



UNIVERSITY of MARYLAND
SCHOOL OF MEDICINE
SHOCK, TRAUMA AND ANESTHESIOLOGY
RESEARCH CENTER

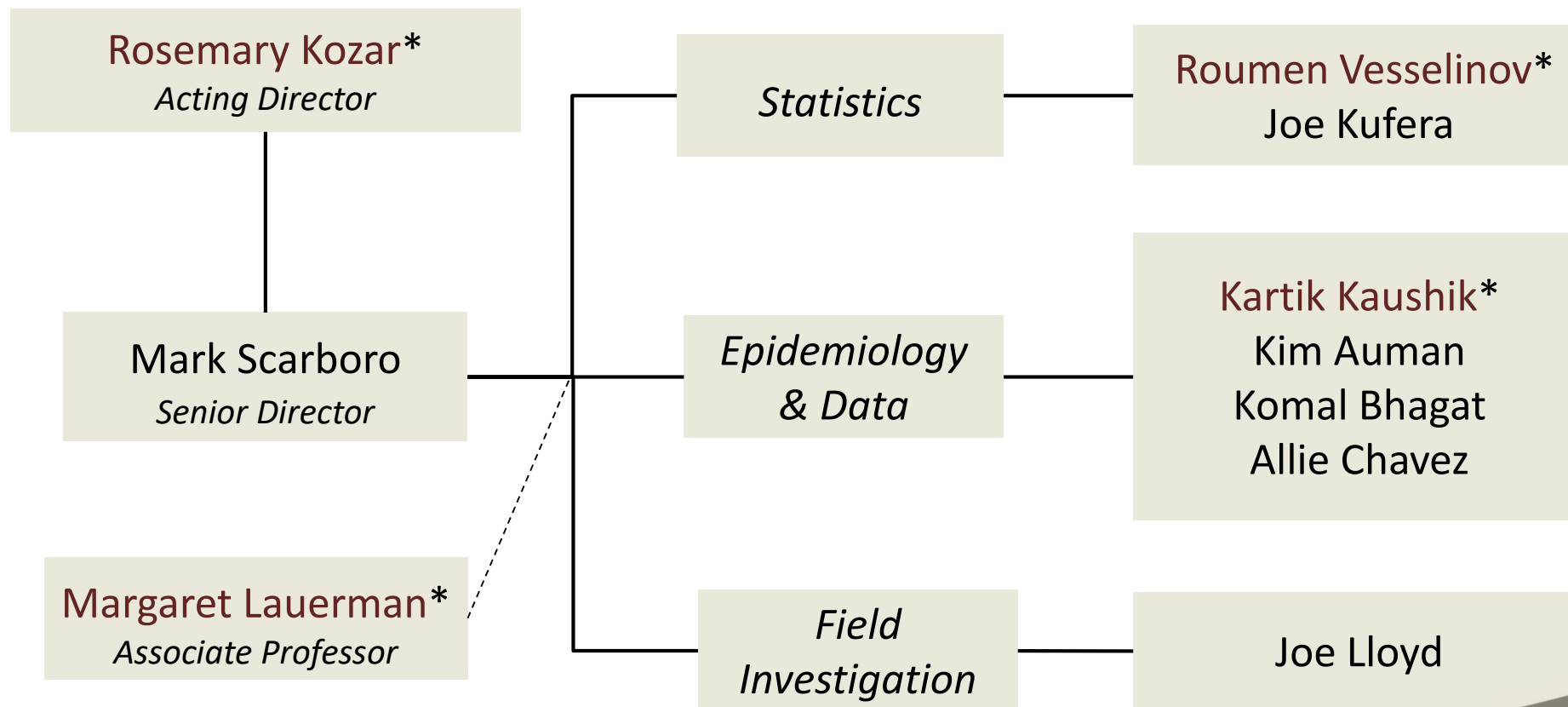
Charles “McC” Mathias National Study Center for Trauma and EMS



Mission Statement

“... to prevent death and disability from injury and sudden illness through interdisciplinary research...”

