



PREDICTING AND PREVENTING SEVERE ACCIDENTS

*How to Promote
Fleet Safety*



Predicting and Preventing Severe Accidents

How to Promote Fleet Safety

Every fleet wants to increase safety and mitigate accidents, but risk that you cannot see is risk that you cannot manage. With the right use of data, sleep education, and effective driver coaching, fleets can prevent incidents and accidents — and improve safety.

Managing Severe Accidents

Aside from the human toll, severe accidents create substantial and often unbudgeted costs stemming from repairs, insurance, freight and service level damages, litigation, loss of vehicle productivity, and even administrative burdens to manage the lengthy claims process.

With costs hitting upwards of millions of dollars from a single severe collision, your fleet needs an efficient way to gather and organize massive amounts of information to address and detect the potential for severe accidents before they happen.

The biggest problem with trying to manage severe accidents is they are typically infrequent and appear to be random. However, contrary to popular belief, they are not all random, but a natural culmination of a series of subtle data points that — with the right information — can be detected and addressed well before an accident occurs.



Understanding Fatigue in Accidents

Most conventional safety programs deal with driver behavior such as checking mirrors, keeping two hands on the wheel, and avoiding distractions like phone usage while driving. Loss of control, on the other hand, is physiological and can be defined as when the body is awake but the mind is asleep. This usually happens due to fatigue or sleep abnormalities.

A driver can be 100 percent compliant with Hours of Service (HOS) regulations while being sound asleep at the wheel. Severe accidents usually occur when drivers are fatigued and become distracted from focusing on driving.

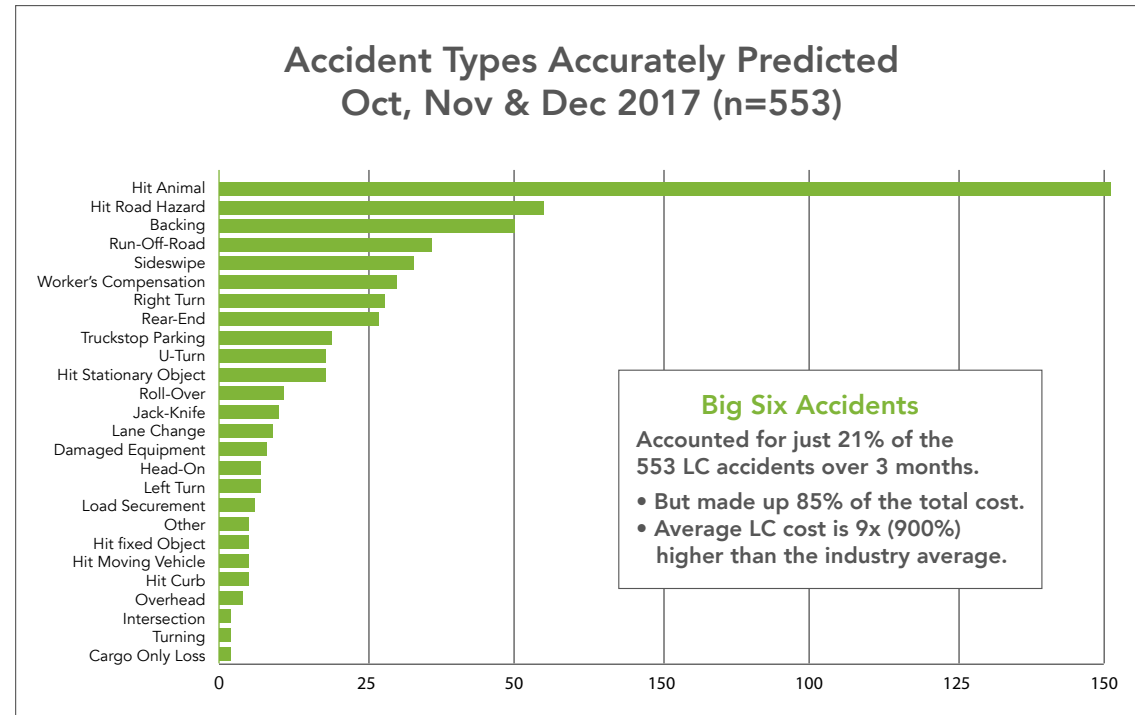
In fact, the majority of severe accidents occur when drivers are not in control of the vehicle at the point of contact and lack responsive time, as they have mentally disconnected from the driving task. This usually occurs when a driver has been exposed to disrupted or truncated sleep patterns, sleeping during the day (when he or she is not used to it), overall sleep deprivation, or cumulative fatigue from weeks of driving heavy vehicles.



