



Large Truck Crash Causation Study

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False Statements

1. Passenger vehicle drivers are at fault 70 to 80% of the time in truck-car crashes
2. The LTCCS says that trucks are at fault in 55% of truck crashes
3. The LTCCS says that passenger vehicles cause 56% of car-truck crashes

By the end of speech, you will know why **NOT** to believe these; and what you should believe

What is Cause?

Webster's Cause \koz\ *n.* **1 a:** a reason for an action or condition **b:** something that brings about an effect or a result.

In other words: If A, then B.



Defining LTCCS Cause

LTCCS Cause \koz\ *n.* **1 a:** factors that *increase the risk of a crash* such as driving behavior, vehicle problems, road and weather conditions **b:** something that does not usually result in a crash but increases the chance of a crash



Examining False Statement #1

“In 71 percent of fatal 2-vehicle large truck/other-vehicle crashes, police reported one or more driver factors for the other vehicle, but none for the truck driver.”
(1996 FARS, NHTSA)

“Passenger vehicle drivers are at fault 70 to 80 percent of the time in truck-car crashes.”
(Truckline Express, 7/28/2005)

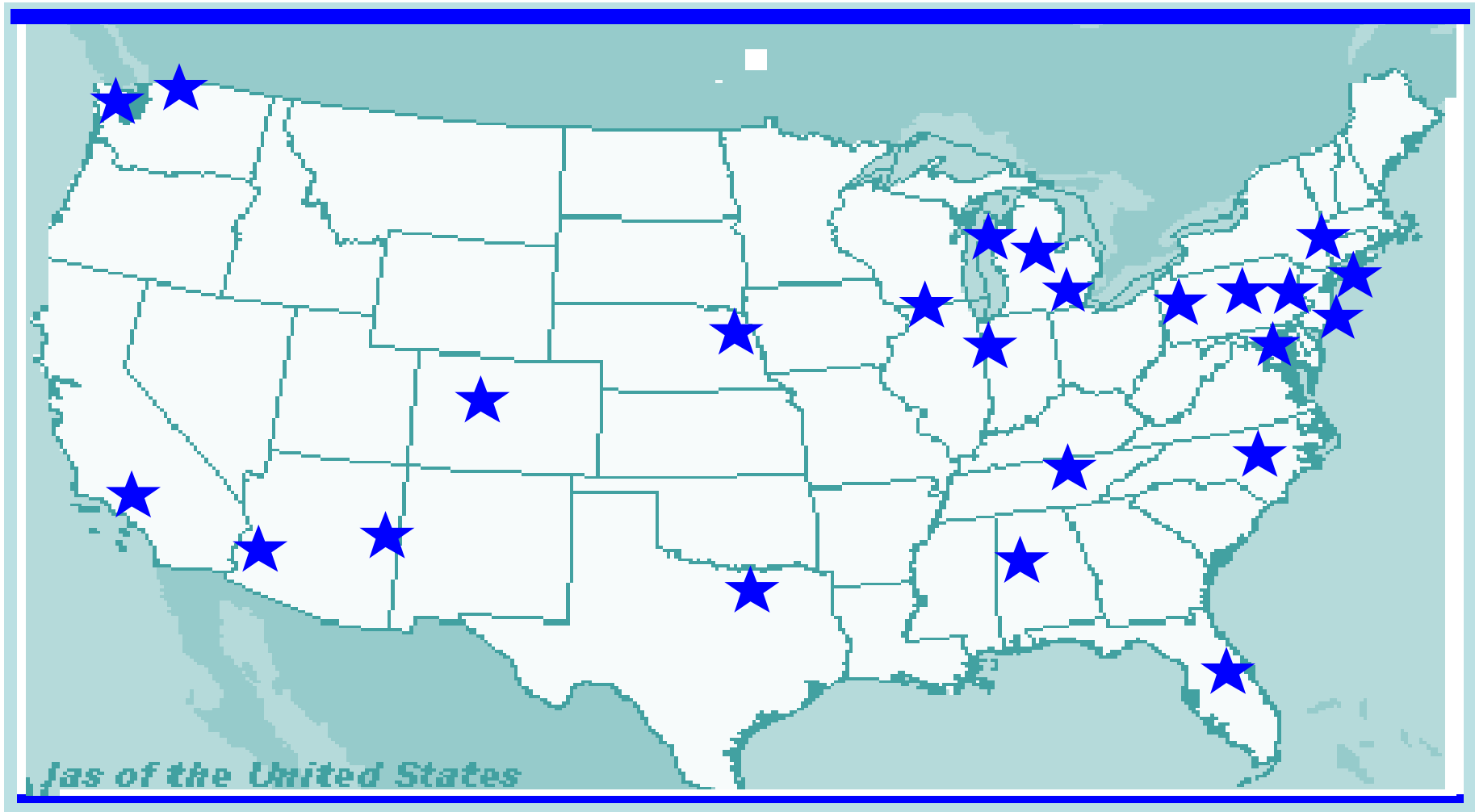


FARS Data: Not Causation

- NHTSA: Driver factors in FARS are not the causes of crashes, because
 - ◆ Data coded by FARS analysts away from crash scene based on written reports
 - ◆ Some factors not reported on first report FARS analysts use



Primary Sampling Units



Coding LTCCS Crashes

- **Critical Event:** Now crash unavoidable
- **Critical Reason for Critical Event:**
Immediate reason for critical event
 - ◆ **Not the cause of the crash**
- **Crash Associated Factors:** All factors that could be important



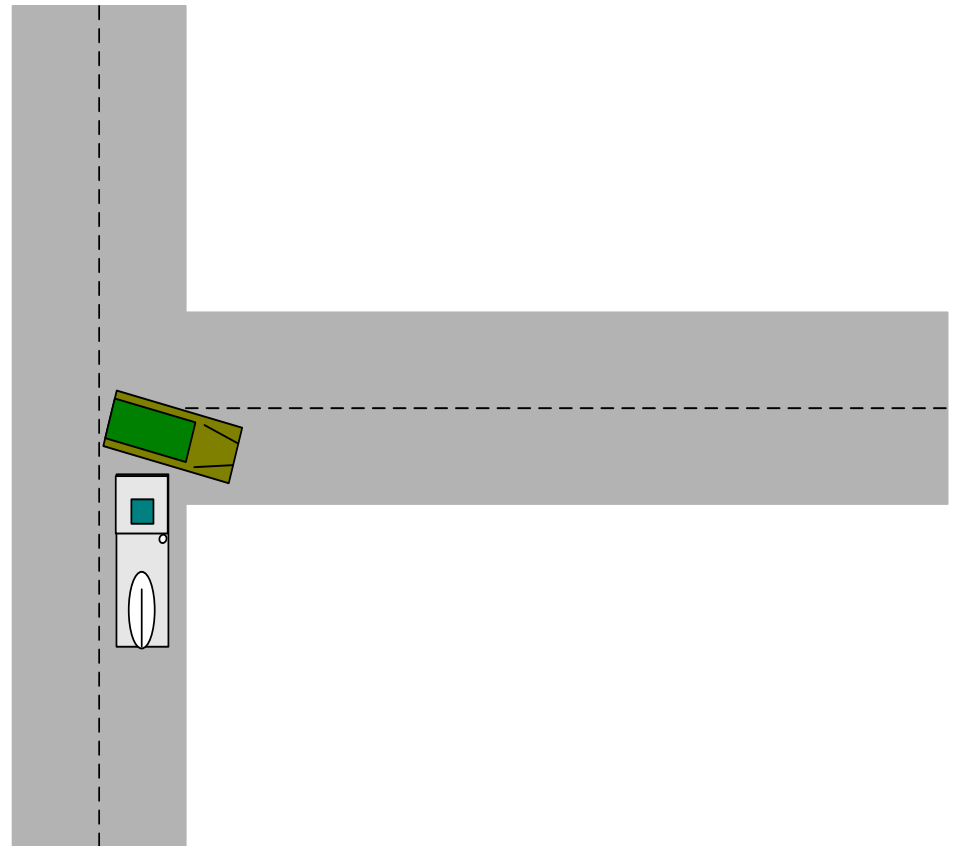
Ground Breaking Study

- Only nationally representative sample
- Largest number of crashes
- Largest number of data elements
- Researchers at crash scene
- Sound methodology
- Endorsed by Congress, NHTSA



