

Trucking Industry Benchmarks and Best Practices

**Peter R. Van Dyne, MA, CSP, CFPS
Technical Director
Liberty Mutual Insurance Company
Milwaukee, WI**

Introduction

Liberty Mutual has conducted benchmark and best practice surveys on mid-size truckers since 1996. The purpose of this study was to identify companies with lower crash and injury rates and identify common elements of the well-performing programs.

Our 2010-year trucker survey was sent to over 200 truckers with between 50 and 300 power units. The survey time period for exposures and losses was calendar year 2009. Losses were valued as of June 1, 2010. Liberty Mutual provided worker compensation, auto liability or both lines of coverage for these companies. A combination of our loss information, public information from Safer/SafeStat, websites and survey responses were used to obtain data for the analysis.

A significant shift in the operations of the truckers in our survey has occurred over the past years. Historically a trucker tended to have one type of operation such as full-load long haul, less than truckload (LTL), flatbed, or heavy haul. etc. We have noticed a larger number of companies with multiple types of operations. This trend had begun before the changes in the economy that started in 2008 but may have increased due to the economy.

Our trucker surveys, meetings with individual truckers and comparing programs has shown us companies can be run differently and have successful programs. Although the management styles and practices may vary, common styles or elements exist at companies with lower crash or injury rates. These are:

- Select drivers based on their history and ability to perform the job.
- Have 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.

Our loss data and current mileage from Safer allowed us to benchmark all truckers. We then identified truckers with lower crash rates and examined their programs to identify common program elements and practices. A lower than historical response rate made identifying well-performing programs for worker injuries more challenging, due to the impact of owner operators when comparing injuries per million miles. Our benchmarks use payroll rather than miles used in previous surveys to increase the sample size.

The best practices identified in the discussion section provide you with a listing of practices used by truckers responding to our survey with lower than median crash rates. The lower than median crash rate companies had an average crash rate 42% below the median crash rate. Their program practices are summarized in the program practice data review section.

Program Practices Data Review

Truckers responding to the survey with a lower than the median crash rate were identified. Their program practices were evaluated to identify common elements. This group used a combination of owner operators and company drivers. The average length of haul was 660 miles. This group had an average crash rate per million miles of .49, which was 42% less than the median crash rate. Program practices commonly found with this group are outlined below.

Not every program element commonly used by this group may be useful in other operations. However, their association with truckers with crash rates well below the median crash rate makes them worth considering for inclusion in your safety program. Each of the truckers in the lower crash rate group provided comments on what they believed were the strong points of their program. The most commonly mentioned program strengths were:

- Hiring standards
- Communication of expectations
- Policy enforcement
- Providing modern, well-maintained equipment
- Maintaining low turnover

Driver Qualifications

100% use check sheets to document that each step of the qualification process has been completed.

100% have job descriptions that include driver tasks describing the requirements for jobs, such as being able to enter and exit the truck, pull 5th wheels, slide tandems, move freight, etc.

100% of those using-owner operators use individuals or fleets limited to 2-3 trucks.

100% use road tests as part of the qualification process.

80% have driver job description with MVR criteria specifications outlining how many violations in a specified time period are allowed and which violations disqualify a driver from positions that require operation of a commercial motor vehicle.

80% use job functional capacity evaluations to evaluate the worker's ability to perform the job tasks.

80% require FMCSA physicals to be performed at company-designated clinics.

50% are in a system to get regular updates on driving records prior to the annual reviews. State and private systems are used.

Management Expectations, Measurements and Communication

100% share the costs of injuries, injury trends, crashes and crash rates with employees and managers.

100% use metrics to measure management. Close to all of the group use operating costs per mile, fuel mileage, worker injury rates and crash rates. Over half also use off-route miles.

90% of the companies have compliance with FMCSA regulations as part of their driver manager job duties/job descriptions.

80% download ECM data to evaluate driver performance.

80% calculate fleet averages or medians to compare driver performance to the average or middle-of-the-pack driver for fuel mileage, speeding incidents, hard brakes, etc.

75% track driver hours of service violations by driver manager.

75% review miles per tractor per week by driver manager to identify drivers with too few or too many miles.

60% obtain driver opinions on company operations, safety and other topics by conducting driver surveys.

50% use scheduled departure times for drivers.

