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A Review of Jurisprudence Regarding Event Data Recorders: Implications for the Access and Use of Data for Transport Canada Collision Investigation, Reconstruction, Road Safety Research and Regulation

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Abstract

This project report begins by reviewing the evolution of event data recorders (EDR's) in roadway vehicles, concentrating on the increasing incidence and sophistication of these recorders in light-duty vehicles. The present and future benefits are outlined with attention to accuracy and reliability of the data generated. This review of EDR development highlights the present limitations and future potential of EDR's as they become integrated with other electronic recording systems.

Jurisprudence is evolving in response to these described developments: Rule making by appropriate agencies is progressing in Canada, USA and other jurisdictions. The central consideration at present is the tension between the many public benefits of EDR technology and the need to adequately address an appropriate protection of personal privacy. This study explores the nature of "Rights" as they are expressed in the Canadian Charter of Rights and Freedoms and the US Constitution.

The highest courts of justice in both countries have recognized a right to privacy of the person, even though the word "privacy" appears nowhere in the Charter and Constitution. The courts have inferred from a stated protection of the individual against unreasonable search and seizure an "expectation of privacy" in relation to the subject of a search and seizure. The courts are addressing specific individual rights in a rapidly increasing number of cases in relation to EDR data availability.

The question of ownership of the EDR unit and generated data appears from the cases to abide with the vehicle owner. The rapidly evolving jurisprudence in both criminal and civil jurisdictions appears to significantly limit the owner to a reasonable expectation of privacy in allowing access to this data by many interested parties.

In both Canada and USA, road safety government agencies appear to be very firmly supported in having access to EDR generated data to fulfill their role in improving vehicle and road safety. The long-established record by these government agencies in collecting crash and injury data and protecting the individuals involved from unwarranted intrusion into their personal privacy appears to have resulted in strong public support for data access to promote safety.

EDR Background

Event data recorders are installed on many late-model cars and light trucks as an adjunct to air bag sensing and control systems. These devices offer tremendous potential to traffic safety researchers, affording access to a wealth of new data, enabling better understanding of on-road traffic safety issues, and providing opportunities for the development of new and effective countermeasures.

The use of on-board crash recorders in the aviation industry is well known. In the event of a crash, the recovery of in-flight recording systems is a priority of collision investigators, and the data obtained becomes an integral part of the crash reconstruction process. The only function of

an aviation black box is to reconstruct the cause of a crash, so it records extensive and lengthy in-flight data, including cockpit audio conversations. EDRs are similar to flight data recorders with an important difference. Automotive EDRs are part of the vehicle's safety system that controls deployment of airbags and other restraint components. Their primary purpose is to record a limited amount of pertinent data for retrieval after a crash to assist in understanding how a vehicle's safety systems performed.

On-board event data recorders on roadway vehicles are not a new concept; such systems have been developed over a number of years, both in North America [1, 2] and in Europe [3]. In recent years, there has been a proliferation of such technology in the vehicle fleet, primarily due to the introduction of supplementary air bags and, in particular, because of the need to monitor and control the deployment of these systems.

Many modern air bag control systems have adopted electronic sensing systems where a vehicle-mounted accelerometer is used to monitor the crash pulse. A microprocessor analyzes the vehicle's acceleration-time history and, based on pre-programmed decision logic, determines when air bag systems should be deployed. Using some of the computer memory present in such systems, manufacturers have been able to store certain data relating to collision events. Analysis of these data has provided a means to refine the algorithms used for deployment logic.

Numerous systems on the vehicle utilize electronic technology. For example, engine management and emission control systems often use microprocessors, as do anti-lock braking and traction-control systems. As a result, manufacturers are moving to the use of computer-bus systems to facilitate the flow of required information around the vehicle. The ready availability of such signals provides for the capture of pre-collision data elements such as vehicle speed, engine rpm, throttle position, brake-switch status, and seat belt use.

GM EDR Systems

Many late-model General Motors' light-duty vehicles are equipped with event data recorders that form part of sensing and diagnostic modules (SDM) that control deployment of air bag systems. EDRs can capture certain information relating to both the pre-crash and crash phases of motor vehicle collisions [4]. These systems can be interrogated by means of a Crash Data Retrieval (CDR) tool allowing the stored data to be retrieved, analyzed and reported [5, 6, 7, 8, 9].

The cumulative time history of the longitudinal velocity change (delta-V) that occurs during the impact is recorded by the EDR. When pre-crash data are available, this information consists of the vehicle's speed (mph), engine speed (rpm), throttle position (%), and the status of the brake light switch (on or off) for a period of five seconds prior to the event that triggered the recording. In addition, the EDR indicates the status of the driver's seat belt buckle switch (buckled or unbuckled) at the time of the event.

Data relating to vehicle speed, engine speed, percentage throttle and brake switch status are stored in a buffer that is capable of storing five values of each data element. Values are recorded at one-second intervals with the most recent values superceding the oldest values.

When the SDM senses a certain vehicle deceleration, the airbag deployment algorithm is enabled (AE) to monitor the crash pulse and determine if the airbags need to be fired. The last five values of the pre-crash data elements in the buffer are stored in non-volatile memory for subsequent retrieval. The pre-crash data are reported at one-second intervals, starting at five seconds prior to AE (t = -5s) and ending at one second prior to AE (t = -1s).

Benefits of EDRs

Perhaps the greatest benefit of EDRs to the motoring public is in road safety research. Automakers perform thousands of safety tests on their vehicles each year, and the government and groups like IIHS also perform crash tests that provide invaluable insights into vehicle crashworthiness. EDRs provide additional valuable data on real-world collisions and enhance auto safety by providing a better understanding of crash events and injuries.

The data stored in EDRs often provide vital information relating to air bag systems, such as firing times, and the nature of dual stage deployments, which are unavailable from any other source. Consequently these data are critical in evaluating system performance. The stored data can confirm when air bags deploy as designed, and can also identify deficiencies in sensing and control systems.

EDR's are being used to understand the behaviour and performance of complex occupant protection systems such as seat belt systems with pretensioners and load limiters that deploy as a function of crash severity, and advanced airbags with dual deployment thresholds and dual stage inflators which are dependent on factors such as occupant presence, proximity to the airbag, seat belt use and crash severity. As such systems become more complex, with further technological refinements, and the addition of other restraint systems, such as side airbags and head curtains, the data available from on-board crash recorders will be critical to understanding the precise nature of the function of these safety systems.

Similarly, there is a revolution underway in collision avoidance systems with a host of new devices coming to market such as anti-lock brakes, brake assist and speed reduction systems, adaptive cruise control, traction and stability control systems. As such vehicle-based collision avoidance measures become both more common and more complex, there will be increasing need for high quality pre-crash data to aid in system evaluation and development.

Objective data from EDRs will improve the quality of Transport Canada's and NHTSA's databases that form the basis for rulemaking. Often, these databases include subjective information from crash investigators. Real-world EDR data can help regulators and automakers better address the top safety priorities.

Increased knowledge on crash type, severity and restraint use can help trauma centers treat patients better and quicker. Not all injuries are visible to the eye, but information on crash forces can lead doctors to look for internal injuries associated with certain types of crashes. When coupled with future Automatic Crash Notification systems, EDR data can help prioritize emergency response. EDR data can guide emergency dispatchers to send the most appropriate personnel and equipment to a crash site. Getting paramedics to crash sites sooner will save lives.

EDR data has the potential to help identify roadway circumstances requiring attention. The National Transportation Research Board (NTSB) in the United States reviewed the possible uses for EDR data as related to the highway environment. Generally, traffic and highway engineers are looking for data which will assist in the improvement of the roadside crash environment, especially run-off-road crashes which result in rollover. EDR data would assist them verify speed and angle of impacts, assess side-slope effects on roll propensity, evaluate effectiveness of "softer" roadside appurtenances, examine driver behavior in run-off-road events and have much potential for supplementing police reports about the performance of roadway safety features.

While the technology of event data recorders is currently in its infancy, there is no question that these devices hold much promise for increasing road and motor vehicle safety.

Accuracy of Witness Statements

It has been known for many years that people are not particularly good at reporting numerical details such as vehicle speed [10]. In a test administered to Air Force personnel, who knew in

advance that they would be questioned about the speed of a moving automobile, estimates ranged from 10 to 50 mph when the car they watched was actually going only 12 mph [11].

Of course, speed limits and speedometers provide drivers with some advantage when estimating their speed prior to a collision. However, in many cases, this available information will not be useful to the driver in subsequent estimation of vehicle speed.

The fallibility of eyewitness memory is becoming increasingly clear in the scientific literature where it has been reported that memories can be false or inaccurate even though the witnesses believe them to be true [12]. Studies have shown that memory of numerical details such as vehicle speed can be readily influenced by outside factors [13]. Research indicates that memory is prone to error at several stages of information processing and, as such, these factors must be taken into account when assessing the potential accuracy of witnesses' statements.

While problems with perception and memory may well influence the accuracy of driver-reported speeds, witness bias is also a very important consideration. One of the major criteria for evaluating the credibility of an eyewitness is impartiality. It is reasonable to assume that many drivers involved in motor vehicle collisions will be somewhat less than impartial, particularly if they were at fault or breaking the law.

Police officers investigating motor vehicle collisions must often rely on the statements of the involved drivers in order to determine the events that caused the crash. The recollections of eyewitnesses are often critical for establishing criminal and civil liability following a motor vehicle collision. Road safety research also relies heavily on eyewitness evidence and much of our knowledge about driver pre-crash actions is based upon data obtained from drivers. However, inaccurate witness statements can lead to erroneous conclusions.

Pre-crash events, such as the occurrence and effect of vehicle braking, can often be determined with significant accuracy through in-depth investigation and analysis of real world motor vehicle collisions. While crash reconstruction is often an effective technique for determining pre-crash

driver actions, it relies heavily on fleeting evidence obtained from the crash scene. Wet or snow-covered roads, high traffic volumes, anti-lock brakes, competing scene evidence and the cover of darkness make the collision reconstructionist's job very difficult.

Some automobiles equipped with anti-lock braking systems may leave traces of visible scuff marks [14]. However, the marks are often very faint and may require special vantage points and lighting in order to be visible. The presence of these marks depends on the combination of road surface, speed, temperature, tires and ABS. The rate at which the scuff marks fade has been found to be extremely high. In the past, an understanding of driver action and vehicle movement was frequently based upon skid mark evidence. Even under carefully controlled conditions, conventional collision reconstruction methods that rely on skid mark length measurements may not be effective when a vehicle is ABS-equipped [15].

