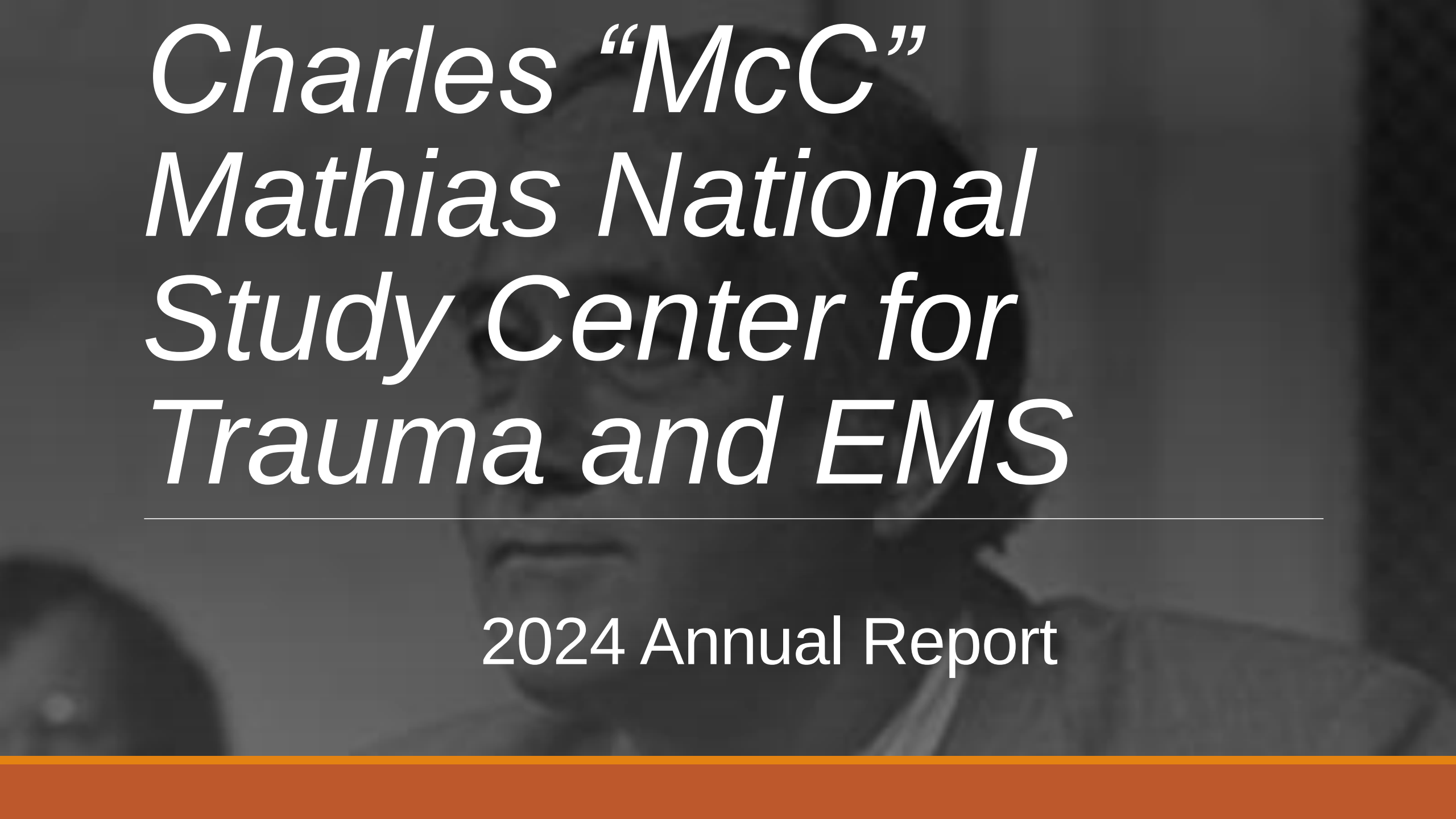

Charles "McC" Mathias National Study Center for Trauma and EMS

2024 Annual Report

UNIVERSITY of MARYLAND
SCHOOL OF MEDICINE

CHARLES McC. MATHIAS, JR., NATIONAL STUDY CENTER FOR TRAUMA AND EMERGENCY MEDICAL SYSTEMS

Mission Statement

"The Study Center's primary mission is research, with particular emphasis on establishing national policies related to prevention, treatment, acute care and rehabilitation, trauma and emergency medical care delivery systems, disaster epidemiology and management, injury surveillance, and data collection. It shall serve as the primary research center for the State Emergency Medical Services System." MD Education Code § 13-513 (2023)

