

# **Identifying and Changing Behaviors That Contribute to Truck Driver Injuries**

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## **Introduction**

The cost of worker injuries has a significant impact on trucking operations. The impact goes beyond the cost workers compensation medical and indemnity. Injuries are a significant disruption to the lives of the workers and can take a good driver off the road. The cost of your worker compensation insurance could be double that of a competitor with the same size of operation. Not being able to control the costs of injuries has caused some trucking companies to go out of business.

Liberty Mutual's best practice studies, meeting with individual truckers, and comparing programs shows us companies can be run differently and have successful programs. Management styles and practices vary but common styles or safety program elements exist at companies with lower crash or injury rates. These are:

- Select drivers based on their history and ability to perform the job
- Establish and communicate expectations on how jobs should be performed
- Monitor performance against the expectations
- Provide feedback on performance
- Change behavior that does not meet expectations
- Document their policies and actions

This report will provide you with an understanding of the:

- Work activities responsible for injuries in the trucking industry
- Work activities your employees were engaged in when they were injured
- How your injury rates compare to other trucking operations
- Steps you can take to reduce the risk of injuries with your work force

Management actions, programs, policies, and involvement in the day to day activities provide you with a greater chance of reducing the potential for injuries compared with "driver training". Our report focuses on specific steps you can take to reduce your cost of risk. Each company will need to identify tasks their drivers perform and have expectations for performing those tasks that reduce the potential for injuries. The report is intended to lay out a basic framework for a process to identify risk and reduce exposure.

## Trucking Industry Loss Sources

Liberty Mutual conducted a study of trucking injuries for the Standard Industrial Classification code 42XX. The study reviewed 5 years of injury data valued shortly after the end of the 5 year time period. There were 37,000 injuries with costs in the study. The 7,000 injuries with incurred costs (current paid and reserved) greater than \$9,999 were reviewed. The injury description allowed us to identify the task the worker was performing when the injury occurred.

Some injury activities have the same exposure across all types of trucking. The frequency of the task will vary by operation, such as LTL drivers, who enter and exit their vehicles more frequently than long haul drivers. Some tasks, such as tarp work, will be limited to specific types of operations and specific loads. Each of the activities identified should have a control plan when the work activity is part of the operation.

The tasks that were responsible for 2% or more of the total incurred costs are shown in table 1.

**Table 1 Injury Work Tasks by % of Cost and Frequency Ranked by % of Costs:**

Activity	% of Injuries	% of Incurred Costs
Crashes (driving or riding)	17%	20%
Handling cargo	14%	12%
Tractor entry and exit	11%	11%
Snow and ice fall	5%	5%
Parking lot or yard fall	5%	5%
Load securement	5%	5%
Landing gear	4%	4%
Trailer doors	4%	3%
Maintenance	4%	3%
Driving (in cab ergonomics)	3%	2%
Trailer entry or exit	2%	2%
Forklift incident	2%	2%
5th wheel	2%	2%
Flatbed falls	1%	2%
Tandems	2%	2%
Main Loss Source Totals	80%	81%
<b>Grand Total</b>	<b>100%</b>	<b>100%</b>

## Comparing Injury Rates

Injury rates cannot be compared across all trucking companies due to the different work tasks and frequency of the common tasks. To understand how your injury frequency and costs compare to other truckers the comparison must be made to truckers doing the same type or types of work. This presents challenges when a trucking company has multiple operations or divisions.

To provide you with as close of a comparison as possible, we looked at trucking companies we insure and assigned a primary type of trucking based on our information, company web sites

and public sources. This information was used to calculate benchmarks for each of the major types of trucking.

Measuring injury rates will show what has happened and may not be a valid measure of risk. Performance measures discussed in the next section can will help you measure risk based on observing behaviors.

The data shown below represents the most recently completed policy year for the truckers with workers compensation coverage. This is the most complete data that would represent all truckers insured by our Commercial Market. The % of truckers by type will change from year to year and injury exposures can vary by year based on weather, business conditions and other factors. Mixed types of truckers will include multiple types of equipment and will frequently have other operations such as dock and or warehousing. The loss valuation date will vary slightly by company which can impact the incurred loss rate but should have minimal impact on the claims frequency rates.

