



Each edition of the newsletter highlights the initiatives of one of the three trauma centres in the GTA that make up the U of T Trauma Program. This newsletter focuses on the Hospital for Sick Children.

THE U OF T TRAUMA PROGRAM IS A COLLABORATIVE OF THE DEPARTMENTS OF SURGERY OF ST. MICHAEL'S HOSPITAL, SUNNYBROOK HEALTH SCIENCES CENTRE, AND THE HOSPITAL FOR SICK CHILDREN. IT IS DESIGNED TO PROMOTE QUALITY PATIENT CARE, EDUCATION, AND RESEARCH ACROSS THREE SITES AND TO INTEGRATE TRAUMA RELATED ACTIVITIES IN THE AREAS OF EDUCATION, QUALITY AND RESEARCH.

COVID-19 Trauma Response at SickKids



March 2020 marked the beginning of many changes in our personal and professional lives, with the shutdown of schools and many public services due to the spread of COVID-19. Healthcare responded quickly. While public health measures were aiming to flatten the curve, hospitals were rapidly making the necessary adaptations required to care for an unknown volume and acuity of patients during this pandemic, including preparation for incoming trauma patients. Although pediatric centres were not expected to face surges, the preparation required in ensuring safe and effective care was similar. Utilizing the principles of limiting staff exposure in the Trauma Room and maintaining PPE supplies, our Trauma Team was pared down to essential staff only. Novel processes, including tools and protocols to manage Aerosol Generating Medical Procedures (AGMP), were developed to keep staff and patients safe, that fit the needs of the Trauma Team while maintaining alignment with infection prevention and control. Key modifications to the trauma response centered around communication and geographical adaptations to the Trauma and adjacent Step-Down Room that allowed for a natural anteroom that didn't previously exist.

COVID-19 was instrumental in propelling the utilization of recently installed technology (B-Line Live Capture) within our Trauma Room, originally planned for the purpose of performing quality and educational reviews of trauma response recordings. Through iterative simulation as protected trauma processes were practiced, the idea to live-stream both simulation and actual trauma responses took hold. With this ability, and the purchase of a large monitor, we were able to limit bedside personnel but maintain situational awareness of the entire Trauma Team. We now use B-line to concurrently monitor trauma patient activity, with staff waiting in the anteroom until required in the Trauma Room and will imminently begin video recording with integration into our QI performance activities.

How did COVID change family presence, a staple principle of pediatric resuscitative care? With Ministry guidelines to limit the number of visitors to the hospital, we were permitted to have one parent only with each of our young patients. This supported our values of Family Centred Care, which we operationalize in one aspect through providing the option of family presence within the Trauma Room. Working with our Social Work and Child Life Colleagues, we were able to adapt our processes to include additional screening of family members prior to reunification with their child and a modified response by the Designated Support Person that assists both the child and their caregiver, while upholding the principle of reducing exposure and keeping staff safe. During the lockdown period of the pandemic, we experienced a significant reduction in trauma admissions as did other trauma centres. Volumes have since returned to normal and exceeded 2019 trauma activations in August and September. Injury patterns were notable for one very sharp epidemiological shift; bicycle injuries at SickKids increased by over 200% from previous years from March through to September! Ongoing research (BIKE study) and injury prevention advocacy in this area addressed this increase through focused social media messaging.

Quality Improvement

We have successfully implemented several QI initiatives that have resulted in improved care. One example is the Choosing Wisely project to safely reduce abdominal/pelvic CT scans in children at very low risk for intra-abdominal injury, presented at Pediatric Trauma Society and Trauma Association of Canada in 2019. This initiative met its target and has resulted in a sustained absolute reduction of unnecessary CT scanning by 20%, saving 25-30 children a year a CT scan they didn't need per published evidence-based guidelines, without any significant missed injuries. In 2019 we expanded our trauma simulation program to include quarterly mega trauma exercises that fully simulate the trauma patient from "door to disposition", involving faculty and including several multiple casualty scenarios. Other initiatives include submitting data to PedTQIP for benchmarking with other pediatric trauma centres, transitioning the remainder of our trauma documentation to our EMR, and establishing a one-step ordering process during trauma activations. Lastly, we are integrating the provincial massive hemorrhage protocol institutionally within Epic and are developing a vascular access escalation pathway to assist in providing blood products rapidly to small children.

New Trauma Fellows



Christina Price



Cecily Bos



Josh Ramjist



Pierre LeBlanc



Mohamad Halabi

Christina Price is one of the new Trauma and Acute Care Surgery fellows, beginning her fellowship at St. Michael's Hospital and then joining the trauma service at Sunnybrook in January 2021. She completed medical school and general surgery residency at Memorial University in St. John's, Newfoundland. She has an interest in medical education and trauma systems. Outside of the OR, she enjoys travelling, running, and reading.

