



Inaugural Annual Report
FY 2020



CONCUSSION CENTER
UNIVERSITY OF MICHIGAN

A Letter from the Director

For many of us at the University of Michigan, the creation of the Michigan Concussion Center represents not only recognition for years of dedication and hard work, but also a starting point for greater societal impact.

In 2018, we were awarded initial support through President Schlissel's \$150M Biosciences Initiative to establish ourselves as a global concussion leader. To address what is considered a major public health concern, the Concussion Center created **Synergies of Excellence** that uniquely combine our Research, Clinical, and Outreach & Engagement Cores to create integrated solutions that advance concussion knowledge and protocol.

In the busy 18 months since our founding, we have spent a significant amount of time building our infrastructure; filling key positions; developing our strategic plan; establishing relationships between U-M researchers, clinicians, schools, and units; and learning from other centers throughout North America. Perhaps most importantly, we have begun the hiring process for three new research faculty whose contributions will

fill critical gaps in our research portfolio and will be instrumental in moving the center onto the world stage. We are also pleased to announce a \$2M gift to the center that will support student research, which is key to the university's mission.

We've had an incredible start, but recent worldwide events have reshaped our approach for the coming year. I am optimistic that 12 months from now, we will be settled into the newly renovated School of Kinesiology Building. There, we will continue to disseminate a transformative research agenda to clinicians, policymakers, and the public at large, while our clinical partners help safely return concussed individuals to their work, school, and sporting activities. The center's future is full of excitement and opportunity, and I look forward to sharing our accomplishments with you.

Sincerely,

Steven P. Broglio, PhD
Director



The Michigan Concussion Center Advisory Board and Executive Committee

Left to Right: John Ayanian, Col. Sidney Hinds, Steven Broglio, Kristina Ko, Warde Manuel, Ron Zernicke, James Eckner, Matthew Lorincz, Rebecca Cunningham, Andrea Almeida.
Not pictured: Lloyd Carr, Mona Hicks, Dhani Jones, George Mashour, Mike McCrea, Carrie Morton.

Synergies of Excellence



CONCUSSION



Our Mission: To maximize societal and individual health through the relentless pursuit of concussion knowledge.

Our Vision: To be the recognized leader in concussion research and clinical practice for positive impact to patient health.

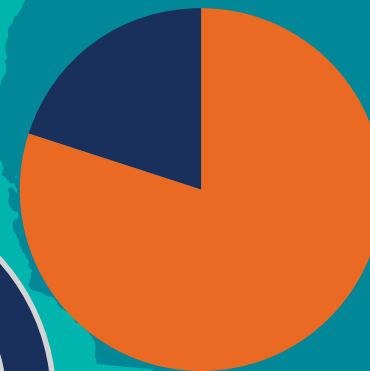
A concussion is a mild traumatic brain injury (mTBI)

50%
of all concussions go unreported

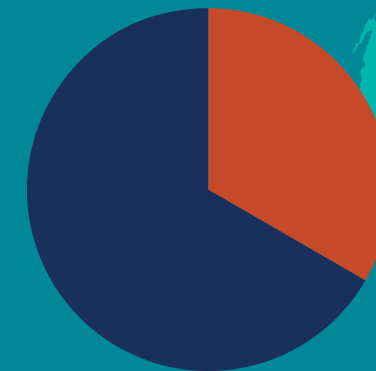
~4M
sport- and recreation-related concussions annually

500 per 100,000
people report to the emergency department with mTBI per year

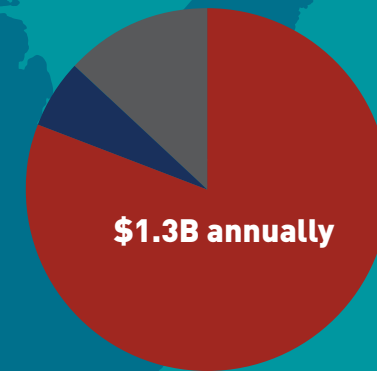
Consequences



>80%
of all military brain injuries are non-combat mTBIs



Up to **1/3** of concussed individuals are temporarily disabled by post-injury symptoms



\$1.3B annually
>80% of costs related to youth TBI in the first year are concussion-related