Crash Example

- Critical Event
 - SUV turns left
- Critical Reason
 - Driver inattention
- Associated Factors



Critical Events – All Trucks

<u>Events</u>	<u>Number</u>	<u>%</u>
Over lane line or off road	25,000	32%
Lost control (speeding, etc.)	22,000	29%
Other vehicle in Lane	18,000	23%
Turning, crossing intersection	8,000	10%
Other (pedestrian, fire)	4,000	6%
<i>Total</i>	<i>77,000</i>	<i>100%</i>
C.E. not coded to truck	64,000	



Critical Reason – Trucks, all Crashes: False Statement #2

<u>Reasons</u>	<u>Number</u>	<u>%</u>
Non-Performance (sleep, sick)	9,000	12%
Recognition (inattention)	22,000	28%
Decision (speed, aggressive)	29,000	38%
Performance (overcompensate)	7,000	9%
Vehicle	8,000	10%
Environment (roadway, weather)	2,000	3%
<i>Total</i>	<i>77,000</i>	<i>100%</i>
C.R. not coded to Truck	64,000	

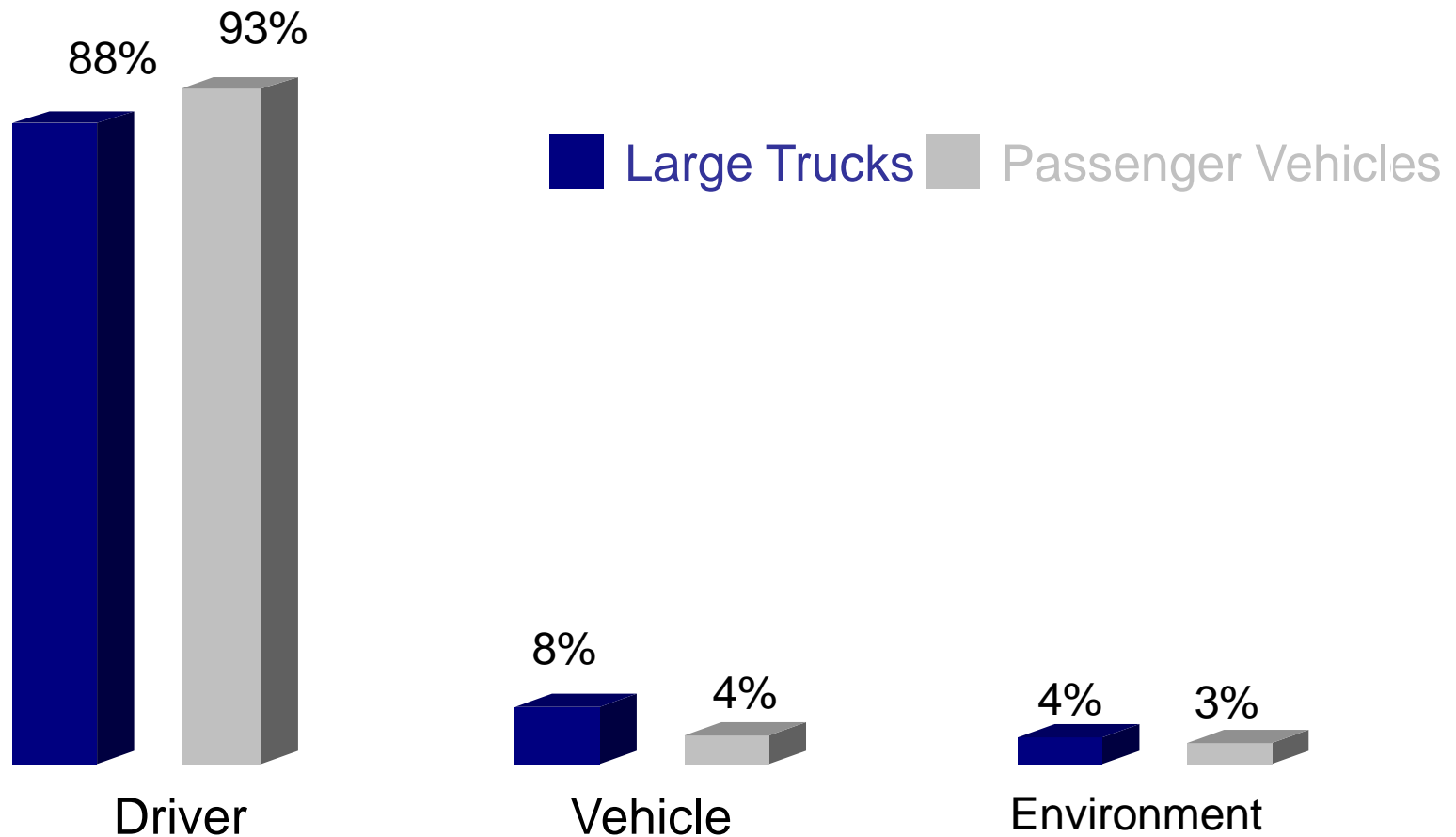


C.R. – Truck/P.V. Crashes: False Statement #3

<u>Critical Reasons</u>	<u>Trucks</u>	<u>P.V.</u>
Driver Non-Performance	3%	16%
Driver Recognition	35%	30%
Driver Decision	42%	24%
Driver Performance	7%	19%
Vehicle	8%	4%
Environment	4%	3%
Unknown	1%	4%
<i>Total (when coded to vehicle)</i>	<i>29,000</i>	<i>37,000</i>



Critical Reasons for Crashes Involving One Large Truck and One Passenger Vehicle



Associated Factor – Traveling too Fast for Conditions

- Truck Drivers in all vehicle crashes – 23%
- Drivers in two-vehicle crashes*
 - ◆ Large-truck drivers – 15%
 - ◆ Passenger-vehicle drivers – 10%

*Crashes of one large truck and one passenger vehicle, or crashes of three or more vehicles in which the first two vehicles that crash are a large truck and a passenger vehicle.



