



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

OFFICE OF ANALYSIS, RESEARCH, AND TECHNOLOGY

Bus Crash Causation Study April 23, 2008

Webinar Transcript

Presenter

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

Speaker

- Kirse Kelly, Web Conference Host, FMCSA ART

Description:

The Bus Crash Causation Study examined 40 buses involved in 39 crashes in a two-year period in New Jersey. The webinar will examine the reasons for the crashes and describe factors for the buses, other vehicles, and pedestrians involved in the crashes.

PRESENTATION— BUS CRASH CAUSATION STUDY**PRESENTATION TITLE SLIDE: BUS CRASH CAUSATION STUDY****TORI (OPERATOR):**

Welcome and thank you for standing by. At this time, all participants are in a listen-only mode. After the presentation, we will conduct a question and answer session; to ask a question at that time, please press *1. This conference is being recorded; if you have any objections, you may disconnect at this time. I would now like to turn you over to the Web Conference Coordinator, Kirse Kelly. You may begin.

Kirse Kelly (Web Conference Host, FMCSA ART):

Thank you Tori and thanks to all who are participating in this webinar today. Welcome, it's on the Bus Crash Causation Study and this webinar is part of the series put on by the FMCSA, Office of Analysis, Research and Technology. Throughout the webinar, you will be able to submit questions in the **Q&A Box** which is on the left side of your screen, throughout the presentation. As Tori mentioned, time permitting, all questions will be answered at the end of the call. You will be able to both submit questions online and ask questions over the phone line at that time.

Please note, you're going to be given the opportunity to receive a copy of the presentation at the end of the webinar. That's a favorite question of people, and the answer is "Yes."

Members of the trade or local media participating in today's call are asked to contact our Office of Communications at 202-366-9999 at the webinar's conclusion.

Now, let me turn you over to Dr. Ralph Craft.

Dr. Ralph Craft (Senior Transportation Specialist, FMCSA ART):

Thanks. Hello out there in Internet Land.

I've developed this presentation, but had a lot of help. Magdalene Skretta put the data, a lot of the data together for me, Suzanne Cotty handles our database, and Kirse Kelly took my PowerPoint draft and made it look pretty like it is. All three are contractors; we use an awful lot of contractors here.

The study, the "Causes of Motor Vehicle Crashes" was mandated by the Motor Carrier Safety Act of 1999. We did the truck study part of it in 2000 to 2004. I can send you a PowerPoint presentation that I did last week on the truck study or you can access information about the truck study on our Website. The bus study was done from 2004 to the present. All data for the study was collected in 2005 and 2006.

SLIDE 2: TRUCKS AND BUSES IN FATAL CRASHES

Let's put bus crashes in perspective. In the nation, in those two years, 2005 to 2006, there were 9,683 large trucks involved in fatal crashes. There were 579 buses involved in fatal crashes. Of those buses, 70 were motor coaches. Motor coaches represent seven-tenths of one percent of all large trucks and buses that were involved in crashes in those two years.

All the data for the study was collected in New Jersey. In the truck study, we had a national sample of the crashes drawn through the NHTSA General Estimate System. However, with buses you really can't do that through the NHTSA system because buses are even more rare than trucks are on the road as we saw from the crash data. We chose New Jersey—because the first reason is that New Jersey has more bus crashes than the average state. Nationally, all types of buses represent six percent of fatal crashes; in New Jersey, they're 15 percent of fatal crashes. Secondly, New Jersey has a wide variety of buses: chartered tour, regular route intercity buses, long-distance transit, short-distance transit, school buses and Jitney service in major cities. Thirdly, FMCSA has strong bus program in New Jersey. Our number one bus expert in our agency is Wes Barber, who is stationed in New Jersey.

SLIDE 3: CRASHES IN STUDY – 39 IN NEW JERSEY

Let's look at the crashes from several points of view. First, from the point of view of severity—of the crashes involved in the study, there were 39; 14 involved at least 1 fatality and 25 were injury crashes. We did not collect data on any property damage-only crashes. We only wanted the more severe types of crashes.

