

A PARTNERSHIP BETWEEN MICHIGAN MEDICINE AND
THE JOYCE AND DON MASSEY FAMILY FOUNDATION



**YOUR GIFT.
THE FUTURE
OF TBI.**



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

2017

**Alone we can do so little;
together we can do so
much.**

HELEN KELLER

YOUR GIFT. OUR PROMISE.

Since the beginning of our partnership in 2014, we have been on a remarkable journey to drive traumatic brain injury research to a new level. When you made that investment in Michigan Medicine, you also made an investment in the lives of millions of patients around the world who are affected by traumatic brain injury every year.

The Massey family story is an inspiring one – one that shows how far passion, dedication and determination can take you. When we care for our critically ill and injured patients, it is Joyce Massey’s compassion we aspire to equal. When faced with the barriers that traumatic brain injury presents, it is Don Massey’s tenacity we aim to match. When we look to the future of emergency and critical care, it is the Joyce and Don Massey Family Foundation’s commitment to impact that we share.

Together, we are creating a brighter future for emergency and critical care, through bold research, unparalleled education and exceptional patient care.

Research: Massey TBI Grand Challenge

Funding to accelerate innovative technologies and treatments to the bedside that will revolutionize TBI care during the golden hours.

Education: Joyce Massey TBI Summit

Bringing together leading scientists and key opinion leaders to present cutting-edge research, exchange ideas, and discuss the future of TBI research.

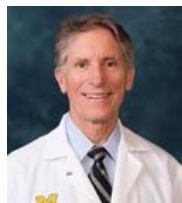
Patient Care: Emergency Critical Care Center (EC3)

An ICU-level clinical practice that elevates patient care, and tests new diagnostic tools, monitoring techniques and therapeutic treatments.

- Massey Oversight Committee



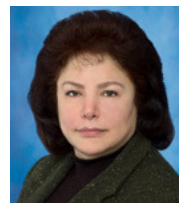
Robert Neumar, MD, PhD
Emergency Medicine



William Barsan, MD
Emergency Medicine



Kevin Ward, MD
Emergency Medicine



Lena Napolitano, MD
Surgery



Karin Muraszko, MD
Neurosurgery



Kyle Gunnerson, MD
Emergency Medicine



Hasan Alam, MD
Surgery



Richard Keep, PhD
Neurosurgery



Steve Maxwell
Emergency Medicine



Eric Barritt
Michigan Medicine Development

YOUR GIFT INNOVATES.

A New Approach to Fostering Innovative Research at U-M

The reality of research is that many great ideas never move further than that casual chat with a colleague, or from the notes quickly scribbled down in the middle of the night. Research is costly and risky, and just having an innovative idea is not enough. But it is often those “risky” ideas that lead to transformational new technologies and treatments that could save lives.

A bold idea needs an equally bold and forward-thinking ecosystem to exist in. The Michigan Center for Integrative Research in Critical Care (MCIRCC) is that ecosystem. As the research hub for more than 170 U-M

scientists, clinicians and engineers, MCIRCC is one of the nation’s first centers dedicated to critical care medicine. Headed by Kevin Ward, M.D., MCIRCC’s innovation and commercialization model brings together researchers from across disciplines and establishes partnerships with industry to accelerate research from bench to bedside.

MCIRCC’s Massey TBI Grand Challenge provides a rigorous framework to help innovative ideas reach their fullest potential. The intensive process includes TBI education sessions, two rounds of detailed proposal submissions, and project reviews by TBI experts from across U-M, industry and the Department of Defense, before


“CRITICAL ILLNESS AND INJURY IS GRAVELY UNDERFUNDED CONSIDERING IT AFFECTS 5.7 MILLION AMERICANS EVERY YEAR. WITH THE GENEROUS GIFT FROM THE MASSEY FAMILY, WE HAVE BEEN ABLE TO MAKE LEAPS AND BOUNDS IN TRAUMATIC BRAIN INJURY RESEARCH.”

***Kevin Ward, MD
Executive Director of MCIRCC***

getting the final seal of approval. The funded teams then work closely with MCIRCC’s Commercialization Coaches to set milestones toward getting their solution to the patient bedside.

With MCIRCC at the helm, many promising TBI research projects have been funded through the Massey TBI Grand Challenge. Since 2015, 19 teams have received funding, going on to publish their work in peer-reviewed journals, present at national conferences, or obtain follow-on funding through other sources.

Your willingness to fund research projects that may be considered too “risky” by large federal organizations has been pivotal to encouraging innovation and entrepreneurship.

 Many critical illnesses and injuries share commonalities.