Determination of vehicle speed through reconstruction of the physical evidence is one of the major roles of the police reconstructionist. When speed is found to be excessive, criminal charges may result. Successful prosecution of criminal cases often requires proof beyond reasonable doubt of recklessly high speed. Lack of physical evidence, competing interpretations of physical evidence and uncertainty in calculations are some of the barriers to successful prosecution.

It is readily foreseeable that in many cases the EDR will provide critical supporting evidence of vehicle pre-crash speed. While in-depth reconstruction of the physical evidence often provides substantial insight into pre-crash driver actions, there is often insufficient scene evidence to make accurate determinations of speed prior to collision avoidance actions.

The EDR provides extensive supporting documentation that, when combined with competent reconstruction, should increase the probability of successful prosecution. It should also be noted that these data can be used to exonerate drivers not at fault in crashes by providing objective data to support their testimony as to the collision events.

NHTSA Proposed Rulemaking

In June 2004, the National Highway Traffic Safety Administration (NHTSA) proposed certain standardization requirements for EDRs [16]. In this proposal, EDRs voluntarily installed in light vehicles would have to record a minimum set of specified data elements useful for crash investigations, analysis of the performance of safety equipment. They would also require vehicle manufacturers to make publicly available information that would enable crash investigators to retrieve data from the EDR and require vehicle manufacturers to include a brief standardized statement in the owner's manual indicating that the vehicle is equipped with an EDR and describing the purposes of EDRs.

Many vehicle manufacturers already incorporate some precrash and crash recording capabilities into their vehicles. However, many of these EDRs are of limited usefulness. Very few of them record the full complement of variables, and few manufacturers provide the information necessary to download the recorded information. Thus, it is important not only for all vehicles to be equipped with EDRs but also for the information they record to be uniform, high quality, and accessible.

In addressing these issues, NHTSA is proposing to require all vehicles with electronic data recording capability to collect a standard, specified set of data elements in a specified format and for a specified period of time (8 seconds before a crash and up to 6 seconds after). [The proposed data elements to be recorded are summarized in Appendix I.]

NHTSA proposes to leave up to manufacturers the choice of whether EDRs are installed in vehicles. The agency's rationale is that manufacturers are moving voluntarily toward installing EDRs. An estimated 65-90 percent of all 2004 model vehicles already have recording capabilities according to NHTSA. Unless data are standardized across all vehicle makes and models, the data will be of limited usefulness in understanding what happened before and during crashes.

Limitations of EDR Data

While the quality of the EDR data has been shown to be reasonably good, the technology is still in its infancy and a strong measure of caution is required when interpreting the data. As a result of the manner in which these data elements are captured, much care must be given to their interpretation. For example, the fact that the EDR reports the driver's seat belt to have been buckled is not necessarily indicative that the seat belt was actually used by the driver. The system cannot discriminate between a properly restrained driver and an individual who is unbelted, but who has deliberately fastened the seat belt buckle to defeat the warning system, and is sitting on the webbing.

Similarly, the signals from the sensor and control modules are not necessarily synchronized in absolute time. Thus, the reported position of the throttle at any given second may not correspond exactly to the status of the application of the brake. It should be further noted that no indication is provided of how hard the brake pedal was applied. The driver may have been touching the brake pedal lightly, sufficient to illuminate the brake lights, but not hard enough to develop much deceleration.

Recent research has shown that the EDR-recorded vehicle speeds are very accurate under steady state conditions [17]. However, it should be noted that the accuracy of the recorded vehicle speed can be affected if the tire size or final drive axle ratio of the vehicle has been changed from the factory build specifications. When assessing the accuracy of the speed data one may also have to consider other factors such as wheel slip, ABS brakes, traction control systems and yaw.

Event data recorders are excellent research tools that can lead to a much greater understanding of both pre-crash and crash events. However, the current systems have a number of limitations such that the data retrieved must be carefully interpreted in conjunction with conventional in-depth collision reconstruction techniques. This is especially important in the prosecution of criminal cases where a tendency to review the EDR data first and then reconstruct the crash could potentially lead to the wrong conclusions.

Future Systems

Whereas the scope of both pre-crash and crash-pulse data in the general vehicle fleet is currently rather limited, it seems certain that, as technology progresses, a much wider range of information will be captured and stored. One can envisage future systems which might be used to provide detailed accounts of the pre-crash history of a vehicle operator's inputs, the responses of various vehicle systems, and the resultant vehicle dynamics, over a considerable time period prior to any given collision event. Such systems would also be able to provide a precise acceleration-time history of a vehicle in the crash phase.

The rapid pace of development in electronics and communications may introduce new technologies which may well facilitate the process of accessing and storing crash data. For example, wireless systems may be developed which communicate directly with on-board crash recorders and download stored data without the need for physical cables and connectors. Similarly, advanced telecommunications systems installed in future vehicles may afford the opportunity to upload recorded crash data to a central location automatically.

Already, after-market systems offer some of these capabilities, plus the possibility of capturing a driver's eye view of a crash by integrating a video-camera with an EDR system and digitally recording both pre- and post-crash footage. An ad-hoc working group established by the US National Highway Safety Administration (NHTSA) identified a range of variables which might usefully be captured by future EDRs [18]. It is noteworthy that EDRs also have application to heavy trucks and buses, not only as crash data recorders, but perhaps also serving as electronic log books to capture accurate records of drivers' hours of service [19].

Having a large database of objective crash data gleaned from EDRs would be extremely helpful to researchers investigating a wide range of collision-related issues. The utility of such a database would be greatly enhanced if the data obtained from on-board crash recorders were linked to more conventional collision data systems, such as police reports and medical records. There are, however, considerable obstacles to be overcome in developing such linked data

systems, not the least of which is implementing an efficient methodology for the capture of data from crash recorders.

Clearly, collision data could be captured by dedicated investigators, equipped to access the electronic data, which would be merged with crash data obtained from other sources (e.g. police reports, medical records) in an anonymous fashion. As with current in-depth collision investigation programmes, such a process would be extremely resource intensive and, while gathering extensive data on individual crashes, would necessarily be limited to small samples of collisions.

At the other extreme one could envisage electronic data being downloaded from every collision-involved vehicle and stored in a mass database, in parallel with current police-reported information. Such a process would not be practical unless the crash data retrieval system was standardized, easy to operate, and affordable.

Privacy Concerns

Potential uses of information from crash recorders are subject to issues relating to the ownership of the data, under what circumstances data may be accessed, and to what purposes the data may be applied. The nature of the available data is such that the information will doubtless prove useful to various parties involved in litigation over a given crash. Eventually, the courts will have to test the admissibility of data obtained from EDRs with respect to issues such as its reliability, and to determine such factors as the need for search warrants, and any requirements for disclosure.

Government agencies collect extensive collision data on reportable crashes, subject to existing privacy legislation requiring protection of personal privacy. For the past year, Canada's Personal Information and Protection and Electronic Document Act (PIPEDA) has established rules for how private sector institutions may collect use or disclose personal information in commercial

activities [20]. It is unlikely that the collection of collision data by EDR's, uninvolved in commercial activity, would be subject to PIPEDA.

The Canadian Privacy Act, Chapter P-21, was proclaimed in January 2004 [21]. The purpose of the Act is to extend the present laws of Canada that protect privacy of individuals with respect to personal information about themselves held by a government institution. The Act provides individuals with a right of access to that information. "Personal information" means information about an identifiable individual that is recorded in any form. The Act states that no personal information shall be collected by a government institution unless it relates to an operating program or activity of the institution. This clearly identifies the activity of the university-based research teams reporting to Transport Canada.

Section 8 of the Act states in subsection (2):

> *Subject to any other Act of Parliament, personal information under the control of a government institution may be disclosed (i) to any person or body for research or statistical purposes if the head of the government institution is (ii) satisfied that the purpose for which the information is disclosed cannot reasonably be accomplished unless the information is provided in a form that would identify the individual.*

Because of the long established practice of coding information prior to reporting the collision and injury data, this information received and retained by the Road Safety Directorate is unlikely to be considered "personal information" as defined in the Privacy Act. Over time, as future considerations may arise, it is open to the Directorate to further "sanitize" the retained data to be confident that disclosing the information would fail to identify the specific persons as a source.

Additional privacy concerns which will need to be resolved in the future are those of a variety of agencies charged with the oversight of individual data systems, and the ensuing reluctance to share such information even for bona-fide research purposes. In principle, linkages of data from multiple sources can be made such that specific collision events and, more particularly,

individuals involved in the crashes, cannot be identified. This is certainly the case with electronic data obtained from on-board crash recorders. Thus, there are no insurmountable impediments to the development of linked data systems. Nevertheless, considerable effort will have to be expended to achieve this on a national or even on a province-wide basis.

At least part of this process might be expedited through the extension of on-board crash-sensing systems to the post-collision situation, where data relating to a specific crash are transmitted to a central monitoring location. Such automatic collision notification (ACN) systems can make use of other electronic technologies such as global positioning systems in order to identify the specific location of a collision, and wireless communication systems to permit two-way conversation between individuals involved in the collision and personnel at a central office. Based on information obtained from such conversations and/or data uploaded from an event data recorder, the monitoring agency can request the assistance of appropriate emergency response services, and efficiently dispatch these to the correct location [22]. An evaluation of an operational test of one such system showed that the technology is quite likely to function as designed and result in efficiencies in the use of emergency services [23].

There is much promise for utilizing both pre-crash and crash-pulse data obtained by means of on-board recorders. Other researchers have come to similar conclusions based on preliminary studies involving a variety of on-board electronic recorders. Evaluations of injury mechanisms in real-world crashes have been enhanced by combining data from crash recorders with detailed medical information in quantifying neck injuries in rear-end impacts [24], and for injuries resulting from narrow-offset frontal crashes [25].

The utility of detailed pre-crash and crash pulse information in reconstructing individual crashes has also been highlighted [26]. The use of pre-crash data has been reported in a Japanese study [27] where an EDR was combined with an electronic driving monitoring system to capture data on a fleet of commercial vehicles. By using both technologies, the researchers were able to identify general characteristics of individual drivers and relate these to a specific driver's actions during an actual collision event. *A recent European study used data from on-board recorders as*

feedback to participating fleet drivers and reported an estimated reduction in crashes for the study subjects in the order of 20% [28].

If we wish to enhance our scientific approach to traffic safety, it is clear that we require improved data systems. Electronic technologies, such as those described in this paper, offer an opportunity to capture significant quantities of objective data on a wide range of attributes of real-world collisions. Based on the preliminary results obtained to date, traffic safety researchers should make every effort both to exploit the data sources which are available, and to support initiatives to expand the range of data collection.