The "Big Six" Accidents

The "big six" accidents that can be defined as severe and result in big dollar expenses are:

- Roll-overs
- Run-off-road
- Head-on
- Jack-knife
- Side-swipe
- Rear-end



Loss of control (LC) accidents occur when the driver is disconnected from the driving task, takes zero evasive action, could have seen the point of impact six to seven seconds prior if awake, and makes no attempt to minimize damage at the point of impact.

Additional precautions must be taken to ensure safety to protect the driver, the fleet, and the public. Fortunately for the transportation industry, electronic logs provide a rich source of predictive data that points directly to severe accidents, not just compliance.



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Score-Carding vs. Predictive Analytics

Current safety technologies utilize audits, perception surveys, and behavior-based scorecard methods that provide fleets with insight into where risk comes from.

Most fleet managers conduct reporting and analysis in some form, looking at data to determine what happened, why, and what to do to prevent negative events from happening again. More and more fleets are using score-carding and dashboards today. Managers take that information and try to develop correlations to predict what will happen. But, correlation is not causation.

While scorecards are valuable, they really only tell you how well you execute on strategy. In contrast, big data technologies will tell you if the strategy is right in the first place. One of the most common myths in data analytics is if you drill down into the data, you'll find the answer. But what if you're drilling in the wrong place to start with? Most reactionary, backwards-looking scorecards and dashboards simply measure symptoms and outcomes, which prevents fleets using them from finding the true root cause of accidents.

When fleets fixate on symptoms (hard brake and over-speed events, for example), they fail to realize the root cause of the problem, which could be something as simple as lack of sleep and are therefore unable to fix the true physiological problem.

With predictive analytics, a large sample of data can be used to predict a fleet's future by first identifying patterns in its history. Active drivers are measured against these predictors.





Identifying Risk with Predictive Analytics

Timely intervention with at-risk drivers can be the difference between saving lives and losing them. Predictive analytics is a tool that fleets can use to identify those drivers who are at risk for having a severe accident so they can intervene. Predictive models utilize data such as prior employment, trips, loaded miles, and empty miles to predict risk. Custom models use a fleet's own data set to identify data patterns and data pattern changes that are indicative of individuals that are at risk of having an accident in the near future.

A predictive analytics model like Omnitracs' Accident Severity Model, relies on objective HOS data to measure true performance, rather than relying on drivers' perception of their condition and alertness (as drivers, like all humans, overestimate sleep and underestimate fatigue levels). The model features two-way technology that pulls data from the HOS application and returns tailored safety messages to a dashboard. This allows fleets to intervene and provide timely remediation with high-risk drivers before severe, preventable accidents occur.

This particular model predicts drivers likely to have an incident based on loss of control of the vehicle at the point of impact, in which the brain disconnects from the driving task.

Companies use predictive analytics to put their highest-risk drivers right on their radar to provide timely remediation. The ability to predict severe accidents can enhance safety and give your fleet an impressive return on investment, given that the cost of severe accidents are often in the hundreds of thousands or even millions of dollars. Preventing just a few accidents makes a program like this very effective.