NSC Organizational Chart



NSC Collaboration

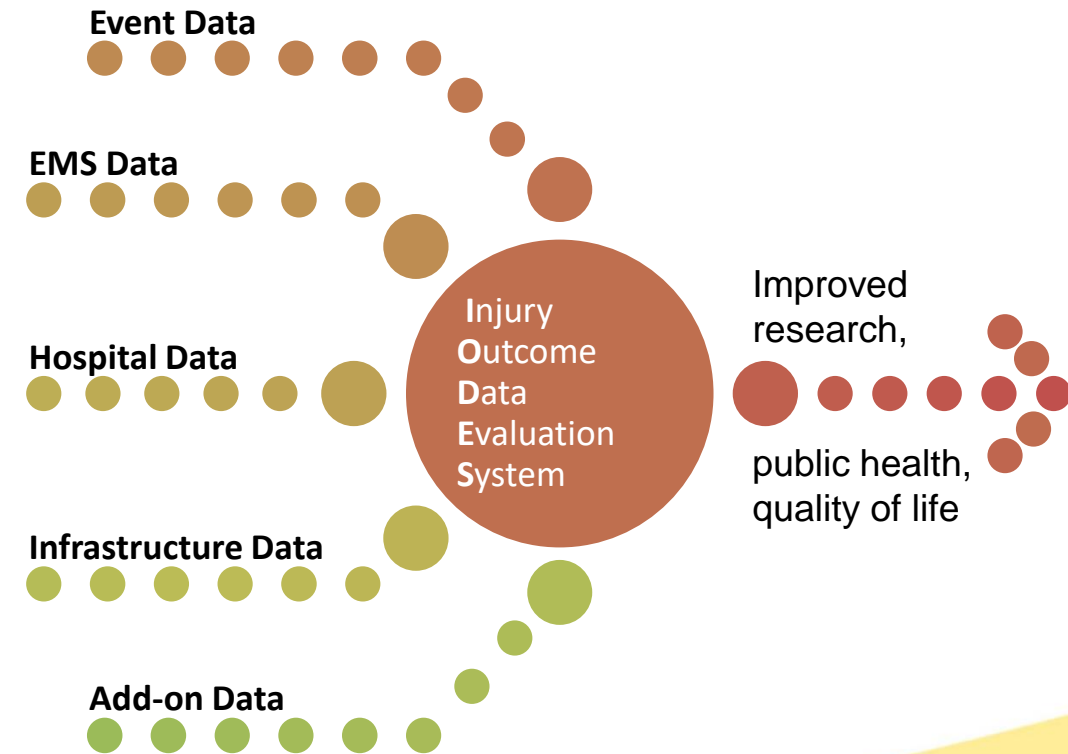
- Collaboration with MIEMSS, STAR investigators as well as researchers in other departments and institutions and federal agencies.
- Thirteen 13 peer-refereed papers published in 2022; several in machine learning/data mining applications
- MEMSS RIG collaboration.

Overview of Initiatives

- Biostatistics and machine learning support for STAR projects
- Research Interest Group (RIG) collaboration with MIEMSS
- IODES and CISIR
- CIREN
- Maryland Highway Safety Office (MHSO) projects
- Other projects and initiatives