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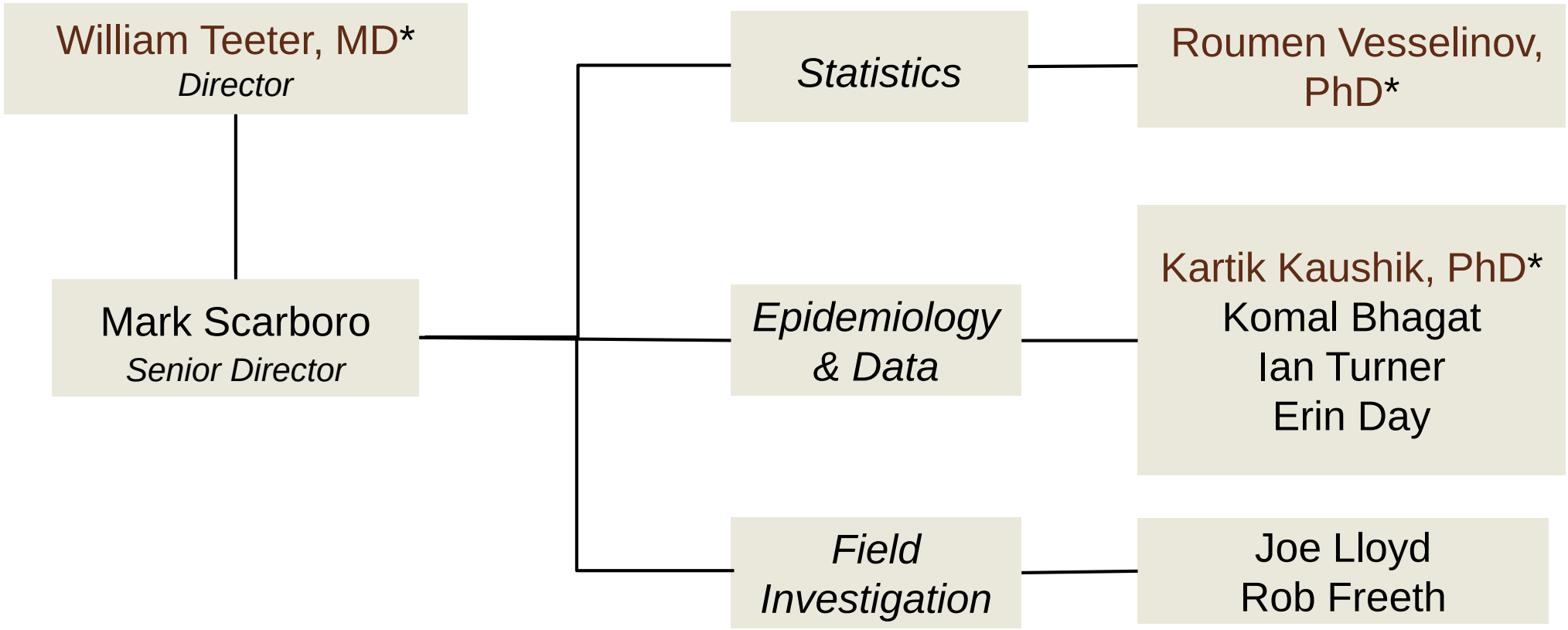
NSC Organizational Chart



*Faculty Appointment

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NSC Faculty

William Teeter, MD
Director, National Study Center for Trauma and EMS
Associate Professor of Emergency Medicine and the Program in Trauma

Kartik Kaushik, PhD
Assistant Professor
Assistant Director of Data and Informatics

Roumen Vesselinov, PhD
Academic Title: Assistant Professor
Statistician

Margaret Lauerman, MD
Associate Professor of Surgery

Rosemary Kozar, MD, PhD
Professor of Surgery
Director of Translational Research Shock Trauma

Peter F. Hu, PhD
Professor, Department of Anesthesiology
Chief Technologist, University of Maryland Shock Trauma Center and National Study Center for Trauma & EMS

