



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

## **OFFICE OF ANALYSIS, RESEARCH, AND TECHNOLOGY**

### **Large Truck Crash Misconceptions April 5, 2011**

#### **Webinar Transcript**

##### **Presenters**

- Ralph Craft, Ph.D., Senior Transportation Specialist, FMCSA Office of Analysis, Research, and Technology (ART)

##### **Speakers (optional)**

- Kirse Kelly, Web Conference Host, FMCSA ART

##### **Description:**

The FMCSA Office of Analysis, Research, and Technology (ART) is pleased to announce an informational webinar to educate all FMCSA stakeholders about a number of popular beliefs concerning large truck crashes that are not supported by crash data. Dr. Ralph Craft of the ART Analysis Division will dispel some of the most popular misconceptions about large truck crashes. This webinar is open to all, so don't miss this opportunity to gain a more accurate understanding of the overall safety of highway travel and what some of the real safety issues are for all drivers on the road.

## **PRESENTATION—LARGE TRUCK CRASH MISCONCEPTIONS**

### **PRESENTATION TITLE SLIDE: LARGE TRUCK CRASH MISCONCEPTIONS**

#### **Kirse Kelly (Web Conference Host, FMCSA ART):**

Thank you very much, Steven, and thanks to all of you who are participating in our webinar today about misconceptions about truck crashes. Today is Tuesday, April 5, 2011, and this webinar is put on by the FMCSA Office of Analysis, Research, and Technology and hosted by the FMCSA National Training Center.

It is my pleasure to introduce you today to our presenter for today's webinar and that is Dr. Ralph Craft, who is a Senior Transportation Specialist with the FMCSA Analysis Division in the Office of Analysis, Research, and Technology.

Now let me go ahead and turn you over to Ralph.

#### **Ralph Craft, Ph.D. (Senior Transportation Specialist, FMCSA ART):**

Thanks Kirse. The idea for this Large Truck Crashed Misconceptions webinar came directly from Administrator Anne Ferro. I was giving a briefing mainly for the new staff on the Large Truck Crash Causation Study and as she left the room after the briefing, the administrator said, why don't you send me a memo of those things which we learned from the Large Truck Crash Causation Study that we didn't expect to learn. So I sent her memo with a number of points that I thought were misconceptions about truck crashes that were corrected by the LTCCS and I know she read it because I got a question back about one of them asking for more data before she wanted to take it to the whole senior staff. Let's go to the next slide.

### **SLIDE 1: DATA**

I not only looked at Large Truck Crash Causation Study data, but also some other databases, so I will be talking a lot about these other databases during the conference call. Let's go over the data sources right now. Of course there is the Large Truck Crash Causation Study which was done from 2001 through 2003 under our direction. The second is The National Motor Vehicle Crash Causation Study (NMVCCS) from The National Highway Traffic Administration (NHTSA) which was done based on data collection from 2005 through 2007. Now while the Large Truck Crash Causation Study focused on trucks with a gross vehicle weight rating of over 10,000 pounds, NMVCCS focused on light vehicles. In other words, cars, SUVs, vans and pickup trucks, those passenger vehicles under 10,000 pounds gross vehicle weight rating. The NMVCCS is a mirror of the LTCCS Study; the methodology was the same and data collected in the same data collection sites, etc. Thirdly there are some individual studies from States of crash causation involving large trucks. I don't have a complete collection of State studies involving truck crash causation, and if you see the list that we are going to show pretty soon, and you think there are other studies around, I would love to have copies of them. It is not something that I collect on a regular basis.

Then the other three sites are general databases which are collected every year. One is the Fatality Analysis Reporting System from NHTSA; FARS - this is a census of all fatal crashes that happen every year and I am going to be drawing on data going back to 1994. The second one is the General Estimate System (GES) also from NHTSA and I am going to be using data from 2008. GES is an estimate of all fatal, injury, and property-damage-only crashes. It is generally used just for the entry of injury and property damage only crashes because FARS is a much better database with regard to fatal crashes. And that's how we use it at FMCSA. We use GES for injury crashes and property-damage-only crashes. Then also from 2008 I am going to use Vehicle Miles Traveled Data from a Federal Highway Administration. So those are our databases that we will be using today. So let's go onto the on to the next slide which is the list of crash misconceptions that we will be talking about.

## **SLIDE 2: MISCONCEPTIONS**

- The first misconception is that cars, passenger vehicles in other words, cause 70 percent of all truck crashes.
- The second one is that alcohol and illegal drugs are major truck crash causes.
- The third one is truck drivers are in poor condition to drive and by that I mean that the misconception is that all truck drivers are fat, fatigued, and sick, or all of the above and really should not be on the road driving.
- The fourth misconception is that driver inattention or distraction or both are new problems resulting from new electronic devices that are in motor vehicles.
- The fifth one is the truck vehicle problems are top crash causes. By truck vehicle problems I mean mechanical problems with the truck vehicle.
- The sixth one is that Americans are bad drivers. You usually hear this when people in Virginia are talking about Maryland drivers. They say well those Maryland are terrible. Or if you live in Maryland they would say those Virginia drivers are terrible, or those drivers in DC are terrible. Everyone thinks they are personally good drivers and seem to think the people in their State are decent drivers but everyone in the other States are bad drivers.
- The seventh misconception is that good laws and effective enforcement can eliminate almost all truck crashes. Let's go to the first crash misconception.

## **SLIDE 3: 1—CARS CAUSE 70 PERCENT OF TRUCK CRASHES**

This is, that cars cause 70 percent of all truck crashes. This misconception I think has a very specific origin. There is an annual publication which NHTSA puts out it's FARS data on large truck crashes. In this publication is called Traffic Safety Facts: Large Trucks and then the year. In 1994 and 1996 the statement was made that in 71 percent of two-vehicle large truck/passenger vehicle fatal crashes, the passenger-vehicle driver was coded with one or more crash factors for

the driver and the truck driver was coded with none. Now that exact same thing was also published in 1993, but the number was 68 percent, and in 1995 when it was 72 percent. After 1996, NHTSA stopped publishing that part of their annual Traffic Safety Facts: Large Trucks. I believe because they realized that it was being misinterpreted as fault.