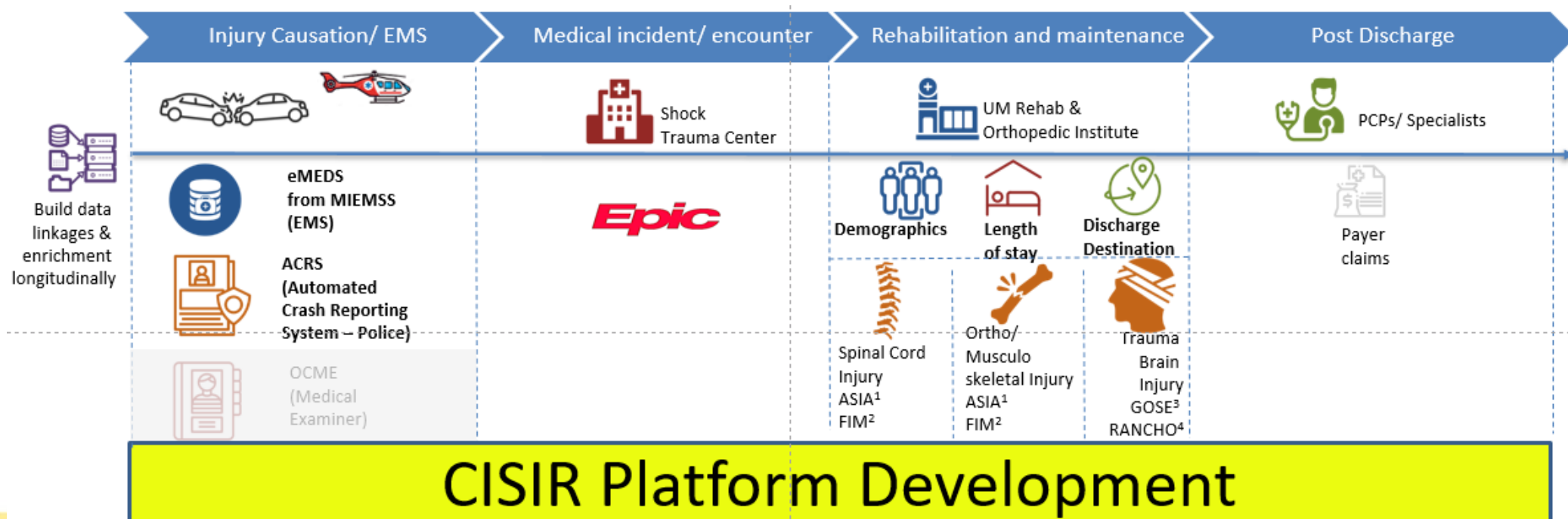
Injury Outcomes Data Evaluation System (IODES)

- Integration of multiple datasets
 - EMEDS forms an important link between event and hospital data
 - Infrastructure and built environment at injury location
- IODES maintains data in structured database
 - Mineable data, integrated together
- Data continuum
 - Patient history, through event, hospital stay, and beyond hospital discharge



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

- All Trauma Continuum of Care
 - Event to final outcome: time of injury thru Long term outcomes
- Under Injury Outcomes Data Evaluation System (IODES)
 - Developing partners to expand data sources



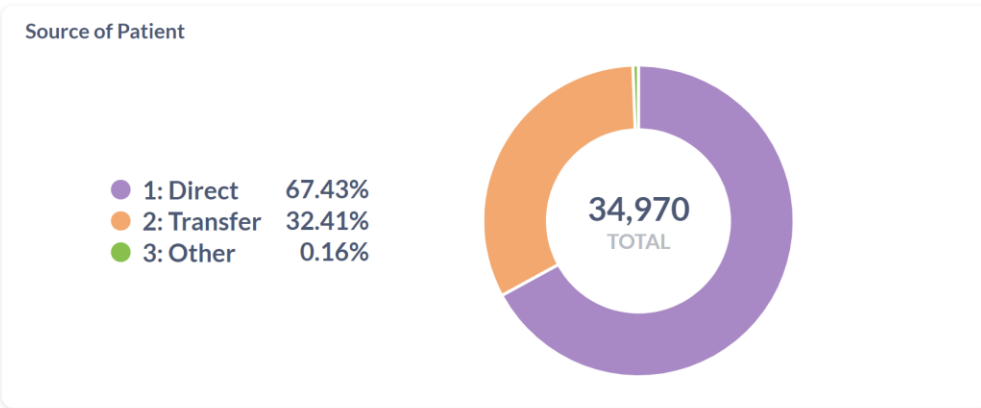


STC Dashboard

Demographics of Patients Admitted to the R Adams Cowley Shock Trauma Center

Admit Dates: January 1, 2016 - December 31, 2021 ×
 Gender: 2 selections ×
 Age Group:
 Race:
 Mechanism of Injury:
 Admit Year:
 Injury Severity Score: 2 selections ×

