Canadian and US Policies on Releasing Safety Data - Opportunities Missed

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Abstract

Historically, data related to motor vehicle safety generated by Canadian government regulators has been shared extensively with the equivalent authorities in the United States. This has provided opportunities for Canadian research findings to be integrated into regulations affecting the entire North American vehicle fleet as well as addressing this country's specific interests. While Transport Canada continues to have the possibility of improving the technical basis of the US-led programmes through its research, this can only be accomplished through the adoption of an open and transparent policy towards the dissemination of its crash test and collision investigation data. Unfortunately, although the department professes to provide "responsible" disclosure, in actual practice, there continues to be a degradation of transparency and public scrutiny of the data being generated in Canada. Conversely, the openness practised in the US benefits all stakeholders. Data from motor-vehicle crash tests conducted for the purposes of both regulatory compliance and safety research, and those from real-world collision investigations, need to be widely shared. By implementing an approach similar to the US, which provides full disclosure of such data, Transport Canada could provide a platform allowing external stakeholders to build on the findings of its work, increasing the potential for further enhancement of the safety of motor vehicle occupants.

Résumé

De tous temps, les organismes de réglementation du gouvernement canadien ont largement partagé leurs données en matière de sécurité des véhicules automobiles avec leurs homonymes des États-Unis. C'est ainsi que les résultats des recherches canadienne ont pu être intégrés à la réglementation touchant l'ensemble du parc automobile nord-américain et abordant les questions d'intérêt propres à ce pays. Certes, Transport Canada profite toujours de la possibilité d'améliorer par ses recherches les fondements techniques des programmes menés par les États-Unis, mais cette possibilité repose sur une politique d'ouverture et de transparence en matière de diffusion de ses résultats de tests de collision et d'enquêtes sur les collisions. Malheureusement, bien que le Ministère affirme exercer une communication « responsable », en pratique, la transparence et l'examen public des données générées au Canada ne cessent de se détériorer. À l'inverse, l'ouverture pratiquée par les États-Unis profitent à tous les partenaires. Il est essentiel de partager largement, d'une part, les résultats des essais de collision de la route réalisés tant à des fins de conformité à la réglementation que de recherche sur la sécurité, et, d'autre part, ceux des enquêtes sur les collisions réelles. En instaurant une approche similaire à celle des États-Unis,

avec communication complète des résultats, Transport Canada pourrait fournir une plateforme où les partenaires externes pourraient tirer parti des conclusions de ses travaux, ce qui permettrait d'optimiser la sécurité des occupants des véhicules.

INTRODUCTION

Motor vehicles in both Canada and the United States are essentially manufactured or imported by the same manufacturers, and the motor vehicle safety regulations in the two countries are to a large extent harmonized. The result is a vehicle fleet that is to all intents and purposes uniform across the whole of North America.

Transport Canada (TC) and the US National Highway Traffic Safety Administration (NHTSA) are the federal regulatory authorities in their respective jurisdictions and, as such, are responsible for the safety of new motor vehicles in the two countries. Both agencies run programmes of motor vehicle crash tests with the goals of assuring compliance with the applicable regulations and conducting research in order to develop new and enhanced safety measures. Similarly, the two agencies mount national collision investigation programmes to monitor and evaluate the effectiveness of the regulations in terms of their real-world performance.

Historically, there has been wide-ranging sharing of data related to motor vehicle safety between the two agencies. In particular, this has allowed Canadian research findings to be integrated into regulations affecting the entire North American vehicle fleet as well as addressing this country's specific interests.

Regrettably, there has been a significant degradation of transparency and public scrutiny of the data being generated in Canada. Conversely, the continuing openness practised in the US benefits all stakeholders.

While Transport Canada continues to have the possibility of improving the technical basis of the US-led programmes through its research, this can only be accomplished through the adoption of an open and transparent policy towards the dissemination of its crash test and collision investigation data. Furthermore, by implementing an approach similar to the US, which provides full disclosure of safety data, Transport Canada could provide a platform allowing external stakeholders to build on the findings of its work, increasing the potential for further enhancement of the safety of motor vehicle occupants.