Now in an internal memo to the Officer of Motor Carriers Newsletter, I wrote the following in November of 1996: The FARS Factors are those reported by police at the crash scene that may have played a role in the cause of the crash. They are not based on in-depth crash investigation/reconstruction conducted over a period of time and aimed at determining crash contributing factors or faults. NHTSA believes that the number of factors reported by police and included in the FARS database is probably conservative, since there may be reasons for the crashes that are not detected by officers on the scene making the first report on crashes. NHTSA cautions that the factors in the database are not the causes of crashes. After I drafted that statement, I checked it with the people at NHSTA before I published it in this little internal newsletter, and they said it was an accurate description of what the driver related factors in FARS are.

You can see some of the problems with this study and this statement right off of the bat trying to translate it into crash causes. First of all, it is only fatal crashes. Only two-vehicle fatal crashes—these make up less than 1 percent of all large truck crashes—so you are basing your statement about all crashes on focusing on less than 1 percent of the crashes. Secondly there are no single-vehicle crashes involved and of course the single-vehicle crashes are where the driver is most likely to be at fault. Single-vehicle crashes are 20 percent of fatal large truck crashes normally. When we look up the data from 2001 and 2003 with regard to injury crashes they're 16 percent of the crashes. And with regard to property-damage-only crashes, 28 percent are single vehicle crashes. Now as I mentioned before, these FARS data driver factors are based on police accident reports at the scene of the crash and not in-depth investigations. Also, only driver factors are considered. Obviously that excludes any truck factors, and truck factors are almost always more prevalent in truck crashes than car vehicle factors in cars because trucks are a lot larger and more complicated. The other thing about the database is some FARS driver related factors are not pre-crash factors. One factor is hit and run which has nothing to do with why the crash happened but something the driver is charged with after the crash. Next there are non-traffic violations also noncompliance with license restrictions. All of these are factors which are not pre-crash conditions, but something you find out after the crash. Next slide.

#### **SLIDE 4: 1.A—CARS CAUSE 70 PERCENT OF TRUCK CRASHES**

Now let's look at some data which seems to contradict the 70 percent figure. First of all, and my favorite naturally, is the Large Truck Crash Causation Study where trucks were coded with the critical reason in 55 percent of the 963 crashes. Without going into a long explanation, critical reason is what we use as a surrogate for fault. The critical reason is the immediate reason the crash happened. Now the real reason the crash happened may have occurred many hours before, but it has always given to the vehicle which took the action which led directly to the crash. When you break those numbers down, the LTCCS included data on fatal crashes and A and B injury crashes. In other words, incapacitating injuries or non-incapacitating injuries. But real injuries, not complaint of pain which NHTSA also counts as an injury crash. In 28 percent of the fatal

crashes, the truck was assigned the critical reason. In 57 percent of injury crashes the truck was assigned for critical reasons, and the average putting the two together was 55 percent because a lot of the more LTCCS crashes were injury crashes as opposed to fatal crashes. In NMVCCS, of course all crashes had to involve a light vehicle or passenger vehicle, but we looked at the ones where the car, SUV, van, or pickup truck was involved in a crash with a truck, and in these crashes 39 percent of the crashes the truck was coded with a critical reason.

In California, when I looked at SWITRS (Statewide Integrated Traffic Records System) data from 2004 to 2008 truck drivers were judged to be at fault and 25 percent of the 1,628 fatal crashes and 48 percent of the 35,818 injury crashes. A study from Florida based on data from 1998 to 2000 found that trucks were at fault in 31 percent of fatal crashes. In Michigan, from 2001 through 2005, over 86,000 two-vehicle crashes in those 5 years, commercial vehicles took hazardous actions in 42 percent and noncommercial vehicles in 41 percent. The study in North Carolina, based on data from 1994 to 1997, found that trucks were at fault in 48 percent of the 16,264 crashes. And finally, a study in Oregon found that trucks are a fault in 55 percent of 1,252 crashes studied.

Now in each of these State studies, fault was probably determined differently—there is no consistency in the methodology used in these crashes—but the data comes up pretty much the same. Now if you look closely at this data, what you see is, in fatal crashes it is much more likely that the truck will not be assigned the fault, LTCCS 28 percent. In California, the difference between 25 percent for fatal crashes and 48 percent assigned to the truck driver as being at fault in injury crashes. And it turns out that the misconception that cars cause 70 percent of large truck crashes is wrong, but if you applied it just to fatal crashes, it is probably pretty close to the truth. The problem with using that FARS data in the end is that you cannot make the assumption that fatal crashes are just like injury to property-damage-only crashes because in those crashes across the board, not just LTCCS but all the State studies, trucks are assigned fault for the crash in about half or more of the crashes. Okay. Go to the next slide.

#### **SLIDE 6: 2—ALCOHOL AND ILLEGAL DRUGS ARE MAJOR CRASH CAUSES**

Alcohol and illegal drugs are major crash causes. This is simply not borne out by the data. In the LTCCS, 1 percent of the truck drivers were coded as having consumed alcohol and 2 percent used illegal drugs. Now let's skip the next two lines we will come back to. Now look at the FARS data from 2008 and 2009. Only 2 percent of the truck drivers had a blood-alcohol content greater than 0.01. In other words, they had some alcohol in their blood and 1 percent had a blood-alcohol content of 0.08 or greater, in other words, 1 percent were drunk. Only 1 percent of the drivers were coded as being under the influence of alcohol or drugs. The LTCCS data and the FARS data both agreed that illegal drugs and alcohol are not major problems in large truck crashes.

Let's go back to the data under the LTCCS part there. 18 percent of the truck drivers use over-the-counter drugs and 26 percent took prescription drugs. It turns out a large percentage of everybody on the road is under some kind of drug. When you look at all the truck drivers in LTCCS, 38 percent were taking either a legal or illegal drug or one or more or several drugs, and in the NMVCCS 28 percent of the passenger-vehicle drivers were taking some sort of drug. There might be some cause for concern of the use of over-the-counter and prescription drugs.