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Coaching Intervention

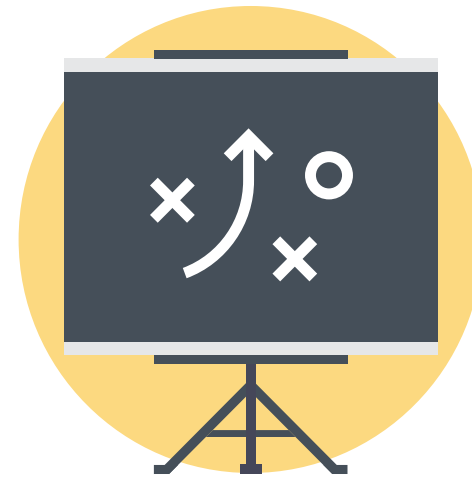
Prediction rates mean nothing if they are not acted upon. Once a predictive model identifies at-risk drivers, intervention, education, and coaching need to occur.

It is important for management to be trained on intervention techniques that will allow them to speak with drivers when the data shows elevated levels of risk. Proper training can help fleet managers have more meaningful, productive conversations with their drivers.

Common coaching between a manager and driver involves conversations concerning critical events or remedial training. Managers should also have relational conversations with their drivers to understand stress sources in and outside of the job.

Drivers dealing with issues related to health, family, finances, pay, hours, or work conditions might be flagged as at risk for an accident. When that happens, managers need to have a proactive and positive conversation to uncover underlying issues and find ways to help.

According to a 2017 study in Transportation Journal, driver stress goes beyond health, family, finance, and work conditions. Other driver stressors include feelings of isolation from being away from home and lack of respect from colleagues or customers.





Case Study: When Good Drivers Are at Risk

A real-life example of a driver that was flagged as at-risk is about a good driver. His manager thought very highly of him and he had a long and safe driving record. But over time, his score deteriorated to the point where he was identified as someone who needed a proactive intervention. Unfortunately, the manager did not heed the prediction and the driver ultimately had an accident. When the manager dug into why the accident happened, he saw that the driver had been leaving his house later, which was one of the predictors associated with this fleet's model. The driver also had speeding events.

Since the driver historically had never driven aggressively, the manager interviewed him only to find out that the driver's house had recently been damaged in a storm and he was trying to repair the damage on his own. So, he was trying to work but get home in a timely fashion to work on his house. As a result, he drove more aggressively and left the house later.

Speaking with a driver one time is not sufficient — there needs to be a continuous improvement cycle. An action plan should be determined based on the initial conversation and it's the responsibility of the manager to follow up with that driver. Even if the manager took an action to assist the driver or eliminate the stress, there are circumstances where that stressor is still in their lives and that data pattern and data pattern change will still exist. Maintaining relationships and a feedback loop with drivers is very important.





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Sleep Education Intervention

Knowing that most severe accidents happen with loss of control, sleep education is very important in accident prevention.

Some of the interventions could include:

- Strategic timing of naps and/or rest breaks
- Strategic timing of sleep and sleep duration
- Shifting load appointment times to accommodate more sleep
- Driving techniques that promote alertness and vigilance

Drivers' understanding of the need for these breaks makes a huge difference in their productivity and safety. After all, well rested drivers perform more miles safely.

A sleep education program, like that offered by Omnitrac, includes sleep science education for front-line managers, drivers, and spouses. Drivers learn how to be better rested and prepared to drive more miles safely. This program also introduces creative schedule and driving techniques and ways to improve sleep quality and quantity.

Doing Your Part to Prevent Accidents

Every fleet should have policies, training, and procedures in place to prevent accidents. Continuous sleep education and driver coaching are key to improving safety. Predictive analytics help fleets identify at-risk drivers so that proper intervention can take place.

Omnitrac's Accident Severity Model uses Hours of Service data to predict severe accidents and our sleep education program helps fleets train drivers on how to properly rest and beat fatigue.

Drivers who don't attend a sleep class:

- Incur an average accident cost 7.2 times higher
- Have twice as many loss of control accidents
- Experience five times as many "run-off-road" accidents

While drivers who do attend a sleep class are:

- 30 percent less likely to voluntarily terminate employment
- 6.75 times less likely to have a service failure

To learn more, visit www.omnitrac.com
or call 800.348.7227.