Cecily Bos is thrilled to be joining the Trauma and Acute Care Surgery Fellowship at the University of Toronto. She completed her MSc in physiotherapy at the University of Toronto, and settled into practice as a physiotherapist at McMaster Children's Hospital in Hamilton, Ontario. She then pursued her MD and General Surgery Residency at McMaster University where she discovered a passion for trauma surgery. Dr. Bos' research interests include quality improvement and rehabilitation after trauma. She is supported by her partner Brian who is a plastic surgery resident at McMaster University and their 9-month old puppy Rudy.

Josh Ramjist was our Trauma Fellow for July, 2019 - June, 2020. He attended the University of Toronto for undergraduate, Northumbria/St George's University for medical school and General Surgery residency at Maimonides Medical Center in Brooklyn, NY. He has completed an MSc and MBA from the University of Toronto and St. George's University respectively. He is completing his neonatal surgical fellowship this year and will be a categorical general surgery fellow at SickKids next year.

Pierre LeBlanc is Sickkids Trauma Fellow for January – December, 2020. Pierre completed his FRCPC EM specialty program last year in Quebec and was asked by his tertiary paediatric hospital to guide their new trauma trajectory/service over the next years. He has an interest in prehospital and retrieval medicine and has paused his work with EVAC (QC provincial evacuation program) for the current year.

Mohamad Halabi is Sickkids Trauma Fellow for July, 2020 – June, 2021. He completed his undergraduate degree in Biological Sciences and a Masters in Medical Research at Wayne State University. He moved to Australia for his medical school training at the University of Sydney, where he discovered his love for paediatrics which he pursued with a Pediatric residency and Pediatric Emergency Medicine Fellowship at Western University.

2020 U of T Visiting Professor in Trauma & Tile Lecturer

UNIVERSITY ROUNDS — UNIVERSITY OF TORONTO

SAVE THE DATE

TILE LECTURE
in Trauma

Robert Riddell B. Eng., MD, CCFP (EM), MSM
Flight Surgeon, Operational Space Medicine
Canadian Space Agency, Saint-Hubert, Quebec
ER Physician, Cornwall Community Hospital, Cornwall, Ontario
Clinical Associate, Division of General Surgery Trauma
Sunnybrook Health Sciences Centre, Toronto, Ontario

"Trauma and surgical considerations for Deep Space Exploration"

LIVE ZOOM WEBINAR
Please register in advance for this webinar.
After registering, you will receive a confirmation email
containing information about joining the webinar.

Friday, June 5th, 2020
7:30 – 8:30AM

Learning Objectives:

1. Introduce the deep space operational context and relate it to remote terrestrial healthcare.
2. Discuss specific challenges with healthcare and surgery in deep space.
3. Introduce some emerging technologies and how they may impact remote terrestrial and deep space healthcare.

Dr. Marvin Tile is a world authority on the treatment of pelvic and acetabular trauma and has trained clinicians from around the world in the care of patients with critical orthopedic injuries. Dr. Tile has published two books and 39 manuscripts that have shaped the practice of orthopedics across the globe.

The U of T Trauma Program was honored to host a Flight Surgeon with the Canadian Space Agency – Dr. Robert Riddell.

Dr. Riddell is an International Space Station Flight Surgeon In-Training, working in an international multilateral setting in support of ISS Operations. He was the Deputy Crew Surgeon in support of Canadian astronaut David Saint-Jacques' mission to the ISS (Dec 2018 – June 2019) and back-up for the Prime Crew Surgeon.

For the first time ever, on June 5th, 2020 the U of T Department of Surgery Tile (named after the renowned orthopedic surgeon Dr. Marvin Tile) was held virtually. Dr. Riddell lectured on the topic 'Trauma and surgical considerations for Deep Space Exploration' live on Zoom. He spoke about all the exciting possibilities and dangers of future space travel.

The annual City-Wide Journal Club and Trauma Research Symposium held in conjunction with the Visiting Professor in Trauma were canceled in line with COVID restrictions at the time. It was a privilege to have Dr. Riddell as our 2020 Visiting Professor in Trauma.

Welcome to New Staff

Susan Stinson-Lyпка joined Sickkids as the new Clinical Director for Trauma.

Susan has had familiarity with the Trauma Program and patients through her role as clinical manager for 5C: Neurology, Neurosurgery and Trauma inpatient unit, and more recently in her role as the Director of Surgical Specialties. Susan is excited to have the Trauma Program added to her portfolio and is eager to participate and assist in propelling the important work of the program forward.