There are certain potentially impairing drugs among over-the-counter and prescription drugs, and particularly if the drivers are engaged in polypharmacy, which is nothing more than the meaning that you are taking more than one drug. And sometimes your doctor knows you are taking one drug, and your pharmacist knows that you are taking another drug, and maybe your doctor or specialist knows you are taking the third drug but you don't know that each one has prescribed something and you get polypharmacy that can be dangerous. I think it would be wise to look more closely at legal drugs. Illegal drugs are not major causes of truck crashes. Let's go to the next one.

**SLIDE 7: 3—TRUCK DRIVERS ARE IN POOR CONDITION TO DRIVE**

All truck drivers are in poor condition to drive. Now there is mixed data here. Some data would lead you to believe that truck drivers are in pretty bad shape and worse than other drivers, and others that are in better shape. Let's look at the negative data first. Let's look at fatigue. In the LTCCS, 13 percent of the truck drivers were coded as being fatigued. In NMVCCS, 8 percent of the passenger-vehicle drivers were coded as being fatigued. So truck driver fatigue was a higher percentage. Now I know the 13 percent that we found in the LTCCS is controversial—a lot of people think it overstates it. But I would like to remind everybody that when we coded it as factors in the LTCCS, the factor could be coded yes, no, or don't know. With regard to the fatigue data in the LTCCS, we coded 13 percent of the drivers as being fatigued; 16 percent we couldn't tell whether if they were fatigued or not. So if some of the 16 percent of those that we couldn't tell were also fatigued, that 13 percent might actually be higher.

Let's look at driver unable to perform the task of driving. This is one of the four categories of critical reason that could be assigned to the driver in the LTCCS and NMVCCS. Being unable to perform the task of driving means you are asleep, you are in diabetic shock so you can't drive, or you have had a heart attack, or passed out, or any other medical condition that hits you and now you are no longer able to perform the task of driving. In the LTCCS, 12 percent of the truck drivers were coded as being unable to perform the task of driving when the crash happened, so that is a fairly serious number. In NMVCCS, the percentage was 9 percent which is also a serious number, but it looks like truck drivers are in a little worse shape. Now let's go onto the next slide.

**SLIDE 8: 3A—TRUCK DRIVERS ARE IN POOR CONDITION TO DRIVE**

Here it looks like truck drivers are in better shape. One of the things that is important about driving is being attentive and paying attention, and not being inattentive or distracted. In the LTCCS, 20 percent of the truck drivers were coded as being inattentive or distracted, which is a major problem. Passenger-vehicle drivers—29 percent—were coded as being distracted or inattentive, so the passenger-vehicle drivers were even in worse shape in this sense. Let's look at the legal drugs. LTCCS, as mentioned before, 2 percent were taking illegal drugs at the time of the crash. In NMVCCS, 5 percent of the passenger-vehicle drivers were—over twice as much. Let's look at alcohol. Truck drivers in the LTCCS, 1 percent were coded as having alcohol; 2 percent in FARS. With regard to passenger-vehicle drivers, 5 percent in NMVCCS were coded as taking alcohol, and 27 percent of the passenger-vehicle drivers in the FARS database were

coded as having consumed alcohol. Of that 27 percent, 23 percent of the passenger-vehicle drivers had a blood-alcohol content of 0.08 or greater, in other words they were drunk. The number for truck drivers in FARS is 3 percent. So almost 10 times more passenger-vehicle drivers were drunk at the time of the crash as truck drivers were at the time of the fatal crashes. So there is mixed data on the condition of truck drivers. There is room for concern with the health of truck drivers because a lot of them suffer these diseases which make them unable to perform the task of driving, like stroke, heart attack, diabetic shock, falling asleep, passing out, etc. On the other hand, truck drivers are more attentive to the task of driving, use less illegal drugs, and use less alcohol when they are driving. Let's move onto on to the fourth misconception.

#### **SLIDE 9: 4—DISTRACTION/INATTENTION: THE NEW THREAT**

Inattention/distraction, the supposedly new threat. The misconception goes that new electronic devices like laptop computers, cell phones, GPS systems, and I am sort of luddite when it comes to electronic devices, so there are probably a lot more, I guess HD radio, and etc. All of these electronic devices promote truck driver distraction and inattention that was not a problem in the past. This is simply not true. From 1994 to 1997, driver inattention was coded as the fourth-highest FARS driver crash factor. In the year 2000, NHTSA recognized inattention and fatigue as such a problem they set up a task force to deal with it. Today FARS data from 2009 shows inattention is now the third-highest driver crash factor for large trucks and the fourth-highest driver factor for passenger-vehicle drivers, so if you average those two together, it would come out as the fourth-highest driver factor, which is exactly the same that it was a decade and a half ago. And I could have gone back way before 1994 and I probably would have found the same thing. Most inattention and distraction has very little to do with new electronic devices. It's daydreaming, talking, reading, looking at a person or object outside the vehicle, reaching for food, fooling with the radio, etc.

Three incidents that come to mind when I think about how inattention/distraction is something that has nothing to do with electronic devices. In the LTCCS, there is a case of a gentleman who went across the median strip, hit a truck and was killed. In this case, it turns out that he had a huge argument with his roommate. His roommate threw him out of the apartment; he put all of his stuff in the car and took off speeding away. He went across the center line and was killed. My favorite inattention/distraction story which probably many of you heard me tell is the trucker who admitted to our crash investigator that he was looking at a woman alongside the road so he did not see the train coming. This truck driver was lucky, the train just turned his truck into a rail car and moved it down the track about a hundred yards, but he lived to talk to the researcher about it. The third story comes from a California Highway Patrolman I was talking to one day. This patrolman said he came across a crash where a gentleman had just totaled his car, but he was okay. The car is totaled and guy was getting out of his car walking over to the officer and he is moaning and complaining about his wife. Apparently he had just had a huge argument with his wife; he jumps in the car, he is rehearsing the argument in his mind and getting angrier and angrier at his wife, and wasn't paying attention, and totaled the car. It had nothing to do with electronic devices. These are the kind of things which used to cause inattention and still cause most of the inattention distractions. Let's go on to the fifth myth.