Shiming Yang, PhD
Associate Professor, Department of Anesthesiology

Deborah M. Stein, MD, MPH
Professor of Surgery
Director Adult Critical Care Services, UMMC

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Report Summary

Collaborations / Publications

IODES and CISIR

CIREN

Maryland Highway Safety Office (MHSO) projects

Other projects and initiatives

NSC Collaboration - Ongoing

Collaboration with IHC, STAR, and other researchers

- Multiple projects evaluating cause and care in trauma

MIEMSS Research Interest Group (RIG)

- Epinephrine and Cardiac Arrests in Maryland
- Patient survivability post EMS contact

Multiple papers submitted and published in 2024

- Early trauma-induced coagulopathy, drugs and toxicology, trauma clinical outcomes, built environment and injuries, among others

NSC Collaboration

LiTES

Linking Investigations in Trauma and Emergency Services

Department of Defense funded $100M consortium of nearly 50 trauma centers in the United States and Canada and funded by the Department of Defense to continue a clinical research trial program that is advancing trauma care.

Trials proposed by Department of Defense with support given to centers for multi-institutional enrollment in both field and in-hospital spaces

NSC Collaboration

UNIVERSITY OF MARYLAND
INSTITUTE FOR HEALTH COMPUTING
MPOWERING THE STATE

- Tri-University partnership with State of MD and Montgomery County
- Innovates health care delivery using advanced computing
- Dr. Kaushik joined IHC in 2024 as core faculty
  - Develop advanced data linkage and analytics tools to support high-level decision-making (analytics, trauma dashboard, etc.)
  - Advance trauma care and transportation science
  - Quantify and improve SDOH impacts on public health

NSC Collaboration

CNTR
COALITION FOR NATIONAL TRAUMA RESEARCH

NATIONAL TRAUMA RESEARCH REPOSITORY

NSC Faculty joined other thought leaders in developing prehospital Trauma Core Common Data Elements (CDEs), which will guide the structure of data elements utilized for future trauma research funded by the National Institutes of Health and Department of Defense.

FITBIR
Federal Interagency Traumatic Brain Injury Research
INFORMATICS SYSTEM

NSC New Grants

- USAF En-route Care Triage Clinical Decision Support - $3000K
- DCHSO Seat Belt Study FY25 - $250K
- CIREN Research FY24 - $87K
  Transportation Data Linkage and Cost of Injury Analysis
- MHSO 2 pilot studies: Aggressive and Reckless Driving, Traffic Stops and Race in MD

AFRL AIR FORCE RESEARCH LABORATORY

DC.gov

NHTSA NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION

TRIAGE CLINICAL DECISION SUPPORT (CDS) FOR PROLONGED FIELD CARE

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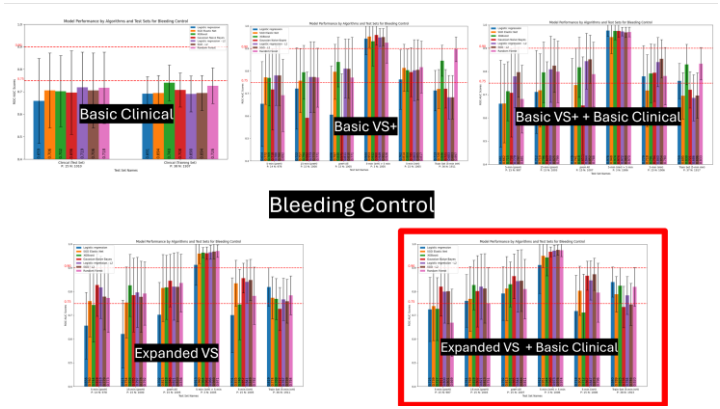
AFRL
AIR FORCE RESEARCH LABORATORY



The military faces the likelihood of large-scale combat operations (LSCO) with extended prolonged prehospital care and the need for life-saving interventions (LSIs) during transport and upon arrival to Role 2 surgical capabilities.

Valid and reliable early warning systems will improve facility-based surgical team readiness, particularly in the setting of multiple casualties or non-compressible torso hemorrhage that is otherwise difficult to identify.

