

## **Draft Minutes of the Blue Ribbon Panel for Evaluation of Advanced Airbags**

October 5, 2004

Chairperson, Dr. Susan Ferguson, called the meeting to order at 9:00 A.M. in the main conference room of Northrop Grumman Information Technology, 5 Cambridge Center in Cambridge, Massachusetts. Note: Northrop Grumman is the contractor hired by NHTSA, through the DOT Transportation Systems Center, to be the Operations Manager for the NASS and CIREN databases. All panel members and observers were present with the exception of members Dr. Jeffrey Augenstein, Dr. Maria Segui-Gomez, Dr. Bella Dinh-Zarr, Dr. Dennis Durbin and Dr. Kristin Poland and observer Robert Strassburger. Dr. Ferguson immediately turned the floor over to Dr. Jerry Scally of Grumman.

Dr. Scally began a Power Point presentation entitled: "NCSA Electronic Data System Nuts and Bolts." The stated goal of the presentation was to take a behind the scenes look at how the Electronic Data System works, review some procedural and technical innovations, and new developments to increase efficiency of operation and data quality.

The staff which manages the 42 node WAN and 1 terabyte data system consists of 13 individuals. Dr. Scally thought that a staff of 13 with single individuals in pivotal positions was risky, so a program of cross training is ongoing. He described in some detail how data moves up and down through the system.

Dr. Scally then described a proprietary system which has been developed to track and resolve bugs, comments, procedure inquiries, enhancement requests and query requests. The system is accessible by desktop through the intranet and notifies the user when the issue has been resolved. A video was shown to illustrate how the system works in practice.

Other special considerations/innovations discussed included: unique identifiers to preclude duplicate machine IDs, disk storage monitoring, Metric/American keypad on PEN, edit check system, trigger notification system and integration of WinSmash. Innovative technologies under development included: imported forms, crash data recorder data importer, GPS coordinates for crash site, bar code VIN reader and XML datasets and viewer.

Following his formal presentation, Dr. Scally hosted a tour of the Grumman facilities. The BRP members were introduced to the various staff and their respective responsibilities were detailed. The servers which host the 1 terabyte NASS files were shown and the plans for future hardware upgrades discussed.

After returning to the conference room, Dr. Ferguson asked if everyone had an opportunity to review the minutes of the January 20, 2004 meeting and if any changes were required. Hearing no further comments, the minutes were approved as written.

Dr. Ferguson next introduced Dainius Dalmotas of Transport Canada (TC), who discussed Transport Canada's analyses of NASS data related to chest injuries in frontal crashes as a function of gender and age.

Dainius described an analysis of 1988-2002 NASS data for MY 1982 and later model year vehicles comparing AIS $\geq$ 3 chest injury rate for various occupants. The injury rate was higher for females and older occupants of both genders. This has led TC to think about asymmetrical testing, with higher crash test speeds for young males, for future revisions to CMVSS 208. Alternatively, the test criteria could be made more stringent at lower test speeds. From a technology perspective, Dainius favors "adaptive" load-limiting seat belts to address the problem of older people who are predominantly injured at lower crash speeds. As crash speeds go up, the mean age of injured goes down. Adaptive load-limiters would adjust the load at which seat belt systems yield according to crash speed.

A second presentation by Mr. Dalmotas focused on TC regulatory efforts. Canada experiences about 2000 light duty vehicle occupant deaths per year in traffic crashes, of which about half occur in crashes with a frontal component. 54% of all AIS $\geq$  4 injuries to females are to the chest region. For 50 year old and older females, the percentage rises to 64, illustrating that chest injury risk increases sharply with age. TC currently limits chest compression to 50 mm for the male dummy (50<sup>th</sup> percentile Hybrid III) and is proposing to limit chest deflection to 41 mm for females (5<sup>th</sup> percentile Hybrid III) in a 48 km/hr rigid barrier test and 32 mm for females in a low-speed offset deformable barrier test (40 km/h 40% offset test). Dainius believes that chest acceleration is not a very good predictor of injury potential and that regulators and vehicle designers should rely more on chest deflection. As evidence of this, Dainius showed test data which indicates that 2-point automatic belts, when used without the lap belt, produce much higher chest deflection in sled tests as compared to 3-point manual belts at equivalent levels of chest acceleration.

The TC proposed out-of-position test for 5<sup>th</sup> percentile females places the adjustable steering wheel in the down position as opposed to the mid-position as specified in FMVSS 208. Chest deflections are 30-40% higher in TC tests with this configuration.

Dainius believes the TC proposal recognizes the needs of Canadians:

- which is largely a belted crash population
- where chest injuries account for the largest portion of residual safety problem
- the need for greater protection in moderate severity crashes
- changing demographics, including increasing representation of females and older occupants

The TC proposal is predicted to reduce the risk of AIS $\geq$  3 chest injury for drivers by 20.4 to 29.1% and passengers by 29.8 to 38.3%.