This means that the technologies and treatment strategies we develop for TBI could potentially be used across other areas such as sepsis, cardiac arrest, pediatrics and trauma.

A PARTNERSHIP WITH THE DEPARTMENT OF DEFENSE

Establishing a partnership with the Department of Defense’s Combat Casualty Care Research Program has provided our TBI research community with invaluable resources and opportunities.

- Educational seminars
- Early notification of DOD funding opportunities
- Increased national awareness of U-M’s TBI research program
- User feedback to help fine-tune research
- Collaborations with leading TBI experts
- Access to DOD research database

YOUR GIFT BUILDS COMMUNITY.



“TRAUMATIC BRAIN INJURY DOES NOT HAVE THE SAME EXPOSURE THAT OTHER FIELDS HAVE SUCH AS CANCER OR STROKE. THERE IS NO DEDICATED NATIONAL CENTER THAT FOSTERS COLLABORATION. THE JOYCE MASSEY TBI SUMMIT PROVIDES A MUCH-NEEDED PLATFORM FOR THE COUNTRY’S LEADING EXPERTS TO EXCHANGE IDEAS AND SHAPE THE FUTURE OF TBI RESEARCH.”

*Robert Neumar, MD, PhD
Chair of Emergency Medicine*

A SUMMIT LIKE THIS GETS PEOPLE WHO MIGHT HAVE AN EXPERTISE THAT WE COULD REALLY USE, AND BRINGS THEM TOGETHER WITH LEADING TBI EXPERTS. THIS IS THE TYPE OF EVENT THAT CAN LEAD TO A QUANTUM LEAP AND REALLY TRANSFORM THE FIELD.

*Walter Koroshetz, MD
Director, National Institute of
Neurological Disorders and Stroke*

The Joyce Massey TBI Summit

The complexities that surround diagnosing, monitoring and treating TBI are vast. It will take a team of dedicated scientists, from all disciplines, to overcome these barriers and impact patient care. The Joyce Massey TBI Summit plays an integral role in building our TBI research community across campus at U-M and beyond.

Since the inaugural Joyce Massey TBI Summit in 2015, our community has been exposed to forward-thinking research in the areas of laboratory science, clinical science and

technology development. We have welcomed the nation’s leading authorities on TBI research, and those who are just beginning their journey – a combination that opens the door to new ideas and possibilities.

The Summit provides a truly unique opportunity to engage the next generation of TBI research leaders. Key Opinion Leaders and their mentees share their knowledge with the group, learning from each other’s successes and failures, and forge new collaborations and engage in meaningful dialogue.

EDUCATION

YOUR GIFT SAVES LIVES.



“The EC3 has had a dramatic cascade affect on our ICUs by freeing up beds and resources, while assuring the best possible outcomes for our critically ill and injured patients”

*Kyle Gunnerson, MD
Director, EC3*

Helping patients in the greatest need

The U-M Emergency Department treats hundreds of patients a day, whose conditions range from mildly acute to imminently life-threatening. Since opening the doors to the Joyce and Don Massey Family Foundation Emergency Critical Care Center (EC3) in 2015, we have ensured that the sickest patients receive and benefit from urgent and attentive care as soon as they arrive.

During their time in the EC3, patients and their families have access to compassionate support from the brightest physicians, nurses, advanced care providers, pharmacists, social workers and respiratory

therapists. From your own experiences, you have helped us create an environment that supports families when they need it most. Soon families will have access to a private space for those difficult conversations and to rest in comfort. These families also have access to support for lodging, meals and travel.

The EC3 also serves as a platform for clinical research and medical education – both of which are core to delivering exceptional care.

Clinical Research - The EC3 has given us the capability to conduct clinical research through our own clinical trials, and through large federally funded multi-center trial networks.



6,651 patients treated since 2015



16% reduction in ICU admissions from the emergency department



37.3% reduction in emergency department to ICU admissions of less than 24 hours

92%

of EC3 patients are enrolled in an evidence-based care pathway

Education - The EC3 has served as a cornerstone of acute critical care education by providing clinical rotations to hundreds of medical students, residents, and critical care fellows from Michigan Medicine and beyond.