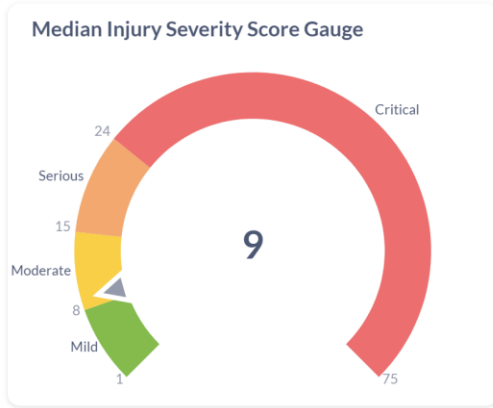
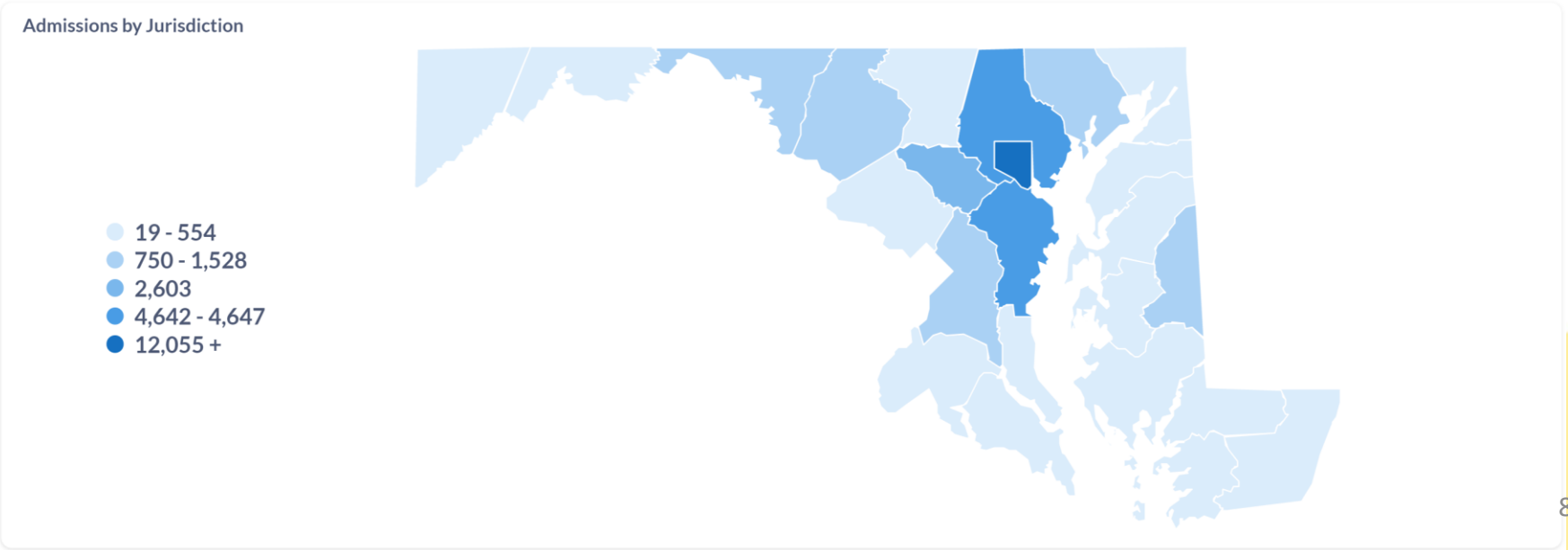
34,970
Total Unique Admissions ⓘ