Secondly, let's look at the crashes by configuration. In 24 of the crashes, there was a collision of bus with other vehicles. Almost all were passenger vehicles: cars, SUVs, vans, minivans and sport utility vehicles. We had two crashes with motorcycles, and one with a light rail vehicle. Nine involved crashes with pedestrians. This is one thing that is very different than the truck study. The truck study had no crashes between a truck and a pedestrian. However, in this study, almost 25 percent of the crashes involved a pedestrian or pedal cyclist. "Pedal cyclist" is the official term that NHTSA uses for bicycles. It sounds a little shady, but we thought we better use NHTSA's term. We would prefer "bicycle" or "bicyclist." Six of them were single-vehicle crashes and two of these were bus fires.

SLIDE 4: BUS TYPE—40 BUSES

Thirdly, let's look at the type of buses involved in these crashes. We had 40 buses involved in the 39 crashes. There was one crash that had two buses. Twenty-six of the buses were motor coaches. Five of these were the type that are manufactured for transit use. There were five transit buses, three school buses, three large vans (not minivans, but the larger ones that carry twelve or fifteen passengers), and three small buses—those that carry about 25 passengers.

SLIDE 5: BUS OPERATION

Fourth, let's look at the buses by the type of operation. Fifteen were charter operations; ten inter-city regular route bus runs; four private buses, or those operated by businesses; four were transit; two school; and four other [type of operations]. By private business we mean things like airport buses, buses that carry people to hotels, rental cars or buses for airline employees, or buses owned by private business in some other way. It could be condos running buses to a transit stations, for example.

Some of the other classes of buses—we had a Jitney bus involved in one crash. We had a van carrying mentally challenged people home from an outing and that sort of thing.

SLIDE 6: BCCS CRASH CODING

The methodology for coding the crashes is based on the large truck crash causation methodology which we used for our large truck study. This methodology was funded every year by Congress as we did that study, and now this one. It was copied by NHTSA for their National Motor Vehicle Crash Causation Study which they ran for several years and just wrapped up last year; and endorsed by crash experts.

There are three things that are coded, three major things coded in this methodology. One is the *critical event*: the event that happens—or the event after which the crash is unavoidable. It's the event which puts the vehicles in a course that makes the crash inevitable.

The second thing that's coded is the *critical reason* for the critical event. It's the immediate reason for the critical event. This doesn't mean that it's necessarily the cause of the crash. We know that causes often happen away from the immediate event. For example, alcohol consumption several hours before a crash; or the lack of sleep the night before; or driving fifteen hours, for example. But the critical event is a pretty good surrogate for which vehicle would be found at fault for the vehicle because it was the reason for the immediate event that put the vehicles on the collision course.

Thirdly are *crash associated factors*. We coded all factors selected from the current understanding of factors that could be related to crashes and that were present at the time of the crash. We coded hundreds of associated factors, close to a thousand for the bus study. Even more for the truck study. So those are the three.

Now let's look at these factors.

SLIDE 7: CRITICAL EVENTS CODED TO BUS

In the 39 crashes, the critical event and critical reason was coded to the bus in 19 of the 39 crashes. That's as close to 50 percent as you can come when you have an odd number. In those cases where the critical events and critical reasons were coded to the buses, these are the critical events that the buses were involved in.

In five cases, a pedestrian or pedal cycle or a bicycle was in the lane; four of these were pedestrians, one bicycle. Since the pedestrians and the bicyclists were in the lane, how could the critical event be coded to the bus? That means that these people were in the lane of traffic legally, and the bus didn't see them for some reason. Therefore the event that put the vehicle on a collision course was the responsibility of the bus. In the other four cases involving pedestrians, the pedestrian was coded with the critical event and critical reason.

In four cases, the critical event was a lane change; either changing a lane to the right or the left or going off the roadway.

In three cases, like the pedestrian, another vehicle was stopped in the lane legally. The bus didn't see it for some reason and plowed into it.

In three other cases the bus was traveling too fast. Then there was scattered other events.

Those were the critical events coded to the bus.

SLIDE 8: CRITICAL REASONS CODED TO BUS - 19

The critical reasons that lead to these events, the nineteen reasons—fifteen of the nineteen were driver related. “Inadequate Surveillance” was the number one reason coded in six crashes. “Inattention” was coded in four. “Following too Close” in two and then three other scattered reasons. All these are driver related.