Injury Outcomes Data Evaluation System

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Integration of multiple datasets

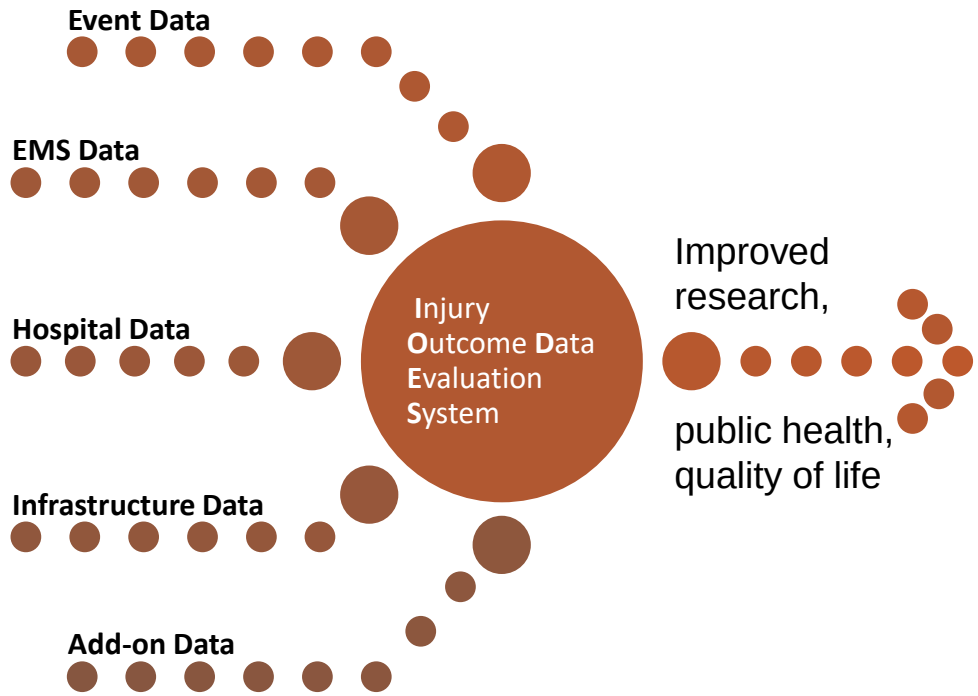
- EMEDS forms the keystone between event and hospital data
- Infrastructure and built environment at injury location