5,012
Air Transport

10.05 Days
Avg Stay Length

44 Years Old
Median Patient Age



Crash Injury Research and Engineering Network (CIREN; PI: Lauerman)



- NHTSA funded
 - New 5-year contract awarded - \$2.6M
- Pedestrian struck cases added for reconstruction and injury causation
- Continued focus on serious injury resulting from late model passenger vehicles crashes
- 2016-2022 CIREN Cycle
 - 156 case occupants enrolled

Maryland Highway Safety Office Projects (MHSO)

- Long standing partner and funder of NSC
- Traffic Records project – CODES, data management and linkage
- 2022 Maryland seatbelt compliance report to NHTSA
- Pedestrian Fatality Review
- Drug Recognition Expert data linked with citation data

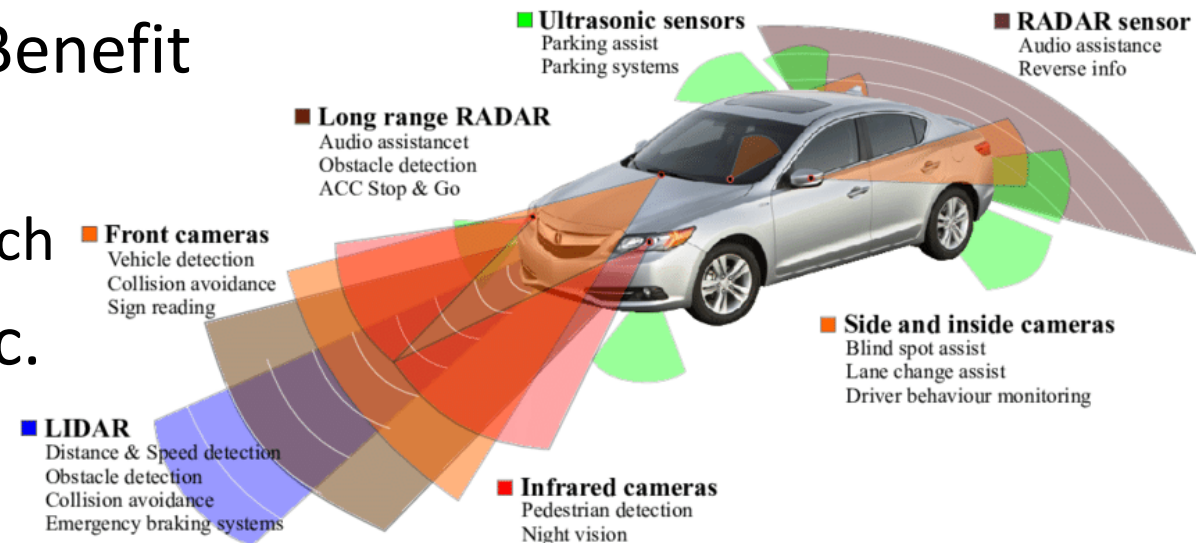
FY23 MHSO funding upward of \$400,000.

Vulnerable Road User Crash Investigations

- VRU are defined as people outside the vehicle: pedestrians, bicyclists, scooters, etc.
- Increase in VRU injuries and fatalities in MD and nationally
- Goal is to provide near-real-time data collection and investigation of vulnerable road user crashes
- CIREN funded: Crash kinematics of VRU/occupant injuries
- Multiple diverse proposals submitted to advance knowledge
 - Room to improve ADAS systems, esp. detection
 - Simulation tool for OEM or Regulatory agency use

Advanced Driver Assistance Systems (ADAS) Initiatives

- These technologies have real-world implications
 - Next best technology since seatbelts and airbags
- How effectively do they work? Cost/Benefit
 - Benefit of reducing adverse outcomes
 - Cost of implementing and purchasing tech
- Require policies to guide, set bars, etc.
 - What is the minimum viable product?
 - Subsidies, rebates, rewards?
- Partnered with MITRE; submitted proposal to NHTSA: using IODES



Thank You