In three cases, a vehicle factor was coded. In two cases, bus fires which started without any provocation from running off the road and hitting anything. In one case, brakes failed and that made the critical reason for the critical event.

We had one case that was blamed on the environment, in this case weather—ice being on the road. Environment includes both road conditions and weather conditions.

Of these nineteen, overwhelmingly then, the critical reasons were coded to the bus driver.

The discouraging thing to me is that many of the things coded aren't really illegal and would be very difficult to be made illegal, and if they were illegal, very difficult to enforce. For example, Inadequate Surveillance. When you drive a vehicle you are supposed to be aware of the whole environment. You are not just supposed to be focused “laser like” on the lane that you're travelling in; you're supposed to understand what is going on around you. In six cases we found that was not the case. I don't know any state where that's illegal.

Last week I said that inattention isn't something that's illegal either and somebody said that there is one state now that has passed a law that inattention is an illegal activity. But the difficulty of enforcing that, placing the burden on a police officer to enforce—to cite people when they're not attentive, has got to be fairly tough. Following too close is something that is illegal in many states and is often coded by police officers in crashes.

SLIDE 9: CRITICAL REASONS NOT CODED TO BUSES - 20

Let's take a step and look at the other vehicles. We've looked at the critical events and the critical reasons that were coded to the buses; here are the other vehicles.

In 16 of the 20 cases there was another vehicle. In four cases, it was with pedestrians. The critical events—in five cases, the vehicle was entering an intersection or roadway, obviously not being aware of either the traffic signal or a traffic control device or the fact that another vehicle was coming; three cases of traveling too fast; three cases of lane change or running off the road; two cases where the bus was stopped in the lane and the other vehicle did not notice it; and three other scattered events. In four cases, pedestrians were in the roadway when they should not have been in the intersection or the roadway.

SLIDE 10: CRITICAL REASONS CODED TO OTHERS

Here again, reasons—in this case, all of the critical reasons were coded to the drivers. All 16 of the cases where the other vehicle was given a critical event, all of the critical reasons were driver reasons.

We have 16 cases. In five of the cases, the vehicle was travelling too fast or too slow. There was one case where it was going too slow for traffic, and this is obviously a driver decision and this is the critical reason for the crash. We have four cases of non-performance; that means that the driver was asleep, impaired, sick in some way or he/she was unable to perform the task of driving. You'll notice that none of the bus drivers were coded with non-performance as the critical reason, but four of the other vehicle drivers were. Third, inattention or distraction—three drivers, and then four other scattered cases. With the pedestrians, the four cases when the pedestrian was coded with the critical reason, the reason was entering the intersection or the roadway.

SLIDE 11: BUS DRIVER AGE

Let's look at one thing that we decided to add to this presentation which has come up as an issue here—the question of the bus driver age. This table compares—has the age of all of the drivers divided into two different columns; one where the driver was coded with the critical reason for the crash and one where the driver was not coded with the critical reason for the crash.

Looking at the totals of the 39 total drivers, two-thirds of the bus drivers were over 50 and almost one-fourth over 60 years old.

There were only minor differences between the drivers coded with the critical reason and those coded without the critical reason. I guess with the exception of the fact that there were six of the [eight drivers under 40] not coded with the critical reason . . . and only two of those [eight drivers were] coded with the critical reason . . .

I looked up some data this morning, FARS data on drivers of vehicles, drivers over fifty. In FARS data over the last ten years, 42 percent of the bus drivers involved in fatal crashes were

over 50. Only 32 percent of the large truck drivers involved in fatal crashes was over 50. Only 28 percent of passenger vehicle drivers involved in crashes were over 50. So there is data that bus drivers tend to be older than drivers of most other vehicles; older than the drivers of other vehicles involved in the fatal crashes at least. But let's go back to that.

Even though there are slight differences here, since there are only 39 cases in this study—I mean, I don't even want to use percentages when I put these numbers up before other people—to draw any firm conclusions about the differences based on dividing 39 crashes into the two categories, would be really a stretch. That's why you don't see any percentages in this study, and I want to caution anybody for making decisions about which way the data points, because we're really talking about a very few cases here.