Andrew Beckett, CD MD FRCSC MSc FACS is a trauma surgeon and critical care physician and is the new Medical Director of Unity Health's Trauma Program.

Andrew, who is originally from Stouffville, ON, developed an interest in trauma care while serving as a Canadian Armed Forces (CAF) combat medic during tours of duty in the former Yugoslavia in the 1990s. Following this initial stint in the CAF, Andrew entered university and completed a BSc (Hon) in Zoology at the University of Calgary, and then went on to obtain his MD at the University of Manitoba in 2005.

Because of his interest in trauma, Andrew chose to do a residency in general surgery, and completed this training at Dalhousie University in 2010. He rejoined the CAF in 2006 as a general surgery trainee, due to the ongoing need to support Canada's mission in Afghanistan. On completion of his residency, Andrew trained in Trauma Surgery at Sunnybrook Health Sciences Centre from 2010-11 and Adult Critical Care Medicine at the University of Toronto 2011-2013. During this period, he deployed twice to Afghanistan as a trauma surgeon.

Currently Andrew is the Trauma Advisor of the Surgeon General of CAF and is additionally the Chief of General Surgery for CAF. During the past seven years, Andrew has deployed to many other locations including the Middle East and Africa.

In civilian practice, from 2014-2020, Andrew was a staff trauma surgeon and critical care physician at McGill University Health Centre, His research interests include massive transfusion and resuscitation in the austere setting, combat casualty database management and military simulation training. He is currently an Assistant Professor of Surgery at McGill University.

Gun violence: U of T alumnus developing tool to screen U.S. patients for gun injury risk

As COVID-19 continues to spread around the world, some experts are warning of a parallel epidemic in Canada and the United States: a rash of gun violence. In Toronto, the number of shootings this year was 409, up from 380 over the same period in 2019. Over the summer, youth advocates warned that the closure of safe spaces such as community centres was partly behind the disturbing trend.

The problem appears even more acute in the U.S., which has one of the highest rates of death from gun violence in the developed world and has similarly seen spikes in gun violence during the pandemic. In the spring, firearm deaths were up while Americans sheltered at home, according to NBC, and gun sales also increased.

Chethan Sathya, a University of Toronto alumnus, surgeon and director of the Center for Gun Violence Prevention at Northwell Health in New York state, is working with colleagues to create a universal screening tool that would identify those at risk of firearms injury. The large-scale study received more than US\$1.3 million in funding from the U.S. National Institutes of Health. The goal, Sathya says, is to make medical screening for firearm injury as routine as questions about smoking or sugar intake, and to provide patients with counselling around guns.

"If we make it part of usual care, it will really push us to consider this a public health issue and to normalize the conversation around guns," he says. Sathya recently spoke to *U of T News* about the screening initiative.

How did you become interested in gun violence as a research area?

When I was in Toronto doing my residency in surgery, we did start to notice toward the latter end of that training that we were seeing more and more gunshots. So you know this is very much an issue in Canada as well as in the U.S., especially in Toronto which has had an uptick in gun violence. I came to Chicago for my paediatric surgery training and I was pretty horrified to have to continually treat children and babies with bullet wounds, pulling bullets out of six-month-old babies. It was horrific to see. That was a wake-up call for me to get involved in this issue as a public health issue. Telling family after family that their kid had died from a gunshot wound became very horrendous. When I got to New York, that got me very involved in the American College (of Surgeons) and multiple national societies including Doctors for Protection from Guns that's led by Dr. **Najma Ahmed** [of U of T's Temerty Faculty of Medicine].

Our CEO at Northwell was one of the first health-care CEOs to take a stance on gun violence. It really reverberated. That led to the establishment for the Center For Gun Violence Prevention. Our goal at the center is to mobilize the health-care sector as a whole.

Your screening approach to gun violence is modelled after an earlier initiative at Northwell to address substance abuse. Why do you think a similar approach would work here?

The program for substance use really prides itself on asking everybody about substance use. The whole idea is that if you ask everyone, you avoid stigmatization. You make the conversation very normal and just part of the usual care that everybody gets as part of their hospital visit. You could imagine asking targeted folks about substance use. It might come off as judgmental and it also makes physicians reluctant to do so. But if you make it part of the workflow, part of the routine visit, it's a pretty big movement. Basically. This has never been done with respect to firearms in Canada, the U.S. or anywhere in the world. This is why we approached the NIH with this project and this is the thing they were most excited about: We are going to implement a universal, we-ask-everyone approach to firearm safety. We're going to ask every patient who comes into the emergency department questions around firearm access and gun violence risk. We have a score that has been validated that will be integrated into the electronic health record. And so every patient will be asked, and our hope is that it will yield a ton of data that we've never had because of the Dickey Amendment [the 1996 rule passed by Congress that was interpreted as barring gun violence research].