VEHICLE SAFETY DATA SOURCES

In both Canada and the United States investigations of real-world collisions, and staged motor vehicle crash tests, are conducted to provide insights into the many factors that cause collisions and those that define the consequences, particularly with respect to the injuries and fatalities that result to the individuals involved. While the research programmes and the associated datasets are to a large extent very similar in nature, the level of accessibility to these data are quite disparate.

US Collision Investigation Data

To support its mission to reduce motor vehicle crashes, injuries, and deaths on US highways, NHTSA maintains several in-depth and police-reported crash data collection programmes. The current in-depth programmes consist of the Crash Investigation Sampling System (CISS), the Crash Injury Research Engineering Network (CIREN), and the programme of Special Crash Investigations (SCI).

CISS is basically a replacement for the long running National Automotive Sampling System Crashworthiness Data System (NASS CDS) and is designed to help scientists and engineers analyze motor vehicle crashes and injuries. CISS collects data on a representative sample of minor, serious, and fatal crashes involving at least one passenger vehicle – cars, light trucks, sports utility vehicles, and vans – that was towed from the collision scene. CIREN combines the knowledge and expertise of engineers and medical professionals in a programme of in-depth, multi-disciplinary studies of selected collisions to determine injury causation and identify appropriate countermeasures.

The police-reported data collection programmes include the Fatality Analysis Reporting System (FARS) and the Crash Report Sampling System (CRSS). CRSS replaces the National Automotive Sampling System General Estimates System (NASS GES) and is designed to provide a sample of police-reported crashes involving all types of motor vehicles, pedestrians, and cyclists, ranging from property-damage-only crashes to those that result in fatalities. In addition, special studies are conducted, using in-depth investigative techniques, to address specific safety topics of interest.

With the exception of CIREN, the collision databases are centrally located on NHTSA's main FTP site. [1] Within each database, the materials are organized by calendar year and take the form of zipped SAS and CSV files. The use of a central FTP site provides a simple, but very efficient means of publicly disseminating the field data. Documentation on each database typically takes the form of Analytical User Manuals and Coding and Editing Manuals, both of which are updated annually. These manuals can be obtained from the Motor Vehicle Traffic Crash Data Resource Page maintained by the National Center for Statistics and Analysis (NCSA). [2] CIREN's data files and user's manuals are posted on the Crash Injury Research web page. [3]

The three US in-depth investigation programmes, CISS, CIREN, and SCI, represent the gold standard in terms of the dissemination of detailed information in support of the advancement of automotive safety. What differentiates these databases from their counterparts in other countries is not just the level of data provided, but also the degree of effort expended to facilitate data analyses. The databases incorporate case viewers which allow access to all of the data forms, diagrams, and photographs of the collision scene and vehicle damage for individual crashes. The menu page of the viewer allows easy filtering of the cases to create collision subsets in the form of Excel worksheets with dynamic links back to the case viewer. To further facilitate analysis, the case viewers now incorporate colour-coded "mannequins", visually depicting the injuries sustained by the occupant as a function of severity. Vehicle make and model data has been standardized by means of a common decoder for the Vehicle Identification Number (VIN) which also provides a detailed listing of the safety features of each vehicle. Where data are available from Event Data Recorders (EDR), selected data can be accessed by the case viewer. The complete EDR report is also available as a download.

NHTSA has also introduced a new tool to analyze FARS/CRSS data entitled "Fatality and Injury Reporting System Tool (FIRST)". This new web-based tool greatly expands the number of data elements that can be accessed in comparison to the earlier query tool. The vehicle data elements include standardized VIN decoded attributes and safety equipment attributes. The export functions have been expanded to include PDF, MS Word, and Excel file formats.

Canadian Collision Investigation Data

For many years, Transport Canada has contracted a number of universities and engineering consulting companies to conduct in-depth collision investigations of real-world collisions and to monitor reports of safety-related motor-vehicle defects. [4]

Since 1995, collision investigation research has taken the form of a programme of Directed Studies that has been used primarily to identify the major factors contributing to injuries sustained by vehicle occupants and vulnerable road users who have been involved in crashes. [5] The latter research has included collisions involving airbag deployments, moderately-severe side impacts, heavy trucks, rear seat occupants, and child restraint systems. In addition, a programme of Special Collision Investigations has been used to monitor and research crashes of particular interest that may occur somewhat infrequently, e.g. serious collisions involving school buses. The primary goal of these studies has been to enhance the requirements of the motor vehicle safety regulations in order to provide greater levels of protection for Canadians.

