

Final Minutes of the Second Meeting of the Blue Ribbon Panel for Evaluation of Inflatable Restraint Performance-Field Data Collection and Analysis

July 11, 2001

Chairperson, Dr. Susan Ferguson, Senior Vice President, Research, of the Insurance Institute for Highway Safety (IIHS) called the meeting to order at 10:00 A.M. at the IIHS offices in Arlington, Virginia. All panel members and observers were present with the exception of Dr. Mark Edwards and Dr. Kennerly Digges. Dr. Ferguson asked if everyone had a copy of the minutes of the first meeting and whether he or she had a chance to review. Since there was no comment, Dr. Ferguson entertained a motion to approve the minutes as written. It was so moved, and the minutes were unanimously approved by voice vote.

Crash sampling issues

Dr. Ferguson introduced the first subject for discussion: Do we need probability-based sampling? The ensuing discussion also delved into the related issue: Do we need nationally representative data? Vern Roberts led off the discussion by asking for assurance that NHTSA will continue to do Special Crash Investigations (SCI) of air bag induced injury. Dr. Carra assured the BRP that NHTSA will continue to do SCI cases irrespective of any decisions by the BRP with regard to gathering supplemental crash data. Chip Chidester noted that NHTSA's ability to identify these cases of air bag induced injury has been improved through the use of a refined notification and screening process using the Fatality Analysis Reporting System (FARS).

Dr. Ferguson stated that she believes that we need a nationally representative, probability-based sample of all frontal crashes to properly analyze any change in effectiveness between pre-depowered, de-powered, and advanced air bag systems. Dr. Segui-Gomez showed a chart depicting the continuum of air bag effectiveness for a range of crash severities. She noted that the effectiveness of depowered air bags could be lower at the higher crash severities but higher at the lower crash severities. Her overall point being that we need a stratified representative sample that spans all crash severities in order to properly analyze the differences in effectiveness between the various generic classes of air bag systems. Mr. Bischoff agreed, stating that he believes that we already know the overall effectiveness of pre and post depowered air bag systems, or the answer to the how much question. What we don't know is the answer to the why question, or what is the composition of the effectiveness for various levels of crash severity and other crash and occupant characteristics that make up the overall effectiveness. To answer these later questions we need a nationally representative, probability-based sample of crashes. Larry Schneider stated that he believes that we need to only sample moderate and severe crashes to analyze air bag effectiveness, since those are the severity levels that the air bag is expected to play a role in injury mitigation. Others pointed out that air bag induced injury in low severity crashes continues to be a subject of intense interest and that we will tend to underestimate the overall effectiveness of advanced systems if we do not look at crashes of all severity levels. Larry responded by noting that these cases will continue to be identified and investigated by the SCI teams, and that they will be very unlikely to be sampled using the NASS selection and weighting system. There was also extensive discussion about how air bag deployment threshold levels are being raised over time and that the interaction of seat belts and air bags will be of intense interest at the lower crash severity levels. It was also pointed out that advanced air bag systems with

multiple levels of deployment would further complicate the analysis and comparison of system effectiveness. If restraint system designers are to make meaningful future improvements, they will need to know exactly how the systems are performing in all manner of crashes. Chip Chidester pointed out that NHTSA has been heavily criticized in the past for only looking at air bag failures. Others have only looked at successes; he reasoned that we should look at a representative sample of crashes to make informed judgments about the efficacy of the advanced systems.

Dr. Augenstein believes that we need to build resources into the process to investigate in detail some unusual cases. Others pointed out that NHTSA will continue to investigate crashes of interest under its SCI program and will continue to sponsor the CIREN program (also partly funded by some Alliance members). All agreed that crashes investigated on an anecdotal basis (without probabilistic sampling) will continue to be of intense interest and will give an early readout of how the new technologies are performing in an individual crash. However, if the ultimate goal is to determine the effectiveness of different airbag systems across a full range of occupants over the full range of crash type and severity and to determine if new regulatory requirements are helping to move us toward higher levels of occupant protection, then we will need statistically representative data.

There was an extensive discussion of whether we should investigate only frontal crashes or all crash configurations. Chip Chidester pointed out that NHTSA is seeing air bag deployment in crashes other than frontal. Dr. Carra stated that from a strictly practical point of view that NASS CDS investigators may make better use of their time by investigating all crash configurations that meet other criteria of interest rather than waiting for only frontals. He emphasized that as you place more and more restrictive criteria on case selection that the overall cost efficiency of the program declines. Eventually, it was agreed that while crashes other than frontal may be of interest that given the limited resources, that we would get the biggest bang for the buck by investigating only frontal crashes.