It'll provide a wealth of data, but it will also normalize the conversation between physicians and patients about guns because in Canada and the U.S. very few physicians actually ask.

Why are doctors often reluctant to talk to their patients about guns?

There are multitude of factors – this has kind of been studied. We are going to find out the real reasons because of this large-scale study, but thus far what we know is the barriers include not wanting to offend patients. They also don't know how to have the conversation. It's not a normal conversation to have. They don't know how to counsel around gun safety and so if your patient says, 'OK. I have a firearm,' then what? How do you counsel and what are the resources you can provide these patients, whether it be in the community or gun locks and that kind of thing? Most physicians have no idea.

Tell me more about the screening process. What kind of questions will you be asking?

We're going to be asking questions around firearm access inside and outside the household, and we're going to be asking questions about gun violence risk. There's a population of folks who have guns in the household and then there's youths and so on from disadvantaged communities that are at increased gun violence risk. But there is a score called the safety score that has some questions that have been validated and can give you a sense of how at-risk a person is. Those include questions like: Have you recently had a gun pulled on you? Have you been in fights? That type of thing. It's more about situational violence.

When do you plan to start?

Hopefully in the next couple of months. We're already in the process of integrating it into our electronic health records. As you can imagine, there's a lot to work out because this is a big health system.

What kind of insights do you hope this initiative will provide?

Because this has never been done before, I think the potential impact is tremendous.

We know so little about why physicians don't ask and how patients really feel about this. From the studies, we know most patients are actually OK with doctors asking, but still we don't have enough of a broad study to tell that.

This will elucidate what the barriers and facilitators are on both the patient and provider side about asking these questions, and then a big part of this is not just the screening, it's the intervention. We're going to be counselling them, giving gun locks to all the patients that need them and providing those at gun violence risk with community resources.

We're partnering with community organizations for that. I think there's so much to be learned at every step of the way. We also want to learn: Is the counselling we do effective?

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You could imagine asking targeted folks about substance use. It might come off as judgmental and it also makes physicians reluctant to do so. But if you make it part of the workflow, part of the routine visit, it's a pretty big movement.

Basically this has never been done with respect to firearms in Canada, the U.S. or anywhere in the world. This is why we approached the NIH with this project and this is the thing they were most excited about: We are going to implement a universal, we-ask-everyone approach to firearm safety. We're going to ask every patient who comes into the emergency department questions around firearm access and gun violence risk.

We have a score that has been validated that will be integrated into the electronic health record. And so every patient will be asked, and our hope is that it will yield a ton of data that we've never had because of the Dickey Amendment [the 1996 rule passed by Congress that was interpreted as barring gun violence research].

We're going to follow these patients in the community and see if they change their [gun] storage behaviour. Did they have repeat violent events? We're actually going to be assessing if this made a difference.

Then there's the overall paradigm shift that we hope to create by making gun violence questions part of usual care. We want to address this so that it's no different than with smoking or sugar intake. If we make it part of the usual care, it will really push us to consider this as a public health issue and to normalize the conversation around guns. That's the biggest asset that could come from this.

Last year, Congress set aside US\$25 million for firearm safety studies. That doesn't sound much for something that the U.S. Centers for Disease Control and Prevention estimates is responsible for almost 40,000 deaths a year.

Exactly. I completely agree. We all welcome, for the first time, federal funding because it really gives us a sense of purpose when we're doing this research. This is what's going to allow us to do such a large-scale research project. At the same time, however, it's a drop in the pond compared to what's given to cancer research, heart disease, smoking, all that stuff. So, I think there's a lot more work to do. We're hopeful this will continue, and it looks like it will. The amount of support will increase, I think, depending on which administration takes over. But we're hopeful that this is the start of more to come.

2020 AWARDS, PRESENTATIONS & ACCOMPLISHMENTS

Dr. Najma Ahmed

Awards:

- 2020 Canadian Medical Association, Sir Charles Tupper Award for Political Advocacy
- 2020 CPSO Council Award, based upon eight physician roles of the ideal physician

Publication: Nantais, J, Skelhorn-Gross G, Jimenez, C, Ahmed N, Gomez D. Biliroptysis due to a single transcavitary thoracoabdominal gunshot wound, *Trauma and Acute Care Open*, *Challenges in Trauma and Acute Care*, Dec 2019. Co-author.