Early cases from the Multi-Disciplinary Accident Investigation (MDAI) programme were published as technical reports with copies being maintained in the department's library. In recent years, the reports for the programmes of Directed Studies and Special Collision Investigations have been produced in fully electronic format, including all narratives, diagrams, photographs, and data collection forms, with all of these data being maintained on departmental file servers.

While, to date, there has been no public release of the data associated with these collision investigations, subsets of the data and individual reports have been shared with international organizations and individual motor vehicle manufacturers on an ad-hoc basis to support specific safety initiatives.

Transport Canada also maintains the National Collision Database (NCDB). This is a set of data on reportable motor vehicle collisions that have occurred on public roads in Canada. The provinces and territories provide these data to the federal government which combines them in order to track the number of deaths, injuries and collisions across the country. The data are also used for reporting and analysis. While there are no formal public releases of the main NCDB database, outside access has been made available on an ad-hoc basis. A subset of the data is available by means of the NCDB Online tool that allows users to request national-level data through a number of included variables. [6]

The utility of both the main and online versions of NCDB could be enhanced significantly if the range of vehicle variables provided included VIN decoded vehicle attribute data and safety-equipment fitment data, as is the practice with all US databases. This would allow the use of NCDB data in vehicle mass and compatibility analyses which are intimately linked to gender and age studies. Linking of the vehicle attribute data provided by the Canadian Vehicle Specifications (CVS) database would further enhance the utility of NCDB in such applications. This potential is

reflected in NHTSA's databases where access to CVS is provided on their standardized VIN decoder web page.

US Crash Test Data

In the US, public dissemination of government-sponsored crash test data has always been viewed as a high priority and has resulted in full and complete access of the data over the Internet. Reflecting their strong commitment to transparency, and the department's support for data-driven, evidence-based research, NHTSA provides unfettered public access to all the material gathered during their various testing programmes

The material is distributed over three research testing databases, a Vehicle Crash Database, a Biomechanics Database, and a Component Database. Public dissemination of the material is accomplished by means of a centrally located website. [7] This site undergoes continuous change to facilitate locating and accessing the desired test data. The current database variants are cloud-based and feature a variety of drop-down and text boxes to permit isolating test segments based on vehicle information (e.g. make, model), test parameters (e.g. performer, study) and test details (e.g. impact angle, closing speed). Thus, while the vehicle database is large (> 9,400 entries), the use of these filters allows for detailed analyses of very well defined test subsets.

