauma centers nationwide.

We are proud to be able to offer REBOA to our Central New York Community.

- Roseanna Guzman-Curtis, MD
Associate Trauma Medical Director

OUTREACH

Upstate serves as a resource for the care of trauma patients throughout the Central New York Trauma Region.

Upstate Trauma Center works collaboratively with hospitals, EMS agencies and providers to promote the highest quality of trauma care and to further develop and strengthen the trauma system.

Outreach Activities

Hospital

- Clinical Education – Fort Drum Soldiers
- Educational opportunities for nurses and physicians
- Orientation of referring hospital leadership to Upstate Trauma Center and the trauma system
- PI – patient specific quality improvement cases
- Patient follow-up on transferred patients (monthly reports)
- Patient follow-up requests on transferred patients
- Telemedicine
- Trauma treatment (evidenced-based, best-practices)
- Trauma transfer criteria
- Verification process to become a trauma center

EMS

- Educational opportunities
- Patient follow-up (quarterly reports)
- Patient follow-up requests
- PI – patient specific quality improvement cases
- Regional Medical Advisory Committee (REMAC) participation
- Transfer of care – hand-offs
- Upstate EMS Quality Committee
- Upstate Paramedic Advisory Committee

Adapting Outreach to COVID

During 2020, outreach visits were curtailed as the program faced travel restrictions in an effort to reduce the spread of COVID. This affected an important outreach initiative - site visits to the region's hospitals.

The site-visits are important because they give the trauma team an opportunity to not only meet with the regional hospital leadership, but also the chance to tour the emergency department and speak with staff.

Not wanting to reduce its presence in the region, the Trauma Center decided to trial virtual outreach visits with video conferencing.

Typically, the orientation packets provided at site-visits included information about program staff, the trauma system and educational opportunities.

For the adapted outreach visit, the packets were converted into a Powerpoint presentation which was shared virtually and emailed to participants.

Virtual tours of the emergency departments were not attempted, but the meetings with leadership went extremely well.

The virtual visits had additional benefits as well – including a more efficient use of time for the trauma team's leadership. Pre-COVID, a site-visit to the northern-most hospitals in our trauma region included a total of five-hours travel time in addition to the actual meeting time.

With virtual outreach, leadership can maintain the same amount of interaction with the regional hospital while eliminating the travel time. Reducing travel time allowed the team to interact with more hospitals.

As a result, some type of virtual component will likely be added into the outreach option mix once we are post-COVID.

Follow-up Letters

Hospitals that transfer patients to Upstate Trauma Center receive a monthly report with specific information regarding those patients. The data provided includes patient disposition, diagnoses and procedures performed.

Included with the data are three process improvement (PI) projects that can be implemented at the referring hospital, utilizing the data in the report, to assist in evaluating the care they provided.

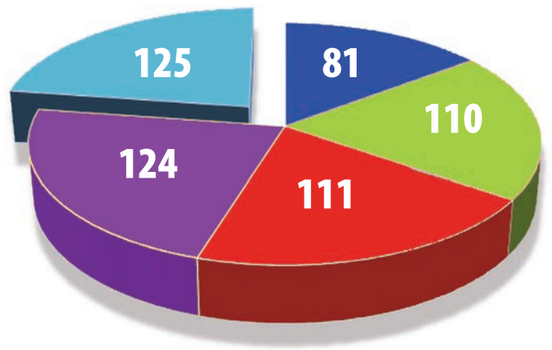
The PI projects are Airway Management, Hospital Length of Stay and Shock.

In addition to monthly reports to hospitals, follow-up reporting to EMS agencies occurs quarterly. These reports includes Emergency Department disposition, hospital disposition, diagnosis, and hospital length of stay information.

Suggested PI projects are Field Activations for Trauma Codes and Scene Time.

Top 5 referral hospitals

- *Lewis County*
- *Oneida*
- *Auburn*
- *Oswego*
- *Cortland*



Upstate Trauma Program Counties we serve:

Broome
Cayuga
Chenango
Cortland
Herkimer
Jefferson
Lewis
Madison
Oneida
Onondaga
Oswego
Tioga
Tompkins
St. Lawrence

EDUCATION

As a Level 1 Trauma Center, Upstate, is not only required to provide professional education for those caring for trauma patients, Upstate must also provide education to the communities they serve.