Safety program

100% have some form of bad weather plan with over 80% including weather monitoring, re-routing traffic and communicating with drivers in their plans.

100% provide all new hires with training that addresses falls from equipment, working with equipment, handling cargo, and typical driver injury exposures. Almost all provide this type of training on an ongoing basis. 70% provide the training in one-on-one or small group settings.

100% use written agendas for training and document attendance.

100% have seat belt policies and have activities to enforce their use.

80% have a driver incentive program (more than small tokens or low-value gifts) to reward drivers with good performance. Almost all of those with these programs have multiple criteria that must be met in addition to no crashes or injuries.

80% have a driver injury prevention program/manual that outlines their safety and work behavior expectations in writing, using text and pictures.

80% provide some type (new hire, post-crash or when new equipment is provided) of in-vehicle training.

75% make road observations to evaluate driver performance. Over 50% of those making observations log all observations even if no violations are observed.

70% have a system to identify (ECM data, observations performance, etc.) drivers most in need of training or additional supervision based on performance, experience, crashes, driving record, etc.

40% have set routes that drivers must follow for regular customers. A slightly higher percentage set routes for new customers. 25% use technology to monitor off-route miles.

40% have and provide training for mirror check stations.

40% have the company name and phone number or web address on the back of the trailers. Less than 10% use a toll-free number monitoring service.

Equipment

100% have right-side fender mirrors with over 90% having left-side fender mirrors.

90% have some type of speed limiting device on the tractors. The average speed setting was slightly below 68 MPH.

75% use automatic transmissions in their trucks. The average percentage of the trucks with automatic transmissions was 25%.

Driver expectations

100% have a following distance policy. The most common policy was 6 to 8 seconds and slightly slower than the flow of traffic in heavy traffic.

Crash investigation

100% have cameras available for drivers for crash investigations. Company-provided cameras or cell phones with cameras are used.

100% have written crash-scene instructions and procedures in the vehicles.

80% keep crash investigation data in a database or on a spreadsheet that allows relationships between crashes and age, experience, MVR violations, company policy violations or other factors to be identified.

Transitional work programs

75% assign someone in the organization to track employees who are off work due to injuries and work with the medical providers to move them into transitional duty jobs.

60% have written transitional work programs for injured drivers

Driving Record Benchmarks

Driving records can be an indicator of driver quality and are an indication of future crash potential. We looked at all truckers included in the survey process where we have or had quoted auto liability coverage. We looked at the percentages clear, acceptable and unacceptable. Each of these is defined as follows:

Clear: No moving violations in the past 3 years, no major violations in the past 5 years and no repeat major violations.

Acceptable: Drivers that do not have clear driving records but do not have driving records that put them in the unacceptable category defined below.

Drivers are considered unacceptable if they have:

1. One major violation in the past five years;
2. Four or more minor violations or at-fault accidents in the past 36 months;
3. Two or more preventable accidents in the past 36 months.

The results are shown below and were not segmented by type of trucking operation. Where a significant number of truckers with like operations existed their MVRs were included.

Table 1. MVR by trucker type.

	% Clear	% Acceptable	% Unacceptable
All truckers (median)	62	95	5
All truckers (average)	61	91	9
LTL	63	98	2
Full load vans	60	94	6
Flatbed	74	98	2

The driving record differences may occur due to market factors with the LTL and flatbed groups. The LTL and flatbed groups were smaller and would have lower credibility. Establishing goals based on the medians should be considered for truckers with below-median percentages clear and acceptable.

Crash-Rate Benchmarks

Crash rates were slightly lower than in past surveys. The crash rates by type of trucker were much more challenging due to many truckers having multiple types of operations compared to past years. In past surveys the majority of truckers were predominately-single type operations. Most of the truckers in this survey were identified as having multiple types of trucking operations. The only type of trucker with sufficient size to allow credible benchmarking was the full-load van operations. Their \$1,000 crash rate per million miles was not significantly different from the group as a whole.

Table 2. Crash rates.

	Median \$1,000 Crash rate per million miles
All truckers with liability coverage	0.84
Full load vans	0.83

Worker Injury Rate Benchmarks

Worker injury rates vary by the type of trucking. The type of trucking impacts the frequency of some tasks that have higher injury rates. Less than truckload operations will have more frequent entry and exit from the tractors than long-haul operations. With similar tractor configuration, maintenance, training and performance management, higher injury rates would be expected due to the exposure from the more frequent entry and exit from the cabs.