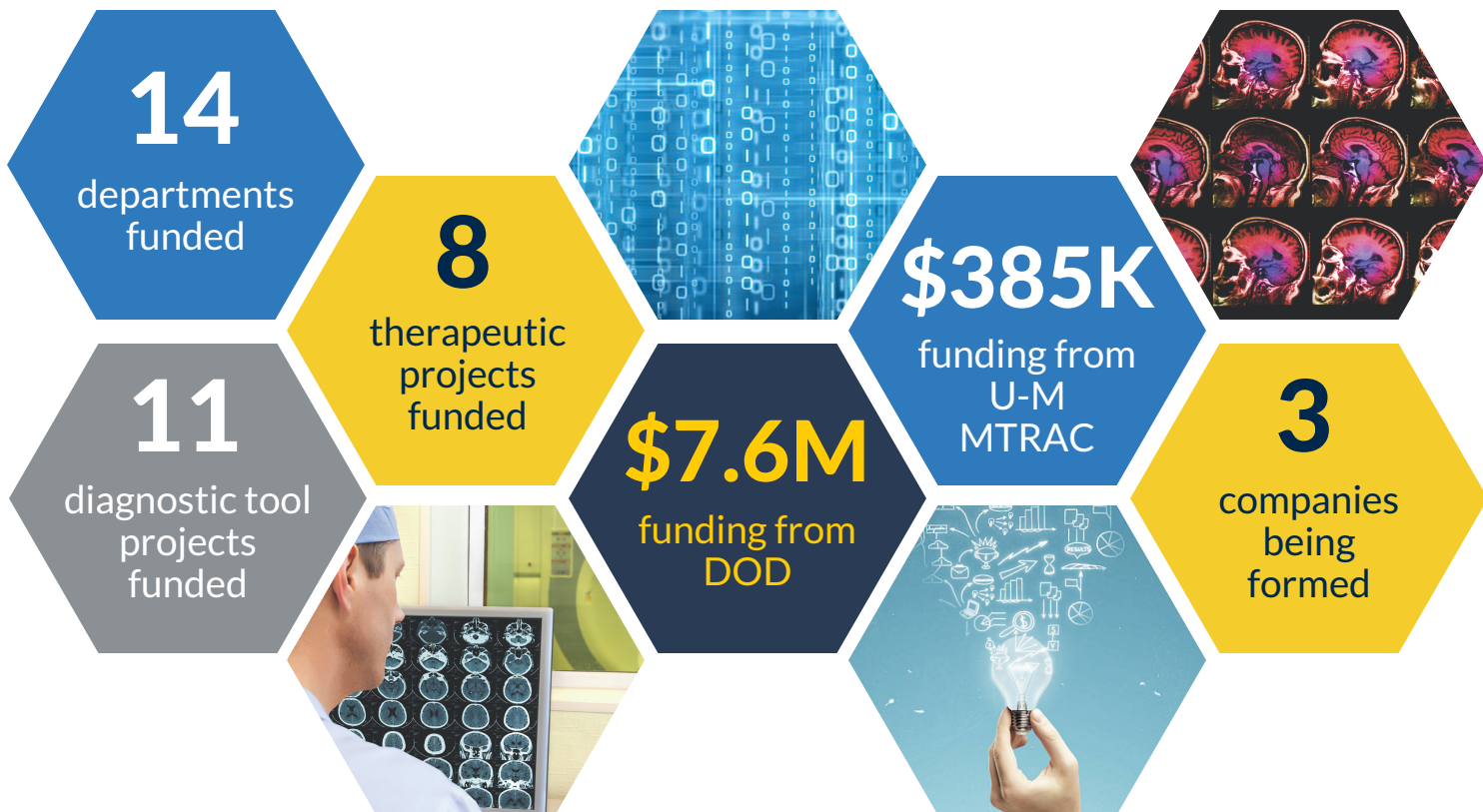
YOUR GIFT GETS RESULTS.

Our competitive advantage is a model that accelerates research from bench to bedside

The road from concept to realization is long and arduous. It can take many years, even decades, to conduct the necessary research to move a project forward. Even then, there is no guarantee that it will lead to a tangible product for use at the patient bedside. That is the nature of research.

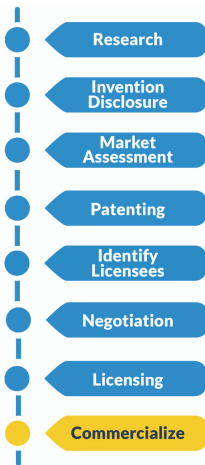
The Massey TBI Grand Challenge framework aims to address this barrier to progress by providing unique tools and resources to funded teams.

- Dedicated Commercialization Coaches who have decades of experience spinning-off companies and mentoring investigators. Their in-depth knowledge of the commercialization process and wide-reaching connections to industry makes them a truly valuable asset.
- Proposal development experts who excel at navigating the competitive world of federal funding. By providing our teams with proposal development and management assistance, they significantly increase their chances of winning follow-on funding.
- Access to specialized labs and facilities to conduct research.
- Clinical research assistance to help develop and execute clinical pilot studies to collect preliminary clinical data.
- Access to a Data Science team that can help teams use data science and advanced analytics to solve research problems.



