

The Massey Family Foundation Critical Care Grand Challenge: TBI

Event Brief

ABOUT MCIRCC

The U-M Center for Integrative Research in Critical Care (MCIRCC) is one of the world's first comprehensive research enterprises devoted to transforming critical care medicine by accelerating science and moving it from bench to bedside. To do this, MCIRCC brings together integrative teams comprised of U-M scientists, clinicians, and engineers with industry partners and funding sources to develop and deploy cutting-edge solutions that elevate the care, outcomes, and quality of life of critically ill and injured patients and their families. Learn more at www.micircc.org.

ABOUT THE MASSEY FOUNDATION

The Joyce and Don Massey Family Foundation is supporting U-M efforts to save lives and improve the outcomes of those who suffer traumatic brain injuries (TBI). The fund was developed to support technology development, and translational and clinical research that will impact the diagnosis and treatment of severe TBI during the initial "golden hours" of care. The Massey Family Foundation will graciously be providing for funding the Grand Challenge: TBI.

ABOUT THE GRAND CHALLENGE

The Grand Challenge targets big problems and rewards bold solutions by supporting high-impact proposals for milestone-driven research over a 12-month timeframe.

The 2016 Grand Challenge seeks to fund integrated science teams that can develop and deliver innovative solutions that can improve outcomes after **severe TBI diagnosis** when implemented in the initial golden hours after injury.

The program starts with an in depth "TBI state of the art" symposium on day 1, followed by the release of a RFP on day 2. The Grand Challenge supports integrative collaboration across disciplines; therefore proposals submitted by co-PIs from across disciplines will be given first consideration for funding.

MCIRCC successfully executed this program in 2014/15 targeting sepsis solutions. In total, 14 proposals were received of which 6 were selected for funding based on their clinical and market relevance. The result of the Grand Challenge: Sepsis is a comprehensive portfolio comprised of therapeutics, diagnostics, devices and digital health solutions that leverage new or granular health data to inform sepsis therapy. [Click here to learn more about the current status of the six Sepsis Grand Challenge projects.](#)

THE TBI CHALLENGE IN THE U.S.

- Approximately 2.5 million people sustained a TBI in 2010 alone, contributing to the 5.3 million Americans currently living with disabilities related to TBI.
- TBI is the 4th leading cause of death at a rate of 52,000 per year.
- The estimated cost to the economy each year is \$56+ billion dollars in direct and indirect costs.

TBI is a major global health problem that is constantly growing and difficult to grasp. It is often called the “invisible injury” for a reason: brain injury is notoriously difficult to diagnose and treat. TBI has gained significant attention in recent years as being the “signature wound” of the Iraq and Afghanistan wars. It is estimated that 60% of the most seriously wounded soldiers from these wars suffer from TBI.

Studies over the past 20 years have revealed much about the biological mechanisms behind TBI, but there have been major challenges when it comes to translating that knowledge into a successful clinical trial and improvement in patient care. To tackle the TBI challenge, researchers from across fields including medicine, engineering, data sciences and others must collaborate to find solutions to improve patient survival and outcomes.

THE SOLUTION

The MCIRCC Grand Challenge Fund will support high-impact proposals with funding from a pool of up to \$500,000 for a 12-month timeframe.

Project teams will develop diagnostic, device, therapeutic, or health information technology solutions that address the initial “golden hours” of care after **severe TBI** (generally the first 48 hours). Diagnostics and treatment administered during this critical timeframe can impact patient survival and have a significant effect on long-term function and disability.

Grand Challenge funding will be awarded to teams moving their projects along the research spectrum toward translational impact. Our goal is to accelerate impact at the bedside, therefore basic discovery phase projects without a clear clinical translational path will not be considered.

All funded projects will be assigned project mentors to assist in executing their milestone-driven research plans. Projects involving potential product development will also receive specialized commercialization mentorship, utilizing the “lean business model” tools and techniques.

COLLABORATING WITH THE DOD

Department of Defense (DOD) service members and families represent the largest U.S. population suffering from the impact of TBI. Working with MCIRCC, the DOD will bring expertise and resources to help accelerate the movement of translational research outputs into the field.

Based on their current strategic needs assessment, DOD Neurotrauma Leadership will sit on the Massey Grand Challenge Steering Committee to assist in reviewing and selecting proposals for funding, and provide oversight to funded projects.

For appropriate projects, Field Medics will act as Mentors by providing ongoing leadership and guidance specific to customer needs assessment, prototype development and de-risking milestones.

Funded projects that drive toward proof of concept and human testing have the potential to receive follow-on funding from the DOD for solutions, therapies and products that can be used by DOD medics in the field.