**SLIDE10: 5—TRUCK VEHICLE PROBLEMS ARE TOP CRASH CAUSES**

Truck vehicle problems are top crash causes. Here again I am talking about mechanical causes. In the LTCCS, the Large Truck Crash Causation Study, when the truck was coded with the critical event for the crash, vehicle problems were coded as the critical reason in only 8 percent of the crashes; while driver factors were coded as the critical reason in 88 percent of the crashes. Ten to one it's driver factors over vehicle problems. The major vehicle problems in trucks would be the usual suspects—brakes, tires, lights—but also being overweight; that was coded as one of the important problems, which is not really a mechanical problem, but a problem nonetheless. In FARS 2009, FARS not only coded the driver crash-related factor, but it also coded vehicle-related factors. Driver factors in 2009 were coded for 31 percent of the large truck drivers, while vehicle crash factors were coded for only 5 percent of the large trucks involved in fatal crashes. Here again it was brakes and tires that were the only two that received a lot of coding. But once again, in this case it's only about six to one driver factors coded more often than vehicle factors. But these are just factors, and they are not actual service for causes like the critical reason is in the Large Truck Crash Causation Study. Okay, let's go on to the next slide.

**SLIDE 11: 6—AMERICANS ARE BAD DRIVERS**

Americans are bad drivers. As I mentioned before, it seems to be we all think we are personally good drivers, but we don't think other people are good drivers, particularly people in other States. So I think in general, in my perception, we have a fairly negative perception of the ability of Americans in general to drive. Just two statistics just blow this away. For large trucks there was 1.79, in other words, a little over one and three quarters large trucks were involved in the fatal crash, and 29 were involved in injury crashes for every 100 million miles traveled by large trucks through the year 2008. This is all data for 2008. It is FARS data and FHWA data. None of this data comes from FMCSA. We are not trying to whitewash anybody here. We are using data from NHTSA and Federal Highway and putting it together to develop these rates. With regards to passenger-vehicle drivers, 1.45 passenger vehicles were involved in a fatal crash and about a hundred were involved in injury crashes per 100 million miles traveled by passenger vehicle. Now noticed that the truck fatal crash rate is slightly higher than the passenger vehicle crash rate, but with regard to injury crashes, the passenger vehicle crash rate is three times higher than the large truck crash rate.

Now 100 million miles equals 17,940 roundtrips from New York to Los Angeles by highway, according to the mileage data I got from Rand McNally. I guess I should have cited Rand McNally as a data source here. That's an awful lot of trips. If you drive 17,940 roundtrips from New York to Los Angeles, and you are driving your passenger vehicle, you can expect that your vehicle will be involved in one and a half fatal crashes. The truth is, in the United States we have safe roadways, safe vehicles, and safe drivers. Our vehicles are safe, the Insurance Institute for Highway Safety has a marvelous videotape of a 1955, 56, 57 Chevy crashing with a 2008 or 2009 Chevy, and the differences in which vehicle crumples up very dangerously is stark. Clearly, the vehicles are getting a lot safer.

And now with air bags, Barbara Harsha from the National Association of Governors Highway Safety Representatives made the statement the other day that the old car that she has has one

airbag in it, and the new car that she just bought for her son has nine air bags in it. You are almost completely enclosed by airbags in new cars, so cars are getting safer. Roadways are getting safer. More and more roadways are divided highways with crash-proof median barriers. We do more and more of our travel on high-quality highways such as interstates and freeways that eliminate intersections and eliminate traffic signals, which makes things safer. And drivers are becoming safer. There has been an enormous drop with regard to truck crashes. In rear-end crashes and crashes where one of the vehicles crosses the center lane. These are crashes between trucks and passenger vehicles. Passenger vehicles do not hit trucks in the rear as much as they used to. They do not cross the center lane and hit them head on. The same is true for trucks. They do not hit other vehicles in the rear as much as they used to. And they do not cross the center line. These are two types of crashes that you look at in FARS and assign which vehicle is at fault, and I am not assigning fault in these cases, but I'm saying in both of these types of crashes, mistakes for both types of vehicles are way down. In the year 2006 there were 2,326 crashes like this, where one of the other vehicles crosses the center line or hit the other from behind. In 2009, only 871—almost a two-thirds reduction in these types of crashes, which almost certainly are the responsibility of the driver not the vehicle or the roadway. So we are not bad drivers.

#### **SLIDE 12: ONLY GOOD LAWS AND ENFORCEMENT NEEDED**

Last, and certainly not least, is almost the biggest myth of all that only good laws and enforcement are needed to get rid of all crashes. Good laws and enforcement are extremely important, that is what we are involved in Federal Motor Carrier Administration. We propose ideas to our policymakers to improve our laws. We try to write regulations that can improve safety based on those laws. We have our major funding that goes to States for truck and bus inspections and other safety activities and enforcement activities, so we are all about good laws and enforcement, and it's extremely important, but it cannot do everything.

Consider two types of crashes: speeding crashes and alcohol-use crashes. Speeding is the top crash-recorded factor for large trucks and passenger vehicles in FARS. It was found in the LTCCS to be a very important cause of crashes, and in NMVCCS, as a very important cause of passenger vehicle crashes. There have been tons of laws, tons of funding, tons of enforcement activities to cut down on speeding, and a lot has been very successful. But there is still a major problem with speeding. We have not been able to get rid of all speeding, even with all of our efforts.

Look at alcohol. According to FARS in 2009, 10,839 people were killed in crashes where one of the drivers was legally drunk. NHTSA has made extraordinary efforts in campaigns. You see the ads on TV all the time, you read about it in the paper, there is outreach, there is enforcement, and there are new laws to try to cut down on alcohol use now. There will be more vehicles equipped with breathalyzers where you would not be able to start unless you pass a breathalyzer test, or the keypads where you cannot get into the car unless you can remember a code and type it in. And the latest thing is, you can tell that someone is drunk by placing their finger on a pad, because some kind of alcohol marker is actual excreted through your skin. So there will be a lot more technology that will be developed, but it's been very difficult to cut this number down to where we would like it, which of course is zero.