Some trucking operations performing the same type of trucking such as long-haul van operations will have different cargo handling exposures. Drop and hook operations would be expected to have lower injury rates than trucking operations where drivers are involved in loading or unloading.

The mix of trucking types performed by a trucking company makes benchmarking more challenging than in past surveys. We identified more companies with multiple operations such as a long haul van operation that also has intermodal or other types. The type of trucking, use of owner operators/independent contractors, total miles driven and mix of trucking operations should be taken into account when comparing your injury rates with the benchmarks.

The majority of trucking company injuries are sustained by drivers. The credibility of benchmarks goes down when a high percentage of miles are driven by owner-operators that are not covered by workers compensation coverage. One injury can also distort the rates for lower-miles companies.

The type of trucking, use of owner-operators/independent contractors, total miles driven and mix of trucking operations should be taken into account when comparing your injury rates with the benchmarks.

Table 3. Worker injury and cost rates.

Type of Trucker	% of Truckers (less than 5% not shown)	Total Claims w/Cost Per Million Of Payroll	Indemnity Claims Per Million Of Payroll	Temporary Partial Disability Claims per Million of Payroll	Temporary Total Disability Claims per Million of Payroll	Total Incurred Loss Per Million Of Payroll
All Other types	8	1.95	0.75	0.15	0.55	\$17,694
Bulk Tankers and Dumps	7	1.47	0.44	0.05	0.34	\$13,499

Flatbeds	7	1.03	0.56	0.04	0.47	\$16,494
Full Load Vans	42	1.30	0.64	0.00	0.59	\$12,150
LTL	18	2.00	0.89	0.00	0.76	\$20,605
Moving and storage	6	1.50	0.38	0.00	0.26	\$6,908
All Survey Truckers		1.45	0.64	0.00	0.54	\$13,376

The low rate of temporary partial disability claims compared to temporary total disability claims indicates many truckers do not utilize transitional work programs. Adopting or expanding transitional work programs would provide an opportunity to lower the overall cost of risk.

Auto Liability Losses

Auto losses were split into two groups. The liability losses and physical damage losses were reviewed separately. The incidents were primarily crashes; however, some non-crash incidents were identified. The non-crash incidents had insignificant impact on the overall liability losses and were related to unloading incidents. The physical damage incidents were predominantly crashes, but included theft, fires and a small number of non-crash causes.

Auto liability loss sources can be used to direct safety efforts but may not provide the whole story. The two main crash types have a relationship with each other. Following too closely can contribute to hit other in rear crashes or sudden lane changes to avoid crashes. Both types can have a variety of root causes, which can include driver selection, route planning, driver behaviors and routine driver performance monitoring.

The two primary crash types have significant driver behavior elements. The potential for hit other in rear crashes can be significantly reduced with following times of 6 to 8 seconds, driving slightly slower than the flow of traffic in heavy traffic, doubling or tripling the following time in bad weather, and staying off the roads when conditions make driving too hazardous.

Route plans that provide drivers with routes that are easy to understand and use, reduce or eliminate left turns, reduce the need to turn around and reduce backing as much as possible reduce exposure to crashes and allow management to develop metrics that can be used to measure driver performance.

Table 4. Liability crash types.

Type	% of Crashes	% of Incurred Costs
Hit other in rear	17%	55%
Lane change	20%	21%
Backed while parking	18%	4%
Turning	11%	4%
Intersection	4%	3%
Unloading incident	1%	3%
Hit parked vehicle	8%	2%

Backing in traffic	3%	1%
Totals	82%	92%

Physical Damage Auto Losses

Physical damage losses are a combination of crash and non-crash events. Events may have multiple exposures. An event would be the rollover and the exposures would be individual claims or losses to the tractor and the trailer. Measuring events allows us to understand the loss independent of the number of claims. Crashes can have an initiating sequence caused by the trucker or others. Rollovers continue to play a significant role in the overall loss cost. As in past trucker survey report loss analysis, fires, theft, windstorms and other issues play a role but crash related situations or events are still the primary source of loss.

Table 5. Physical Damage Losses.