Moving Closer to Clinical Impact

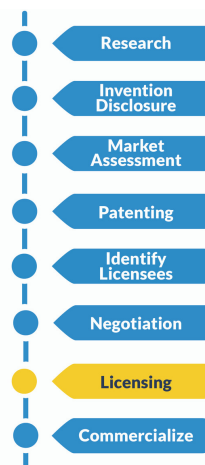
Engaging with industry is a critical component of moving solutions towards clinical impact. We work with companies near and far to develop prototypes, refine products and navigate FDA regulations. These companies have the expertise to get solutions that are market-ready and scalable, to the patient bedside.



Ocular Bioimpedance: Seeing the Brain through the Eyes

This non-invasive tool helps inform traumatic brain injury diagnosis and treatment by using ocular bioimpedance to assess cerebrovascular auto regulation.

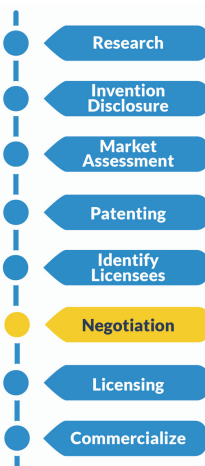
We have created a new company that will license the product and develop a prototype. The next step will be to seek FDA approval before taking it to market.



Barreleye©: A Decision Support Tool for TBI Care

Barreleye is a software product that collects physiological data from various monitors and provides insight into current and future patient conditions.

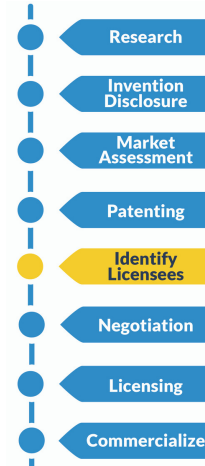
We are creating a company who will assist in refining the software, getting FDA approval and executing clinical trials. The goal is to enroll other hospitals in the clinical trial, creating impact beyond U-M.



Advanced Digital Extra-Ventricular Drain

The digital extraventricular drain device simultaneously measures and responds to intracranial pressure while quantifying cerebral spinal fluid flow rate in real time. It also integrates with data analytics to predict outcomes and reduce secondary brain injury.

The team has nearly completed initial software development and is in negotiations to develop a formal prototype. They are currently identifying potential licensees who will fine-tune the device and get it market-ready.



Systolic Target Assessment Tool (STAT) for TBI Management

This noninvasive tool uses a mechanical cuff inflation system guided by the pulse oximeter waveform to identify systolic blood pressure to help prevent low blood pressure and secondary brain injury.

The team is currently refining hardware/software to permit deployment to ICUs for patient data collection. They are currently in the process of identifying potential licensees who can help bring this technology to market.



Ashwin Belle, PhD



Kayvan Najarian, PhD

2015 TEAMS

Seven teams were initially funded through the Joyce Massey TBI Innovation Fund. Projects were selected based on their potential to impact TBI diagnosis and treatment during the "golden hours."



Krishna Rajjee, MBBS



Kevin Ward, MD



Reza Soroushmehr, PhD



Hugh Garton, MD



Hakam Tiba, MD, MS



Barry Belmont, MS



Hasan Alam, MD



Ihab Halaweish, MD



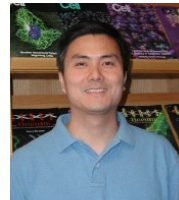
Patrick Georgoff, MD



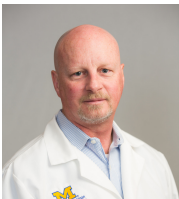
Vahagn Nikolian, MD



Daniel Lawrence, PhD



Joe Su, PhD



Geoffrey Murphy, PhD



Guohua Xi, MD



Ya Hua, MD



Richard Keep, PhD



Leslie Satin, PhD

REAL-TIME HEMODYNAMIC MONITORING SYSTEM

Licensing

A continuous monitoring and real-time analytics tool that detects the early onset of hemodynamic instability to prevent TBI patients from suffering from secondary brain injuries.

*Continued funding in 2017.

Ashwin Belle, PhD - Emergency Medicine
Kayvan Najarian, PhD - Emergency Medicine
Venkatakrisna Rajajee, MBBS - Neurological Surgery
Kevin Ward, MD - Emergency Medicine

COMPUTER-AIDED SYSTEM FOR AUTOMATED ANALYSIS OF CT BRAIN IMAGES

Invention Disclosure

A fully automated automated decision support system that guides real-time TBI diagnosis using CT image processing and machine learning techniques.