What we need—and it is just as important as good laws and effective enforcement—is more personal responsibility. It is absolutely critical. We have major outreach efforts that don't relate to good laws and enforcement, and major campaigns also, like NHTSA does and Federal Highway does also. I remember a story about a man who developed a way to keep his temper away at home or to enjoy his family when he got home at night. When he drove in the driveway and parked in the car. He went up to a tree in the front yard and touched a leaf and said to himself, “I am now leaving all of my work cares, problems, and frustrations here” and then he went in to enjoy his family for the evening. I think we need something like that for car driving, for driving trucks, and for driving passenger cars. I propose a touch-the-wheel campaign. When you get into your vehicle, your car, your truck, or your bus and you touch the driver's wheel, you say to yourself, okay, now I'm going to leave all those cares that I bring with me into this vehicle outside and I will now focus completely on the task of driving. Or maybe it should be a take-control campaign, but we need some kind of effective effort to encourage personal responsibility which can go along with good laws and enforcement to ensure that we cut our crash numbers down considerably. Okay. That is the end of the presentation, and I am now available for questions.

**[41:28]**

## QUESTIONS AND ANSWERS

### **Kirse Kelly:**

This is Kirse Kelly, thank you so much, Ralph, for your presentation. And as Steven said, we are now open for questions. If you want to ask a question you can submit the questions by continuing to just type them in that space at the bottom of your screen. The other thing that you can do is dial star zero as Steve mentioned on your phone. And you will be transferred over to Steve and he will bring you in on the phone line. Steve, are there any questions on the phone line at this time?

**Question:** *Yes. I just wanted to make a comment on the fatal crashes are more likely to occur when they are the fault of the passenger car driver versus injury-only crashes and I would propose that part of the reason for that statistic and the consistency of that is that when fatals occur between heavy trucks and passenger vehicles, most often the ones out of the story that the investigation gets, it is the truck drivers.*

**Answer:** We have heard that before, and I actually did an analysis of that question and it turns out not to be true. Even in crashes where the truck driver is killed and the passenger-vehicle driver survives, the numbers are still very close to that 70 percent /30 percent. I have an analysis brief, I believe is on our Web site, but if you send me an email I would be happy to send you that little study that we did. That's a very logical assumption to make, that the truck driver survives so he gets to tell the story, and that influences the data, but that is really not the case.

**Question:** *I have one question and one comment. First the question, For American drivers being bad drivers, forget that for a moment, but politically correct or not, foreign drivers. Has there been any look at that as being an issue?*

**Answer:** That's a very good question. We could do that with our NMVCCS crash data, I don't know that anyone has looked at that. I know there is a big concern about Mexican drivers, but of course they can only come into the country about 25 miles or so, supposedly, except for a couple of firms. I remember looking at data from California showing that Canadians truck drivers had more crashes in California than Mexican drivers, but I don't know that we have ever done a study just of foreign drivers, that might be a good one to look at.

**Question:** *One of the reasons why I mentioned that Doctor is that we have recognized higher percentages of pedestrian crashes with foreign pedestrians where in their culture, they are not attuned to looking at the same roadway conditions as they might have in their own traditional culture.*

**Answer:** That is a very interesting observation. That sounds like it is probably correct.

**Question:** *And one other comment than with regard to the touch-the-wheel campaign, I think that's a great idea and you should plug that wheel right directly into the car battery, so when they touch that wheel it shocks them into looking at what they are supposed to be doing.*

**Answer:** Well that is an interesting way. Can we make it some kind of a pleasurable shock?

**Question:** *That's entirely up to you.*

**Question:** *I was just curious on your discussion on speeding. Is that basically going faster than the posted speed limit or could also include going faster than conditions are allowed that could be even slower than the speed limit.*

**Answer:** Good question. It is traveling too fast for conditions, so it is not just speeding but also traveling at a speed inappropriate. And that is an interesting thing. People say we will control speeding by limiting trucks to 60 miles per hour. I think that's the proposal from the ATA. While that is fine, you can limit all trucks to traveling 65 miles per hour, but it might be inappropriate to drive 65 miles per hour down Pennsylvania Avenue in Washington DC, or Broadway in New York, or Rodeo Drive in Los Angeles, or whatever. So technology, while it can keep your vehicle from going over a certain speed, it does not prevent you from going too fast for conditions at a speed lower than the maximum speed.

**Question:** *I have heard a different definition for critical reasons. Immediate reasons for critical events that resulted in the crash being inevitable. Can you please explain?*

**Answer:** The way we analyzed the Large Truck Crash Causation data is criticized by a lot of people, but the point is there are lots of different ways you could analyze the data. A number of people that do not like the way we use the data have used it for other types of studies in different ways. Here is what we did. In every crash, there is one vehicle that takes an action or inaction which leads directly to the crash. Then, for that vehicle you assign a critical reason—the reason can either be a driver failure, a vehicle failure or a failure of the roadway or weather conditions. So the critical event is the event that leads directly to the crash and the critical reason is why that critical event happened. Now as I said, a lot of people do not like that way of analyzing crashes have used the cases in the LTCCS and analyze them in different ways for various studies that they have done. The Insurance Institute for Highway Safety just used the LTCCS data in the rear end crash study. Jim McKnight, who is on our committee for the study, did not

like the way we analyzed the data but used our data for a study he did on rollovers. So there are lots of different ways you can analyze the LTCCS and the NMVCCS data, not just the way that we have done it.

**Question:** *Since this section is focused on critical events between two or more vehicles, the LTCCS stat is that the car driver is 56 percent responsible? This is the relevant stat for two vehicle crashes, not the 55 percent attributed to trucks; since that figure includes single-vehicle crashes, a.k.a. two vehicles, please clarify.*

**Answer:** For all crashes, the truck was coded 55 percent of the time with the critical reason. In two-vehicle crashes, the truck was assigned with critical reason in 44 percent of the cases. So the reason it goes up, when you add the single-vehicle crashes it goes up to 55 percent.