Grant: 2019 – 2020 Primary Investigator, Development and Implementation of a Toolkit for Physician-Led Advocacy to Promote System-Level Change: Using Firearm Injury Prevention as a Model, Ahmed N, Maggi J, Medical Humanities Education Grant, PGME U of T. \$10,000

Dr. Andrew Beckett

Publications:

Bekdache O, Paradis T, Bracco D, Elbahrawy A, Khwaja K, Deckelbaum DL, Fata P, Beckett A, Razek T, Grushka J. Intermittent use of resuscitative endovascular balloon occlusion of the aorta in penetrating gunshot wound of the lower extremity. *Can J Surg*. 2019 Dec 1; 62(6):E9-E12. doi: 10.1503/cjs.017018. PubMed PMID: 31782649; PubMed Central PMCID: PMC6877395.

Prakash I, Neves O, Cumbe E, Hamadani F, Razek T, Fata P, Beckett A, Khwaja K, Grushka J, Wong EG, Jacobe M, de Costa A, Deckelbaum DL, Yohannan P. The Financial Burden of Road Traffic Injuries in Mozambique: A Hospital-Related Cost-of-Illness Study of Maputo Central Hospital. *World J Surg*. 2019 Dec; 43(12):2959-2966. doi: 10.1007/s00268-019-05152-2. PubMed PMID: 31506715.

Wang Y, Alnumay A, Paradis T, Beckett A, Fata P, Khwaja K, Razek T, Grushka J, Deckelbaum DL. Management of Open Abdomen After Trauma Laparotomy: A Comparative Analysis of Dynamic Fascial Traction and Negative Pressure Wound Therapy Systems. *World J Surg*. 2019 Dec; 43(12):3044-3050. doi: 10.1007/s00268-019-05166-w. PubMed PMID: 31506714.

Grants:

- 2020-2022 Defense Research Development Canada \$938,000 Principal Investigator
- 2019-2020 Canadian Blood Services \$1,000,000 Principal Investigator
- 2020-2023 Surgeon General's Health Research Innovation Fund \$120,000 Co-Principal Investigator

Dr. Suzanne Beno

Publications:

Wong, K, Beno, S, Ackery, A. Development of a whiteboard video for managing trauma patients outside a tertiary trauma centre. *CJEM*, 1-4. doi:10.1017/cem.2020.427 CA

Knowledge Translation Tools:

Beno S, et al. PedsPac for Severe Multisystem Trauma. Translating Emergency Knowledge for Kids (TREKK) www.trekk.ca September 2020 CA

Beno S. Bottom Line Recommendation: Multisystem Trauma. Translating Emergency Knowledge for Kids (TREKK) www.trekk.ca Updated September 2020 PA

Errett J, Armstrong S, Boysen A, Rice J, McDowall D, Harris M, Beno S, Ackery A. Trauma Management for Community Providers: a Nursing Perspective. Whiteboard Video, Reframe Health Lab. Jan 10, 2020. CA

Invited Presentations:

Controversies in Pediatric Trauma. Developing Emergency Medicine. Beno S. Cartagena, Columbia. Mar 9, 2020

Optimizing Care of the Traumatized Child: Case Presentations & Pearls. Co-presenters: Halabi M, LeBlanc PA, Beno S. 16th Annual Pediatric Emergency Medicine Conference (Virtual), Hospital for Sick Children, Toronto, Ontario, Canada. Nov 5, 2020

Major Pediatric Trauma: Pearls, Pitfalls and Trauma Code Optimization Strategies. Co-presenters: Rosenfield D, Beno S. VII International Symposium on Pediatrics Updates Conference (Virtual), Society for Pediatrics in Colombia, in collaboration with American Academy of Pediatrics. Nov 18, 2020

Media: <https://www.thestar.com/opinion/contributors/2020/10/13/more-kids-crashed-their-bikes-this-year-than-any-other-why-thats-a-good-thing.html>

Dr. Luis da Luz

Publication: Principal Author. Da Luz LT, Shah P, Strauss R, Mohammed AA, D'Empaire PP, Tien H, Nathens A, Nascimento B: Does the evidence support the importance of high transfusion ratios of plasma and platelets to red blood cells in improving outcomes after severely injured patients: a systematic review and meta-analyses. [Transfusion](https://doi.org/10.1186/s13054-019-2337-3) 2019 Oct, 59(11):3337-3349.

Grants:

2020 – Jan CIHR – Canadian Institute for Health Research, 2019 Fall Competition Co-Applicant/Co-Investigator. Da Luz LT: Approaches to routine evaluation of long-term, patient-reported outcomes following traumatic injury. Granted Total \$459,000.00

2020 – Jan Quality Quest Competition – Sunnybrook Health Sciences Centre. First Prize – Clinical handover from emergency medical services to the trauma team: an IMIST-AMBO protocol implementation. Total \$5,000.

