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

Integration of traffic records data in Maryland

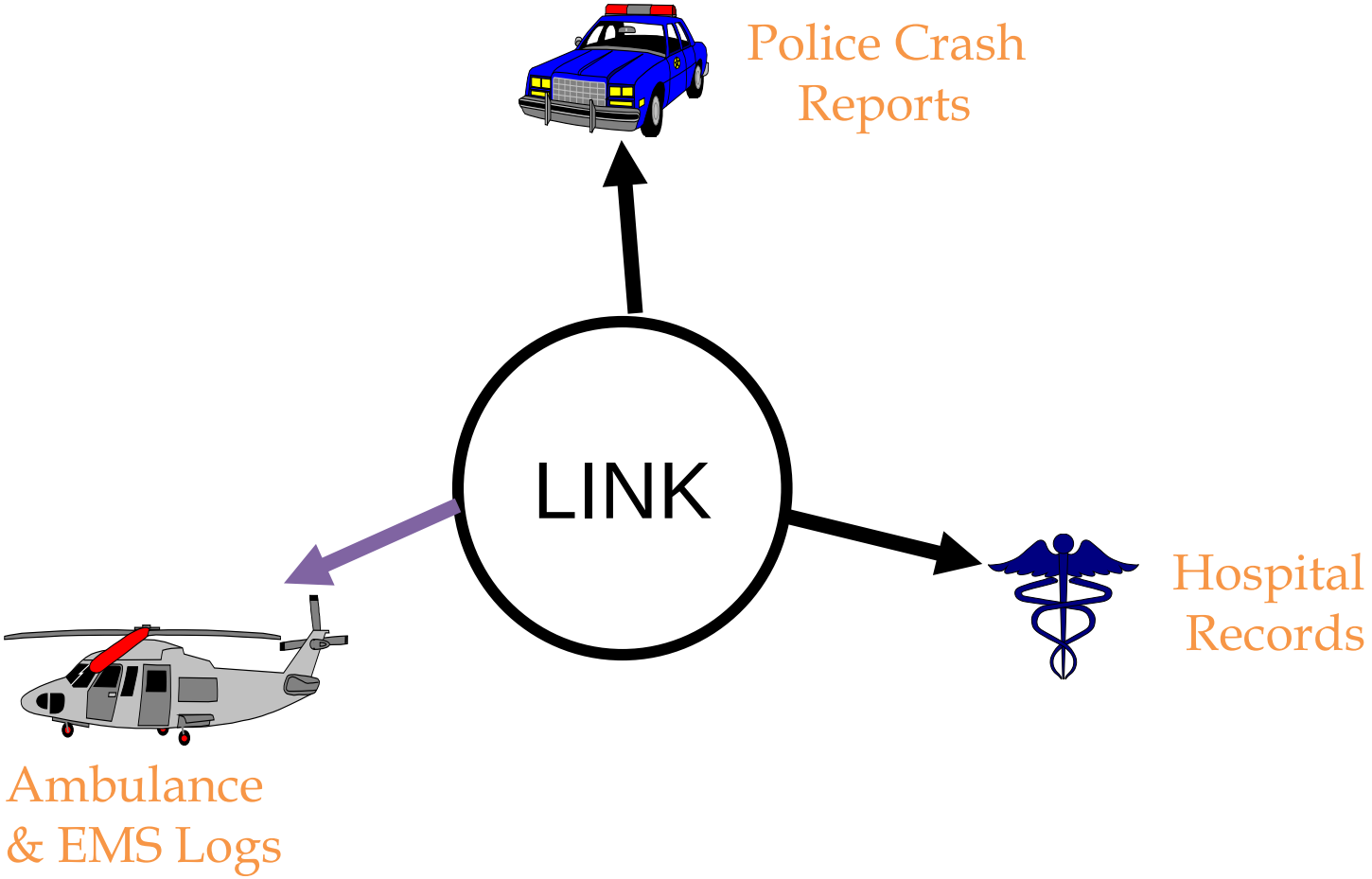
Timothy Kerns, PhD

University of Maryland Baltimore

Crash Outcome Data Evaluation System

- Initiated by NHTSA in the 90s to assist States in linking crash data to medical data
- Expanded in Maryland to include other traffic records data systems
- Provides a model to define serious injury
- Establishes the foundation for highway safety research and evaluation projects through data integration

Maryland CODES - 1996

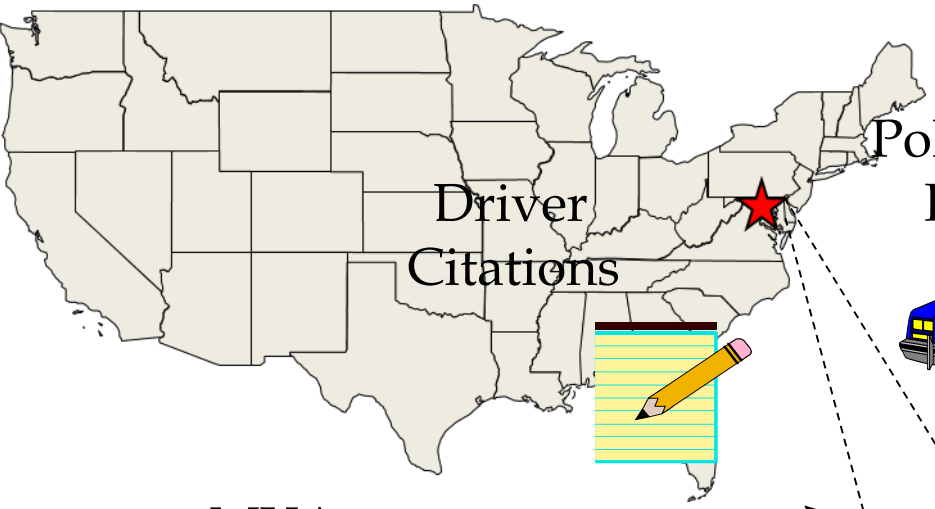


Traffic Records

- Broad spectrum of information related to traffic crashes
  - Within your State
  - On the National level
- Details from the crash occurrence through the final outcome of the individuals involved
  - The Big Picture

Why are they important?