Event data recorders offer a path to significantly better understanding of many aspects of motor vehicle collisions. The current technology is limited in both its scope and application but, with the rapid pace of the development of electronic systems, this is likely to change in the not-too-distant future. One can envisage subsequent generations of systems that will provide many more data channels and considerably more comprehensive information on individual data elements. With such a wealth of data, the performance of complex vehicle-based safety systems, as well as the actions of vehicle operators prior to a crash, will likely be extremely well defined.

Recent jurisprudence has shown that police, acting under the authority of a search warrant or Coroner's warrant, can download data from an EDR and introduce this information into court proceedings as evidence. A parallel situation would seem to apply to insurance claims since policyholders have an obligation to give their insurer access to their collision-involved vehicle, and this would include access to any data contained in an EDR. Similarly, in the case of an individual involved in civil litigation, the other litigating party would no doubt seek the right of access to any related EDR data.

It appears likely that crash data retrieval will become an integral part of the crash investigation process. However, perhaps the greatest strength for this technology is as a research tool and this is certainly an area where the greatest safety benefits can be achieved. In particular, it is foreseeable that these data will greatly increase our knowledge of pre-crash factors in motor

vehicle collisions which, in turn, will lead to the development of more effective safety countermeasures.

Thus, the major question that arises is the individual's right to privacy versus society's right to know in order to develop a safer transportation environment for all its citizens.

Driving is already a highly regulated activity. Vehicles must comply with a host of safety regulations prescribing the availability and level of performance of collision avoidance and crashworthiness systems. Drivers require a license, subject to testing for competence, and requiring annual renewal. They must also insure their vehicle for at least third-party liability in the event of a crash. Drivers are required to obey traffic laws, and failure to do so may bring penalties. Similarly, failure to abide by the contractual terms of an insurance policy, such as driving while impaired, may result in denial of coverage in the event of a collision. Surely, there is room in such a comprehensive system for additional requirements relating to EDR's to ensure that real-world collision data can be obtained, analyzed, and used to implement new safety countermeasures.

One could consider a system where federal regulations required the installation of an EDR in every vehicle, and provincial laws required that police officers and insurance adjusters routinely had access to the associated data in order to expedite investigations and settle legal proceedings and claims. If such data were to become part of an expanded motor vehicle collision reporting system, the mass data could be made available, in an anonymous format, for review and analysis by a wide variety of specialists in order to address a broad range of safety concerns.

Transport Canada is increasingly involved in collecting and utilizing data generated by EDR during vehicle collisions. Having reviewed the present performance and the promising future developments, the major objective of this project is to provide the Road Safety Directorate with an overview of the current jurisprudence regarding event data recorders. Other interested parties include vehicle manufacturers, the insurance industry, field investigators, parties to civil and criminal actions.

The basic concern is the accessibility to the data by interested parties. *The central question to be addressed is what are the rights of these parties versus the rights of individuals to have their personal privacy protected?*

This review focuses on the rights of individuals for personal privacy versus the need for government agencies to collect data that will provide a better understanding of the circumstances in which crashes and injury occur and lead to the designing of better vehicles and safer roadways.

The Nature of Rights

The word "rights" is of relatively recent origin, although the ideas embodied in it are rooted in ancient and medieval civilizations. A dictionary definition of a right includes:

> *Something that is due to a person by a just claim, legal guarantee or moral principle. . . . A power, a privilege or immunity secured to a person by law. A legally enforceable claim that another will do, or will not do a given act, a recognized and protected interest, the violation of which is wrong.*

The classic definition of an individual right vis-à-vis government is a denial of government power, a *negative* right. *Positive* rights have evolved in recent times, imposing an affirmative obligation on government to act in a certain way; e.g. the right to education, health care etc. Rights of individuals in relation to government impose restrictions on the power of government to act against individuals even if a majority of citizens demand such action. In this view rights are undemocratic since they constrain the state from enforcing certain majority preferences. If the claim “of the aggrieved individual is recognized as a right” it will generally trump the will of the majority - at least the current majority. *Rights are powerful trump over mere "interests" or "preferences"* [29].

Rights come from human experience, particularly experience with injustice. We learn from the mistakes of history that a rights based system and certain fundamental rights are essential to avoid repetition of the grievous injustices of the past [30]. *All laws in the sense of prescriptive rules of conduct and morality, are imperfect and ever changing human inventions, for which their inventors are ultimately responsible* [31].

Rights are there to help us determine what is *right*, not necessarily what is *just*. Establishing what is just involves balancing rights claims, which is to imply that rights conflict: my right to property versus yours, your right to privacy versus the public's right to know. Rights make explicit the *rival claims that must be adjudicated* if a society is to be just [32].

Expectation of Privacy

In Canadian and US law, litigators regularly refer to an individual's right to privacy of the person. Authority for this claim is cited in Section 8 of the Canadian Charter of Rights and Freedoms stating that everyone has the right to be secure against unreasonable search and seizure. The US Constitution's Fourth Amendment protects individuals from unreasonable search and seizure by the state. It is worth noting that nowhere in either of these constitutional documents does the word *privacy* appear. *The highest courts of justice in both countries have inferred from the protection against unreasonable search and seizure an "expectation of privacy" in relation to the subject of a search and seizure.*

From rulings related to Section 8 of the Charter, Canada has established a hierarchy around the expectation of privacy with the highest to the lowest expectation flowing from person/body to homes, to offices/businesses to automobiles [33]. The expectation of privacy is greatest in regard to one's body and personal information. While case law generally denies physical invasion of one's body to obtain evidence, the statute and case law relating to breathalyzer

testing, DNA testing and other types of blood and tissue testing reveals a diminishing expectation of personal privacy where public order and safety loom large.

Transport Canada funded university-based research teams across Canada must regularly anticipate an expectation of privacy by individuals in regard to inspection of a collision scene, inspection of vehicles damaged in collision and the acquisition and use of EDR collision data. The most sensitive activity in this exercise of collision reconstruction is the acquisition and use of hospital records documenting occupant injuries. Appreciating the hierarchy around the expectation of personal privacy, it is instructive to consider how a prominent legal inquiry into the acquisition and use of medical records has addressed the tension between an invasion of personal privacy and the need to acquire this information without consent of the person involved.

The report of the Commission of Inquiry into the Confidentiality of Health Information conducted by Mr. Justice Krever addressed this consideration following extensive hearings in the late 1970's. The following statement by Justice Krever outline his convictions on hearing the many submissions:

> *Despite my strong conviction that confidentiality is fundamental, not only to the provision of proper medical care but also to the preservation of the dignity and integrity of the individual, I am persuaded that research is one respect in which the benefit to society by researcher's access to personal health information outweighs the possible risk to the individual. This, however, resolves only the contest between an absolute and a limited right to confidentiality. The determination must still be made of the circumstances in which the balance favours society.*
>
> *The questions when and under what conditions confidential health information should be released to researchers without the consent of patients should be answered as part of the process of weighing the competing valid interests involved in the inevitable conflict between a patient's right to privacy and researchers', and thus society's, need for information. I am persuaded that, in an enlightened society, most persons would agree*

that, in exchange for the benefits which flow to all members from medical research, some degree of individual privacy must be relinquished. In weighing the loss of privacy against the benefit to mankind, the manner in which the information is handled must be considered as well as the promise of the research itself. The task at hand is to develop guidelines to regulate the access to information by researchers by reconciling, to the greatest extent possible, the right of the individual to privacy with the legitimate needs of society.

I am very sensitive to the problems faced by members of the research community. Because of the essential nature of the work they do and the benefits that accrue to society by reason of that work, it is my view that their demonstrated need for information should be accommodated as much as possible. There is no suggestion that the information acquired by them, to which I have referred, has been abused or misused in any way.

The distinction between physician and non-physician researchers is unnecessary. The confidentiality of the information acquired as part of the research project is best preserved by ensuring that those who have access to it are aware of the need for confidentiality and undertake to protect it. It is not necessary to limit access arbitrarily to a class of people. Researchers are generally sensitive to the importance of confidentiality. There is awareness that, if the public perceives that information given to the researchers is released in an identifiable form, there will be a reluctance on the part of the public to provide information, the basic tool of the researcher. (See Appendix II for Recommendation by Justice Krever.)

Personal information including health records are shared with a multitude of medical staff and care givers on a "need to know" basis to deliver optimal care to an individual patient in modem hospital care. In a recent article, Canadian journalist Andre Picard outlined the problems that personal privacy laws can create in the area of medical research on human subjects concluding, inter alia:

> *Legislators, health administrators and research ethics boards have to be careful not to be unduly swayed by a small cadre of privacy zealots. We do not need measures that protect individual privacy at the expense of research that benefits the collectivity. There are enough threats out there already: We do not need privacy legislation that is bad for our health* [34].

In another article, Ontario Information and Privacy Commissioner Dr. Ann Cavoukian noted that there is no rigid requirement to obtain positive consent before health information may be used for research purposes in Ontario or any other jurisdiction in Canada that has privacy legislation pertaining to personal health information. She further noted that researchers that use health information without personal consent must have a detailed research plan that is approved by a duly constituted research ethics board and where identifiable information is needed to accomplish the research objectives, and it is impractical to obtain consent [35].

Search and seizure involving homes or offices of Canadians generally require a warrant issued by an appropriate official stating just cause for the infringement on an expectation of privacy. In both Canada and the USA, automobiles are afforded a lesser expectation of privacy. The US Supreme Court in a 1986 ruling confirmed the validity of a DOT ruling requiring VIN's to be placed in all automobiles in an area ordinarily in plain view from outside the passenger compartment [36].

Section 8 of the Canadian Charter of Rights and Freedoms has been interpreted to support the substance of this US ruling. The availability of the vehicle's license plate and VIN allows anyone to obtain detailed information about the vehicle. Although the Supreme Court of Canada has stated that privacy, including informational privacy, is essential to the well-being of the individual, the extent of those rights has reasonable limits [37].

While the sophistication and accuracy of the collision data provided by EDR's will increase over what is readily and regularly collected from conventional collision reconstruction analysis, much

of the EDR data is similar, including vehicle speed, seat belt use, braking, air bag performance etc.

Changing the method of collecting previously unprotected data will not alter the expectation of privacy of that data. In utilizing the EDR data, a privacy interest would not be created where none existed before [38].