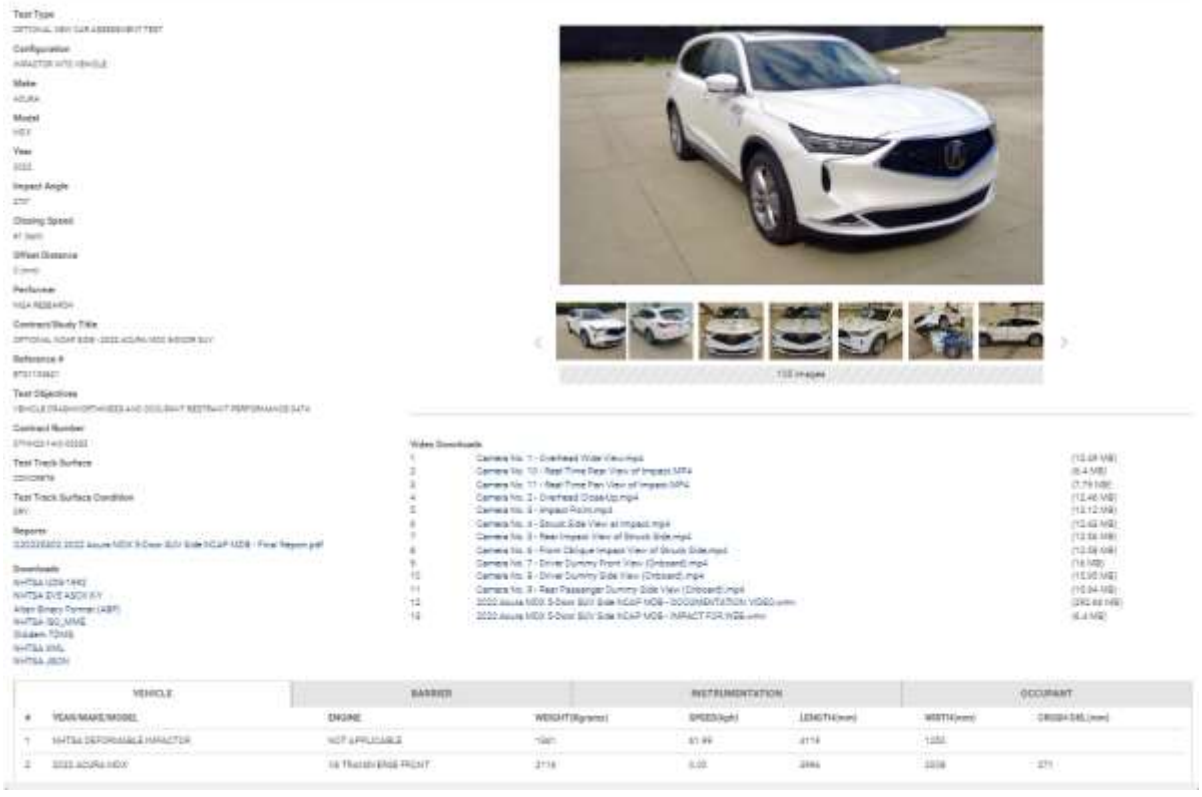

Figure 1. Test Summary from NHTSA's Vehicle Crash Test Database

The website also allows for one-stop access to all the data available for any given test. The webpage for any individual test provides an overview of the specific test reports, test videos and electronic data available (Figure 1). All the material identified can be downloaded.

In the case of the electronic data, an inventory of the file formats of the data files is provided. Typically, this includes a zipped TDMS file [8] which contains the applicable time-variant vehicle, dummy, and barrier (load cell wall data) response data captured in the test. This, in turn, allows the entirety of the test to be read and saved in a single Excel file.

In addition, all the time-variant response data are made available in the form of a zipped NHTSA EV5 ASCII X-Y file which facilitates further processing of the data locally using a suite of signal processing software developed by NHTSA. External researchers can also use post-processing capabilities (signal filtering, integration, differentiation) mimicking those provided by a crash testing laboratory.

Another interesting and particularly useful innovation introduced in the current variants of the research testing databases is the use of a linear “filmstrip” to display the photographs captured in a test. This allows the user to quickly scroll though photographs and isolate those of most interest.

Canadian Crash Test Data

Historically, as in the US, all the Canadian research crash test data, were considered as “open” and disseminated freely. This was also true for compliance test reports, although, in contrast to research reports, the early compliance test reports were far less extensive in terms of level of documentation.

In the early years of Transport Canada’s vehicle crash test programme, as a practical matter, public dissemination of crash test data was confined to crash test reports and accomplished primarily by placing hard copies in the department’s library. By the late 1980’s, by virtue of collaborative research efforts with the US, Transport Canada increasingly made use of the on-line US database to disseminate information from TC-sponsored tests.

By the late 1990’s, every full-scale frontal vehicle crash test conducted by TC, including every compliance test, was transmitted and stored on NHTSA’s website. These can be located on NHTSA’s Vehicle Crash Test Database by identifying “Transport Canada” under the “Performer” box on the main webpage. Note that, initially, the frontal crash data were transferred under a joint collaborative TC-NHTSA agreement. The scope of the crash tests provided to NHTSA was subsequently expanded to include side impact tests, and contributions to NHTSA’s database continued until 2006. Collectively, there are currently 493 Transport Canada entries in the NHTSA database.

Transport Canada effectively ceased to provide public access to all research test material, including test inventories, in 2006. Access to the underlying test data (electronic response data, photographs, videos, etc.) was no longer provided. On request, public access to compliance test reports was granted; however, the scope of the data provided was greatly reduced. Some web-based access was reintroduced in 2019 but this is confined to compliance test reports with extremely limited content.

Attempts to obtain crash test data either through direct contacts with TC's responsible programme directors or through requests to the department's Access to Information and Privacy (ATIP) office are met with stonewalling, claims for various exemptions, and delays that stretch from months to years. Since 2006, the department's approach has taken a 180 degree turn, from making information freely available to effectively ceasing public disclosure of crash test reports and data.