*Continued funding in 2016.

Kayvan Najarian, PhD - Emergency Medicine
Reza Soroushmehr, PhD - Emergency Medicine
Venkatakrisna Rajajee, MBBS - Neurological Surgery
Kevin Ward, MD - Emergency Medicine
Hugh Garton, MD - Neurological Surgery

AUTOMATED ONSD MEASUREMENT FOR NONINVASIVE ASSESSMENT OF ICP

Commercialize

Uses ultrasound and impedance measurements of the eye to rapidly and non-invasively assess intracranial pressure in TBI patients during the early stages of care.

*Continued funding in 2017.

Venkatakrisna Rajajee, MBBS - Neurological Surgery
Kevin Ward, MD - Emergency Medicine
M. Hakam Tiba, MD - Emergency Medicine
Barry Belmont, MS - Biomedical Engineering

CEREBRAL HEMATOMA IN TRAUMATIC BRAIN INJURY

Preclinical/
Large Animal

A treatment that utilizes the drug deferoxamine to reduce brain injury after traumatic brain hemorrhage by preventing brain iron overload.

*Currently in preclinical phase and awaiting completion (11/17) of Phase II clinical trial in intracerebral hemorrhage.

Guohua Xi, MD - Neurosurgery
Ya Hua, MD - Neurosurgery
Richard Keep, PhD - Neurosurgery

IMPROVING TBI-INDUCED SYNAPTIC CHANGES

Research

Discovering TBI-induced changes in neurotransmission and reversing these changes with novel therapeutic treatments.

*Extension granted. Currently collecting data.

Leslie Satin, PhD - Pharmacology

INTRAVENOUS IMATINIB FOR TARGETING PDGF SIGNALING IN TBI

Preclinical/
Large Animal

Imatinib drug therapy preserves the blood-brain barrier to reduce fluid retention and brain swelling in TBI patients.

*Continued funding in 2016.

Daniel Lawrence, PhD - Cardiovascular Medicine
E. Joe Su, PhD - Cardiovascular Medicine
Geoffrey Murphy, PhD - Molecular & Behavioral Neuroscience

USING GENOMICS TO ENSURE VALPROIC ACID'S SUCCESS IN TBI TREATMENT

Clinical Trial

Early administration of plasma and valproic acid to decrease brain injury and complications from hemorrhagic shock, to improve TBI patient outcomes and recovery speed.

*Continued funding in 2016.

Hasan Alam, MD - Acute Care Surgery
Patrick Georgoff, MD - General Surgery
Vahagn Nikolian, MD - General Surgery
Yongqing Li, MD, PhD - Trauma Surgery Research
Ihab Halaweish, MD - Traumatology



Ashwin Belle, PhD



Kayvan Najarian, PhD

2016 TEAMS

Five teams were funded through the inaugural Massey TBI Grand Challenge to tackle diagnosing, monitoring, and treating TBI patients in the early hours of care.