SLIDE 12: VEHICLE OOS VIOLATIONS

Let's look at the driver and vehicle violations; the vehicle violations first and then the driver violations of the buses involved in this study.

Of the 19 buses coded with the critical reason, five had out-of-service violations. In this study, we got a state trooper who was certified to do a level-one inspection of vehicles and had training to do post-crash inspections. In New Jersey, we tried to get, and in most cases did get, inspectors that had done inspections at bus crashes because bus crashes are a little more frequent in New Jersey than other states.

When we say that there were five out-of-service violations in those 19 buses coded with the CR, that means that they had five out-of-service violations before the crash happened. There are ways that you can look at a vehicle and study it and understand whether the violation was as a result of the crash or it was in evidence before the crash. Of these that were coded with the critical reason, five were brakes, two repair and maintenance violations, two lighting violations and three others.

Of the 21 buses that were not coded with the critical reason, two had out-of-service violations. You will notice there are two out-of-service violations, but there are six out-of-service violations here. That means a single bus can be coded with more than one violation. Those columns do not add up to the number of buses cited for out-of-service violations.

In total of the 18 violations, six were related to brakes. This is very consistent with the data from the truck study. The major problem in the truck study was brakes and to the extent that we have a little data here, it looks like the brakes are also the problem.

SLIDE 13: DRIVER OOS VIOLATION*

Now let's look at driver violations. Of the 19 buses that were coded with the critical reason, five of the drivers had out-of-service violations, and three had expired or no medical certificate, which is not an out-of-service violation, but it is a violation under Federal regulations.

In one case there was no CDL; in one case the driver was driving longer than 10 hours; in one case the driver had a CDL but there was no passenger endorsement. In two cases there was

reckless operation of the vehicle, and in one case there was driving too fast for conditions. These were all of the nineteen buses that were coded with the critical reason.

In the 21 buses that were not coded with the critical reason, there were no drivers that had out-of-service violations, so out-of-service violations on the part of the driver may be a relationship for coding for the critical reason.

SLIDE 14: DRIVER VIOLATION AND SUSPENSION HISTORY

We also looked at the driver violation and suspension history. Again, divided into the buses coded with the critical reason and the buses coded without the critical reason.

Let's start with those coded with the critical reason. Eighteen of the 19 drivers that were coded with the critical reason had a violations history occurring between 2000 and 2007. There were 24 violations among these 18 drivers. The violations are listed here.

Sixteen of the 21 drivers that were not coded with the critical reason also had a history of violations between 2000 and 2007. The remaining five drivers in that category had violations that occurred prior to the year 2000.

This is all data from our MCMIS database, and also the CDL database. The violations listed are those that occurred most frequently in the driver history files available to FMCSA.

There were at least six drivers that were driving without an active driver's license; two with the buses that were coded with the critical reason; and four were bus drivers of buses that were not coded with the critical reason.

There were eight drivers that had prior license suspended; nine were charged for improper lane change, turning or passing; 12 failed to obey a traffic sign or light or traffic control device; and speeding was recorded in 15 cases. So there were a number of violations in the history of the drivers involved in this study.

SLIDE 15: SUMMARY

Just to give a summary of the results—basically, in half of the crashes, the bus was coded with the critical reason for the crash, and almost in all cases the reasons were drivers. This is very consistent with the results from the truck study. In the truck study, in 55 percent of the truck study cases—963 cases—the truck was coded with the critical reason for the crash. In 88 percent of those cases the critical reason was coded to the driver. It's very consistent to what we found in the bus study.

Secondly—these results are very similar to the Large Truck Crash Causation Study.

Thirdly, this would seem to indicate that FMCSA should focus its efforts on bus drivers and their working conditions. In other words, not just the bus drivers, but their employers, because

employers do have an impact on the employee behavior. We ought to focus our resources on bus drivers and the people that employ them.