2015 Critical Care Grand Challenge: Traumatic Brain Injury
Friday, January 22 and Saturday, January 23
Event Brief

Location: Building 18, Dining Hall
North Campus Research Complex (NCRC)
2800 Plymouth Road
Ann Arbor, MI 48109

Timeline:
Friday, October 2 Day 1: Welcome and overview of the TBI challenge
1:00 pm – 5:30 pm
Saturday, October 3 Day 2: Road to impact and RFP launch
8:00 am – 12:00 pm

Goals and Objectives:

- **TBI 101:** Examine the science, complexity, and far-reaching implications of TBI across the spectrum of critical care.
- **Pioneering Solutions:** Explore potential models for new therapeutics, diagnostics, devices or digital health solutions to support TBI patients and healthcare providers.
- **Team Science Toolkit:** Introduce processes, resources and lean business model fundamentals to support “integrative science teams” in the development of solutions suitable for impact at the bedside.
- **RFP Launch:** Present the Critical Care Grand Challenge proposal development, evaluation and award process for team funding.

U-M Hosts:

- Department of Emergency Medicine
- Joyce and Don Massey Family Foundation

Invited Guests:

- All U-M faculty
- Department of Defense
- Select Industry Partners

Critical Care Grand Challenge: Traumatic Brain Injury Draft Agenda

Friday, January 22 11:30 am – 6:30 pm		
Time	Agenda Topic	Presenter/s
11:30 am – 12:00 pm	Networking Reception – <i>lunch provided</i>	
12:00 pm – 12:15 pm	Why TBI?	Robert Neumar, MD, PhD
12:15 pm – 12:30 pm	Massey Foundation	Brenda Massey
12:30 pm – 1:00 pm	My Experience – <i>the patient's perspective</i>	TBD
1:00 pm – 1:45 pm	TBI 101 & Perspectives from the DoD – <i>what we know, what we've learned and why we're here</i>	A. Tamara Crowder, PhD
1:45 pm – 2:30 pm	The Golden Hours – <i>current state of diagnosis and initial treatment</i>	Todd E. Rasmussen, MD FACS Colonel USAF MC
2:30 pm – 3:15 pm	The Gnarly Problems That Must be Solved	Robert Neumar, MD, PhD and William Barsan, MD
3:15 pm – 3:30 pm	BREAK	
3:30 pm – 3:50 pm	From the Field: 1. The Patient's Voice	TBD
3:50 pm – 4:10 pm	2. The Medic's Voice	TBD
4:10 pm – 4:25 pm	The Clinician's Wish List: 1. DoD	TBD
4:25 pm – 4:40 pm	2. UM ED/Trauma	TBD
4:40 pm – 4:50 pm	Resources to Help Solve the Problem: 1. Big Data and Advanced Analytics	Ashwin Belle & Mark Salamango
4:50 pm – 5:00 pm	2. Imaging & Biomarkers	TBD
5:00 pm – 5:10 pm	3. Animal Models	TBD
5:10 pm – 5:20 pm	4. Engineering Resources	TBD
5:20 pm – 5:30 pm	5. Applied Technology Resources	TBD
5:30 pm – 6:30 pm	Networking Mixer – <i>refreshments provided</i>	

Saturday, January 23 8:00 am – 12:00 pm		
Time	Agenda Topic	Presenter/s
8:00 am – 8:30 am	Welcome and Friday Recap <i>Breakfast provided</i>	Robert Neumar, MD, PhD
Roadmap to Developing Solutions for the Bedside		
8:30 am – 8:45 am	<ul style="list-style-type: none"> MCIRCC Catalyst Team – <i>Lean Business Model</i> 	TBD
8:45 am – 9:00 am	<ul style="list-style-type: none"> DoD Medics/MCIRCC Mentors 	TBD
9:00 am – 9:15 am	<ul style="list-style-type: none"> The Product Development Roadmap 	TBD
9:15 am – 9:45 am	<ul style="list-style-type: none"> Voice of the Customer (DoD) 	TBD
9:45 am – 10:00 am	<ul style="list-style-type: none"> Funding Strategies 	TBD
10:00 am – 10:30 am	<ul style="list-style-type: none"> Lessons Learned: <ol style="list-style-type: none"> DoD 	TBD
10:30 am – 11:00 am	<ul style="list-style-type: none"> <ol style="list-style-type: none"> Grand Challenge Sepsis Team 	TBD
11:00 am – 11:15 am	BREAK	
11:15 am – 12:00 pm	Grand Challenge RFP Release	Robert Neumar, MD, PhD