Rodney Daniels, MD



David Chesney, PhD



Gerald Higgins, MD, PhD



Brian Athey, PhD



Hakam Tiba, MD, MS



Craig Williamson, MD



Hasan Alam, MD



Matthew Lewis, PhD



Patrick Georgoff, MD



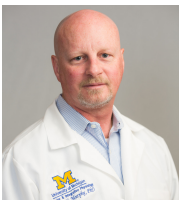
Vahagn Nikolian, MD



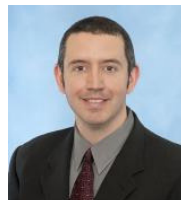
Daniel Lawrence, PhD



Joe Su, PhD



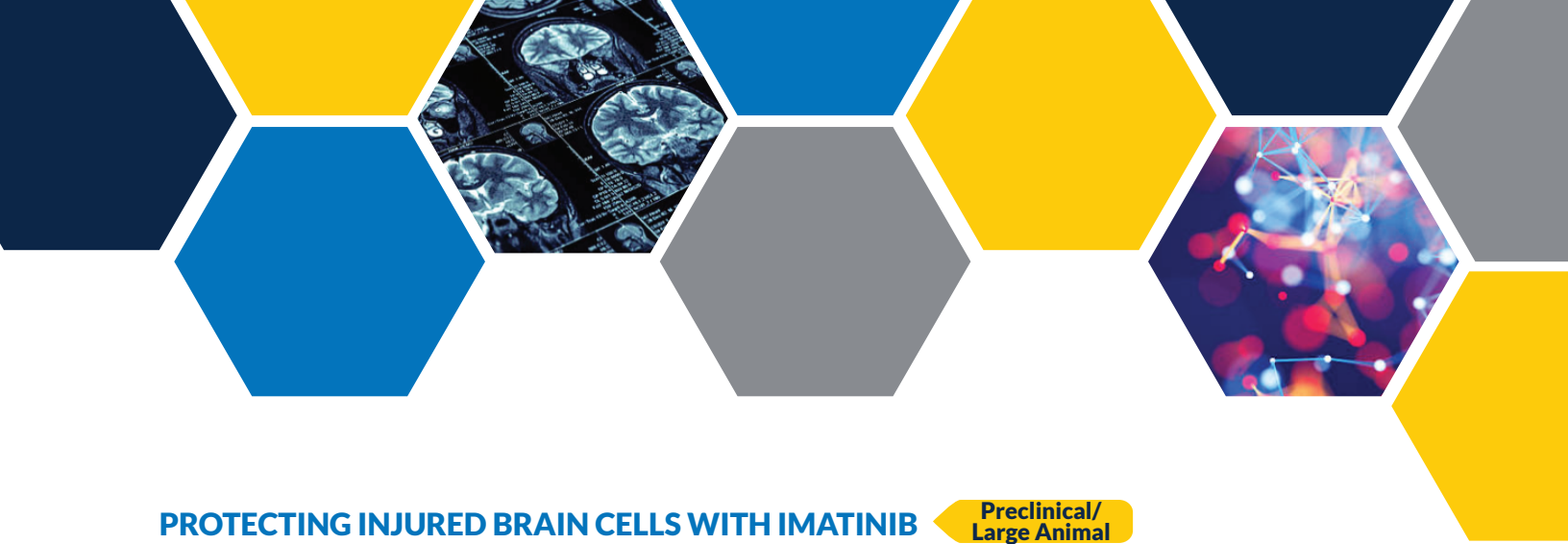
Geoffrey Murphy, PhD



William Meurer, MD



Jacob Joseph, MD



PROTECTING INJURED BRAIN CELLS WITH IMATINIB

Preclinical/
Large Animal

Imatinib drug therapy preserves the blood-brain barrier to reduce fluid retention and brain swelling in TBI patients

Daniel Lawrence, PhD - Cardiovascular Medicine
E. Joe Su, PhD - Cardiovascular Medicine
Geoffrey Murphy, PhD - Molecular & Behavioral Neuroscience

*Currently in preclinical/large animal phase, awaiting final pig data.

DIGITAL EXTRA-VENTRICULAR DRAIN WITH INTEGRATED ICP MONITOR

Negotiation

A digital extra-ventricular drain (EVD) system that removes the amount of human error and time associated with current primitive EVD systems.

Rodney Daniels, MD - Pediatric Critical Care
David Chesney, PhD - Electrical Eng. & Computer Science
Hakam Tiba, MD, MS - Emergency Medicine
Ashwin Belle, PhD - Emergency Medicine

*Formal prototype in development. Market assessment complete and now discussing licensing.

QUANTITATIVE PUPILLOMETRY TO DETECT TBI

Research

Quantitative pupillometry quickly assesses TBI severity to provide actionable insight into acute head trauma outside of the critical care setting.

William Meurer, MD - Emergency Medicine
Jacob Joseph, MD - Neurosurgery
Matthew Lewis, PhD - Michigan Aerospace Corporation
Craig Williamson, MD - Neurosurgery & Neurology

*Currently recruiting larger population for data collection. Applying for additional UM funding.

GENOMIC & PROTEOMIC TECHNOLOGY TO DISCOVER VPA MECHANISM

Clinical Trial

Using genomic and proteomic technology to identify how valproic acid decreases the severity of traumatic brain injury.

*Completed swine models and now in Phase II clinical trial. Next step is point of care testing.

Hasan Alam, MD - Acute Care Surgery
Patrick Georgoff, MD - General Surgery
Vahagn Nikolian, MD - General Surgery
Brian Athey, PhD - Computational Med. & Bioinformatics
Gerald Higgins, MD, PhD - Computational Med. & Bioinformatics

AUTOMATED BRAIN IMAGE ANALYSIS OF SUBDURAL HEMATOMA

Invention
Disclosure

An automated brain image analysis system that can quickly detect several factors to diagnose subdural hematomas on CT scans.

Kayvan Najarian, PhD - Computational Med. & Bioinformatics
Craig Williamson, MD - Neurosurgery & Neurology

*Developed algorithm and now validating. Next step is market assessment and to identify potential licensee.