SLIDE 16: IMPLICATIONS – IT’S THE DRIVER

The implication from the study—this should be fairly obvious from what we’ve already talked about—is that it would be a good idea for us to focus more on drivers; drivers during the inspections that we pay the states to do. We pay states about \$300 million a year. A large percentage of that money goes to inspect trucks and buses; about 3 million roadside inspections a year. We inspect both the vehicles and the drivers. This would seem to indicate that we need to concentrate a little more on driver inspections than we have in the past.

Secondly, is to make sure the commercial drivers’ license system works. This is the system whereby serious violations in one state are communicated back to the state that holds the driver record, where the driver is licensed. Then when this information is exchanged to the home state, the home state can take action against the driver based on convictions in other states. We need to make sure that the system works and drivers are being held accountable for their actions in other states by their home state.

Thirdly, traffic enforcement is extremely important; not just concentrate on the drivers during roadside inspections, but also during traffic enforcement and make sure that people that violate traffic laws are punished.

Fourth would be to develop a driver rating system similar to the carrier system that we have. We rate every interstate motor carrier in the country on which we have significant data; data with regard to crashes, inspections—both vehicle inspections, driver inspections—and their compliance review history—their other safety history that we have information on. We are working at developing a driver rating system similar to a carrier rating system. This would seem to be a good idea based on both the truck and the bus study.

Fifth thing is human factors research. There are other modes inside of DOT that regulate operators of transportation vehicles, such as the Federal Aviation Administration has regulations for pilots, the Federal Railroad Administration has regulations for train engineers, MARAD, the marine agency, has regulations for operators of ships and boats—all of these. And we need to do a better job of looking at the human factors research of these other modes, and also outside of DOT, accessing more information and research on driver behavior to see what we can do about it. As I said before, one of the discouraging things is that a lot of the behaviors that led to these crashes were not really illegal and if they were illegal, they would be very difficult to enforce. So we really need to do more than to just pass new laws and regulations; but figure out how to incentivize people to learn to drive more safely and to operate safely on the roadways.

We could also narrow the focus of critical vehicle areas to those areas that show up the most, particularly brakes, which shows up in this study as the number one vehicle factor and also was the number one vehicle factor in the truck study.

That's about it. If you were listening last week, this is only about half as long as last week, but the study was quite a bit smaller. With the limited number of cases, our ability to do sophisticated data analysis was non-existent.

I'd be happy to answer any questions that people have right now.

SLIDE 17: CONTACT INFORMATION

[30:30]

QUESTIONS AND ANSWERS

Kirse Kelly: At this time if you'd like to ask a question, you can submit questions in the **Q&A Box** which is on the left side of your screen. You can also press *1 in order to ask questions over the phone, and state your name to the recorded message. When your line is open, Tori, our phone operator will announce you by name., so please state your name clearly for that proper pronunciation. Questions will be answered in the order that they are received. Once again, please note, you will be given the opportunity to receive a copy of the presentation at the end of this webinar. If you have to leave early, you can come back later today or tomorrow and you'll be able to download a copy of the presentation at that time.

Guest: What bus types made up the majority of the remaining 509 buses involving vehicle fatalities?

Dr. Ralph Craft: Alright, that relates to slide number two, I think. Let me go back and check that out.

There were 579 buses involved in fatal crashes in the years 2005 and 2006. About 80 percent of those were transit buses or school buses. It says they're motor coaches. We had some transit buses in our study. NHTSA classifies buses on the basis of how they are manufactured. This category—when I say 80 percent were transit or school buses it means they the vehicle is manufactured for transit service or manufactured for school service.

Now, if a school-type bus is used as a charter to haul the Damascus football team from Maryland over to Virginia to play Lake Braddock High School, that school bus is now being operated as a charter bus and would be under our regulation. Since NHTSA does not collect data on the operation of motor vehicles, just on their manufacturer—because that's what NHTSA's job is, to specify regulations for manufacturing vehicles—we can't tell exactly how many of those 579 buses involved in crashes were used in operations that we regulate. The closest—best estimate—we can get is to look at motor coaches because most motor coaches are operated either in charter service or tourism

service. That's the kind of operations we do regulate. Most of those other 579 buses were manufactured to be either school buses or transit buses.