**Table 3 Injury benchmark comparison:**

Type of Trucker	% of Truckers accounting for 5% or more of total	Total Claims w/ Cost Per Million Of Payroll	Indemnity Claims Per Million Of Payroll	Total Incurred Loss Per Million Of Payroll
Full Load Vans	34%	1.02	0.60	\$18,096
Mixed Types	20%	1.67	0.83	\$6,877
LTL	12%	2.33	0.94	\$15,097
Tanker and Dumps	11%	1.47	0.79	\$30,992
Moving and storage	7%	1.25	0.60	\$10,538
Flatbed	5%	1.10	0.60	\$23,311
All Other Types Combined	12%	1.76	0.79	\$24,050
Overall Weighted Average		1.43	0.72	\$16,534

Tracking injury rates should be part of your internal process for establishing and tracking goals. Injury rates can be measured using miles, stops or loads. When your operations (type of equipment, length of haul, number of stops per load, etc.) have not changed, miles, stops or loads can be used. When operations change, the exposure measurements can be changed to allow you to measure injuries based on your operations. Goals should be set using a rate to adjust for an increase or decrease in business activity. The example below shows how injury rates could be tracked to show progress or changes over time.

**Table 4 Injury Rates in Miles:**

Calendar Year	Miles driven	Total Injury Count	Lost Time Injury Count	Injuries per Million	Lost Time Injuries per Million
2009	10,000,000	12	4	1.20	0.40
2010	9,500,000	12	5	1.26	0.53
2011	11,000,000	12	3	1.09	0.27

**Table 5 Injury Rates in Loads hauled**

Calendar Year	Loads hauled	Total Injury Count	Lost Time Injury Count	Injuries per 1,000 Loads	Lost Time Injuries per 1,000 Loads
2009	16,667	12	4	0.72	0.24
2010	15,833	12	5	0.76	0.32
2011	18,333	12	3	0.65	0.16

## Reducing Exposure to Injuries

Reducing the exposure to injuries requires attention in many areas. The headings outlined in the Executive Summary provide a framework for developing a strategy to compare your current programs and practices to those found at companies with lower injury rates.

### Select drivers based on their history and ability to perform the job

Crashes have a significant impact on the cost and frequency of injuries. Driving records have been shown to be a strong indicator of which drivers are more likely to be involved in crashes. Having selection criteria that uses past driving record histories, violations from the FMCSA PSP (Pre Screening Program) and work histories (number of companies worked for, references, past experience) help assure that drivers with a disregard for motor vehicle safety and company policies are not placed into positions that require the operation of motor vehicles.

In addition to operation of motor vehicles most driving jobs have physical demands. Some tasks are required by the FMCSA or state DOT such as conducting pre-trip inspections. In addition to the required tasks, drivers must be able to get in and out of the vehicles, open trailer doors, climb into or on to the trailer and perform tasks associated with securing loads or handling cargo. Trucking companies that identify the task, develop and communicate steps to be used to complete the task and verify drivers offered positions can perform the tasks have lower exposure to injuries have lower exposure to injuries.

### Have and communicate expectations on how jobs should be performed

Having and communicating work task expectations is more complex than providing training. The concepts and theories outlined in commercially available training materials must be an integral part of your company expectations. Drivers engage in a variety of tasks that use the same part of the body. To reduce the potential for drivers sustaining injuries from overuse that occurs over a

working lifetime, tasks must be performed in a way that reduces the impact on their bodies. Drivers that jump from a vehicle or off the last step of the vehicle are more likely to sustain injuries over time than those that face the vehicle and step down while maintaining 3 points of contact. In addition drivers that do not exit a vehicle put additional stress on the body when reaching behind them as the climb down facing away from the vehicle.

Each work task a driver is expected to perform should be reviewed and the steps of that task outlined and documented. Tasks that have higher risk should be avoided when possible. Not all tasks can be eliminated and injuries from tasks such as entering and exiting the vehicle are typically a result of how the task is performed. Identifying the task components, documenting how the tasks should be performed and effectively communicating the task expectations helps assure drivers understand the risk and how they are expected to complete the task required of them.

### Monitor performance against the expectations

Once expectations have been developed, documented and effectively communicated actual work practices must be compared to the expectations in a quantifiable way. Monitoring performance with observations or through the use of technology allows you to measure risk. This can be on an individual level or to measure overall compliance with the expectations. Observations on a larger scale can be used to identify compliance with a group of expectations to identify task to focus on during future observations.