Ownership of the EDR Unit and the Data Generated

Authoritative opinions from many parties involved in EDR development and use in both Canada and USA appear to agree that ownership of the EDR and the generated data is vested in the vehicle owner. The manufacturer transfers ownership to the dealer and the dealer transfers ownership to the purchaser, that might be a single or a fleet owner. Ownership is relinquished when the vehicle owner abandons future interest in a damaged vehicle that resides in a compound. Vehicles impounded by police are the "property" of the investigating team for evidentiary purposes until released.

The manufacturer developed the EDR to monitor product performance and reliability. Manufacturers soon learned the value of these increasingly sophisticated data generators for use in defending products liability suits. Manufacturers are presently exploring legal avenues to retain a claim to EDR generated data. Insurance companies underwriting policies for vehicle damage and personal injury are an interested party in EDR data to assist their reconstruction experts in fairly processing claims. They are exploring voluntary programs where policy holders are offered a reduction in costs by agreeing to data access by the insurer [39].

Recent jurisprudence has shown that police acting under a search warrant or Coroner's warrant, can download data from an EDR and introduce this information into court as evidence. A parallel situation applies to insurance claims, since policy owners have an obligation to give their

insurer access to their collision involved vehicle, including access to EDR data. Similarly, in civil litigation, the opposing party would seek and be granted the right of access to EDR data.

Although the EDR unit and the crash data may be "owned" by the vehicle owner or lessee, that-data may be used as evidence against the owner or the other driver in either a civil or a criminal case. Vehicle owners who deliberately 'tamper with EDR data in an attempt to alter or erase this factual evidence can expect to incur long-recognized legal remedies.

Crash data retrieval law is evolving in the courts. In the leading Canadian case of Regina v-Gautier, the defendant Eric Gauthier was charged with dangerous driving causing death. An attempt was made to prevent the introduction of EDR evidence, alleging that it violated the Canadian Charter of Rights and Freedoms. This argument was denied and Gauthier was found guilty as charged on the evidence that included the EDR data in his Pontiac Sunfire that indicated a speed of 131 km/h in downtown Montreal.

In another Canadian dangerous driving causing death case (Regina v. Daley), a New Brunswick court accepted EDR evidence that Daley's 2000 Pontiac Sunfire recorded a speed of 124 km/h in a posted 60 km/h zone. Physical evidence corroborated by the EDR evidence resulted in a conviction.

Downloading EDR data after a crash has also been shown to be supportive of the innocence of an accused driver. A driver under suspicion from witness' testimony that he was speeding on Highway 400, Ontario. He was involved in a chain reaction collision causing a death and was exonerated when his EDR print out showed him to be driving properly.

In two other Canadian cases, also heard in 2003, EDR evidence was either disregarded or not accepted by the court. In the recently recorded US criminal cases, most resulted in the acceptance of EDR evidence, contributing to a conviction [see Appendix III].

In the civil courts it appears from the initial cases that EDR data and associated expert testimony will be admissible. From a policy perspective, admissibility of EDR data could be a positive advancement in ensuring the integrity of litigation. Once determined to be a reliable source, EDR data appears to provide a credible and objective insight into the facts of the crash. Objective, factual determinations will greatly aid litigants and may, in fact, help reduce unnecessary litigation and impede patently fraudulent claims [40].

The issue here is not so much of legal authority to use EDR data in court, but instead *what the public will accept*. The problem is less a legal concern than it is a battle to mould public perception. Not every life-saving device that is deployed with the best of intentions will be accepted by the public. Personal privacy and public safety must exist within the same sphere.

Salus Populi Supremis Lex: the public good is the greater law

Since at least the time of Imperial Rome two thousand years ago, enlightened civilizations have curtailed individual rights and freedoms on the basis that the public interest is sometimes superior to individual interest. Government agencies have depended upon this approach to collect data in support of improving public safety. This is clearly expressed in a recent statement by NHTSA:

> *The information collected by EDRs aids investigations of the causes of crashes and injury mechanisms, and makes it possible to better define safety problems. The information can ultimately be used to improve motor vehicle safety* [41].

This statement is similar to recent policy positions expressed by the Transport Canada Road Safety Directorate.

Manufacturers are presently installing EDR's in the vast majority of new vehicles. As the use and capabilities of EDR's increase, opportunities for additional safety benefits, especially with regard

to emergency medical treatment, may become available. If this recorded data is considered important in advancing a significant public policy interest, a car owner may not necessarily possess a privacy interest superior to that of the public.

Public Education and Policy

While Transport Canada may have the authority under the Motor Vehicle Safety Act to require that manufacturers install EDRs in motor vehicles, the public may not want a device in their vehicles that may appear to infringe on their personal privacy interests. There is an increasing need to educate and mold public perception about this technology.

Canadian policy for vehicle regulation, while not captive, is heavily influenced by policy in the United States. Crash data retrieval from EDRs is becoming more common and the need for public education and acceptance of these devices will soon become a priority of federal regulators in Canada. The motoring public is not well informed about EDR technology. While the technology has received moderate media exposure, there is much public uncertainty as to the nature and purpose of EDRs. The need for increased education and public acceptance of EDRs will substantially increase in the near future as standardization improves.

The media in Canada and the US are attracting readers by reporting EDR issues in an attention getting and often negative fashion using phrases such as “invasion of privacy by Big Brother type of surveillance.” In the US, political figures such as state senator Raymon Holmberg of North Dakota consider EDR’s to be a violation of his personal privacy. Holmberg and lawmakers in 10 other states are hoping to regulate these “black boxes” by statute.

North Dakota auto dealers report that they are not hearing many complaints about black boxes. Counter arguments are being raised by vehicle manufacturers, vehicle insurers and collision reconstructionsts. The State of California passed a black box law in 2003 and requires notices in the owner's manuals of cars that have EDRs. The new law also allows data to be accessed under

court order, for research, and for other reasons. Only time will tell if access to EDR data is going to be compromised to any significant degree by State legislation.

Promotion of EDR technology has, to date, focused on safety research and has concentrated less on their potential to allow more accurate assessment of liability. There is concern among the public and interest groups that universal EDR installation in new vehicles has much more to do with regulatory, enforcement, judicial, and corporate economic interests than safety and research [42]. This will be an area of great public debate as EDR technology becomes more common.

Perhaps the greatest benefit of EDRs to the motoring public is in road safety research. However, the importance of EDR technology for the accurate assessment of liability must also be addressed. Of course, the data will also be of interest to other parties including law enforcement personnel, members of the legal community, and insurance companies. These groups will no doubt wish to use recorded collision data to assign fault and support legal action, and so questions as to the ownership, accessibility, and use of such data in individual cases will come into question.

There is little question that the police and insurance community will be major users of EDR technology. The pre-crash data stored in EDR systems can provide solid evidence of pre-impact vehicle speed, and driver actions such as brake application. This type of information can be very helpful in understanding specific collision situations, e.g. where no skid marks are identified, or in single-vehicle, single-occupant fatalities. Indeed, use of EDRs for accurate assessment of liability will certainly be of benefit for the majority of drivers and the motoring public. Most drivers have little to fear from this technology but may have much to gain in terms of lower insurance premiums and safer roads..

The federal government through its Transport Canada Road Safety Directorate has been collecting and utilizing crash data and injury data for the above outlined purposes for decades, including the recently developing assistance from EDR data. That Transport Canada research field teams have been able to collect EDR data since the early time of its availability is a

testimony to the respect these teams have developed with police, the legal community, towing services and the motoring public over the past more than 30 years. The protection of personal privacy by the teams in this data collection through a coding system has maintained the confidence and support of the general public.

Recommendations

Many of the important issues addressed in this project are in a developing stage. From this review it seems appropriate to anticipate follow-up reviews at regular time intervals, such as annually, to keep abreast of changes and advances.

Acknowledgments

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Appendix I

The following table identifies the data elements that would be required to be recorded under NHTSA proposed rulemaking. Note that the vast majority of the elements in the table are being considered by SAE (The Society of Automotive Engineers) and/or IEEE in their ongoing efforts to develop standards for EDRs.

Data Elements that Must Be Recorded (R=Required; IE=If Equipped)			
Data Element	**R/IE**	**Recording Interval / Time**	**Condition for Requirement (IE)**
Longitudinal acceleration	R	-0.1 to 0.5 sec	n.a.
Maximum delta-V	R	Computed after event	n.a.
Speed, vehicle indicated	R	-8.0 to 0 sec	n.a.
Engine RPM	R	-8.0 to 0 sec	n.a.
Engine throttle, % full	R	-8.0 to 0 sec	n.a.
Service brake, on/off	R	-8.0 to 0 sec	n.a.
Ignition cycle, crash	R	-1.0 sec	n.a.
Ignition cycle, download	R	At time of download	n.a.
Safety belt status, driver	R	-1.0 sec	n.a.
Frontal air bag warning lamp, on/off	R	-1.0 sec	n.a.
Frontal air bag deployment level, driver	R	Event	n.a.
Frontal air bag deployment level, right front passenger	R	Event	n.a.
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, driver	R	Event	n.a.
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, right front passenger	R	Event	n.a.
Multi-event, number of events (1,2,3)	R	Event	n.a.
Time from event 1 to 2	R	As needed	n.a.
Time from event 1 to 3	R	As needed	n.a.
Complete file recorded (yes, no)	R	Following other data	n.a.
Lateral acceleration	IE	-0.1 to 0.5 sec	If vehicle is equipped to measure acceleration in the vehicle's lateral (y) direction
Normal acceleration	IE	-0.1 to 0.5 sec	If vehicle is equipped to measure acceleration in the vehicle's normal (z) direction
Vehicle roll angle	IE	-1.0 to 6.0 sec	If vehicle is equipped to measure or compute vehicle roll angle
ABS activity (engaged, non-engaged)	IE	-8.0 to 0 sec	If vehicle is equipped with ABS
Stability control status, on, off, engaged	IE	-8.0 to 0 sec	If vehicle is equipped with stability control, ESP, or other yaw control system