Paul Murphy: *What definition of motor coach was used?*

Dr. Ralph Craft: Here again, it's NHTSA's definition of motor coach, which is an over-the-road vehicle which is manufactured to haul people long distances with a high platform for the passengers, baggage underneath—that type of a bus. A Greyhound-type bus.

In some states those types of buses are used in transit service—long distance transit service. They are used in transit service in New Jersey for regular transit to take people into New York City, for example.

William D. Willford:

How does the driver's violation history compare to the overall driver history? Does this indicate that violation history shows a tendency to have accidents?

Dr. Ralph Craft: That's a good question. I don't have any answer to the first part of that question. We didn't compare the bus driver violation history to that of all drivers, so I am not sure about that.

The second part of the question—does a history of violations mean that you are more likely to have a crash—there isn't any firm research on that that I know of either. There is research showing that truck drivers that have crashes are the group that is most prone to have another crash. If you had a crash, you are much most likely to have another crash.

I don't know about the research on the violations history.

Kirse Kelly: Tori, are there any questions on the phone at this time?

Tori (Operator): Yes, thank you. The first question is from Norm Littler.

Norm Littler: *Hello Ralph. It's Norm Littler with the American Bus Association. I've been fairly critical I guess over the course of this study at the narrow limits, and just limiting simply to the state of New Jersey rather than a national study that would give us a little more information. However, what you have gathered I think is quite interesting.*

One of the questions that comes to my mind is—and I think you've answered partially—was you recognized that there is a large number of motor coaches operating in New Jersey that operate for New Jersey Transit. But one of the questions I have is that, of the buses involved in the crashes and the drivers, do you have any sense of how many of these companies had current safety ratings or were even rated?

Dr. Ralph Craft: No, I don't. My guess is almost all of them were rated. I'm not sure about that though.

Let me say with regard to your first comment—yeah, we would have liked to have done a nationally represented sample. The truck study only collected data in 24 sites in 17 states—or was it 16 states, I have forgotten now—but because of the way NHTSA samples, that was a nationally represented sample. There is just no easy way to do that with regard to buses because buses are much more concentrated near major metropolitan areas, whereas trucks are fairly evenly spread across the country. Since trucks carry almost everything we use—eventually carry everything we use—they are scattered across the country, and it was easy to do. But it would have been very difficult with regard to a bus study.

We could check—we do have information on the ratings of the carriers involved in the study.

The other thing, of course, is that the study was done promising anonymity to everybody that answered questions. The study was not done for enforcement purposes. None of the bus companies involved in this study is going to have anything put on their record as a result of the study we did. If there was a New Jersey state trooper there at the crash, we hope that the trooper entered that crash into the MCMIS crash database and it will go onto the carrier's record, but we will use nothing from this study—

Norm Littler: I just thought for analysis purposes, and for your own purposes, it would be an interesting study and see if there is a correlation based on the operator's safety history. As you know, why we wanted the study expanded nationally was that we only had—up until last year, we only had 24 states that had active bus inspection programs. It would have been interesting to see if we had a higher number or higher frequency rate of carriers coming out of those states that didn't have inspection programs that were involved in crashes than those that did. We know New Jersey has a very active inspection program, and I think that would have been a good thing to see. The other, of course, is that until recently we also didn't have a tremendous number of the total population of carriers that had safety ratings or at least had current safety ratings, so it would be interesting again to see whether there was a correlation to accident frequency or severity based on the safety ratings and the inspection protocol within those various states and those operators.

Dr. Ralph Craft: It is a good question. I am going to have Suzanne look at that data in fact; carrier ratings versus the crashes and the assignment of the critical reason. That also would be a good thing to do with the truck study and I am going to take your suggestion.

Norm Littler: *I think we agree with you on the enforcement and particularly in the driver inspection portion of a level one or doing specifically a level three.*

Dr. Ralph Craft: Right. Okay.

Kirse Kelly: Is there anyone else there with a question, Tori?

Tori (Operator): Yes, thank you. Next question is from Paul Rau.