2019 – Dec Canadian Forces Health Services and Defense Research, Development Canada (DRDC). Principal Investigator: Systematic review in management of trauma patients in the cold environment. Total \$45,176.38 CAD. *Project completed. Manuscript being finalized.*

2019 – Dec Octapharma Pharmazeutika Produktionsges.m.b.H. Principal Investigator: Fibrinogen in the initial resuscitation of severe trauma 2 (FIIRST 2 Trial): A multicenter randomized controlled trial. Total \$400,000.00 CAD. *Trial in preparation.* Enrollment expected to begin in Sept 2020.

2019 – Dec Canadian Forces Health Services and Defense Research, Development Canada (DRDC). Principal Investigator: Fibrinogen in the initial resuscitation of severe trauma 2 (FIIRST 2 Trial): A multicenter randomized controlled trial. Total \$800,000.00 CAD. *Trial in preparation.* Enrollment expected to begin in Sept 2020.

Dr. David Gomez

Publications:

Nantais J, Skelhorne-Gross G, Jimenez MC, Ahmed N, Gomez D. Biliptysis due to a single transcutaneous thoracoabdominal gunshot wound. *Trauma Surg Acute Care Open*. 2020 Jan 27; 5(1)

Gomez D, Saunders N, Green B, Santiago R, Ahmed N, Baxter N. *A population-based study of firearm related injury and death in Ontario, Canada*. *CMAJ*. October 19, 2020 192 (42) E1253-E1263

Nantais J, Gabbe BJ, Nathens AB, Gomez D. *The current status of disaster preparedness in Canadian Trauma Centers*. *J Trauma Acute Care Surg*. 2020 Sep; 89(3):e78-e83

Gabbe BJ, Veitch B, Kurtis K, Martin K, Gomez D, Civil I, Moran C, Teague W, Holland A, Lecky F, Fitzgerald M, Nathens AB, Joseph T. *Trauma centre preparedness for mass casualty incidents in Australia, Canada, England, and New Zealand*. *Lancet eClinical Medicine*. 2020 Apr 2; 21:100322

Tovmassian D, Hameed AM, Pathmanathan N, Devadas M, Gomez D, Hsu J. *Process measure aimed at reducing time to hemorrhage control: Outcomes associated with code crimson activation in exsanguinating truncal trauma*. *ANZ J Surg*. 2020 Apr; 90(4):481-485

Accepted Pending Publication: Jenkins, L, Mansour M, Gomez D. *Thoraco-abdominal crossbow bolt injury*. *J Trauma Acute Care Surg*. Accepted Oct 2020

Grants:

2019-2020 Principal Investigator. Violence related injuries and recidivism: A population-Based analysis. SMHA innovation funds. Collaborator(s): Rachel Strauss, Natasha Saunders, Rinku Sutradhar, Carolyn Snider \$40,000

2019-2021 A population-based study of emergency general surgery conditions in patients with solid organ transplants CIHR project grant. Principal investigator \$126,225

Dr. Matt Guttman

Publications:

Forner D, Noel CW, Guttman MP, Haas B, Enepekides D, Rigby MH, Nathens AB, Eskander A. 2020. Blunt versus penetrating neck trauma: a retrospective cohort study. *The Laryngoscope*. 2020 Sep 7. Epub ahead of print. PMID: [32894596](https://pubmed.ncbi.nlm.nih.gov/32894596/).

Guttman MP, Larouche J, Lyons F, Nathens AB. Early fixation of traumatic spinal fractures reduces complications in the absence of neurologic injury: A retrospective cohort study from ACS-TQIP. *Journal of Neurosurgery: Spine*. 2020 Aug 28:1-10. Epub ahead of print. PMID: [32858512](https://pubmed.ncbi.nlm.nih.gov/32858512/).

Guttman MP, Tillmann BW, Pannell D, Vallelonga M, Nathens AB, Haas B. Extracorporeal Membrane Oxygenation Use in Trauma Quality Improvement Program Centres: Temporal Trends & Future Directions. *J Trauma Acute Care Surg*. 2020; 89(2):351-357. PMID: [32744831](https://pubmed.ncbi.nlm.nih.gov/32744831/).

Guttman MP, Tillmann BW, Haas B, Nathens AB. Deaths following withdrawal of life sustaining therapy represent opportunities for quality improvement. *J Trauma Acute Care Surg*. 2020 Jul 15. Epub ahead of print. PMID: [32697448](https://pubmed.ncbi.nlm.nih.gov/32697448/).