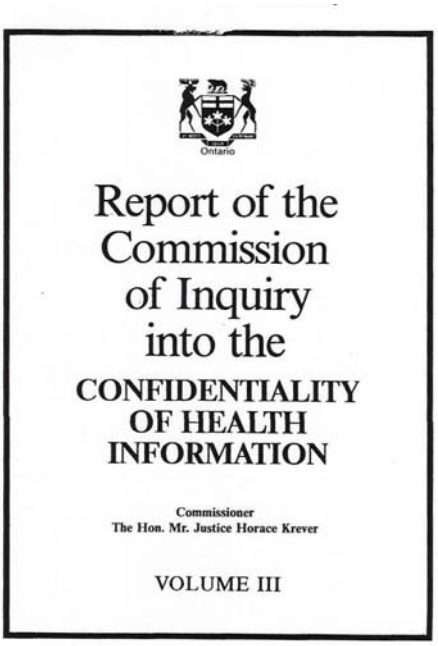
Steering input (steering wheel angle)	IE	-8.0 to 0 sec	If vehicle equipped to measure steering wheel steer angle
Safety belt status, right front passenger (buckled, not buckled)	IE	-1.0 sec	If vehicle equipped to measure safety belt buckle latch status for the right front passenger
Frontal air bag suppression switch status, right front passenger (on, off, or auto)	IE	-1.0 sec	If vehicle equipped with a manual switch to suppress the frontal air bag for the right front passenger
Frontal air bag deployment, time to N^{th} stage, driver *	IE	Event	If vehicle equipped with a driver's frontal air bag with a second stage inflator
Frontal air bag deployment, time to N^{th} stage, right front passenger *	IE	Event	If vehicle equipped with a right front passenger's frontal air bag with a second stage inflator
Frontal air bag deployment, N^{th} stage disposal, Driver, Y/N (whether the N^{th} stage deployment was for occupant restraint or propellant disposal purposes) *	IE	Event	If vehicle equipped with a driver's frontal air bag with a second stage that can be ignited for the sole purpose of disposing of the propellant
Frontal air bag deployment, N^{th} stage disposal, right front passenger, Y/N (whether the N^{th} stage deployment was for occupant restraint or propellant disposal purposes) *		Event	If vehicle equipped with a right front passenger's frontal air bag with a second stage that can be ignited for the sole purpose of disposing of the propellant
Side air bag deployment, time to deploy, driver		Event	If the vehicle is equipped with a side air bag for the driver
Side air bag deployment, time to deploy, right front passenger		Event	If the vehicle is equipped with a side air bag for the right front passenger
Side curtain/tube air bag deployment, time to deploy, driver side		Event	If the vehicle is equipped with a side curtain or tube air bag for the driver
Side curtain/tube air bag deployment, time to deploy, right side		Event	If the vehicle is equipped with a side curtain or tube air bag for the right front passenger
Pretensioner deployment, time to fire, driver		Event	If the vehicle is equipped with a pretensioner for the driver safety belt system
Pretensioner deployment, time to fire, right front passenger		Event	If the vehicle is equipped with a pretensioner for the right front passenger safety belt system
Seat position, driver (whether or not the seat is forward of a certain position along the seat track)		-1.0	If the vehicle is equipped to measure the position of the driver's seat
Seat position, passenger (whether or not the right front passenger seat is forward of a certain position along the seat track)		-1.0	If the vehicle is equipped to measure the position of the right front passenger's seat
Occupant size classification, driver		-1.0	If the vehicle is equipped to determine the size classification of the driver
Occupant size classification, right front passenger		-1.0	If the vehicle is equipped to determine the size classification of the right front passenger
Occupant position classification, driver		-1.0	If the vehicle is equipped to dynamically determine position of the driver.
Occupant position classification, right front passenger		-1.0	If the vehicle is equipped to dynamically determine position of the right front occupant.

* List this element n-1 times, once for each stage of a multi-stage air bag system.

Appendix II Recommendation by Justice Krever

Chapter 26

Research



Recommendation:

94. That a health-care facility be permitted to disclose identifiable health information to a qualified researcher for the purposes of a research project without the consent of the subjects involved, provided that approval has been granted by an appropriate human experimentation committee whose members must not be confined to the principal investigator's discipline and must include one or more representatives of the public, and provided also that human experimentation committee has been satisfied that the principal investigator has met the following criteria:

(i) the identifiable information sought is indispensable for the purpose of the research project,

(ii) the importance of the research project, in the opinion of the committee, justifies the breach of the subject's privacy, and

(iii) that he or she will not further disclose the identifiable health information except to persons who must have access to it for the purpose of the project, or in an emergency situation in which there is a risk to the life or safety of a subject or another person, or when required to do so by law.

Appendix III EDR Case Law

The following is a chronological list of court cases, U.S. and Canada, related to automotive Event Data Recorders. The information was taken from the website:

Harris Technical Services, http://www.harristechnical.com/cdr5.htm

Canada

Canada R. v. Daley, 2003 NBQB 20, S/CR/7/02 (2002).
This was a Dangerous Driving Causing Death charge where evidence from the EDR was accepted. The EDR from a 2000 Pontiac Sunfire gave a speed of 124 Km/h in a 60 km/h speed zone. On-scene evidence corroborated the EDR evidence. The charged party was found guilty.

Canada R. v. Gauthier, 2003 QCCQ, Case No. 500-01-013375-016 (2003)
An attempt was made by the defense to prevent the introduction of the EDR evidence alleging it violated the Canadian Charter of Rights and Freedoms. This was denied and the defendant was found guilty of Dangerous Driving Causing Death. The EDR in his Pontiac Sunfire indicated a speed of 131 km/h.

Canada R. v. Gratton, 2003 ABQB 728, Case No. 016051344Q (2003).
This case was a result of a crash involving a 2000 Chevrolet Silverado truck and a 1987 Ford Taurus station wagon. Five occupants of the station wagon were killed. EDR evidence was not accepted in this case.

Canada R. v. Brander, 2003 ABQB 756, Case No. 017156316Q1 (2003).
This case involved an unmarked police car, a Ford Crown Victoria, that crashed into a Tempo as it turned left across the police car's path. Although EDR evidence was entered as part of the analysis of the crash, it was disregarded by the court.

United States

Harris v. General Motors Corp., Electronic Citation: 2000 FED App. 0039P (6th Cir.), File Name: 00a0039p.06. This case involved the introduction of DERM data and the reported function of the air bag system.

Bachman, et al, v. General Motors Corp., Uftring Chevrolet-Oldsmobile, Delphi Automotive Systems and Delco Electronics Systems, Illinois App. Ct., 4th Dist., No. 4-01-0237, Appeal from Circuit Court of Woodford County, Case No. 98L21 (2002).
This is an appellate decision finding SDM data acquisition is not new or novel and meets the Frye standard for admissibility. SDM data was admitted into evidence in the civil trial.

Illinois v. Barham, Illinois App. Ct, 5th Dist., No. 5-02-0047, Appeal from the Circuit Court of Johnson County, Case No. 00-CF-90 (2003).
This is an appellate decision in a criminal case where EDR evidence was introduced regarding the vehicle's speed. The conviction was overturned by the appellate court on grounds other than those relating to the EDR evidence. This case was contributed by William Newman.

Anderson-Barahona v. General Motors Corp., No. 99A19714, GA, Cobb County Cir. Ct., Apr. 7, 2000.
In this case, the plaintiff sought data from GM to help prove a defect caused the car to accelerate suddenly to 90 mph resulting in a crash.

Colorado v. Cain, 1st Judicial District Court, Division 3, Jefferson County, Case No. 01 CR 967 (2002). This was the first criminal case where EDR evidence was introduced.

Florida v. Walker, 20th Judicial Circuit, Lee County, Case No. 00-002866CF RTC (2003).
This was a criminal case with a two vehicle, head-on collision. The defendant was charged with two counts of Vehicular Homicide. At issue was the defendant's speed and in which lane the collision occurred. The EDR provided evidence the defendant was not speeding at the time of the collision. The jury found the defendant not guilty.

Pennsylvania v. Rhoads, Montgomery County, Court of Common Pleas, Criminal Division, Docket No. 746701 (2002). This was a criminal case where the defendant pled guilty. It was a two vehicle accident in which the EDR in the defendant's vehicle, a 2001 Chevrolet Corvette, reported a speed of 106 mph.

Wisconsin v. Furst, Outagamie County Circuit Court, Case No. 00CF667 (2001). This was a criminal case where the defendant was charged with two counts of Homicide by the Intoxicated Use of a Motor Vehicle. The EDR was recovered from the victim's vehicle, a 1998 Buick Le Sabre, in which two occupants were killed. The jury found the defendant guilty on both counts.

California v. Beeler, San Diego Superior Court, Case No. SCD158974 (2002).
The defendant was operating a Ferrari and lost control in a curve. He crossed the painted center median striking a Saturn and killing the driver. The CDR Tool was used to download the SDM from the Saturn and the Ferrari module was downloaded by the module manufacturer. The collision data was admitted at trial unopposed. At issue was whether the Ferrari was traveling at 75 mph or 64 mph in a 45 mph zone and whether this conduct was grossly negligent. The defendant was convicted of a felony for crossing a barrier and causing the death of another. The jury hung on the manslaughter charge 9-3. The defendant subsequently pled guilty to those charges.

Florida v. Matos, 17th Judicial Circuit, Broward County, Case No. 02015762 CF 10A (2003). This was a criminal case with two counts of Vehicular Homicide. EDR evidence relating to vehicle speed was introduced and the case went to a jury. A Frye Hearing was held on the admissibility of the EDR evidence. The defendant was convicted by a jury.

Wisconsin v. Martinez, Brown County Circuit Court, Case No. 01CF766 (2002). This was a criminal case where the defendant was charged with Homicide by the Intoxicated Use of a Motor Vehicle. The EDR data was recovered from the defendant's 2000 Pontiac Trans Am. The defendant pled guilty.

Wisconsin v. Jahner, Outagamie County Circuit Court, Case No. 02CM649 (2002). This was a criminal case where the defendant was charged with Recklessly Endangering Safety, later reduced to Negligent Use of a Weapon under a plea agreement. The EDR data was recovered from the defendant's 2000 Chevrolet S-10.

South Carolina v. Cassels, Beaufort County, General Session Indictment No. 2002 GF 070372 (2003). This was a criminal case with one count of reckless homicide. The EDR indicated the Defendant was traveling at 98 mph with 100% throttle. The police speed estimate was 82 to 96 mph at impact with another vehicle. The jury returned a guilty verdict.

Florida v. Ubals, 17th Judicial Circuit, Broward County, Case No. 01017144 CF 10A (2003). This was a criminal case with two counts of DUI Manslaughter and two counts of Vehicular Homicide. The defendant was found guilty in a jury trial.

California v. Sanchez, Ventura County, Case No. 2001 9000 34 (2003). This was a murder case where the vehicle was not the weapon. EDR evidence was admitted.

Michigan v. Wood, Charlotte, Eaton County, Case No. 02 283 FH (2003) Admission of the EDR data over the objection of the defense where the defendant brought a "Davis-Frye" motion. The evidence was admitted.

