

FMCSA R&T: Today and Tomorrow

Washington, DC
January 9, 2005



U.S. Department of Transportation
Federal Motor Carrier Safety Administration

The logo for the Transportation Research Board (TRB), consisting of the letters "TRB" in a bold, black, sans-serif font inside a white rectangular box with a black border.

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Large Truck Crash Causation Study

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LTCCS Crash Coding



1. Critical Event – Event after which crash is unavoidable
2. Critical Reason for Critical Event – Immediate reason for the critical event; not the cause of the crash
3. Crash Related Factors – Selected from the current understanding of factors related to crash occurrence, and present at the time of the crash

Critical Reason: Two-Vehicle Crashes

REASONS	Truck	Other Vehicle
Vehicle	6%	4%
Environment	0	6%
Driver Nonperformance: sleep, sick	3%	11%
Driver Recognition: inattention, etc.	46%	34%
Driver Decision: misjudge, too close	36%	20%
Driver Performance: poor control, etc.	5%	9%
Driver Unknown Error	3%	13%
Other/Unknown	1%	3%
Number	87	200

Related Factors: Two-Vehicle Crashes

FACTORS	Truck	Other Vehicle
Roadway	14%	16%
Weather	13%	13%
Fatigue	5%	13%
Alcohol Use	0%	12%
Drugs: Illegal	1%	9%
Drugs: Prescription	16%	21%
Drugs: Over-the-Counter	13%	7%
Motor Carrier Pressure: Accept Loads	2%	NA

Related Factors: Two-Vehicle Crashes

FACTORS	Truck	Other Vehicle
False Assumption	10%	5%
Too Fast For Conditions	9%	15%
Inattention	7%	13%
Conversing	3%	3%
Internal Distraction	17%	19%
External Distraction	8%	9%
Unfamiliar with Roadway	17%	9%
Unfamiliar with Vehicle	6%	2%
Number	87	200

Relative Risk Analysis



- ◆ **Risk Analysis:** What factors increase the chance of crashes?
- ◆ **Absolute Risk:** VMT, registered vehicles, vehicle trips, vehicle or driver life cycle.
- ◆ **Relative Risk Statistical Association:** Crash involvement of vehicles with certain factors compared to other vehicles without those factors. Factors are those which the highway safety community believes increase risk.

Relative Risk: Speed



		Critical Reason	
		Truck	Other Vehicle
Speed Factor Coded	Truck	20%	5%
	Other Vehicle	4%	24%

Relative Risk: Fatigue



		Critical Reason	
		Truck	Other Vehicle
Fatigue Coded	Truck	10%	4%
	Other Vehicle	2%	19%

Relative Risk: Vehicle factors



		Critical Reason	
		Truck	Other Vehicle
Vehicle Factor Coded	Truck	38%	14%
	Other Vehicle	3%	9%

Where are we now?



- ◆ Final Database in place – 985 crashes
- ◆ Conducting quality control review
- ◆ Will test database on extracting data
- ◆ Database will be ready in February 2005
- ◆ Reports on study results
 - FMCSA and contractors
 - External sources

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