CASE STUDIES

The benefits that would accrue from an open and transparent policy regarding the release of crash test data, as well as data sharing between TC, NHTSA, and industry, are illustrated by the following case studies.

Depowered and Advanced Airbags

In the mid-1990's, field studies conducted by TC highlighted the need to address the aggressiveness of first-generation frontal airbags, in particular for occupants of short stature. [9] These results precipitated TC initiating the development of two separate test programs utilizing belted female dummies (Hybrid III 5th female): a high speed (48 km/h) full frontal rigid barrier test and a lower speed (up-to-40 km/h) offset frontal deformable barrier test. [10] The results were shared with both NHTSA and industry.

The scope of the testing was expanded and accelerated because of a joint TC-NHTSA testing agreement, that included the posting of all the data on NHTSA's website.

As a result of collaborative agreements between TC and industry, a series of depowered airbags was tested under this program. Both the low-speed belted test and the high-speed belted test were incorporated in NHTSA's rulemaking on advanced airbags. The speed with which these tests were incorporated into rulemaking would not have been possible had the development process not been fully open and the data shared.

Side Impact Test Protocols

The above-noted successes generated through inter-agency cooperation were essentially replicated with respect to the introduction of the small female dummy (SIDIIs) in side impact testing in North America. In this case Canadian field data highlighted the need for a belted female dummy to be incorporated in side impact tests in the context of a vehicle being struck by a large light truck or van (LTV). [11] Subsequent side impact testing by Transport Canada highlighted that the use of the SIDIIs dummy in the full forward seating position would be highly influential in promoting the fitment of side airbags, in particular for side curtains. [12]

All the data were once again shared with NHTSA and industry, and entered into NHTSA's Vehicle Crash Test Database. The SIDIIs was subsequently incorporated by the Insurance Institute for Highway Safety (IIHS) in their consumer awareness test programme promoting side impact protection [13], and by NHTSA in their side impact regulation and consumer test. [14,15]

Chest Deflection Measurement

In direct contrast to the benefits accruing from an open data policy, one can reasonably argue that the lack of transparency on the part of Transport Canada and the absence of data sharing with NHTSA has impeded safety efforts in North America. A case in point is the reduced level of improvement in chest injury protection following the changes introduced in 2011 to NHTSA's frontal New Car Assessment Program (NCAP). [16]

The changes included the substitution of a small female dummy in place of the mid-sized male in the front right passenger position, and the substitution of chest deflection in place of chest acceleration as the performance metric. Based on the chest deflection reductions observed in these tests, dramatic reductions in chest injuries should have been observed in the field. However, there is no evidence that these field reductions were realized.

Several investigations have noted that, since the chest deflections recorded in the new programme were obtained with the shoulder belt D-ring in the uppermost position rather than in the lowermost position, the chest deflections were being understated by some 50%. [17,18] This level of understatement of chest deflection would adversely affect the real-world relevance of crash tests employing this metric. [19,20]

Transport Canada ceased providing crash test data to the NHTSA database in 2006. Had the department continued to make their research test data public, the discrepancies in the chest deflections observed with the D-ring in the uppermost position (typically used in an NCAP test) and those observed with the D-ring in the lowermost position (typically used in a TC test) would have been readily evident.

DISCUSSION

While both Canadian and US governments express strong commitments to the principles of accountability and transparency, there is great discrepancy in how these commitments are manifested. Nowhere is this more evident than in regard to the dissemination of collision investigation and vehicle crash test data in the two respective jurisdictions.

Even by international standards, the volume of crash testing sponsored by Transport Canada is significant and represents an extremely valuable asset to further advance not only North American, but also global, vehicle safety. Moreover, many of the tests are relatively unique. This includes full width rigid wall tests conducted at 40 km/h, tests with dummies incorporating added chest deflection monitoring capabilities, and barrier wall tests with load sensing technology. Much of these data have seen limited scrutiny but would provide investigative opportunities for the enhancement of the protection of elderly occupants, female occupants, and rear-seated occupants.