South Dakota v. Janklow, 3rd Cir., Moody County, Case No. 03-147 (2003) This was a two vehicle accident involving a car and a motorcycle. The defense entered data from the EDR in the defendant's 1995 Cadillac without objection from the prosecution. The defendant was found guilty.

New York v. Christmann, Newark Village Court, Case No. 03110007 (2004) This was a non-jury criminal trial on a speeding citation. The defendant was found guilty of speeding, using EDR evidence, when his vehicle struck and killed a pedestrian.

Arizona v. O'Brien, Superior Court of Arizona, Maricopa County, Case No. CR 2003-016197-001 DT (2004) This was a criminal case where the driver was charged with leaving the scene of a pedestrian involved accident. EDR evidence was introduced by the defense. The defendant was found guilty.

Pennsylvania v. Weaver, Bucks County Juvenile Court (2004) This was a criminal case where EDR evidence was introduced by the prosecution. A guilty verdict, on one count of involuntary manslaughter, was handed down by Judge Rea Boylan in a "adversarial hearing".

New York v. Hopkins, Monroe County Court, Case No. 2004-0338 (2004) This was a criminal case where EDR evidence was introduced by the prosecution. A jury found the defendant guilty of manslaughter.

Virginia v. O'Connell, Chesterfield Circuit Court, Case No. CR04F009991 (2004)
This was a criminal case where EDR evidence was introduced by the prosecution and defense. Charges included Racing, DUI, Hit & Run, Manslaughter and DUI Manslaughter. The defendant was convicted in a bench trial.

Michigan v. Schubert, 13th Circuit Court, Case No. 04-9625-FH (2005) This was a criminal case where EDR evidence was introduced by the prosecution. A jury found the defendant guilty of negligent homicide.

Illinois v. Carone, Kane County Circuit Court, Case No. 03-CF-515 (2005) This was a bench trial where EDR evidence was introduced by the prosecution. The court found the defendant guilty on 10 counts that included reckless homicide, reckless homicide of an unborn child and a traffic violation for causing the crash.

Appendix IV US federal and state laws and pending bills

The following lists the US federal and state laws and pending bills that make a specific reference to Motor Vehicle Event Data Recorders and the utilization of recovered data. Some states may have laws that are applicable to the recovery of data without specifically referring to Motor Vehicle Event Data Recorders. Pending legislation is subject to changes. Links to the respective legislation can be found at http://www.harristechnical.com/cdr7.htm. The California Vehicle Code Section 9950-9953 and the Federal, House of Representatives Bill 5305 are provided below.

California Vehicle Code Section 9950-9953: This was enacted into law in 2004.

Federal, House of Representatives Bill 5305: Introduced Oct. 2004.

North Dakota, Senate Bill 2200: This bill is in the House as of Mar. 23, 2005.

Texas, House Bill 160: This bill passed the TX House on Feb. 23, 2005.

New Hampshire, House Bill 599: In the House Transportation Committee as of Feb 23, 2005

New York, Assembly Bill 872 and Senate Bill 850: No action reported on either bill as of Feb 25, 2005.

Alaska, Senate Bill 18: In the Senate Transportation Committee as of Feb. 24, 2005.

Arkansas, Senate Bill 51: Passed the House, amended and returned to the Senate as of Mar. 14, 2005.

Texas, House Bill 195: Passed in the House Feb. 25, 2005, now in the Senate.

Connecticut, Senate Bill 824: Passed in Senate, in the House as of Mar. 24, 2005.

West Virginia, House Bill 2850: In committee as of Mar. 24, 2005.

New Jersey, A2090: Last legislative action reported on Oct. 4, 2004.

CALIFORNIA VEHICLE CODE SECTION 9951-9953

9951. (a) A manufacturer of a new motor vehicle sold or leased in this state, which is equipped with one or more recording devices commonly referred to as "event data recorders (EDR)" or "sensing and diagnostic modules (SDM)," shall disclose that fact in the owner's manual for the vehicle.

(b) As used in this section, "recording device" means a device that is installed by the manufacturer of the vehicle and does one or more of the following, for the purpose of retrieving data after an accident:

(1) Records how fast and in which direction the motor vehicle is traveling.

(2) Records a history of where the motor vehicle travels.

(3) Records steering performance.

(4) Records brake performance, including, but not limited to, whether brakes were applied before an accident.

(5) Records the driver's seatbelt status.

(6) Has the ability to transmit information concerning an accident in which the motor vehicle has been involved to a central communications system when an accident occurs.

(c) Data described in subdivision (b) that is recorded on a recording device may not be downloaded or otherwise retrieved by a person other than the registered owner of the motor vehicle, except under one of the following circumstances:

(1) The registered owner of the motor vehicle consents to the retrieval of the information.

(2) In response to an order of a court having jurisdiction to issue the order.

(3) For the purpose of improving motor vehicle safety, including for medical research of the human body's reaction to motor vehicle accidents, and the identity of the registered owner or driver is not disclosed in connection with that retrieved data. The disclosure of the vehicle identification number (VIN) for the purpose of

improving vehicle safety, including for medical research of the human body's reaction to motor vehicle accidents, does not constitute the disclosure of the identity of the registered owner or driver.

(4) The data is retrieved by a licensed new motor vehicle dealer, or by an automotive technician as defined in Section 9880.1 of the Business and Professions Code, for the the purpose of diagnosing, servicing, or repairing the motor vehicle.

(d) A person authorized to download or otherwise retrieve data from a recording device pursuant to paragraph (3) of subdivision (c), may not release that data, except to share the data among the motor vehicle safety and medical research communities, to advance motor vehicle safety, and only if the identity of the registered owner or driver is not disclosed.

(e) (1) If a motor vehicle is equipped with a recording device that is capable of recording or transmitting information as described in paragraph (2) or (6) of subdivision (b) and that capability is part of a subscription service, the fact that the information may be recorded or transmitted shall be disclosed in the subscription service agreement.

(2) Subdivision (c) does not apply to subscription services meeting the requirements of paragraph (1).

(f) This section applies to all motor vehicles manufactured on or after July 1, 2004.

9952. Any person who publishes, or causes to be published, or offers for sale or sells, or gives to another person, any advertisement, brochure, owner's manual, or sales manual which violates Section 9950 is guilty of an infraction.

US FEDERAL HOUSE OF REPRESENTATIVES 5305

HR 5305 IH
108th CONGRESS
2d Session
H. R. 5305
To require automobile dealers to disclose to consumers the presence of Event Data Recorders, or `black boxes' on new automobiles, and to require manufacturers to provide the consumer with the option to enable and disable such devices on future automobiles.

IN THE HOUSE OF REPRESENTATIVES
October 8, 2004

Mr. CAPUANO (for himself and Mrs. BONO) introduced the following bill; which was referred to the Committee on Energy and Commerce

A BILL
To require automobile dealers to disclose to consumers the presence of Event Data Recorders, or `black boxes' on new automobiles, and to require manufacturers to provide the consumer with the option to enable and disable such devices on future automobiles. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. FINDINGS.
Congress finds the following:
(1) Consumers have the right to know that Event Data Recorders are installed in their vehicles, that they are capable of collecting data recorded in automobile accidents, and how such data may be used.
(2) From the standpoint of consumer privacy rights, most consumers are not aware that their vehicles are recording data that not only may be used to aid traffic safety analyses, but has the

potential of being used against them in a civil or criminal proceeding, or by their insurer to increase rates.

SEC. 2. DISCLOSURE OF EVENT DATA RECORDERS ON AUTOMOBILES.
(a) Required Disclosure- In accordance with regulations prescribed by the Federal Trade Commission under section 4(c), a dealer shall disclose, to each consumer who purchases a new automobile, in a clear and conspicuous written format at the time of purchase, the following information regarding any Event Data Recorder installed on such new automobile:
(1) the presence and location of an Event Data Recorder;
(2) the type of information recorded by the Event Data Recorder and how such information is recorded; and
(3) that the information recorded by the Event Data Recorder also may be used in a law enforcement proceeding.
(b) Required Disclosures in Owner's Manual- The manufacturer shall include, in clear and conspicuous language in the owner's manual of any new automobile containing an Event Data Recorder, the disclosures required by subsection (a).

SEC. 3. REQUIREMENT FOR EVENT DATA RECORDERS ON NEW AUTOMOBILES.
No person may manufacture for sale, sell, offer for sale, introduce or deliver into interstate commerce, or import into the United States, an automobile manufactured after 2006 (and bearing a model year of 2007 or later) that is equipped with an Event Data Recorder, unless such Event Data Recorder includes a function whereby the consumer has the option to enable or disable the functioning of the Event Data Recorder.

SEC. 4. ENFORCEMENT.
(a) Treatment of Violations as Unfair or Deceptive Acts or Practices- A violation of section 2 or 3 shall be treated as a violation of a rule defining an unfair or deceptive act or practice prescribed under section 18(a)(1)(B) of the Federal Trade Commission Act (15 U.S.C. 57a(a)(1)(B)).
(b) Federal Trade Commission Authority- The Federal Trade Commission shall enforce this Act in the same manner, by the same means, and with the same jurisdiction, powers, and duties as

though all applicable terms and provisions of the Federal Trade Commission Act (15 U.S.C. 41 et seq.) were incorporated into and made a part of this Act.

(c) Rulemaking- Within 180 days following the enactment of this Act, the Federal Trade Commission shall prescribe regulations to carry out this Act, including guidelines setting forth a uniform method by which a dealer may provide the disclosures and options required by section 2.

SEC. 5. NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION STUDY.

(a) Study- The National Highway Traffic Safety Administration shall conduct a study of both the potential utility and still unknown consequences of the implementation of Event Data Recorder technology, including the practical, realworld consequences that may result from the widespread installation of such technology.

(b) Report- Not later than 180 days after the date of enactment of this Act, the National Highway Traffic Safety Administration shall transmit to Congress a report on the findings of the study required by subsection (a).

SEC. 6. DEFINITIONS.

As used in this Act:

(1) The term `consumer' has the meaning given the term `ultimate purchaser' in section 2 of the Automobile Information Disclosure Act (15 U.S.C. 1231).

(2) The term `dealer' has the meaning given that term in section 30102(a) of title 49, United States Code.

(3) The term `Event Data Recorder' means any device or means of technology installed in an automobile that records information such as vehicle speed, seatbelt use, application of brakes or other information pertinent to the operation of the automobile.

(4) The terms `manufacturer' and `new automobile' have the meanings given those terms in section 2 of the Automobile Information Disclosure Act (15 U.S.C. 1231).

SEC. 7. EFFECTIVE DATE.

This Act shall take effect 180 days after the date of enactment of this Act.