Paul Rau: *Hi, Paul Rau from NHTSA, R and D. I enjoyed your presentation very much. I ride a bus just about every day to and from work, from DOT Headquarters to Columbia. I have gotten to know a number of the bus drivers—even discussing their driving tasks and what their job is like, just off the cuff with them. It's interesting that the hours of service record that the drivers are required to maintain—there are comments from them is that they are written records only. They are rarely used in reconstruction or crash causation studies because sometimes they are just not recoverable. But the way they are used is interesting. Most of the drivers that are doing the local transit know that to make a lifestyle in this job, they need to work about 40 hours, so they rely on the weekends to do charter. But in order to maintain their hours of service—obey their hours of service regulations—some of them manipulate various lines on the service record. If there is a repetitive route and, for example, there may be a roadway construction and they know they are sitting there in the bus, not moving for like an hour or two, they credit themselves on line one of the record to buff it up in order to allow them to continue to drive within the service regulations during that week.*

I think that with that in mind—and that comes from more than one driver who I have discussed this with—my question is to what extent in these crash causation studies are the hours of service, or the service records evaluated in terms of detecting abuses on these various lines—trading off hours from line four to line one, whether they're on duty in service or on duty not in service and how they sometimes arbitrarily credit themselves with hours. Obviously, they're saying that when they get on these charters on the weekends that they're more tired and fatigued than they need to be. The question, I guess, comes down to these studies. Are these records utilized? Are they available? Has there been an investigation of how drivers actually use these records?

Dr. Ralph Craft: First of all, I am shocked to hear that anybody would violate our Hours-of-Service regulations.

Paul Rau: *Okay. I am too; however, the fact remains.*

Dr. Ralph Craft: Yes, log books are examined as part of a post-crash level one study and are used to try to determine whether a driver is fatigued or not.

A story from the truck study—there was a trucker involved in a crash and his log book looked in perfect order. His story was very acceptable as to what his sleep pattern was recently. Everything looked like it was in perfect order, but he kept falling asleep at the crash scene between interviews with our officer who was doing the level one inspection, our researcher that was doing the other part of the study, the officer that was in charge of the scene, etc., so we coded him as being fatigued, even though all the written records looked good. He was obviously fudging his written records.

We do look at these records and of course we are moving, at least on the truck side, to requiring at least some motor carriers to have electronic recording devices which will be more useful in identifying the patterns the drivers are working and not working on the road.

Paul Rau: *Okay, that's just my comment on that—is that there are some very specific ways that they manipulate those that appear to be in proper order but, because they use these records day in and day out, there are specific ways they can tell among themselves how they are being abused so they can work more hours and make a lifestyle out of driving a bus. They can't make ends meet, they tell me, if they follow the rules precisely. That's an interesting side note on that and it may apply to the large trucks as well. To my knowledge, there hasn't been an in-depth study or a seminar that might be useful in informing people what the hours of service forms or the service forms look like, how they are used and how to identify abuses etc.*

Dr. Ralph Craft: We teach inspectors how to detect logbook fraud. There are specific courses or parts of courses that go into detecting logbook fraud. Whether they can do that in all cases, I am not sure.

Paul Rau: *Right. Well, we're talking about driver effects. I will leave it at that because I am sure there are other questions here, but it seems like, if the main reason is related to driver error and [their] condition to drive, that some of the products out there are not automated and maybe they should be automated, and therefore, not be able to be revised on the sly. It was a very interesting topic. It was eye opening to me hearing first hand from drivers who confided the fact of how these records were actually used so that they could make living in a 40-hour week.*

Dr. Ralph Craft: I'm sure you promised them anonymity as we did in the study.

Paul Rau: *Absolutely. I invited one in. I keep asking this one guy to come in and give us a little tutorial on what it's like on the road to actually make a living as a bus driver. He hasn't accepted.*

Thank you very much.

Jeff Griswold: *Do you have any sense of the accident rate by miles traveled versus the absolute numbers shown?*

Dr. Ralph Craft: No. Every year we publish information on accident rates per 100 million vehicle miles traveled for trucks. Buses are so rare, we really don't think that we can get good exposure data, as they say. In other words, good data on how many vehicle miles traveled buses go. It's much more difficult to try to calculate crash rates on buses than it is on trucks. Even with trucks, it's not a science. The vehicle miles traveled data is put together by Federal Highways and in some cases they have to do some estimating of the numbers. So that's a tough thing to get at.