Some driving behaviors that can contribute to serious types of crashes can be identified by looking at driver performance data. The data can be gathered by downloading ECM data or using GPS tracking data. Some satellite systems will combine the two data sources. When data is available it can be used to look for the following:

- Compliance with route plans to identify drivers that are off route using additional fuel or taking routes that have higher crash potential.
- Speeding- speeds above posted may be a stronger indicator of crash potential than total speed on a freeway. Drivers traveling at 50 MPH in a 35 MPH zone may have higher crash potential than drivers operating at the top governor speed. Relying on governors may not be effective in reducing speed related crashes.
- % of time in cruise control when combined with brake actuations per 1,000 miles may identify drivers with frequent speed changes that can be an indicator of drivers that do not maintain adequate following distance
- Sudden decelerations or hard braking incidents can be another indicator of drivers which do not have adequate look ahead when driving

When driver performance data is available and can be used to compare drivers operating similar equipment, with similar loads on similar routes, drivers with habits that use extra fuel or make crashes more likely can be identified.

Observations on your property, on streets near your property or during in-vehicle observations can also be used to identify performance that does not meet expectations. If drivers are not performing tasks as expected when in your yard or on your property it is unlikely they will perform tasks as expected once they leave your property or lot. The tasks to be observed should be based on the main injury producing tasks identified in our study, on past observation results and work task activities identified in a review of your past injuries. Key areas to observe would

typically include tasks outlined below and can be summarized in a spreadsheet program to measure the % safe.

**Table 6 Sample driver observations:**

Observed work task	Desired performance	# of times performed as expected	# of times not performed as expected	% performed as expected
Tractor entry and or exit	Driver has 3 points of contact, faces equipment, does not carry things when climbing and has proper foot and hand position on steps and grab bars.	8	2	80%
Use of seat belts	Seat belts are worn when vehicle is in motion or while on public roads.	12	0	100%
Raising/ lowering landing gears	Driver uses wide stance, has firm grip on handle, keeps face away from handle and does not use 2 finger spin technique.	4	1	80%
Post trip inspections	Driver walked around rig prior to dropping trailer and looked at condition of the tractor and trailer.	6	2	75%
Opening trailer doors	Driver taps door to check for fallen cargo, stands to the side when opening the door, walks to the side of the door and secures the door to the trailer.	3	1	75%

Provide feedback on performance

Noticing or measuring driver performance will have little impact on performance unless drivers receive feedback on how their performance compares to the expected performance. Driver scorecards can be used for vehicle operation performance to show a driver how they compare to the median or middle of the pack driver.

**Table 7 sample driver scorecard:**

Driver Name	Sample Driver			
Date of Review	10-Nov-08			
	Median	Your Results	% of Median	
Vehicle ID #		108		
Trip end date		9/24/2008		
Trip miles	26516	98183	370%	
Fuel economy	7.34	7.11	97%	
Avg. drive load	50%	56%	112%	
Avg. vehicle speed	37.55	50.7	135%	
Driving %	71.62%	74.49%	104%	
Driving economy	7.56	7.26	96%	
Veh. Speed limiting %	6.03%	14.62%	243%	
Speeding A (66-71 MPH)	2650	60673	2290%	
Speeding B (>71 MPH)	20	28295	141475%	
Highest Speed	75.75	83.0	110%	
Idle %	28.4%	25.5%	90%	
Stop idle%	12.1%	13.4%	110%	
Hard brake count	32	95	302%	
Brake count	27626	55576	201%	
Speeding B per 1,000 miles	0.75	288.19	38208%	
Hard brakes per 1,000 miles	1.19	0.97	81%	
Brake count per 1,000 miles	1042	566	54%	
	Miles per year	MPG	Fuel cost per gallon	Total Fuel cost per year
Median	80,000	7.34	\$4.00	\$43,626
You	80,000	7.11	\$4.00	\$45,007
			<b>Difference</b>	<b>-\$1,381</b>

Driver feedback on work tasks is typically most effective when the task is being done or as soon after as possible. Conversations and follow up actions should be documented so drivers not performing tasks as expected can be identified. Some performance will be more and should have stronger actions or consequences. The tolerance for performance that does not meet expectations will vary by task. Performance that would indicate stronger responses from management include texting while driving, following too close or failure to use vehicle restraints.