END

Appendix V Event Data Recorders in the Media

BBC NEWS

EU considers black boxes for cars

Black box data recorders could be installed in new cars as standard if a Europe-wide study gives them backing.

Police forces across the continent are looking at whether the aircraft-style technology could improve road safety.

The European Commission will use their research to decide if the devices could help in accident investigations.

They are able to record information, including speed and the rate of braking in cars, in the vital seconds leading up to a crash.

It is hoped accident investigators would be able to use the black box information to get a detailed picture of the circumstances surrounding a collision.

Some UK police forces including the Metropolitan Police in London already use the technology in their own cars.

They say it has helped to reduce the number of accidents they have.

The European Commission asked senior police officers across Europe to work on the study looking at the feasibility of installing the devices all new vehicles.

If it is a success, legislation could be passed by ministers in Brussels.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/uk/4299939.stm

Published: 2005/02/26 08:09:22 GMT

It's no secret that privacy laws can be bad for our health

Second Opinion

ANDRÉ PICARD

The advent of electronic health records, combined with the creation of huge databases, and the increasing commercialization of medicine has sparked widespread concern about the privacy of medical information.

As a result, governments, health-care institutions, consumers groups and private corporations have fashioned laws and rules to protect the privacy of individuals. These initiatives are, for the most part, long overdue. They confirm and extend the long-standing legal principle of doctor-patient confidentiality.

Just because health records are kept electronically does not mean they should be accessible to anyone in a lab coat. When you get a blood test as part of a physical, the results should not necessarily be available to your employer or insurance company.

Patients (and staff) in hospitals and nursing homes need protection from abusive electronic monitoring with so-called "granny cams." Patients need to know when they buy a prescription drug that information is collected and sold back, at a profit, to pharmaceutical companies. Participants in research projects need assurances that the information they are providing is used appropriately.

Yet, while privacy and confidentiality are rights, they are not absolute. The courts, for example, have on occasion granted investigators and prosecutors access to medical records. Sometimes, treatment can be administered without explicit consent.

While consent should be sought wherever possible, there are cases when medical information can and should be collected without it. In Canada, a number of reportable diseases (such as food poisoning and rabies) must be reported to public-health authorities.

But there are murky areas in privacy legislation that should not be murky.

A case in point is observational studies. In this kind of research, patients are "observed" (via their medical charts) during the normal course of treatment, and researchers learn from the outcomes. Observational studies allow scientists to, for example, determine the best treatment for stroke by examining what worked, and what didn't work, in the real world. Or, to determine the side effects of a drug that is being used by tens of thousands of patients, at relatively low cost.

This type of research is invaluable. For example, the first clues of problems with Vioxx — a once-popular painkiller now removed from the market — emerged from this kind of data mining. It is also how we learn when clot-busting drugs work best. And it is how we determine which cancer drugs are most effective, and for whom.

Because the rules are unclear, some researchers worry that they need to get consent from all individuals in observational studies. That is difficult, if not impossible. Just ask Dr. Jack Tu, a senior scientist at the Institute for Clinical Evaluative Studies in Toronto. When his research team was setting up the Ontario Stroke Registry in 2001, they decided to err on the side of caution.

The registry, which was designed to collect information on all stroke patients, how they were treated, their complications and outcomes, set out to get consent, even though the data is anonymous. (Each patient is given an individual identifying number that is an encrypted version of their provincial health insurance number. Their conditions/treatments are listed in numerical codes as well so researchers really have no personal data about the patients.)

The results were disastrous. Only 39 per cent of patients were enrolled, and those who did enroll were far healthier — their mortality rate, for example, was one-third of that of all stroke sufferers. In other words, the data was useless.

The Stroke Registry was eventually granted an exemption, and no longer requires individual consent from every patient to collect information. (Now, instead, all patients are offered the ability to opt out, but no one has done so.)

When patients find themselves in the health system, sick and vulnerable, it is important to protect them from harm, and that protection must extend to confidentiality.

But in striving to respect the rights of patients, we must ensure that we do not inadvertently undermine research that could improve patient care and save lives.

There is a trade-off here, but it is one with very little downside. In the four decades that cancer registries have existed in Canada, there is not a single recorded case of patient information being wrongly disclosed. (The privacy horror stories tend to involve physicians who carelessly toss old files in the garbage, and blabbering politicians, not researchers.) The safeguards that are in place seem to be working. The benefits of observational and epidemiological studies, and of cancer and stroke registries, are well established.

Legislators, health administrators and research ethics boards have to be careful to not be unduly swayed by a small cadre of privacy zealots. We do not need measures that protect individual privacy at the expense of research that benefits the collectivity.

There are enough threats out there already: We don't need privacy legislation that is bad for our health.

apicard@globeandmail.ca

Jan 27/05

GLOBEANDMAIL.COM

No barrier to research

BY ANN CAVOUKIAN

THURSDAY, FEBRUARY 3, 2005
UPDATED AT 2:48 PM EST
INFORMATION AND PRIVACY COMMISSIONER OF ONTARIO

Toronto -- While I generally agree with the substance of André Picard's Jan. 27 column, It's No Secret That Privacy Laws Can Be Bad For Our Health, I am concerned it will mislead readers into believing that privacy legislation is a barrier to research. It is not. There is no rigid requirement to obtain positive consent before health information may be used for research purposes or to maintain registries of personal health information, such as the Stroke Registry and Cancer Registry. This is the case in Ontario and, for that matter, any other jurisdiction in Canada that has privacy legislation pertaining to personal health information.

As you would expect, any uses of your personal health information without your consent are subject to a number of privacy safeguards in Ontario. For example, in the case of research, a researcher must have a detailed research plan that is approved by a duly constituted research ethics board and where identifiable information is needed to accomplish the research objectives, and it is impractical to obtain consent.

In the case of the Stroke Registry, the decision to obtain express consent was made by the research team. There was no legislative requirement to do so. We applaud Dr. Jack Tu and his associates for attempting the most privacy-protective option. This experiment provided invaluable information about the impracticalities of obtaining express consent in such circumstances.

FortWayne.com

Posted on Fri, Mar. 25, 2005

North Dakota, other states debate privacy safeguards on vehicle black boxes

JAMES WARDEN
Associated Press

BISMARCK, N.D. - Raymon Holmberg didn't know his new sedan came equipped with the long arm of the law. The dealer hadn't bothered to mention the "black box," a computer chip that stores information on speed and seat belt use.

"When I bought my car," he said, "I didn't realize I was also buying a highway patrolman to sit in the back seat."

Holmberg, a state senator, believes his privacy was violated and is taking aim at black boxes.

The bill Holmberg is sponsoring - now up for Senate consideration after being approved Wednesday by the House - would require buyers to be told if their new car or truck is equipped with a black box. It would also prohibit the data from being used in court unless there is a court order. Subscription services such as OnStar, which can be used to track a vehicle's movements, would be exempt.

Its most vocal critics are auto manufacturers. For General Motors, said lobbyist Thomas Kelsch, it makes no sense to bar information from the computer chip from being used in court.

"What's the societal good that would result from the suppression of valuable crash data?" Kelsch asked.

But Holmberg, a Grand Forks Republican, again raises the privacy issue. He worries the data could be used to track driving habits or be used against a driver who has an accident.

"Most people don't realize these devices are in their vehicle, that the information recorded may be used against them and there's no sort of regulation about who owns that information," he said.

North Dakota is one of at least eight states considering black-box regulation this year, Bob Boerner, an official with the National Conference of State Legislatures, said Friday. Others are Connecticut, Massachusetts, Montana, New Jersey, New York, Virginia and West Virginia.

California has a law on the books requiring dealers and vehicle rental companies to inform drivers when a car has a black box. In New York, it is illegal for rental companies to use global positioning system technology to track drivers and use the data to charge extra fees or penalties.

Accident investigators argue that the privacy concerns are overblown.

"These guys are trying to roll back North Dakota courts to the Dark Ages," said Jim Harris, owner of Harris Technical Services, a Florida-based accident investigation company. "What are you going to do? Leave out videotapes?"

According to the National Highway Transportation Administration, about 15 percent of vehicles - or about 30 million cars and trucks - have black boxes. About 65 percent to 90 percent of 2004 cars and trucks have them, according to the NHTA.

Rusty Haight, director of the Collision Safety Institute, which researches crashes and trains accident investigators, said black boxes were introduced in cars along with air bags in the 1970s.

Air bag sensors already collected the information and it was a small step to allow researchers to see how well other systems were performing, Haight said.

North Dakota Highway Patrol Capt. Mark Bethke said crash investigators must have a warrant to access information from a recorder. He said the patrol collects such information less than once a month and has never used it in court.

John Buchanan, a Miami accident reconstruction expert, said investigators must compare what the recorder says to the physical evidence at an accident scene.

"I'm a big believer in the box," he said. "But you cannot just take a box, read what it says and say that's what happened."

Insurance companies already have limited access to some data.

State Farm requires its customers to help with investigations, including allowing insurance employees to look at their vehicles, said Dick Luedke, a spokesman for the Illinois-based insurer.

Progressive Insurance began a voluntary program last year in which the company gives drivers a chip similar to a black box that can be used to transmit data, said spokeswoman Shannon Radigan.

Progressive offers drivers the possibility of a break on their insurance rates based on when, how much and how fast they drive, she said. The average discount is between 12 percent and 15 percent, she said.

North Dakota auto dealers say they have not heard many complaints about black boxes. Sales people say customers rarely ask about them. And police say the devices are not common.

"They're just not very prevalent," said Fargo Sgt. Joel Vettel.

The London Free Press

Saturday, March 26, 2005

Car black boxes raise legal issues

Associated Press

BISMARCK, N.D. — Raymon Holmberg didn't know his new sedan came equipped with the long arm of the law. The dealer hadn't bothered to mention the black box, a computer chip that stores information on speed and seatbelt use.

"When I bought my car," he said, "I didn't realize I was also buying a highway patrolman to sit in the back seat."

Holmberg, a state senator, believes his privacy was violated and he's taking aim at black boxes. Lawmakers in 10 other states are also hoping to regulate black boxes, according to the National Conference of State Legislatures.

The bill Holmberg is sponsoring — now up for consideration in the state senate after being approved Wednesday by the house — would require buyers to be told whether their new car or truck is equipped with a black box. It would also prohibit the data from being used in court unless there is a court order. Subscription services such as OnStar, which can be used to track a vehicle's movements, would be exempt.

The most vocal critics of the bill are auto manufacturers. For General Motors, said lobbyist Thomas Kelsch, it makes no sense to bar information from the computer chip from being used in court.