Relative Risk: Truck Driver Speeding, All Crashes

Relative Risk
Calculation
(in thousands):

$$29 / (29 + 3) = .91$$

$$48 / (48 + 60) = .44$$

$$.91 / .44 = 2.05$$

Traveling Too Fast	Critical Reason	
	Yes	No
Yes	29,000	3,000
No	48,000	60,000



Relative Risk: All Truck Drivers

<u>Factor</u>	<u>Number</u>	<u>Risk Ratio</u>
Legal Drug Use	52,000	1.00
Traffic Flow Interruption	40,000	.85
Brake Problems	39,000	1.67
Too Fast for Conditions	32,000	2.05
Unfamiliar with Roadway	31,000	1.39
Inadequate Surveillance	20,000	1.87
Fatigue	19,000	1.82
Distraction	14,000	1.64



Speed – What Impact?

Speed linked to what Critical Reasons?

- **Driver non-performance**
- **Driver recognition errors**
- **Driver decision errors**
- **Driver performance errors**
- **Weather conditions**
- **Roadway type**
- **Roadway conditions**



Speeding – Why?

Associated-Factors linked to Speed?

- **Type of motor carrier**
- **Pressure from motor carriers**
- **Driving experience**
- **Emotional State**
- **Driver in a Hurry**
- **Age**
- **Unfamiliar with Roadway**
- **Traffic Flow Interrupted**



Using LTCCS Data

- Identifying Problems
- Focusing FMCSA Programs
- Conducting Research
- Sponsoring Research
- Providing Data to Others



True Statements

- Crash Causation cannot be summed up by looking at a single factor
- LTCCS does not assign “blame” to any type of vehicle over another type
- Important Causation factors – some old (speed, fatigue, distraction, brakes, others), some new (legal drugs, roadway unfamiliarity, others)
- Study can help FMCSA focus programs
- More research needed on factors identified to fully assess their impact



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