Tillmann BW, Nathens AB, Guttman MP, Pequeno P, Scales D, Pechlivanoglou P, Haas B. Hospital Resources Do Not Predict Accuracy of Secondary Trauma Triage: A Population-Based Analysis. *J Trauma Acute Care Surg*. 2020; 88(2):230-241. PMID: [31999654](https://pubmed.ncbi.nlm.nih.gov/31999654/).

Presentation: Guttman MP, Tillmann BW, Haas, B, Nathens AB. Deaths Following Withdrawal of Life Sustaining Therapy Represent Opportunities for Quality Improvement. The 33rd Eastern Association for the Surgery of Trauma Annual Scientific Assembly; 2020 January 16; Orlando, United States.

Dr. Barbara Haas

Publications:

Tillmann BW, Nathens AB, Guttman M, Pequeno P, Scales DC, Pechlivanoglou P, Haas B. Hospital resources do not predict accuracy of secondary trauma triage: a population-based analysis. *J Trauma Acute Care Surg*. 2020 Feb; 88(2):230-241

Nolan B, Haas B, Tien H, Saskin R, Nathens A. Patient, Paramedic and Institutional Factors Associated with Delays in Interfacility Transport of Injured Patients by Air Ambulance. *Prehosp Emerg Care*. 2020 Jan;7:1-7.

Behman R, Nathens AB, Haas B, Look Hong N, Pechlivanoglou P, Karanicolas P. Population-based analysis of the impact of adhesional small bowel obstruction on short and medium term mortality. *Br J Surg*. 2019 Dec;106(13):1847-1854

Nolan B, Haas B, Tien H, Saskin R, Nathens A. Causes of Delay During Interfacility Transports of Injured Patients Transported by Air Ambulance. *Prehosp Emerg Care*. 2019 Nov;11:1-9.

Grants:

2020-2024 Principal Applicant. Approaches to routine evaluation of long-term, patient-reported outcomes following traumatic injury. CIHR Project Grant. \$459,000

2020-2023 Examining the long-term illness experiences of injured older adults to select patient-driven outcome measures in geriatric trauma. \$195,000

Jordan Nantais

Publications:

Nantais J, Gabbe BJ, Nathens A, Gomez D. The Current Status of Disaster Preparedness in Canadian Trauma Centers. *J Trauma Acute Care Surg.* 2020 Sep.

Nantais J, Skelthorne-Gross G, Jimenez MC, Ahmed N, Gomez D. Biliroptysis due to a single transcavitary thoracoabdominal gunshot wound. *Trauma Surg Acute Care Open.* 2020 Jan.

Dr. Avery Nathens**Publications:**

Tillmann BW, Nathens AB, Guttman MP, Pequeno P, Scales DC, Pechlivanoglou P, Haas B. Hospital resources do not predict accuracy of secondary trauma triage: A population-based analysis. *J Trauma Acute Care Surg.* 2020 Feb;88(2):230-241. doi: 10.1097/TA.0000000000002552. PubMed PMID: 31999654.

Merkow RP, Schwartz TA, Nathens AB. Practical Guide to Comparative Effectiveness Research Using Observational Data. *JAMA Surg.* 2020 Jan 29. doi: 10.1001/jamasurg.2019.4395. [Epub ahead of print] PubMed PMID: 31995146.

Lam PW, Tarighi P, Elligsen M, Gunaratne K, Nathens AB, Tarshis J, Leis JA. Self-reported beta-lactam allergy and the risk of surgical site infection: A retrospective cohort study. *Infect Control Hosp Epidemiol.* 2020 Jan 23:1-6. doi: 10.1017/ice.2019.374. [Epub ahead of print] PubMed PMID: 31969205.

Behman R, Karanicolas PJ, Nathens AB, Gomez D. Hospital-level Variation in the Management and Outcomes of Patients With Adhesive Small Bowel Obstruction: A Population-Based Analysis. *Ann Surg.* 2019 Dec 10. doi: 10.1097/SLA.0000000000003739. [Epub ahead of print] PubMed PMID: 31850993.

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Behman R, Nathens AB, Haas B, Look Hong N, Pechlivanoglou P, Karanicolas P. Population-based study of the impact of small bowel obstruction due to adhesions on short- and medium-term mortality. *Br J Surg.* 2019 Dec;106(13):1847-1854. doi: 10.1002/bjs.11284. Epub 2019 Aug 9. PubMed PMID: 31397896.