IODES maintains data in secure structured database

- Integrated and Useable data

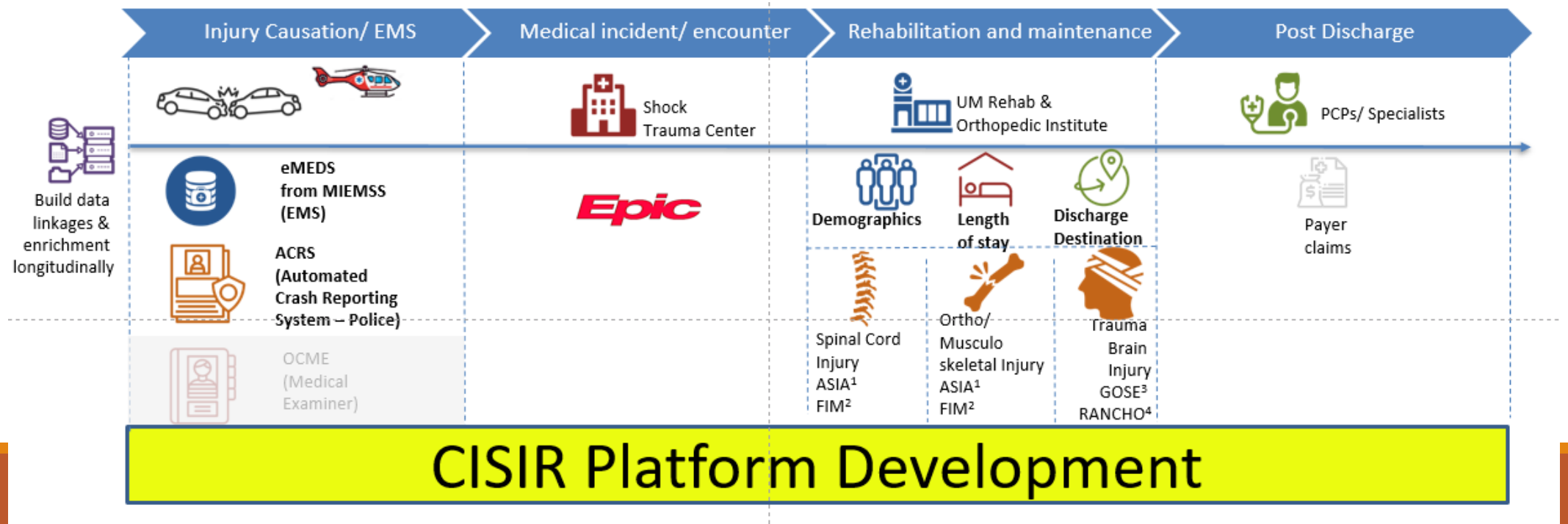
Data continuum

- Patient history, through event, hospital stay, and beyond hospital discharge



Center for Innovation in Clinical and Translational Shock and Injury Research (CISIR)

- Trauma Continuum of Care
  - Hospital-based data research application
  - Arrival to final outcome: time of injury thru long term outcome
- New capabilities include –
  - Increased search categories
    - HSCRC Data
  - New extracts including blood product utilization



District of Columbia Highway Safety Office Seatbelt Project

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NSC will be managing and supporting the field data collection on seatbelt usage rates throughout the District of Columbia.

Data collection will include information on the drivers and front seat passengers of passenger cars, vans, sport utility vehicles (SUVs), pick-up trucks, etc.

Analysis enables the NSC to determine the percentage of seatbelt use within the District for mandatory reporting to NHTSA

Approx funding FY25: $250K

Maryland Highway Safety Office Projects

Traffic Records project data management

- Completion of data requests/reports for government and public sources via public Internet portal
- Renewed interest in seatbelt use and race from EMEDS secondary to increasing transportation fatalities and 1906 funding lines

Maryland seatbelt compliance report to NHTSA

- 2023 rate = 92.1%
- 2024 rate = 90.6%

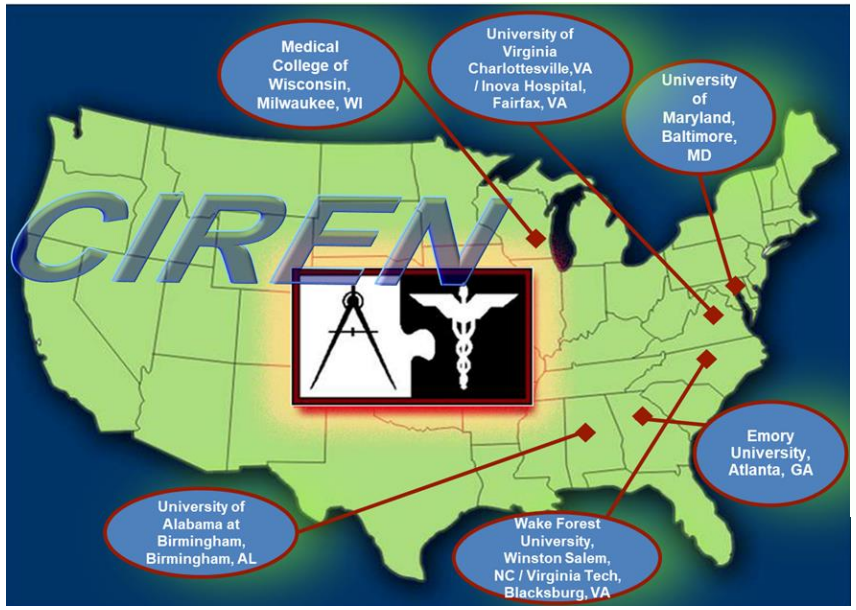
MHSO funding approx.

- FY24 = $543K
- FY25 = $409K

MARYLAND DEPARTMENT OF TRANSPORTATION

NHTSA Crash Injury Research and Engineering Network

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION



- NHTSA funded
  - 5 year contract awarded - $2.6M
- Case production 2024:
  - 123 case occupants consented
  - 22 currently enrolled
- Pedestrian cases
  - Pursuing only fatal cases with DCIR
- Motorcycle crash reconstructions
  - Scheduled to initiate 2025
- Continued focus on serious injury resulting from late model passenger vehicle crashes

Special Thanks and Congrats!

Kim Auman

Joe Kufera

Questions?

UPDATED WEBSITE HTTPS://WWW.MEDSCHOOL.UMARYLAND.EDU/NSC_TRAUMA/