The importance of transparency in the sharing and dissemination of safety research findings in advancing automotive safety is universally recognized. At the same time, governments are inclined to manipulate media messaging and limit accountability by controlling the release of information both pro-actively and through Access to Information legislation. In Canada, there is

need for a shift to an approach where the government would proactively publish information that is clearly in the public interest.

Improving Transparency in Canada

It is acknowledged that a lack of transparency has the effect of stifling public debate and the ability to lobby for safety-related changes. By contrast, proactive disclosure policies allow for more effective and meaningful evaluations of the government's response to issues of public interest and provide a mechanism to pressure the government to take remedial action to prevent harm and to promote safety.

The Government of Canada has mandated departments to be "open by default" in providing information to the public, as an integral means of upholding democracy and holding the government accountable. Over the years, Canada's Information Commissioners have called for much greater transparency in information dissemination, including proactive sharing of information. [21]

Beyond these broad principles, it has also been recognized that Transport Canada's Vehicle Safety Directorate has a particular need to bolster openness and public consultation.

In June 2019, following an extensive study, the Standing Committee on Transportation, Infrastructure and Communities (TRAN) presented Report 31 on Bus Passenger Safety to the House of Commons. [22] The report included several recommendations, the first of which was:

> *Recommendation 1 That the Government of Canada take steps to ensure that all research and results of laboratory or vehicle safety testing conducted by Transport Canada is made publicly available on the department's website*

In addition, in 2016, the Auditor General of Canada, in Report 4, Oversight of Passenger Vehicle Safety, called for Transport Canada to initiate broad consultations with a wide range of stakeholders. [23]

Establishing a Canadian Docket System

The US government adheres to a strict full-disclosure policy with respect to its regulatory developments. This is achieved by means of a "docket" which is opened for each significant regulatory initiative and this docket acts as a central and permanent depository to store any research carried out in support of the initiative as well as for any comments or data provided by stakeholders. In addition, the US government adheres to its full-disclosure policy regarding any laboratory or vehicle safety testing it carries out. The docket system, including the results of the vehicle safety research, is accessible to the public via the Internet.

Not only does the US approach recognize the need for full disclosure of the activities it carries out; it also acknowledges that the regulatory development process is inherently an evolutionary process. Orderly progress on any safety issue requires complete and timely access to the available research material by all involved parties so that research priorities and research programmes can be continuously adjusted and updated based on currently available evidence.

Transport Canada has taken a few minor steps to address the need for transparency but needs to go a lot further. For example, there is no evidence that the department has made any effort to implement the TRAN recommendation [22] which calls on TC to ensure that all research and results of laboratory or vehicle safety testing are made publicly available on the department's website. In fact, an ATIP request to Transport Canada for records relating to changes in policies and practices concerning this recommendation yielded only a one-page chart about the department's vision, which clearly had been outlined prior to TRAN Report 31, and no records showing any deliberations concerning the recommendation.

Furthermore, although TC releases portions of some crash test reports on its website, the range of tests and the data that are posted are extremely limited [24]. The posted information only relates to compliance tests conducted over the five-year span between 2016 and 2021 and does not include any test series conducted for research purposes. Test reports must be requested individually and are sent, by electronic mail, as PDF files. While some images are included on the pages of the reports, and some of the test data are charted, there is no access to the original digital photographs, test videos, nor the tabular numeric data captured by the on-board data acquisition systems.

In response to requests for further information, TC typically refuses voluntary release of the data, and blocks disclosure through ATIP. Disclaimers accompanying TC's ATIP releases essentially argue that anything other than a compliance metric observed in a compliance test is research, should be considered as preliminary, and not released. The premise is that the research findings could mistakenly be used to rank or rate individual vehicles, and, as such, should not be disclosed on the grounds that this could potentially embarrass the manufacturer and affect vehicle sales. This argument presupposes that the data would be only used to rank vehicles, and clearly misrepresents the role of automotive safety research, which is to identify opportunities to advance vehicle safety. Historically (prior to 2006), the importance of complete transparency and the need for full disclosure of research findings was recognized by TC. This continues to be the case for all vehicle safety testing conducted in government testing in the US. So, although US data from similar tests is readily available, TC routinely denies release of the data, or stalls for months or even years before releasing a response in part or not at all.