**Question:** *And when you are saying all crashes, you mean all truck crashes, right?*

**Answer:** Yes, in the LTCCS. Correct.

**Question:** *Transport Canada research found cars with critical responsibility in 71 percent, is that correct?*

**Answer:** I am not familiar with that study. I do not know whether it covered fatal and injury or fatal and injury and property-damage-only crashes.

**Question:** *In the LTCCS, were HOS violations considered to be critical reasons?*

**Answer:** No, being fatigue was coded as an associated factor which could lead to lots of problems. The researchers had access to hours-of-service data, but just because someone had violated hours of service did not mean that they were coded as being fatigued. And, on the other hand, even if all of their log books checked out and they did not show violating hours of service, they could have been coded with fatigue on the basis of the observation of the researchers at the scene, the conclusion of the police at the scene, what the witnesses said, etc. Hours of service was not used as a marker indicating fatigue.

**Question:** *Did the Large Truck Crash Causation Study get blood or urine samples to assess drug use?*

**Answer:** No. We do not have the right under the law to require blood samples unless the truck is involved in a fatal crash. Then the driver has to be tested. But a huge percentage of our crashes were not fatal crashes, and therefore we did not. This is a problem with our drug data that is true of every other study of drug data. It is very difficult to get absolute good numbers because the drug testing is not done in most cases.

Our researchers were not Government employees, they were private contractors, and this was on purpose so that we would get the testimony or answers to the question asked by our researchers were are confidential and not used against the drivers or the company in any enforcement action. This was done on purpose so he could get a more honest assessment. We had the truck driver who admitted he was looking at the woman alongside the road and that's why he didn't see the train coming, so the crash was his fault. We had another truck driver who was involved in a crash in the middle of the night who told our researchers that he was either asleep or sick, and we used to get statements like this that you would not get if you were using a law enforcement professional.

**Question:** *How many drivers reported as being fatigued were also in violation of HOS rules?*

**Answer:** The determination of fatigue was made by collecting all the information that you could get a hold of. There is no definition of fatigue and there is no absolute sure way of measuring it. This is totally unlike alcohol. It is easy to measure whether someone has been drinking and there is a standard that says, if you are over 0.08 blood alcohol content, you are drunk. So it is a clear way to measure it and a clear and a definition of what it is. This is not the case with regard to fatigue.

I always think of Justice Stevens when people start talking about fatigue. In the case involving pornography before the Supreme Court, Justice Stevens says I cannot define what pornography is but I know it when I see it. The researchers at the scene had access to log books. They had access to the conclusions reached by our State Truck Inspectors which are trained as level 1 North American Standard Truck Inspectors. They had access to the first police that got to the scene, they had access to witnesses, and they asked a lot of questions about fatigue and the truck driver and anyone else and then had to make a decision as to whether the driver was fatigued or not.

We had one case that sticks in my mind. The driver's log book was absolutely clean indicating he hadn't violated hours of service. Everything was fine. He kept falling asleep between interviews with the police officers at the scene, with the truck inspector at the scene, and with our researchers at the scene, so we coded him as being fatigued, even though there was no evidence in the log books that he was violating hours of service. We could run the numbers to see how many people coded with fatigue were also in violation of hours of service, but we haven't done that. If the person asked that question would send me an email, I think that would be a very interesting thing to run on our database.

**Question:** *Did NMVCCS determine fatigue in the same way but with passenger-vehicle drivers?*

**Answer:** Yes, the same way. The only difference was there was no truck inspector at the scene of the NMVCCS crashes, it was the same research. In fact, a lot of the researchers that were used in the LTCCS were also used in NMVCCS. The exact same researchers because the data was collected in the same 24 sites across the country just a couple of years after the Large Truck Crash Causation Study was done. They just shifted it over and did NMVCCS, but the coding of it was exactly the same.

**Question:** *Can you address the oversampling of single-vehicle crashes in the LTCCS and how that affects the truck driver related findings e.g. fatigue as an associated factor?*

**Answer:** We probably oversampled the single-vehicle crashes by some significant amount, which might have raised the fatigue number. On the other hand, we probably underestimated the number of drivers that were fatigued because we coded 16 percent unknown. If we had excluded those 16 percent and just derived our figures on the yes and no, the fatigue number would have been higher.

**Question:** *How does these statistics compare to Europe?*

**Answer:** The main thing in Europe, we had a presentation on the European Large Truck Crash Causation Study just last week. A gentleman from the International Road Transportation Union was in our office. The main thing was that they found exactly the same thing in terms of, it is the driver. Their numbers were something like 85 percent of the crashes were the responsibility of the driver as opposed to the vehicle, or the roadway, or the weather. Other than that, the study in Europe was done in seven countries and they didn't have as many crashes studied as we did, but they tried to do it uniformly in the seven countries.

**Question:** *I was just curious as to how the statistics would pan out for just hazmat vehicles?*

**Answer:** That's a good question. As you probably know, hazmat is only involved in about 5 percent of fatal crashes, which is trucks carrying hazardous materials. And in a study of our size, we did not get a good number of hazmat vehicles to make any determination with regard to hazmat. There just were not that many trucks carrying hazmat.

**Question:** *So whether it was involved in the single vehicle or passenger vehicle?*

**Answer:** I don't know the answer to that. We really haven't done much analysis with database because it is just a small number of crashes. If you send me an email, that would be an interesting thing to look at. But when we are trying to get a representative sample of the whole country, I don't think we could assume that what we could come back with would be represented the whole hazmat carrying industry.

**Question:** *We have with regard to the stated misconception about light vehicles being attributed with 70 percent of fault in heavy vehicle/light vehicle interaction, did you incorporate naturalistic research funding by a Dr. Hanowski where a naturalistic local short-haul data set and the 100-Car Study was used and findings indicated that indeed 78 percent of these interactions were initiated by light vehicles?*

**Answer:** No we did not. I did not use the Naturalistic Driving Studies in this analysis. The Naturalistic Driving Studies are very good at seeing what the driver is doing at the time of the crash. The problem is there are very few crashes, thank goodness. Our study probably underestimated inattention, distraction, and fatigue because we couldn't actually observe the drivers before the crash. On the other hand, which is the strength of the Naturalistic Driving Study, to get that kind of data. On the other hand, the Naturalistic Study just does not come up with many crashes. So I think it is difficult to extrapolate from the number of crashes in those studies to the population as a whole.