Physical Damage Loss Type	% of Events	% of Incurred Costs
Rollover	12%	32%
Hit other in rear	10%	15%
Lane change	16%	11%
Fire	3%	9%
Intersection	8%	5%
Hit in rear by other	4%	4%
Animal contact	6%	3%
Theft	2%	3%
Hit while parked	6%	2%
Jackknife	2%	2%
Low bridge	3%	1%
Main Types Totals	70%	87%

Table 6. Rollover Types.

Rollover Incident Type	% of Events	% of Incurred Costs
No specific cause	27%	24%
Too fast on curve	20%	16%
Snow and ice	7%	15%
Lane change	16%	13%
Fell asleep	9%	12%
Drove onto shoulder	7%	6%
Intersection crash	2%	4%
Medical issue	2%	3%
Windstorm	2%	3%
Avoiding animal	2%	2%

Tire blowout	2%	2%
Turning at higher speed	2%	2%
Grand Total	100%	100%

Workers Compensation Injuries

The 2009 calendar year injuries were reviewed for companies in the 4212 and 4213 Standard Industrial Classification where Liberty Mutual provided workers compensation coverage. The text description for each injury was reviewed to identify the work activity the worker was engaged in when they were injured. Knowing the activity allows you to approach injury potential reduction from a process perspective. A process prospective would look at all injuries which occur while performing a task such as vehicle entry and exit rather than looking at injuries such as falls which could occur from a wide variety of tasks.

Understanding the process allows you to develop task expectations to address both frequent injuries and injuries that have shown to involve more serious injuries. Reducing the risk from performing tasks associated with your business will provide better opportunity to gain or maintain a competitive edge.

Reducing the risk from common tasks has increased potential for lower injury when:

- Task expectations are developed based on the frequency of the task, the potential for injury and the injury severity potential
- Highest risk tasks receive priority attention
- Task expectations are communicated clearly and effectively
- Worker behaviors are monitored to increase the % of behaviors that meet the task expectations

Each company will have work activities or tasks, which can be unique, based on the equipment, cargo and customers. Developing task expectations to address the uniqueness of your operation and equipment can be more effective when customized materials are used to communicate your expectations. Having clear expectations based on your work activities allows you to communicate expectations rather than safety concepts.

Although the type of equipment and cargo varied between the truckers in the survey there were a number of common tasks and exposures. Some differences in the % of injuries and % of costs were noted from our past Trucker Surveys. National trends for crash rates are likely to have had an impact on crash related injuries.

Each of the loss sources identified by activity includes injuries indirectly related to the loss source. For example drivers shutting their hands in tractor doors and hitting their head on the tractor door after exiting the tractor are included in tractor entry and exit loss source activity. The load securement loss source includes working with load bars, handling tarps, throwing straps and pulling tarps in addition to typical tightening chains and straps typically associated with load securement.

Table 7. Injuries by Activity.

Activity	% of Injuries	% of Incurred
Motor vehicle crash	9%	18%
Handling cargo	21%	14%
Tractor entry/exit	12%	12%
Yard falls	9%	9%
Trailer falls	6%	8%
Load Securement	6%	6%
5th Wheel	2%	5%
Powered industrial trucks	4%	4%
Maintenance	10%	4%
Trailer doors	4%	4%
Dock falls	2%	3%
Driving	2%	3%
Unloading incident	1%	2%
Landing gear	3%	2%
Main Loss Sources	88%	94%

Accumulated stress over a working lifetime or extended period of time is likely to be a factor in some injuries. Drivers will use the same body parts to perform a variety of tasks such as pulling a 5th wheel, climbing into a tractor and opening trailer doors. Having, communicating and monitoring compliance with expectations for a variety of tasks can reduce the injury potential from accumulated use of the same body part.

Equipment condition and maintenance played a role more in some injuries than others. Tractor condition had very minor impact on vehicle entry and exit injuries but played a more prominent role in 5th wheel and trailer door injuries. Snow and ice removal programs can be effective in reducing exposures, but drivers will have significant exposure away from your facilities.

Snow and ice was a significant factor in the yard falls. Providing and encouraging drivers to use slip-on fall protection in winter when working in snow and or ice can reduce the number of falls. Customer experience with this type of slip-on fall protection showed a significant decrease in winter falls once slip-on fall protection was provided and required based on winter conditions.