Grants:

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| 2020–2022 | Principal Investigator. Bridging the Gaps: Individual and Community-Level Risk Factors for Non-Lethal Firearm Injuries in the United States. \$711,218 |
| 2020-2024 | Principal Investigator. Approaches to routine evaluation of long-term, patient-reported outcomes following traumatic injury. CIHR. \$459,000 |
| 2019-2023 | Co-investigator. A Multi-State Evaluation of Emergency Department Pediatric Readiness: Guideline Uptake and Association with Quality, Outcomes, and Cost. Health Resources and Services Administration (HRSA) Maternal and Child Health Bureau 1H34MC332430100. US \$324,490 |
| 2018-2020 | Co-Investigator. Understanding and Addressing Barriers to preventing repeat imaging in trauma transfer patients. AFP Innovation Fund. PI: Berger F. \$90,436 |
| 2017-2022 | Co-Investigator. The Value of Pediatric Readiness in the Emergency Care of Injured Children. National Institute of Child Health and Human Development. PI: Newgard, C. \$589,558. |
| 2017-2021 | Co-Investigator. Acute Pain Management and Long-term Opioid Use after Surgery. National Institute on Drug Abuse. PI: Wunsch, H. \$2,046,940 |

Dr. Donald Redelmeier

Publication: Death and long-term disability after gun injury: a cohort analysis; Sheharyar Raza MD, Deva Thiruchelvam MSc, Donald A. Redelmeier MD MS(HSR); *CMAJ Open* 2020. DOI:10.9778/cmajo.20190200

Dr. Joao Rezende-Neto**Publications:**

Rezende-Neto J, Ravi A, Semple M, Magnetically Trackable MT-REBOA: A new non-image-guided technique for resuscitative endovascular balloon occlusion of the aorta. *J Trauma Acute Care Surg.* 2020 Feb; 88(2):e87-e91 (Principal Author).

Blot S, Antonelli M, Arvanti K, et al. and the Abdominal Sepsis Study (AbSeS) Group Rezende Neto J, et al. Epidemiology of intra-abdominal infection and sepsis in critically ill patients: "AbSeS" a multinational observational cohort study and ESICM trials Group Project. *Intensive Care Med.* 2019 Dec; 45:1703-1717. (Participating Member - Abdominal Sepsis Study (AbSeS) Group).

Ziesmann MT, Rezende-Neto J, McKendy K, Prabhudesai V, Rizoli S, Petrosniak A. In the Zone: Lessons from the first Canadian emergency department application of Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA). *CJEM* 2019; 21(3):430-434.

Rezende-Neto J, Camilotti BG. A new non-invasive device to promote primary closure of the fascia and prevent loss of domain in the open abdomen: A pilot study. *Trauma Surgery and Acute Care Open* (accepted for publication October 15, 2020).

Grants:

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| May 2020 | St. Michael's Hospital Foundation – Device, Method, and Kit for Personal Protection During Airway Management (During COVID-19 Pandemic). \$25,000 |
| May 2020 | General Surgery – COVID Research Funds Distribution – Airway Management Tent CAM-T Canadian Airway Management Tent. \$12,000 |
| Nov 2019 | Angel's Den Competition First Place Biomedical Innovation (Project Title: The Liver Airbag) \$150,000 |

Dr. Chethan Sathya

Grant: \$1.4M NIH NICHD Awards Grants for Firearm Injury and Mortality Prevention Research, October 2020

Dr. Bourke Tillman

Publication: Tillmann BW, Nathens AB, Guttman MP, Pequeno P, Scales DC, Haas B. Hospital resources do not predict accuracy of secondary trauma triage: A population-based analysis. *J Trauma Acute Care Surg.* 2020: Feb; 88(2):230–241.

Presentations:

The relationship between timing of amputation and complications among patients with a mangled lower extremity. Tillmann BW, Guttman MP, Nathens AB, de Mestral C, Kayssi A, Haas B. Oral Presentation – 79th Annual Meeting of the American Association for the Surgery of Trauma and Clinical Congress of Acute Care Surgery, presented online September 11, 2020

Association between intoxication and urgent neurosurgical procedures in severe traumatic brain injury: results from the American College of Surgeons Trauma Quality Improvement Program. Tillmann BW, Nathens AB, Scales DC, Haas B. Oral Presentation – Trauma Association of Canada Annual Meeting and Conference, recorded for online conference to occur the week of Nov. 16

The Impact of Hospital Resources on Secondary Overtriage: A Population-Based Analysis. Tillmann BW, Nathens AB, Guttman MP, Pequeno P, Scales DC, Haas B. Virtual Poster Presentation – ACEP 2020 Unconventional Research Forum, recorded for online conference to occur Oct 26 - 29

Dr. Paul Wales

Publication: Ibrahim A, Wales PW, Aquino MR, Chavhan GB. CT and MRI Findings in Pancreatic Trauma in Children Correlation with Outcome. *Pediatric Radiology.* 2020 Jun; 50(7): 943-952. Coauthor or Collaborator.