**Question:** *You noted that the distraction rate is the same as 15 years ago and concluded that electronic devices have not affected this rate, but this seems contrary to other USDOT data. Does your data identify specific distractions so that you can rule out the possibility that electronics have not replaced other distractions?*

**Answer:** That's a good question. At the time we did the study, there really was not the proliferation of numbers like texting and everything, so we did collect data on cell phones in vehicles, but we just did not get much. So I think what you're saying is, maybe there is the same amount of distraction but now there is less distraction of the old type of distraction and more of the new type that very could be the case. You are just getting substitution of less fooling with the radio and more fooling with the texting or computer or whatever. This was a study in time from 2001–2003 before the new electronic devices were really identified as a problem. But distraction and inattention clearly was a problem way before those devices.

**Question:** *Can we have a copy of Mr. Craft's report?*

**Answer:** Well, I didn't put it online. I mean, it will be put up on our Web site I believe. I can send it to anyone who sends me an email. That email address is [ralph.craft@dot.gov](mailto:ralph.craft@dot.gov).

**Question:** *And they were asking about a report rather than a presentation.*

**Answer:** There is no written report, but we may be publishing an article or something on this. I have written a little piece for our internal newsletter, but we may be trying to reach out and published this somewhere else.

**Question:** *So what do you attribute to the reasons why crashes are down in rear end or crossing the center line?*

**Answer:** I am hoping that it is better driver behavior. It also may be that obviously in a recession, truck crashes went down enormously. We think our

programs had something to do with that, but clearly the recession had a lot to do with the fact that there were fewer trucks on the road. Everybody knows that there were fewer trucks on the road, and I'm sure that played a part. In terms of the head-on crashes, you are getting a lot more roads with real good median barriers so it's more difficult to cross the center line and have a crash. In the second half of last year, vehicle miles traveled started going up again. Trucking is a leading economic indicator, in other words, trucking will recover faster than the economy as a whole because you are shipping out the stuff that people are going to make something with. I hope that the truck numbers do not increase, but it will be interesting to see if it does turn around. We have had enormous progress in the past 2 years and I hope that is not all just because of the recession.

**Question:** *Should speeding be defined as either exceeding the posted limit, or as for conditions? Also is in terms of speeding crashes, does the 70 mi/h speed limit have a lot to do with this?*

**Answer:** We define speeding as going too fast for conditions. I am not sure that we can divide that data into those where the car was going over the posted speed limit or not, because that's not the way we looked at it. I don't know if you could do that with FARS data. Because it comes primarily from police reports and it might have better data on the posted speed limit than we got, I'm just not sure. There is a big debate over whether raising the speed limit has contributed to more speeding crashes, and I'm not in a position to summarize all of that data in 30 seconds or a minute, that would take hours.

**Question:** *Is that LTCCS database a representative sample of heavy-truck crashes? The question is, can the percentages calculated from LTCCS be applied to the overall population of heavy-truck crashes?*

**Answer:** We believe it can be applied to the population of fatal and real injury crashes. When we look at the basic LTCCS numbers in terms of the types of trucks, the types of crashes or whatever, it pretty much matches up with FARS and GES data. FARS, of course, is a complete census of crashes and the GES data is an estimate which is used for injury and property-damage-only crashes. And the numbers we got in LTCCS, for example, on the types of trucks, is very similar to the distribution that you would find in FARS and GES. So we think it is a pretty good representative sample.

**Question:** *The "touch-the-wheel," is there any FMCSA program in which this is the core emphasis, and if so, what are they?*

**Answer:** No, I just literally made this up last night. I have been thinking a long time about that guy who touches the leaf and says I am now leaving all my troubles from outside the family here before I go in and meet my family. And that is not clear if on the way back to work he touches the leaf and says I am going to leave all of my family arguments here and clear my mind and go to work, but it was just an idea I had. This is my personal opinion not based on any data. We need some kind of a better slogan than

what you say every time your teenager leaves the house. You say “be careful” obviously that does not work. Something like “take control of your life” because teenagers like to be in control of everything, or touch the wheel or something other. We need to do a better outreach campaign, and you need someone who knows probably a lot more about psychology and sociology than I do.

**Question:** *Are we ever going to have a campaign directed at small-vehicle drivers operating near and around trucks? Or what about other options for the campaign?*

**Answer:** That's a good one. I know when I got my license; there was absolutely nothing in the 50 or 100 page booklet I got from the Missouri Department of whatever that I had to study to pass the test. There was absolutely nothing in there about driving around trucks. Now I thought I heard a couple of years ago that there were some people conducting the campaign to make sure written into all publications for new drivers, when you drive around trucks there are additional precautions you have to take. I hope that has been done, but I don't know.

**Question:** *Who makes the critical reasoning determination from these findings, is that the officer on the scene?*

**Answer:** That's a good question. There is a four-stage process for coding the crashes. The researcher at the scene collects all of the data and makes determinations of the factors that he or she thinks were present at the time of the crash. Then all of the data went to one of two NHTSA zone centers where the critical event and the critical reason were coded. Then those reports were reviewed by two additional crash experts to see if they agreed with that conclusion. So that is the third step. Then, if there was a disagreement between the people who coded the critical event and the critical reason and the people that reviewed that reason, it was appealed to a so-called super committee that sat in Washington DC and included people from NHTSA, from the zone centers, myself, and also an additional outside crash expert. So it was a four-stage crash-coding ladder before we reached any firm conclusions. Obviously if there is no agreement between the people that coded it and the people that reviewed it, then it only went through three stages, but if there was a dispute, it could come to a so-called super review group in Washington, DC.