RESEARCH



Ashwin Belle, PhD



Mark Salamango



Kayvan Najarian, PhD

2017 TEAMS

Seven teams were funded through the second Massey TBI Grand Challenge to tackle diagnosing, monitoring, and treating TBI patients in the early hours of care.



Omar Ahmed, PhD



Rodney Daniels, MD



Kathleen Stringer, PHARM D



Frederick Korley, MD



Grant Kruger, PhD



Cindy Hsu, MD



Hakam Tiba, MD, MS



Craig Williamson, MD



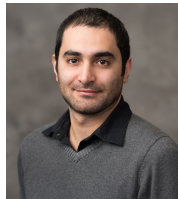
Hasan Alam, MD



Kevin Ward, MD



Amanda Pennington



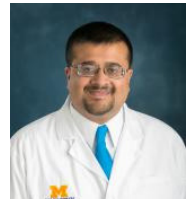
Sardar Ansari, PhD



Vahagn Nikolian, MD



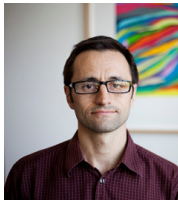
Krishna Rajajee, MBBS



Nikhil Theyyanni, MD



David Hackenson, MD



Luis Hernandez-Garcia, PhD



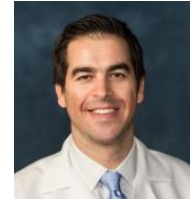
Bryce Benson



Brendan McCracken



Oliver Kripfgans, PhD



Ross Kessler, MD

SYSTOLIC TARGET ASSESSMENT TOOL (STAT) FOR TBI MANAGEMENT

Identifying Licensees

This noninvasive tool uses a mechanical cuff inflation system guided by the pulse oximeter waveform to identify low blood pressure to help prevent secondary brain injury.

David Hackenson, MD - Emergency Medicine
Kevin Ward, MD - Emergency Medicine
Hakam Tiba, MD - Emergency Medicine

*Working to deploy to ICU for patient data collection. Identifying potential licensees.

IDENTIFICATION OF MONITORING BIOMARKERS FOR OPTIMIZING TBI STUDIES

Research

Identification of an integrated panel of protein and metabolite biomarkers of brain injury. The device will allow objective and personalized assessment of TBI status and response to TBI drug therapy.

Frederick Korley, MD - Emergency Medicine
Hasan Alam, MD - Acute Care Surgery
Kathleen Stringer, PHARM.D - Pharmacy
Kayvan Najarian, PhD - Computational Med & Bioinformatics
Vahagn Nikolian, MD - General Surgery

*Collecting animal data to examine treatment efficacy.

ADVANCED DIGITAL EXTRAVENTRICULAR DRAIN WITH DATA ANALYTICS INTEGRATION

Negotiation

The digital extraventricular drain device simultaneously measures and responds to ICP while quantifying CSF flow rate in real time. It also integrates with data analytics to predict outcomes and reduce secondary brain injury

Rodney Daniels, MD - Pediatric Critical Care
Ashwin Belle, PhD - Emergency Medicine
Mark Salamango - Emergency Medicine
Hakam Tiba, MD, MS - Emergency Medicine
Brendan McCracken - Emergency Medicine

*Formal prototype in development. Market assessment complete and now discussing licensing.

BARRELEYE®: A DECISION SUPPORT TOOL FOR TBI CARE

Licensing

Barreleye collects physiological data from various monitors and provides actionable insight on current and future conditions.

Ashwin Belle, PhD - Emergency Medicine
Kayvan Najarian, PhD - Emergency Medicine
Venkatakrisna Rajajee, MBBS - Neurological Surgery
Kevin Ward, MD - Emergency Medicine

*Currently in the process of licensing to a company.

AUTOMATED EXTRACRANIAL INTERNAL CAROTID ARTERY ULTRASOUND SENSOR

Research

The device uses a wearable ultrasound sensor to measure extracranial internal carotid artery flow volume. In doing so, they'll enable early detection of brain blood flow compromise preventing secondary ischemic injuries.

Cindy Hsu, MD, PhD - Emergency Medicine
Grant Kruger, PhD - Mechanical Engineering & Anesthesiology
Ross Kessler, MD - Emergency Medicine
Nikhil Theyyanni, MD - Emergency Medicine
Oliver Kripfgans, PhD - Radiology
Craig Williamson, MD - Neurosurgery & Neurology
Venkatakrisna Rajajee, MBBS - Neurosurgery & Neurology
Luis Hernandez-Garcia, PhD - Biomedical Engineering

*Working with a company to refine ultrasound sensor.