Dr. Ferguson asked Tom Carr to report on the status of the Alliance commitment to fund the BRP effort since we are now in the fourth and final year of the initial commitment. Tom said that the Alliance has agreed to fund one researcher in each of the 3 PSUs

currently funded by the Alliance through the end of 2005. Proposal to extend funding to 2006 and beyond will be decided in the future as a “rolling” two year commitment that is reviewed annually.

Dr. Ferguson asked Chip Chidester to report on the status of case collection at the 3 Alliance funded PSUs and other related work ongoing at NHTSA. Chip reported that work is completed on the preliminary case viewing system and that public access to the NASS data is back up and running. Access had to be temporarily discontinued as the modifications to the preliminary case viewing system were implemented. NASS CDS case acquisition through 10/1/04 is as follows:

	<u>2002</u>	<u>2003</u>	<u>2004</u>
NASS CDS	4239	4393	3583
Alliance funded	350	361	278
Total	4589	4754	3861

The total number of Alliance funded cases through 10/1/04 is 989.

Dr. Ferguson asked Dr. Schneider to give the BRP an update on his continuing effort to work with NASS Zone Center personnel to develop a new format for the monthly summary report. Dr. Schneider noted that the new summary report just became available within the last week. He showed a series of charts detailing various data parameters for each of the 3 Alliance funded PSUs. Of particular interest to the BRP were data detailing how often occupant interviews and complete vehicle inspections were conducted. Dr. Schneider noted that the summary indicated that medical data was not available in 80 of the 172 cases detailed in the monthly summary. A discussion ensued as to whether this meant that the data was not collected or that the occupant simply was not injured. Similar questions emerged about some of the other data elements. Dr. Ferguson opined that we will need to continue to work with the NASS Zone Centers to refine the summary if it is to be useful to the BRP. Don Bischoff noted that the original purpose of the summary was as a management tool to assess the rate and quality of data collection at the 3 individual PSUs. He noted that since we are nearing the end of the formal data collection period it does not seem productive to continue to refine the summary since its usefulness for the original purpose has expired. Others thought that the summary may continue to be useful for selecting cases for further review. It was agreed by all that we need to better understand what the individual parameters represent if the summary is going to be valuable for any purpose.

Dr. Ferguson asked the BRP members for their current thoughts about the \$200k that was set aside for data analysis purposes. She specifically asked if there was interest on the part of the members for issuing an RFP for data analysis. Don Bischoff suggested that we issue the RFP and then based on the response make a decision as to whether to proceed with issuing one or more contracts. There seemed to be consensus to proceed on this basis. Dr. Ferguson asked how many RFPs should be issued. Don suggested that we

issue one fairly general RFP asking for analyses to answer the three questions posed by the BRP at the outset.

Dr. Ferguson asked each of the Panel members to think about the questions that should be asked, what data to use and what analysis techniques to use. Dr. Ferguson also asked NHTSA and Alliance personnel to provide her with example RFPs that could be used as models for the Panel RFP. She asked that these materials be forwarded to her by email as soon as possible.

Dr. Ferguson asked whether there is a continuing role for the BRP in the future, as the initial four year period for the study is coming to a close. The ensuing discussion seemed to show a consensus for at least one more year of activity based primarily on the need to further analyze the data collected to date. Don Bischoff said that he thought that the original question posed to the Panel (Namely: Has there been a dramatic reduction in injury protection associated with the introduction of de-powered air bag systems) had been answered in a global sense. No, there has not been a drop in overall air bag effectiveness associated with de-powered air bags. However, there is insufficient data at this time to understand if the current solution is optimal in terms of injury reduction potential. Further review of the data may help regulators and restraint system designers to understand what direction we need to move to further enhance occupant protection. Dr. Ferguson concluded that she sees a role for the Panel for the next year and a decision can be made at that point as to whether still further activity is warranted.

Dr. Ferguson asked if there was any new business. Don Bischoff said that he had recently spoken to Dr. Charles Kahane, Chief of the Analysis Division at NHTSA, to see if his group had any ongoing analyses of interest to the BRP. Dr. Kahane related that they are currently conducting statistical analyses of FARS data, similar to some of those in NHTSA's 1996 evaluation of air bags to compare fatality risk with pre-1998 and depowered air bags. He believes that the effect of "depowered" bags cannot be accurately studied without knowledge of what bags are depowered and by how much. The manufacturers furnished NHTSA with extensive test data (rise rates, tank pressures) in response to Information Requests. These data, supplemented if necessary by additional test procedures, will be used to classify the air bags. Initial statistical analyses can be completed in 2004. Dr. Kahane also said that they intend to conduct statistical analyses of NASS data, similar to those in the 2001 *Fifth/ Sixth Report to the Congress: Effectiveness of Occupant Protection Systems and their Use*, to explore the effect of depowering on arm injuries and overall injury risk. Don suggested that we should invite NHTSA to present the results of this work at the next public meeting of the BRP.

Dr. Ferguson entertained a motion for adjournment. It was so moved and the meeting was adjourned at 3:30 P.M.