**Question:** *DOT reported that the number and rate of traffic fatalities fell to the lowest levels since 1949 and has dropped in each of the past 5 years. What do you attribute the improvement to the most? Do you expect the trend to continue?*

**Answer:** I think it is a lot of things. I think that drivers are getting better. I think that cars are getting better; roadways are getting better, and the recession. So it will be a challenge to keep that number going down. I just said that we have very safe drivers, safe roads, safe vehicles, the trend has been going down. Even so, 32,000 people killed on the highway—that is an enormous

number. For anyone who is under 30 years old, the most likely cause would be death in a motor-vehicle crash. We kill our young on the highways and that is unacceptable at any number.

**Question:** *My concern is the negative impact nonpreventable crashes have on CSA's Crash Indicator BASIC—could this data be used to help create and require jurisdictions to use a CMV Accident Report?*

**Answer:** We have a project where we are looking at it. There has been no decision made yet to look at coding CMV crashes that we get for whether the carrier was accountable or not. It is controversial, it is expensive, and it is difficult. We are considering doing something in that area.

**Question:** *How does the U.S. truck-crash data compared with other developed countries?*

**Answer:** Well in terms of the actual rates, I am always hesitant to actually compare rates because you have different cultures, you have different roadways, you have a lot of the same vehicles, but you have different population densities, etc. But one thing that has happened in most of the developed countries is that there has been a big drop in the number and rate of motor-vehicle crashes. Of course most of the developed world has suffered from the so-called great recession, so that is undoubtedly a factor. I can't explain why virtually every economically developed country in the world is seeing a drop in their crashes.

**Question:** *If cars are not the cause of the majority of crashes between cars and trucks, why did Washington State have such success in reducing collisions as a result of their TACT or Ticketing Aggressive Cars and Trucks Program?*

**Answer:** I don't know the answer to that, but the State of Washington was one of the States that showed the largest decrease in large-truck crashes over the past 3 or 4 years. But, I think also Washington, Oregon, Wyoming, for some reason, States in that area were more successful in cutting down on truck crashes recently than other areas of the country.

**Question:** *LTCCS, in two-vehicle crashes, associated factors found car drivers twice as fatigued as truck drivers.*

**Answer:** That's true. It was like 15 percent to 8 percent. It was actually 7.5 but if we rounded it is 8 percent. That is true that in two-vehicle crashes between cars and trucks, the car driver was coded as being fatigued twice as often as a truck driver.

**Question:** *What percent of trucks do you know had brakes out of adjustment?*

**Answer:** We have that number; I just don't have it on the tip of my tongue right now. Now here again, just because brakes were out of adjustment doesn't mean they were coded as being a critical reason for a crash. I will give you a perfect example. There was a crash in one area where a truck was going down a mountain. The truck driver knew the brakes were faulty before he

started down but he thought he could handle it. He started down and realized that he couldn't handle it, so he forcibly put the truck into a rollover situation so it would brake the truck so it didn't fall off into the canyon. So the truck had brake problems, but we coded the driver with the critical reasons because he made the decision to drive with faulty brakes.

**Question:** *You keep referring to researchers at the scene of the crash. Who are these researchers; and how do they end up at the scene of the crash?*

**Answer:** Good question. The data was collected in 24 primary sampling units. That is NHTSA-speak for around the country. There were 24 of these located in 17 States everywhere from King County, New York to King County in Washington State, and from Hollywood, Florida to the other Hollywood in Los Angeles, 24 of these sites. In each of these sites, NHTSA collects data every year and they employ fulltime researchers. For the LTCCS these fulltime researchers were given a crash course in truck crashes and in collecting more data than they usually collect, so most of the people who collected data for us were already employed in these 24 sites. They were fulltime employees of NHTSA contractors; they were not Government employees but they were employees of NHTSA contractors who had experience working on crashes before the LTCCS, and a lot of them stayed on and worked on NMVCCS after the LTCCS was completed.

**Question:** *Has the data differentiated vehicles between 10,001-26,001 and vehicles over 26,001?*

**Answer:** Yes, we have that data. Here again, I don't have that on the tip of my tongue, but we collected data on the gross vehicle weight rating of trucks and we also collected data on the truck configuration so we can break it down. I know for a fact that at least two-thirds of the crashes involved tractor semi-trailers which, of course, were way above the 10,000-pound figure. But there was a report to Congress that I wrote that is on our Web site on the LTCCS, and I have another paper that I did for a conference a couple of years ago which breaks down some of the data, but mainly by truck configuration, not so much by the weight.

**Question:** *Washington State has been conducting a "Be careful around trucks," campaign for about 5 or 6 years and has had very good results and a wealth of data, so something that people could check out online.*

**Answer:** I would love to have a copy of any study that has been done on that. That would make interesting reading. Because, like I said, Washington State has had one of the largest decreases in truck crashes over the past 5 years.

**Question:** *Do you agree with the National Safety Council statement that every accident in which a driver is involved shall be considered preventable unless there was no actions which the driver could have reasonably taken to avoid the accident, and that his actions in no way contributed to the occurrence of the accident? The driver must drive in such a way that he commits no errors himself and so control his vehicle to make due*

*allowance for the condition of the road, the weather or the traffic, and so the mistakes of other drivers do not involve him in an accident. So I guess the question is, did you agree with that statement?*

**Answer:** That sounds like something that ought to be run by our policy people before anybody that works at FMCSA either agrees or disagrees.

[1:25:55]

**Kirse Kelly:**

That concludes our webinar and thanks to everyone who participated and especially everyone who stayed on the phone line to go there with us to continue. We just want to ask you for a few more things. One is, if you could just fill out our evaluation for this webinar, and that should have come up on your computer screen, you should be able to switch to that window, because we really value your feedback and we would really like to get your comments and your suggestions. If you have any additional comments or questions you would like to ask us directly, you can send an email to [FMCSA\\_host@dot.gov](mailto:FMCSA_host@dot.gov) or to Dr. Ralph Craft at [Ralph.craft@dot.gov](mailto:Ralph.craft@dot.gov). Now you can still download the presentation in the box on the right-hand side of the screen. Just highlight the document in the download presentation pod and you click –save to my computer.” Thank you everyone again for your participation and your interest in this webinar and in future webinars. And thanks also to Steven our phone operator.

[1:27:18]