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SCHOOL OF MEDICINE

Traffic Crash Morbidity & Mortality: Traffic Deaths & Serious Injuries

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Objectives

- This presentation aims to:
 - Identify the current analytical means of problem identification and program evaluation in traffic safety
 - Present current efforts and future plans to expand the scope of those analytical efforts to quantify morbidity in addition to mortality

Currently....

- In traffic safety, the majority of State and federal agencies analyze fatality information to perform
 - Problem identification
 - Program evaluation
 - Resource allocation

Fatality Analysis Reporting System (FARS)

- Maintained by National Highway Traffic Safety Administration (NHTSA)
- Contains details about all fatal crashes in the US
 - EMS response
 - Crash characteristics
 - Information on all persons involved
 - Behavioral factors

Morbidity?

- FARS is the only true national census of traffic crash data
 - All fatal crashes are included in FARS by mandate
 - States have a range of data capabilities and capture
 - All States capture crash reports on injury crashes
 - Most States capture property-damage-only crashes
 - Data accessibility policies vary by State
 - Injury and PDO crashes are not collected on the national level...so no true count
 - NASS CDS/GES
 - CRSS, CISS
 - State Data System

Upcoming changes

- Current transportation bill is the Moving Ahead for Progress in the 21st Century (MAP-21)
 - A guideline in this bill is to report all serious injuries to the Federal Highway Administration (FHWA) as a performance measure
 - Until this guideline, all required performance measures were focused on fatal crash information from FARS

How is serious injury defined?

- There are efforts underway to officially define serious injury for this guideline
- Several data sources may be used independently or integrated to define injury severity

Data Sources

- Police crash reports
- Emergency Medical Services reports
- Emergency department/hospital inpatient records
- Trauma registry records
- Combination of the above

Police Crash Reports

- KABCO scale
 - K = Killed
 - A = Incapacitating Injury
 - B = Non-incapacitating Injury
 - C = Possible Injury
 - O = Not Injured
- Police perception
 - Not medically evaluated

*Killed, Awful, Bloody, Complaining, OK

EMS Records

- Several variables indicate injury, but may be State-specific
- Triage Priority
 - Scale of 1-4 (1 most severe trauma case)
- Incident/Patient Disposition
 - Not treated
 - Basic Life Support Transfer
 - Advanced Life Support Transfer
- Provider Impression
 - Traumatic injury

Emergency Dept/Hospital Inpatient Records

- International Classification of Diseases, Ninth Division, Clinical Modification (ICD-9-CM)
 - Each injury diagnosed receives a code
 - All possible injuries are evaluated
 - Clinically-based
 - Limitations
 - Do not depict injury severity
 - Are collected primarily for billing purposes

Trauma Registry Records

- In addition to ICD-9-CM codes, Abbreviated Injury Scale (AIS) codes are collected
 - Each injury diagnosed receives a code
 - All possible injuries are evaluated
 - Clinically-based

 - Strengths
 - Do depict injury severity (last digit is on scale of 1-6)
 - Developed by Association for the Advancement of Automotive Medicine (research-based association)

Integration of Traffic Records

- Crash + hospital → recommended in current Notice of Proposed Rulemaking (NPRM)
 - Applying clinical findings to crash victims provides accurate injury severity categorizations
 - Law enforcement is not trained or interested in making clinical findings at the scene of a crash
 - At times, the patient may be transported from the scene before a law enforcement officer arrives
 - ICD-9-CM codes may be translated into AIS codes
 - Applies the injury severity scale to the clinical diagnosis codes

Feasibility and next steps

- The Crash Outcome Data Evaluation System (CODES) program, previously funded by NHTSA, promoted the integration of crash + hospital records and the use of the ICD-9-CM decoding to AIS codes
- Some States have continued those linkage efforts, but not all are capable
 - Requires probabilistic linkage because no State has a common identifying variable on both the crash report and medical record
- Continue using KABCO=4 as serious injury



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Questions

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