Summary of educational offerings

Advanced Trauma Life Support (ATLS)
- Target Audience – Physicians and Advanced Practice Providers

Advanced Trauma Operative Management (ATOM)
- Target Audience – Surgeons

Pediatric Care after Resuscitation
- Target Audience – Nurses and other clinical staff who care for pediatric trauma patients

Rural Trauma Team Development Course (RTTDC)
- Target Audience – Hospitals that are not trauma centers

Stop the Bleed
- Target Audience – General public

Trauma Care after Resuscitation (TCAR)
- Target Audience – Nurses and other clinical staff who care for adult trauma patients

Trauma Nurse Core Course (TNCC)
- Target Audience – Registered Nurses who care for trauma patients

Trauma Resuscitation Orientation
- Target Audience – Nurses caring for trauma patients

Adapting Education to COVID

The pandemic brought new challenges to the trauma educational programs. There was a significant amount of time in which the team were not able to conduct live, in-person courses.

Some programs, such as the Trauma Resuscitation Orientation Course, were able to be modified to be presented virtually.

This worked well to present the core information, but did make group discussions more difficult.

Other courses, such as Advanced Trauma Life Support (ATLS), utilized hybrid models to reduce the amount of time spent in-person. The participants completed the lecture portion of the class on-line, but skills stations and testing were conducted in-person.

This was very helpful as classroom space was at a premium. A lecture hall that normally seated 75 people could only accommodate 15 with social distancing.

The elimination of the in-person lectures reduced our need for space as we only needed to accommodate small groups for skills stations.

Everything considered, the trauma team was pleased to be able to offer trauma educational programs during the pandemic without sacrificing educational quality.

Table – number of classes

Advanced Trauma Life Support (Upstate)	4
Pediatric Care after Resuscitation (PCAR) Live-Online	3
Trauma Nurse Core Courses (TNCC)	6
Trauma Resuscitation (Upstate)	5
Trauma Resuscitation Course (CNY Hospitals)	1

Injury Prevention

One of the most challenging aspect of treating trauma is knowing that often, the injuries treated are largely preventable.

Almost all other major causes of death and disability have extensive detection, intervention, and prevention programs that are well-funded by public and private sources.

That's not the case with trauma.

Upstate Trauma Center works collaboratively with hospitals, EMS agencies and providers to promote the highest quality of trauma care and to further develop and strengthen the trauma system. Effective injury prevention begins with a focus on the most common causes of injury in the community.

These causes include contributing factors such as drug and alcohol abuse and behavioral health problems.

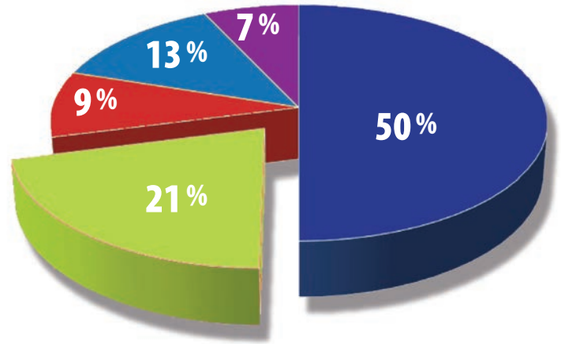
The same causes are often linked with the most common mechanisms of injury presenting to the trauma center.

An injury prevention program should identify the three most common causes of injury or traumatic death at the trauma center or in the community by using the trauma registry or other available epidemiologic data.

Program and intervention strategies then should be selected based on this data.

Top 5 Injuries by Mechanism of Injury

- *Falls*
- *MVC/MIVC vs. Peds*
- *Assaults*
- *GSW/Stabbing*
- *Motorcycle*

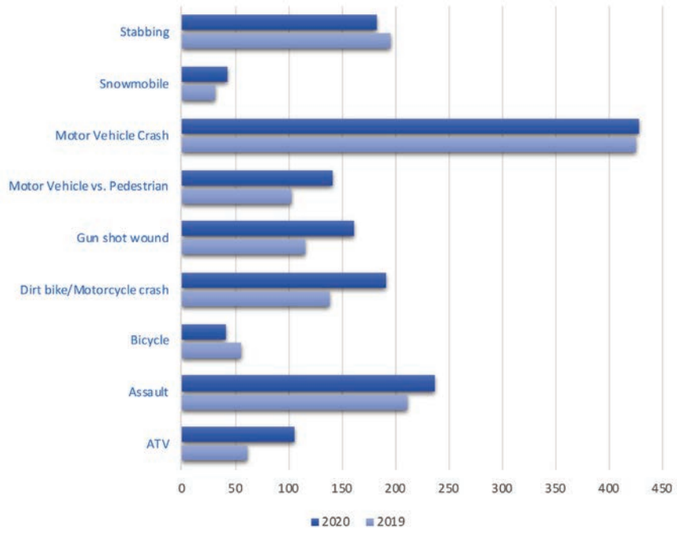


Covid Effects On Trauma Numbers And Types Of Injury:

As the world began to navigate the global pandemic of COVID-19, trauma centers were faced with the challenge of trying to care of trauma patients while healthcare systems struggled with new safety measures. Upstate's Level 1 Trauma Center never closed, even during these unprecedented times. The entire Trauma Team remained vigilant in maintaining safety protocols while providing the quality and expertise Upstate is known for.

In reviewing the data from 2019, we the previous year, 2020 presented increased numbers in certain mechanisms of injury possibly due to social distancing, stay at home orders, and more people working and going to school from home.

Mechanism of Injury



ALCOHOL AND SUBSTANCE USE

Alcohol and drugs are often contributing factors in trauma injuries

Part of every effective injury prevention effort is a focus on proximate causes.

Many injuries have alcohol and drug use as an important contributing factor.

Screening and brief intervention for alcohol use is required of all trauma centers. Universal screening for alcohol use must be performed for all injured patients and must be documented.

At Level I and II trauma centers, all patients who have screened positive must receive an intervention by appropriately trained staff, and this intervention must be documented.

Epidemiologic data suggest high rates of problematic drug use among trauma patients who screen positive for alcohol use.

Best practices include implementing screening procedures that capture drug/alcohol use co-morbidity and appropriate treatment referral.

Upstate University Hospital has a team of professionals who focus on addiction treatment, detoxification, medication management, pain control and research.

All patients seen at Upstate University Hospital are screened for alcohol/substance use, with a focus on getting patients' the resources they need.

THE ADDICTION SPECIALISTS:

The following are excerpts from an Upstate Health magazine article about the opioid epidemic titled Facing A Crisis, by Amber Smith.

Some people require inpatient treatment. Others succeed through outpatient detoxification programs.

"We have not cured one person of addiction, but we have gotten people into recovery," says psychiatrist Brian Johnson, MD, director of addiction medicine.

Upstate Addiction Medicine is a holistic medical practice that offers detoxification and treats chronic pain. Walk-in appointments (if you call ahead, at 315-464-3130) are available weekdays, and patients are asked to bring a non-addicted support person with them.

"If there's a loved one involved, the chances that people are going to remain sober greatly increase," explains psychiatrist Sunny Aslam, MD. That first appointment is lengthy. Some patients will make daily visits until they stabilize, and then they may come in weekly.

Johnson says he's seen more than 17,000 patients successfully detox from opioids, alcohol and other substances. He prescribes buprenorphine, plus other medications that help with gut cramps and anxiety. "They go home with their support person," he says. "A week later, they're off opioids, and it was no big deal."

One month out, he says 60 percent of those who stopped taking opioids remain sober. He says some people relapse and go through additional rounds of detox.

He explains that drugs change the brain permanently. That's why people continue to attend Alcoholics Anonymous even if they stopped drinking years ago.

"Once you reintroduce the drug into the brain, it turns on ferocious cravings that have been dormant," Johnson says. "If you're addicted to tobacco, you can't go back to cigarettes once in a while. If you're addicted to alcohol, it's the same. If you're addicted to opioids, it's the same."

Brian Johnson, MD.

Sunny Aslam, MD

The pain specialist

Withdrawal from opioids can feel 100 times worse than the flu, with severe vomiting, diarrhea and stomach cramps. Many people who are addicted to pain killers "are not looking to get high. They just do not want to go through withdrawal," explains nurse practitioner Theresa Baxter. "They're just so desperate to feel normal. They did not wake up saying, 'I want to be a heroin addict' today."

She explains that opioids are "very effective in treating that immediate, acute pain, after a surgery or after a terrible injury. The problem is when we continue them long term. They're a lot more addictive than we thought."

Also, with long-term use, opioids increase a person's sensitivity to pain, she says. It's called opioid-induced hyperalgesia.