Dennis Vorob: *Are the vehicle accidents happening more on an interstate highway or city streets?*

Dr. Ralph Craft: That is one thing that would be very easy for me to report on in this report if I had thought about looking at that. In New Jersey, it's more local roads. The nation as a whole—for instance in states like North Dakota or Wyoming, or New Mexico, I am sure it would be more on interstates, but New Jersey is the densest populated state in the nation. I am thinking about the crashes and most of them were on local roads and streets.

Esther

Tumuhairwe: *Speaking of New Jersey, selecting New Jersey alone out of 50 states sounds like an under representation of what's going on. Can you explain what you did to expand the study?*

Dr. Ralph Craft: As I said, it was a very limited study. We only had 39 cases and the reason is that buses are about one percent of our crash problem, so we did devote more attention to the truck study, obviously, than we did to the bus study. We would be happy to expand the study if Congress mandated us to do that. We are sensitive—even though buses are a very small percentage of the crash problem, they do carry the most important cargo of any of the vehicles we regulate.

Robert Strutton: *Was there any data given on safety belt use?*

Dr. Ralph Craft: That's a good question too. We've got that in the database and I could have Suzanne look at that and look into that, but we didn't for this presentation.

Kirse Kelly: Are there any questions on the phone now, Tori?

Tori (Operator): I show none at this time.

Magdalene

Skreeta: *Someone just asked us to repeat the last question which was there any data given on safety belt use?*

Dr. Ralph Craft: No, we didn't give any during this presentation, but I will check into that. I can send out a follow up e-mail to everybody that's registered and include some of these items that we've covered.

Paul Murphy: *It is a quick check to see that FMCSRs also define motor coach similar to NHTSA. Is that correct?*

Dr. Ralph Craft: No, we don't. NHTSA defines the way a bus is manufactured. That's not what we are concerned with. We're concerned with how a bus is used because we regulate a specific type of bus transportation. We don't regulate transit bus service and we don't regulate school bus service. If transit buses or school buses are used in charter operations, in over-the-road operations, then we regulate that service that is being provided. We have different definitions of buses from NHTSA, but we have to because NHTSA is required by Congress to look at the manufacturer of vehicles and do standards on how each type of vehicle needs to be manufactured. We, on the other hand, have the mandate from Congress to look at the operation of buses when they are used in a certain type of bus service—so our definition of the buses will never be the same as NHTSA's.

Kirse Kelly: Okay. Just one last check Tori, any other questions?

Tori (Operator): Yes we do have a question from Norm Littler.

Norm Littler: *Ralph, not so much a question, but a kind of a follow up on something to do with the passenger miles. We've done extensive research on the question of bus miles and passenger miles primarily relating to tax issues, but we have a fair amount of information here that we would be glad to share with you if you're interested.*

Dr. Ralph Craft: Yes, I would be. I would be happy if you can send that to me, Norm.

Norm Littler: *Absolutely. I will get a hold of you later and we can chat about this, because we have a lot of research here that is conducted by third-parties and you can certainly take a look at it and evaluate the methodology and reevaluate it if you wish.*

Dr. Ralph Craft: Thanks.

Kirse Kelly: Any other questions, Tori?

Tori (Operator): I am showing no others.

[53:45]

Kirse Kelly: Thank you very much for participating in today's webinar. We'd like to ask that you fill out our evaluation and let us know your comments about the webinar and suggestions for any future webinars. To insert those suggestions, you just type the suggestion in the space at the bottom of the pod and click on the arrow. The comments provided here can be viewed by all other

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As a reminder, members of the trade or local media participating in today's call should contact our Office of Communications at 202-366-9999. Once again, that's 202-366-9999.

Once again, thank you very much for participating in our webinar. Please check the FMCSA ART Website to register for future webinars. Our next webinar will be on May 7th on CDL-Third Party Testing on Anti-Fraud and you can register for that at the beginning of next week.

Thank you all very much for participating and thank you Tori for your help as our operator.

Tori (Operator): Thank you.

Thank you for participating in today's conference. You may disconnect at this time.

[54:25]