Dr. Ferguson again made the point that we will need a representative sample of all frontal crashes to effectively analyze overall air bag effectiveness. All did agree however that we should over sample the more severe crashes as long as we do not compromise the ability to make national projections. Dr. Ferguson called for a vote on the issue at this point and it was agreed that we would gather a probability-based sample of only frontal crashes of all severity levels using the NASS framework. It was also agreed that all front seat passengers were of interest although it was recognized that data for extensive analyses would likely only be available for the driver. Dr. Segui-Gomez emphasized that we need to develop a sampling plan a priori for varying severity level. Dr. Ferguson requested that Dr. Segui-Gomez and Dr. Chuck Farmer (observer from IIHS) develop such a sampling plan. Dr. Segui-Gomez said that she would need from NHTSA a projection of the universe of crashes in the new PSUs, stratified by KABCO injury scale. Dr. Carra agreed to provide Dr. Segui-Gomez with the requested data runs, although he was not sure whether the KABCO scale or some other measure of injury or crash severity would need to be used. Dr. Segui-Gomez also talked about conducting power analyses to determine the number of crashes that would have to be investigated at each severity level to provide statistically reliable results. Dr. Carra and others pointed out that we are dealing with a resource limited project and that while the power analyses are of academic interest they will have no practical impact on the project, i.e. we will attempt to get as many relevant cases as we can with the monies available. Mr. Bischoff pointed out the power analyses that Dr. Charles Kahane of NHTSA had carried out for his Alliance funded paper. He said that while he agreed that the project was resource constrained and power analyses would have no practical effect on the sampling design, that he believed

that the BRP should conduct them nonetheless. They would serve as a good indication of what the timeframes would be for statistically reliable results at various assumed levels of effectiveness differences between the generic classes of air bag systems. Dr. Segui-Gomez agreed to make the power analysis calculations as part of the sampling plan for varying severity level.

Chip Chidester pointed out that NHTSA now uses the NASS framework to sample cases of special interest in terms of child injury from the air bag. He also pointed out that special samplings are also being carried out with Ford on the advanced air bag systems in the Taurus/Sable. The point being that if the BRP determines at some future date that anecdotal sampling based on some specific case selection case criteria was desirable that the NASS system was perfectly capable of carrying this out. Such cases can be investigated without compromising the ability to make national projections.

Alliance data collection effort.

At this point the discussion shifted to how can the agreed upon data collection effort be carried out using the NASS/CDS framework. Dr. Ferguson asked Dr. Carra to make a presentation to the BRP on the work that NHTSA has done since the last BRP meeting. The presentation, which is attached, covered PSU sites, project oversight, contractual obligations, training, schedule and future NASS case availability.

The latest estimates are based on an assumed budget of \$4.5 million available over a period of 3 years (\$1.5m per year). Dr. Carra explained that if the contract period could be extended to 4 years (still at \$4.5m total funding) that economies could be realized. Alliance personnel did not believe that the 4-year time period would not be a problem as long as the dollar amount stayed the same. This schedule would consist of a 6-month ramp up or training period followed by 3 full years of data collection and a 6-month wind down or wrap up period. Assuming that the contract was initiated in August 2001 the data collection would begin 8 months later.

NHTSA now recommends 3 or 4 new NASS PSUs staffed by 2 investigators at each site rather than the 8 or 9 additional sites with one investigator each as discussed at the last meeting. These new sites would be chosen based on richness of relevant crashes. Dr. Carra said they had made a preliminary check and that he believed that the proposed new PSU sites would support 2 full time investigators. However, he wanted to double-check this now that the BRP has decided to sample only frontal crashes. NASS cases are now costing close to \$2500 each (up from \$1800) due to inflation and movement to an all electronic system which necessitates contracting with the Volpe Center at TSC for maintenance of computer hardware and software. NHTSA now recommends 3 contracts, two with the Zone Centers and a third directly with Volpe for the electronic data handling. In the original proposal the Zone Centers were passing through funds to Volpe, which results in an additional fee payment.

Dr. Carra described in detail how the new NASS crash investigators would be hired and trained. The training period includes formal training at the Oklahoma training facility followed by the investigation of actual crashes of interest to the project with 100% oversight by NASS Zone Center personnel. These initial cases would be reviewed later in the process to see if they are sufficiently representative to be included in the overall study sample. Dr. Augenstein expressed concern about the use of all new, essentially inexperienced investigators. Chip Chidester said that past experience has shown that many of the current NASS investigators apply for these new positions because it is an upgrade in position and salary for them. Thus, a significant portion of the new investigators, perhaps as much as one half, would be experienced. Larry asked the question of when Alliance case investigations could begin. The answer was sometime

around March or April of 2002. Larry repeated his suggestion that NASS-identified cases could also be investigated by experienced investigators at UMTRI and other places, and that this could have several advantages, including: 1) starting investigations sooner, 2) having all or most investigations done by experienced, rather than newly trained, investigators, and 3) not having to hire and train two new investigators for each PSU site. Joe Carra indicated that using investigators from outside the NASS teams could be done, but there was no further interest in pursuing this approach.