CEREBROVASCULAR BLOOD VOLUME ASSESSMENT USING BRAIN BIOIMPEDANCE

Commercialize

A wearable sensor placed on the eyelid will use bioimpedance, the measure of electrical property of tissues, to determine if blood flow regulation is in tact.

Hakam Tiba, MD - Emergency Medicine
Kevin Ward, MD - Emergency Medicine & Biomedical Eng.
Ashwin Belle, PhD - Emergency Medicine
Sardar Ansari, PhD - Emergency Medicine
Craig Williamson, MD - Neurosurgery & Neurology

*Licensed and ready for prototype development.

INCREASED NEUROPROTECTION USING NOVEL DRUG THERAPIES

Research

Biophysical modeling of distinct neurons and neural circuits suggest there is a combination of drugs, bumetanide and gaboxadol, that can offer neuroprotection during the golden hours of TBI.

Omar Ahmed, PhD - Psychology
Hasan Alam, MD - Surgery
Vaughn Hetrick, PhD - Psychology
Shyam Kumar Sudhakar, PhD - Psychology

*Analysis equipment acquired. Next step is to begin assay work.

YOUR GIFT. THEIR STORY.

Hello Dr. Gunnerson,

I wanted to thank you and your team at the University of Michigan Hospital's Emergency Critical Care Center for the excellent care that my father received during both of his stays in the unit. At an intense, nerve-wracking time for both my father and I, your staff was completely professional and kind. All physicians and nurses that I encountered welcomed my questions. In fact, they routinely asked if I had any questions. Even if I didn't have any at the time--because they were great about explaining everything--the fact that they seemed so willing to answer them made all the staff seem much more approachable and made me feel like I was part of the team caring for my father. I did not have that experience in the other two critical care units that my dad eventually visited.

I also found the transition from the resuscitation room to the EC3 to be completely seamless. In fact, my father has visited the EC3 a total of four times, and I always breathe a sigh of relief when he is transferred there because I know he'll receive excellent care in a more calm, relaxed environment than the Emergency Department.

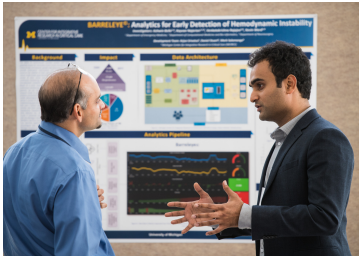
I would especially like to acknowledge the following physicians: Dr. Russ Day, (who treated my father during both visits, first in the EC3 and second in the CCMU,) Dr. Losman, and Dr. Colin McCloskey, who were entirely professional, patient, and kind. As well, the following nurses: Cassandra, Colleen, and Sarah, were so great about advocating for my father, making sure he was comfortable, and encouraging me to ask questions. They are all rock stars in my book.

I don't know if you intentionally emphasize customer service in the EC3, but with someone with so many comorbidities as my father, every trip to the emergency department is a life-or-death situation. An environment that actually cares about both the patient and the family can make the whole experience less terrifying. Thank you for providing that environment for my family.

With gratitude,

Family member of EC3 patient

YOUR GIFT LEAVES A LEGACY.



As we look back over the past three years that we have spent driving TBI research, we are filled with a sense of pride for what we have achieved, but most of all we are thankful – thankful to you for the generous gift that has allowed us to explore a field that has so much potential to impact the lives of patients and their families.

We have already achieved so much together in this short period of time, but it is just the tip of the iceberg. The future we enter together is bright and full of promise. From seeing the innovative technology and

therapeutic projects that we have nurtured come to fruition, to watching today's new generation of TBI researchers become the Key Opinion Leaders of tomorrow. And most importantly, to saving and improving the lives of those who suffer traumatic brain injuries.

The legacy of Joyce and Don Massey has already had a transformational impact on the field of TBI, and we are excited to see what the next five, ten, and even fifty years of traumatic brain injury research brings.

Thank you!

**START
HERE**

DEC 2014



**U-M and Massey
partnership begins**

**Seven teams funded
through the 2015
Joyce Massey TBI
Innovation Fund**

JAN 2015



**Massey
Regional TBI
Conference**



OCT 2016

**Wolverine Den
Presentations**



MAY 2016

**Massey TBI
Grand Challenge**



FEB 2017

MAY 2017



**Wolverine Den
Presentations**

LOOKING BACK

THREE YEARS: OUR



Joyce and Don Massey Family Foundation Emergency Critical Care Center opens

FEB 2015

SEP 2015



Massey TBI Grand Challenge

Inaugural Joyce Massey TBI Summit



FEB 2016

NOW

OCT 2017



Joyce Massey TBI Summit II



TBI COMMUNITY