This lack of response by TC is being actively challenged through the Office of the Information Commissioner (OIC). However, given the OIC's limited resources to deal with the high volume of complaints received by people trying to access information in all federal government departments, progress is painstakingly slow, and resolution of complaints can drag on for years, a situation that recalcitrant departments can use to their advantage.

By adopting an approach similar to the US government, which pro-actively provides full disclosure of results from its vehicle crash test programme, Transport Canada would achieve two key results: a clear public demonstration of the scope and value of its critical work in this area; and provision of a platform allowing external stakeholders to build on the findings of its work.

Ensuring all Canadian test data are represented in the US research testing databases

Given the integrated nature of the automotive industry in North America, responsibility for maintaining the technical quality of regulations and associated testing requirements is shared by both Transport Canada and NHTSA which, in theory, is addressed through the Canada-United States Regulatory Cooperation Council (RCC). While the need for collaborative research and data sharing is recognized, the RCC Memorandum of Understanding does not specify how the objectives are to be met, nor does it impose any specific commitments on issues related to the sharing of data. [25]

A good example is the sharing and consolidation of vehicle crash test data. Both the US and Canada maintain large databases of crash test data gathered during compliance and research tests. Consolidating these tests within a single, publicly accessible database would greatly enhance opportunities for identification of means to improve vehicle safety, including those which could be achieved through closer alignment of test protocols and test practices.

The single database approach to the consolidation of crash test data was employed by Canada and the US to expedite the development and regulation of advanced frontal airbag systems. The process was fully transparent, providing industry, non-government organizations and the public with free access to all the data. This process should be revived in order to advance the current objectives of the RCC.

The automotive industry recognizes the value of TC's and the US DOT's ongoing regulatory partnership as outlined in the RCC Joint Forward Plan, as it enables stakeholder input to increase regulator cooperation and alignment. [26] To this end, the American Automotive Policy Council (AAPC) and the Canadian Vehicle Manufacturers' Association (CVMA) urge NHTSA and TC to continue to work together to develop a collaborative, data driven process, consistent with the law, to advance these objectives and further enhance the safety of vehicle occupants. Furthermore, industry encourages TC and NHTSA to jointly identify areas where new policies, requirements, standards, and research would be beneficial, while leveraging stakeholder input. The RCC Memorandum of Understanding should be updated and modernized to support this increased collaboration and sharing of resources.

It is clear that a collaborative approach would allow industry and other stakeholders to build on TC's and NHTSA's work, thereby leveraging the cost-benefit potential in the field of automotive road safety and testing in North America and abroad.

CONCLUSIONS

Past examples where sharing of Canadian collision investigation and crash test data have proven extremely effective in improving safety regulations demonstrate the desirability of such processes. And, indeed, the lack of such data integration has been shown to be an impediment to safety.

The federal government nominally has an open-data policy which states the benefits of the programme as: support for innovation, leveraging public sector information to develop consumer and commercial products, support for research, supporting informed decisions for consumers, proactive disclosure to reduce the amount of access to information requests, and increasing government accountability. [27]

In addition, Transport Canada, in common with a number of other departments, has a scientific integrity policy that, if applied as intended, would require departmental personnel to ensure that Transport Canada's research and scientific information is made available to the public in a timely way, in keeping with the Government of Canada's Directive on Open Government. [28]

The value of such policies and mandates is not in their development and publication; rather, it is in their implementation. Consequently, the following steps should be taken:

- Collision investigation reports, produced on behalf of Transport Canada, with the removal of any features that would identify involved individuals, should be published on the department's website.

- All research and results of laboratory or vehicle safety testing conducted by Transport Canada should be made publicly available on the department's website

- Both the collision investigation and crash test data collected by Transport Canada should be shared with NHTSA in order to promote regulatory compatibility and fulfill the mandate of the RCC.

- Transport Canada should adopt a web-based docket system for the dissemination and full public access to safety research and testing carried out by the department.

- Transport Canada should follow the US model of routinely holding consultations with the public regarding research and regulatory plans.

By implementing these actions, Transport Canada would ensure that Canadian research findings would be integrated into regulations affecting the entire North American vehicle fleet as well as addressing this country's specific interests.

In addition, the wide dissemination and availability of these data would allow external stakeholders to build on the findings of its work, increasing the potential for further enhancement of the safety of motor vehicle occupants.

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