Chip went on to explain that NASS investigator yearly turnover has dropped from historically high levels of 30-40% to a current rate of only 7%. Initial estimates are that 1800 relevant crashes could be investigated over the 4-year study period.

Future NASS CDS case availability

Dr. Carra said that NHTSA is now planning on releasing NASS cases on a quarterly basis as opposed to waiting until the complete SAS file is available yearly. This will significantly shorten the 18-month average time period from case investigation to public availability. This considerable time lag was of concern to the BRP, as discussed at the last meeting. There was ensuing discussion that while these cases would be of interest on an anecdotal basis without some kind of “front-end”(a means to sort through the entire NASS file by case descriptors such as crash severity) on the quarterly file that the cases of interest could not be located. (Currently users other than NHTSA have to interrogate the electronic file to find cases that meet required criteria.) All agreed that this “front-end” was a necessity, if timely analyses of the new air bag systems was to be conducted. Much discussion followed on how to fund this “front-end”. NHTSA representatives agreed to circulate a functional description of a candidate “front end” that the Alliance could use to explore funding with their respective organizations. All panel members also agreed that it is important for Alliance-funded cases to be easily identified from regular NASS cases, and reported separately and regularly to the BRP.

Data oversight and evaluation

At this point the discussion shifted to data oversight and evaluation. The two principal questions of interest were: What is the role of the BRP in data evaluation/analysis? and What is the role of the BRP in public dissemination of the information? There was an initial proposal by Dr. Segui-Gomez to set aside 10% of the project funds for analysis and evaluation, similar to what CDC now does with its research. Discussion then swirled around whether we jeopardize the timely startup of the overall data collection since all prior NHTSA work on PSU selection and analysis was based on a funding level of \$4.5m. After rather extensive discussion of the pros and cons there was consensus that the BRP needs to set aside funds for analysis/evaluation in order to ensure overall project success. In order to minimize the impact on data collection from both a case quantity and startup timing perspective it was agreed to set aside 5% of the total funding. NHTSA was then asked to recalculate its analysis of PSU selection and caseload assuming the new total contract level of \$4.275m over 4 years. Dr. Segui-Gomez was asked to draft a Request for Proposal (RFP) for data analysis assuming a budget level of \$225k.

Alliance representatives informed the Panel that once the Panel’s recommendations were confirmed, Counsel for the Alliance and NHTSA Counsel would draft a memorandum of understanding setting out how the Alliance-funded data collection program would interface with the existing NASS programs at Volpe and the NASS Zone Centers, and how the Alliance-funded cases would be separately identified.

Public participation

Much discussion took place on how best to involve the public in the project. The preferred method seemed to be the hosting of regular public meetings. There was also

extensive discussion of the role of the BRP in the day-to-day review of cases. It was agreed that the individual members could not afford the time to be involved in the daily review of all cases. It was suggested by Dr Segui-Gomez that perhaps it made sense, for review purposes, to group cases into 5 or so sentinel groups of interest e.g., large males in high-speed crashes (since it had been alleged that depowered air bags may not provide adequate protection in more severe crashes). Until a front-end is available, NHTSA might identify cases of particular interest in the 5 sentinel groups for panel review prior to dissemination.

The use of a public notice for comment on the agenda for forthcoming public meetings was discussed as a means for ensuring adequate public involvement. In order to have sufficient information for planning for any public or BRP review of cases it was agreed that the Alliance needs to write into its contracts with the Zone Centers and Volpe a requirement to report case output monthly. This reporting would be on total new cases investigated with Alliance funds by severity level and within the designated sentinel groups of interest. The panel ultimately agreed to hold public meetings every 6 months, beginning about six-to-eight months following the beginning of Alliance-funded investigations, to discuss the overall status of the project (number of cases investigated and the like) and detailed reviews of sentinel cases or other cases of particular interest. A public notice would precede each meeting.

Other business

It was noted that NHTSA published a Request for Comment in the Federal Register dated June 25, 2001. The document requests comments on the agency's plan for monitoring the performance of advanced air bags and developing data for potential future air bag rulemakings. It was agreed the work of the BRP was of direct relevance and that a response should be drafted. It was also agreed that it was not within the purview of the BRP to comment on the adequacy of the agency's plans but only to detail the work and objectives of the BRP project. Dr. Ferguson asked Don Bischoff to draft a response, which she could then circulate to the BRP for approval prior to submitting it, to the relevant docket.

Future meeting dates

The meeting drew to a close with a discussion of the most convenient times for subsequent meetings. It was decided that the BRP would continue to meet quarterly until the contract was in place and generating data, at which time it would revert to the semi-annual public meetings. The times chosen for the next meetings were: Oct 29th 2001 and Jan 28th 2002, 10:00 A.M. at IIHS headquarters in Arlington, VA.