Opioids are not the only way to treat acute pain. Baxter advocates for the use of acetaminophen, ibuprofen and muscle relaxants. Nerve blocks can also be helpful, depending on the type of pain.

She cares for patients with chronic pain, too, many of whom get relief from massage, chiropractic care, weight loss, muscle and core strengthening, cognitive behavioral therapy and/or medical marijuana.

Not everyone can expect his or her pain to disappear. Baxter's goal is to restore functionality, so people can go on with their lives.

Theresa Baxter, NP

The scientist

Opioids act on opioid receptors located on nerve cells throughout the brain and nervous system, producing an analgesic effect.

Until recently, scientists assumed that all opioids -- those produced by the body, and those ingested as drugs – interacted in the same way with opioid receptors. Recent research has shown differences that may help guide the design of new non-addictive pain relievers.

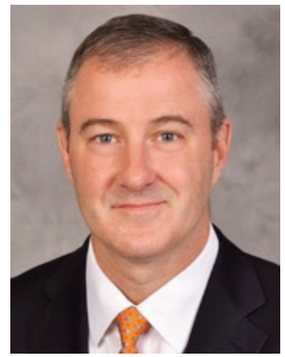
Not only that. Recent research has also shown the potential for impacting the effect of opioids on the brain by inducing an anti-opioid immune response.

An experimental heroin vaccine induced an immune response that prevented heroin from traveling into the brain through the bloodstreams of laboratory animals, according to a study published in the Journal of Medicinal Chemistry.

"By eliciting antibodies that bind with heroin in the blood, the vaccine aims to block the euphoria and addictive effects," Gary Matyas, MD, told Science Daily. He is from the U.S. Military Research Program at the Walter Reed Army Institute of Research. "We hope to give people a window, so they can overcome their addiction."

Stephen Thomas, MD, professor of medicine and microbiology and immunology at Upstate, is excited by the prospect. "A heroin vaccine could play an important role in a comprehensive approach to treating people who are suffering from substance abuse disorders," he says.

Upstate and Walter Reed researchers have been awarded a grant to advance the development of an experimental heroin vaccine. If successful in early development, a second grant award will support testing the vaccine in human volunteers. The clinical trial would be performed by Upstate in Syracuse.



Stephen Thomas, MD

MEET OUR PROGRAM STAFF

Upstate Trauma Program Regional, State, and National Involvement

Our level 1 program provides trauma leadership to our region through our Regional Trauma Advisory Committee and several members of our team are involved with and/or hold leadership positions for trauma at the state and national level:

- Dr. William Marx – Chair of Verification Review Committee of the American College of Surgeons; Chair of the State Trauma Advisory Committee for New York State
- Jolene Kittle – Director at Large, Board of Directors for Society of Trauma Nurses; Chair of Annual Meeting Planning Committee for TCAA (Trauma Center Association of America)
- Jerry Morrison – President Elect of the NYS American Trauma Society (President 2022); member of the TCAA Education Committee
- Kim Nasby – Co-chair of Injury Prevention/Education Committee for the NYS State Trauma Advisory Committee; Co-chair of the NYS American Trauma Society Injury Prevention Committee

Recognition

We are excited to share that Kim Nasby, RN, was named Injury Prevention Coordinator of Distinction by the NYS Chapter of the American Trauma Society. Congratulations Kim!

Kim Nasby, RN

Meet Upstate Trauma Center's surgeons, the surgeons who respond to the bedside within 15 minutes of the severely injured patient arriving to the hospital.

They are assisted by a number of advanced practice providers, medicine and neurology teams, and surgeons from numerous surgical specialties including orthopedics, neurosurgery, ENT, urology, vascular, and more.

TRAUMA SURGEONS

Robert Cooney, MD

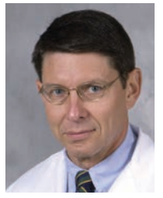
Joan Dolinak, MD

Roseanna Guzman-Curtis, MD, MPH

Moustafa Hassan, MD

Michael Luca, DO

Amie Lucia, DO



William Marx, DO

Jessica Summers, MD

Crystal Whitney, MD

ADVANCED PRACTICE PROVIDERS

Lisa Fiorini, NP

Susan Keenan, MHS, PA-C

Amy McCune, PA

Michelle Mueller, NP