- Concussion (Mild TBI)
- Moderate TBI
- Severe TBI

Key Questions

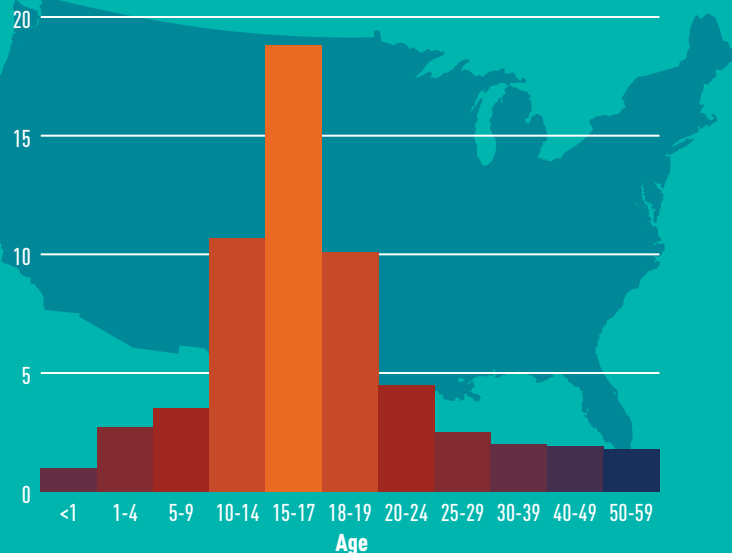
Who is more likely to be concussed?

How many concussions are too many?

What is the risk for my child to play contact sports?

What are the potential long-term consequences of repetitive head trauma?

Concussion Rate by Age from 2010–2015 (per 1,000 Blue Cross Blue Shield members)



Driving Progress

Groundbreaking Research

- **CARE** - U-M is the clinical study core lead for the Concussion Assessment, Research and Education (CARE) Consortium, a 30-institution study on concussion outcomes in military cadets and student-athletes. To date, 52,000+ participants have been enrolled with 5,000+ concussions captured. University researchers are moving into the next phase, looking at long-term outcomes.
- **SIREN** - U-M researchers are part of the Strategies to Innovate Emergency Care Clinical Trials Network (SIREN), which is funded by the National Institutes of Health to do clinical trials in neurologic and cardiovascular emergencies.
- **Blood Biomarkers** - Following a concussion, certain brain proteins are released and find their way into the bloodstream. U-M researchers are working to identify these blood-based biomarkers to help diagnose concussion and improve injury identification and management.
- **Neck Strengthening** - U-M researchers are studying neck-strengthening techniques as a concussion prevention strategy.
- **Treatment** - U-M researchers and clinicians are investigating treatments and therapies to optimize concussion recovery.

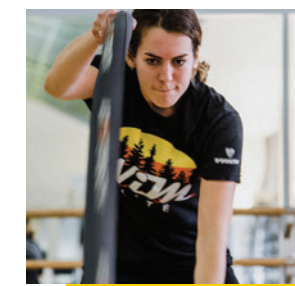


Building Community

- **Faculty Hiring** - The Concussion Center will be hiring three new faculty members to extend the university's concussion expertise.
- **Convening** - Engagement with 150+ U-M faculty, clinicians, researchers, staff, and students from 20+ units and departments. Dozens of members convened during two workshops to shape the center's thought leadership and research agenda.
- **Addressing Concussion on Campus** - The Concussion Center is working closely with key campus units to develop and implement cutting-edge diagnosis and care for concussed students and student-athletes.

Translating Research

- The Concussion Center developed two free online learning concussion resources.
 - In partnership with the Michigan High School Athletic Association, the *Michigan Sport Related Concussion Certification* course provides concussion training and state-required certification for coaches, athletic trainers, parents, and athletes.
 - The *Understanding Sport-Related Concussion Teach-Out* provides information on concussion long-term effects, education, policy, and protocol from leading experts in neurology, engineering, law, journalism, and athletic training.
- Center faculty members co-authored the American Physical Therapy Association and U.S. Soccer concussion management guidelines that will serve as a resource for clinicians nationwide.
- The center launched a quarterly newsletter to 3,300+ subscribers.



Concussion at U-M FY2019/2020

\$3.3M in research
2,000+ research participants
2,000+ patients treated for concussion
100+ publications by our experts
\$10M+ in concussion-related research proposals



Foundational Partners

Biosciences Initiative
School of Kinesiology
Department of Neurology
Department of Physical Medicine
and Rehabilitation
NeuroSport

Collaborators

Athletic Medicine
Athletics
College of Literature, Science,
and the Arts
C.S. Mott Children's Hospital
Department of Emergency Medicine
Department of Molecular, Cellular
and Developmental Biology
Department of Pharmacology
Exercise and Sport Science
Initiative
Injury Prevention Center
Institute for Healthcare Policy
and Innovation
Learning Health Sciences
NeuroTrauma Laboratory
Office of Research
Precision Medicine
Recreational Sports
School of Nursing
School of Public Health
University Health Service

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A rendering
of the new
Kinesiology
Building,
home to the
Michigan
Concussion
Center
starting in
January 2021

