Linked Crash and Trauma Data Analysis

Results from a Pilot Study

TTI – Center for Transportation Safety
UT Health Science Center – Houston
Texas A&M School of Public Health
Why do this?

<table>
<thead>
<tr>
<th>Crash Data –</th>
<th>Limited information on consequences</th>
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</thead>
<tbody>
<tr>
<td>Hospital Data –</td>
<td>Limited information on crash circumstances</td>
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</table>
Linking

Hermann Memorial Trauma

CRIS
Data Limitations

Level I
Most Serious

Harris County
2139 MVC Patients

Drivers
445 CRIS Matches

CAN’T GENERALIZE FINDINGS
Areas of Inquiry

- Injury Severity
- Alcohol
- TBI
- Charges/Costs
Areas of Inquiry

Injury Severity
Injury Severity

KABCO VS MAIS
KABCO Injury Scale

K: Killed
A: Incapacitating
B: Non-Incapacitating
C: Possible
O: Property Damage Only
KABCO

Brief Snapshot at Scene

Incapacitating wide range

Officer Perception
AIS - Abbreviated Injury Scale

- Anatomically Based
- Based on Threat to Life
- 9 body regions
- Global
- Consensus Derived
AIS - Abbreviated Injury Scale

1. Minor
2. Moderate
3. Serious
4. Severe
5. Critical
6. Unsurvivable
MAIS – Maximum Abbreviated Injury Score

One Number

Highest AI Score

3+ Severe Crashes
Incapacity
Threat To Life
Capacity for Activity
Incapacity
Precision
Generalization
Assessed by Medical Professionals
MAIS
KABCO
VS
Precision
Generalization
Texas A&M Transportation Institute
MAIS scores for A Crashes

- Wide range of severities
- Outcomes and costs could vary greatly
KABCO vs MAIS

40%

3+ (MAIS) injuries classified as non-incapacitating or possible – B&C (KABCO)

3+ = Serious, Severe and Critical threats to life
Alcohol Reporting
Alcohol Reporting

70% of patients with ETOH > 80 mg/DL were not reported with a positive BAC test result on crash report.

ETOH of 80 = BAC of 0.08
Alcohol Reporting

55% of patients with ETOH > 80

Alcohol involvement not identified on crash report

By test or observation

ETOH of 80 = BAC of 0.08
TBI
Traumatic Brain Injury
38% of patients suffered traumatic brain injuries
TBI

Risk of traumatic brain injury

If not wearing restraints

23 times
TBI

Risk of traumatic brain injury when speeding

8.5 times
Charges/ Costs
Charges / Costs

$59.5 million

Hospital Charges for Medical
445 patients

$134,000 per patient

Charges before discounts/negotiated recovery
NSC
National Safety Council

Wage and productivity, medical, admin, MV damage employers’ uninsured costs
NSC underestimated costs by 1/3 for injuries

Injuries in study more severe than A injuries in general

3+ injuries classified as B and C

Medical charges > actual recovered cost
What did we learn?

- Linking is Challenging, but valuable
- Precise injury information
  - Better costing
  - Better investments
  - Better deployment
- Possible Alcohol underreporting? CAUTION