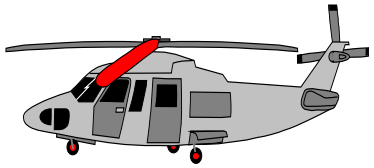
- Quality data from all six component systems may be used together to:
  - Identify problems
    - Further identify countermeasures
    - Garner support for legislative changes
    - Initiate engineering (vehicle & environment) changes
  - Evaluate programs
    - Identify best practices
    - Discontinue ineffective/costly programs



Driver Citations

Police Crash Reports

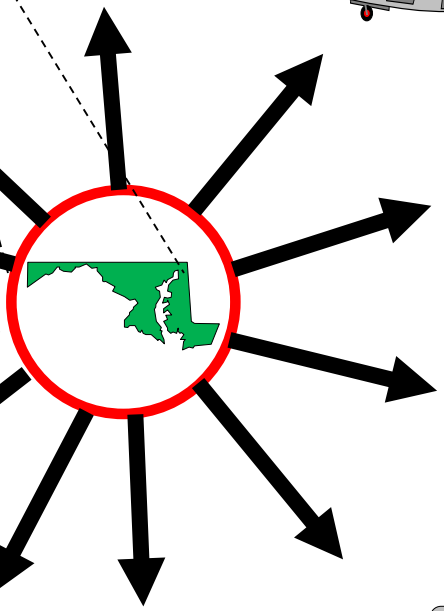
Ambulance & EMS Logs



MVA Licensing

ED Data

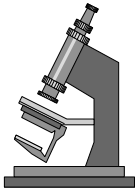
MC Training



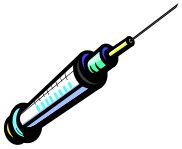
Hospital Records

Vital Statistics

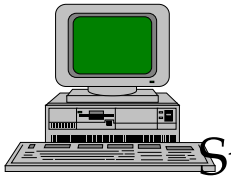
Autopsy Records



Toxicology



Statewide Trauma Registry



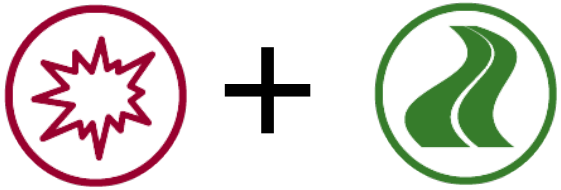
Statewide databases + Integration = Improved problem ID and program evaluation

Haddon Matrix Applied to the Problem of Motor Vehicle Crashes

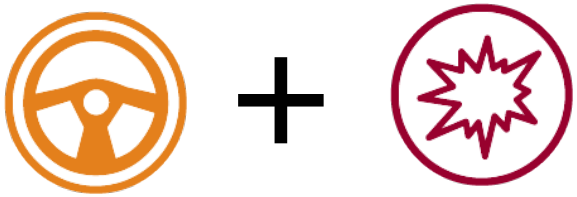
Phases	Factors			
	Host	**Agent/ Vehicle**	**Physical Environment**	**Social Environment**
Pre-event (*Before the crash occurs*)	• Driver vision • Alcohol impairment • Driver experience/ability Driver data Citation data	• Maintenance of brakes, tires • Speed of travel • Load characteristics Vehicle data	• Adequate roadway markings • Divided highways • Roadway lighting • Hazardous intersections • Road curvature • Adequate roadway shoulders Roadway data	• Public attitudes on drinking and driving • Impaired driving laws • Graduated licensing laws • Speed limits • Support for injury prevention efforts
Event (*During the crash*)	• Spread out energy in time and space with seat belt and/or airbag use • Child restraint use Crash data	• Vehicle size • Crashworthiness of vehicle—"crush space", integrity of passenger compartment, overall safety rating • Padded dashboards, steering wheels, etc. Vehicle data	• Guard rails, median barriers • Presence of fixed objects near roadway • Roadside embankments Roadway data	• Adequate seat belt and child restraint laws • Enforcement of occupant restraint laws • Motorcycle helmet laws
Post-event (*After the crash*)	• Crash victim's general health status • Age of victims Citation data EMS/Injury data	• Gas tanks designed to maintain integrity during a crash to minimize fires	• Availability of effective EMS systems • Distance to quality trauma care • Rehabilitation programs in place EMS/Injury data	• Public support for trauma care and rehabilitation • EMS training

Source: Injury Prevention: Meeting the Challenge, AJPM, 1989; Christoffel T, Gallagher S. Injury Prevention and Public Health, Gaithersburg, MD, 1999.

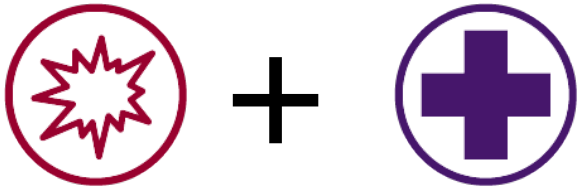
Integration



High crash locations - roadway/intersection improvements



Impaired driver zip codes – increased awareness and education



Crash injury outcomes/ Serious injuries

High risk drivers/GDL

Contact information

- Tim Kerns
  - tkerns@som.umaryland.edu