Not observing performance or not addressing behaviors not meeting the documented expectations is a form of feedback. This feedback tells drivers how they are performing a task is acceptable. Managers and supervisors must be engaged in the process of providing feedback to reduce the risk of injuries.

### Change behavior that does not meet expectations

Most crashes and injuries in the trucking industry are caused by behaviors rather than a lack of knowledge. Addressing performance that does not meet expectations with “retraining” is not likely to have significant impact on behaviors or injury rates. Coaching drivers on how to perform tasks helps reduce the risk of injury from accumulated abuse or overuse of parts of their bodies. Where drivers will not perform tasks as expected, a progressive discipline system should be used to reduce the risk of injury for their sake and the companies.

### Document policies and actions

Performance measurement and improvement systems function best when the expectations, measurements and coaching discussions are documented. Expectations which are kept brief enough to tell the story and illustrated with pictures showing how task should be performed help assure drivers understand how they are expected to perform their work tasks. Practical or written tests help assure the knowledge was gained and show workers the company believes an understanding of the knowledge is an important job skill. Pre-injury risk measures (% safe behaviors) help identify risk prior to an injury occurring and will change over time and as operations and equipment changes. Documenting your expectations and activities help assure drivers receive a consistent message.

### Program Elements

Program policies and practices typically found at companies with lower crash and injury rates include:

#### Select drivers based on their history and ability to perform the job

- Has MVR driving record criteria for current and prospective drivers that does not allow more than 3 moving violations in the past 3 years.
- Has MVR criteria that does not allow for serious violations in the past 5 years.
- Has identified essential job functions and includes a driver’s ability to do the job as part of the post offer pre-hire qualification process.

#### Have and communicate expectations on how jobs should be performed

- Company has a drivers handbook or manual that illustrates how driver tasks should be performed and covers all driver tasks shown in the trucking industry loss source section that are performed by their drivers.
- Driver handbook or manuals show company equipment and drivers performing tasks as expected and illustrates actions to be avoided to reduce the potential for injury.



- Driver handbook or manual training uses a knowledge checker or practical application test to verify drivers have gained needed knowledge with documented testing protocols.
- Driving expectations include speed, following distance, use of seat belts and mirror alignment sections.
- Use care and inspections for of tools, personal protective equipment and work materials are addressed in the expectations.
- Driver expectations include equipment inspections and process for reporting defective equipment.

#### Monitor performance against the expectations

- Driving performance is measured using in-vehicle technology to verify drivers follow route plans, comply with posted speed limits and do not violate company policies on hours of operation.
- Observations are conducted to verify drivers are performing tasks as expected when working in yards or other areas of the property.
- Observations off site or at property entrances/exits are made to verify driver compliance with seat belt policies.
- Observations are a combination of working directly with drivers and observations conducted at a distance when drivers do not know they are being observed.
- Driver performance is evaluated in multiple areas to identify drivers most in need of attention or closer supervision.

#### Provide feedback on performance

- Observations are summarized to measure the % of drivers observed performing tasks as expected.
- Goals are established for % of safe (i.e. performing tasks as expected) behavior.
- Drivers receive individual feedback on observations to coach them on performance that does not meet expectations and on performance that meets expectations to reinforce performing tasks as expected.
- Making observations is part of all managers and supervisors jobs to identify performance that does not meet expectations.

#### Change behavior that does not meet expectations

- A progressive discipline system exists to assure that repeat performance that does not meet expectations is addressed.
- The progressive discipline system involves actions in addition to "retraining" when performance issues have been identified.
- Coaching sheets or other documented materials are used to verify that all managers or supervisors providing feedback are delivering a consistent message on how work tasks should be performed.

#### Document their policies and actions

- Work task expectations are documented using company equipment to show how work tasks should be performed.
- The observation process has records showing when they were conducted and actions taken to follow up on performance meeting and not meeting expectations.
- Training and policy communication are documented to show names, date and content of the communication.

- Equipment and facility inspections are documented and corrective action is documented when actions are needed to reduce exposure to injuries.

*Our loss control service is advisory only. We assume no responsibility for management or control of customer safety activities nor for implementation of recommended corrective measures. This report is based on information supplied by the customer and/or observations of conditions and practices at the time of the consultation. We have not tried to identify all hazards. We do not warrant that requirements of any federal, state, or local law, regulation or ordinance have or have not been met.*