"What's the societal good that would result from the suppression of valuable crash data?" Kelsch asked.

But Holmberg, a Grand Forks Republican, again raises the privacy issue. He worries the data could be used to track driving habits or be used against a driver who has an accident.

"Most people don't realize these devices are in their vehicle, that the information recorded may be used against them and there's no sort of regulation about who owns that information," he said.

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Accident investigators argue that the privacy concerns are overblown.

"These guys are trying to roll back North Dakota courts to the Dark Ages," said Jim Harris, owner of Harris Technical Services, a Florida-based accident investigation company. "What are you going to do? Leave out videotapes?"

> "I'm a big believer in the box. But you cannot just take a box, read what it says and say that's what happened."
>
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Air bag sensors already collected the information and it was a small step to allow researchers to see how well other systems were performing, Haight said.

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"I'm a big believer in the box," he said. "But you cannot just take a box, read what it says and say that's what happened."

Norwich Union offers 'pay-as-you-drive' insurance

Global positioning systems used to monitor journeys

Daniel Thomas, Computing 17 Jan 2005

Norwich Union has launched a 'pay-as-you-drive' insurance scheme for young motorists.

Drivers aged between 18-21 can fit a 'black box' style device into their vehicle, which then uses global position systems to calculate insurance premiums based on how frequently and where they drive.

By travelling at off-peak times motorists will be able to reduce their insurance premiums and will be monthly in a way similar to paying mobile phone bills.

'The scheme brings motor insurance into the 21st century by providing affordable comprehensive insurance for young drivers in return for driving at safer times,' said programme director, Robert Ledger.

The move follows the launch of a nationwide pilot by Norwich Union in August, where 5,000 volunteers were monitored on distances travelled and the types of roads used.

US insurer Progressive has developed the telematics technology and Norwich Union has exclusive rights to use it in the UK and Europe.

Ottawa Citizen; 15-MAR-05

Big Brother is now riding shotgun

Insurance company offers big discount to drivers willing to install new monitoring device

BY KRISTIN GOFF

A device that records the speed, time and distance a car is driven, is the latest weapon in the war on risky driving, according to a Canadian insurer that is offering discounts to people who agree to use their gizmo.

The goal is to get people to recognize how they are driving, take control of their choices and reward those who have less risky driving patterns with lower insurance premiums, says Paul Fletcher, senior vice-president of Aviva Canada, which is testing the idea in the Ontario market.

Aviva Canada is offering discounts of up to 25 per cent to customers who agree to use a monitoring device, called Autograph, to show that they are better than average drivers in a given risk category.

Families with second cars, which are driven only short distances, people who use mass transit to commute or families with a younger driver living at home, could all benefit, he said.

Whether there is a public appetite for having an electronic "big brother" ride shotgun on each outing is something its pilot program is designed to test.

Mr. Fletcher says people who sign up for the monitoring program will only be asked to send in data to the insurance company every four to six months and then, only if they choose to, after reviewing the data on their own computer. But they will be encouraged to download information to their computers more frequently "to learn about their driving," he said.

Does that mean parents will be able to check on their teenager's last outing? Or will it bring back-seat driving to a whole new level in families where spouses may have radically different driving styles?

It could, says Mr. Fletcher. But he sees that as a good thing. "We think it creates the opportunity for good discussions in the home about how people in the family are driving," he said. "We think this is a great device."

The program, launched last week, is the first of its kind in Canada and joins two other pilot programs recently begun in the United States and the U.K. Aviva Canada's program is offered through 12 brokers in Ontario, including Rhodes & Williams Limited in Ottawa.

See DEVICE on PAGE B2

Device: Aviva hopes to roll out full program across Canada

Continued from PAGE B1

The pilot aims at signing up 5,000 customers in Ontario and hopes eventually to roll out a full program across Canada. People who sign up will be sent a monitoring device which is about the size of a matchbox. It plugs into a diagnostic port typically found under the steering column of most cars manufactured after 1995. That device will measure the car's speed, the number of kilometres driven and the time of day or night when it is driven. It will also record time lapses, when it is unplugged.

After about four months, the customer will be asked to download the data on to their own computer. They can choose at that point whether to send it on to Aviva, something the company says preserves the customer's right to privacy. It offers a five-per-cent discount to anyone who sends in their data, regardless of what it shows.

Cory Young, a broker with Rhodes & Williams Limited, in Ottawa thinks the program offers great potential and has the appeal of giving individuals the opportunity to influence their own auto insurance rates.

Still, because owners won't know what discount they might qualify for until after they have sent in their first four months of driving data, Rhodes & Williams would only recommend the program to clients for whom Aviva's rate, before the discount, is very competitive, he said. Most companies offer lower rates for automobiles that are used less frequently or for shorter distances. The Autograph option would be suggested only where customers might get additional benefit if they participated, he said.

Tucson Citizen
www.tucsoncitizen.com

WEDNESDAY, MARCH 2, 2005

Computer: E-cop rides as passenger

Devices record traffic violations. Parents are key customers.

MICHELLE HIGGINS
The Wall Street Journal

Teenagers used to worry about their little brother or sister snitching on them. Now, big brother is watching.

New monitoring devices are hitting the market that let parents keep close tabs on how their kids are behaving behind the wheel.

They can tell whether teenagers are driving recklessly, whether they're wearing seat belts and whether they are just going to the library as they promised.

Based on technology long used by trucking companies to track driver behavior, the gadgets - typically installed under the dashboard - can track acceleration, braking and distance traveled.

Some of the new devices are interactive, capable of notifying parents if their child speeds or drives beyond a predefined boundary, such as a boyfriend's house or Nogales.

Depending on the product, the alerts come via e-mail, phone or by logging onto a Web site.

Alltrack USA, an online retailer that offers Real-Time Tracking, sells a $40 add-on that lets parents immediately tell their kid to knock it off.

From their computer, parents can flash a light on the dashboard or blow the car's horn at the driver. It allows parents to prevent a car from being restarted once it's parked somewhere.

Gadgets such as these range in price from $140 for a basic system without instant tracking to more than $400 plus monthly fees for options that use global-positioning satellite technology.

In about a month, Road Safety International Inc., maker of the RS-1000 Teen Driving System, plans to add an optional GPS receiver that will push the total cost of the product to about $480 from about $280 now.

Now, Road Safety's device records the car's speed and other data that parents can only retrieve later.

As with nannycams and other observational equipment, the teen trackers raise tough issues for parents.

On the one hand, car crashes are the top cause of death among teens.

On the other, many parents want to treat a young adult as worthy of trust.

When Jeff Auerbach put a tracking device in the car used by his 16-year-old son Andrew, the two went shopping for it together.

"What I didn't want it to be was sort of a 'gotcha' spy program," says Auerbach, a patent lawyer in Rockville, Md.

His hope was that since Andrew knew someone could be checking up on him, he'd be inclined to drive safely all the time.

Andrew says he was a little upset at first.

"It's not the greatest feeling" knowing that someone might be watching, he says.

But he says it provided a helpful excuse once when a friend urged him to see how fast his car would go.

"It was very, very easy to just say, 'No, it's got a tracker system.' "

Similar technology is being used by car-alarm makers to help prevent theft and recover stolen vehicles.

Directed Electronics Inc.'s Viper GPS Tracking System, a device designed to add tracking capabilities to the company's car alarms and with teen-tracking capabilities, can alert the car's owner if the alarm is activated.

Insurance companies are starting to get interested in technology like this.

Progressive Insurance, based in Mayfield Village, Ohio, is running a 5,000-car pilot program in Minnesota using a device that records speed and other data.

Participants, in return for letting the insurer track their driving patterns, can qualify for insurance discounts of up to 25 percent.

The most basic devices - the ones without GPS or e-mail capabilities - plug into the computer that most cars these days have.

It records a couple days' worth of data, such as when your teen or anyone else started the car, how far it went and at what speeds.

To see the data, a user must unplug the device from the car and hook it to a PC.

More powerful versions, which either offer instant e-mail or real-time access via a Web page, never have to be removed from the car.

Since some of the more powerful devices use cellular phone networks to transmit data, they may require monthly fees of up to nearly $70.

Dozens of products are available with an array of brand names, but many of the devices are similar.

Indeed, many are manufactured by a handful of companies, including AirIQ Inc., Advanced Tracking Technologies and Discrete Wireless in Atlanta.

'BLACK BOX' TECHNOLOGY ALLOWS PARENTS TO CONTROL TEEN DRIVERS

New York Concerned parents are indulging in the ultimate backseat driving experience — computer technology that allows them to monitor how their children are driving and, if necessary, immobilize the car. A wave of tracking devices hitting the market in the United States takes the basic "black box" flight recorder principle several steps further. An interactive element allows parents sitting at home to intervene if they believe Junior's "quick trip" is spiralling out of control. Data recorders are now installed on 15% of cars in the United States but many parents are increasingly wanting more control when their children get behind a steering wheel, manufacturers say. Most of the half dozen or so products now on sale use global positioning satellite systems and warn parents of untoward driving behaviour via e-mail, phone or Web site. They range in price from $300 to $600. The Real-Time Tracking system, for example, allows parents to follow their car's movements on a Web site street map and to disable remotely the car's ignition once it has stopped. The RS-1000 Teen Driving computer sounds a warning in the car when it detects dangerous driving. Larry Selditz, who runs the company, compares the system to "being able to sit next to your teenager every second they drive." The black box contains a card that can be removed and connected to a computer so parents can print performance reports. Lawyers, however, warn that recorded information could end up in court after an accident. *The Daily Telegraph*

ACCIDENT RECONSTRUCTION NEWSLETTER
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EDR Technology and California Vehicle Code Section 9951

with analysis by W.R. "Rusty" Haight

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AMENDED IN ASSEMBLY MARCH 3, 2003

INTRODUCED BY Assembly Member Leslie (Coauthor: Senator Bowen)

JANUARY 29, 2003
An act to add Section 9951 to the (California) Vehicle Code, relating to vehicles.

LEGISLATIVE COUNSEL'S DIGEST
AB 213, Leslie. Vehicles: manufacturers: disclosure.
Existing law sets forth various provisions governing vehicle manufacturers. Those provisions include the requirement that manufacturers disclose in the owner's manual, or other written material, as specified, of a new motor vehicle sold in this state, the fact that the vehicle, as equipped, may not be operated with tire chains.

This bill would require a manufacturer of a new motor vehicle sold or leased in this state that is equipped with one or more recording devices, commonly referred to as "event data recorders (EDR)" or "sensing and diagnostic modules (SDM)," to disclose that fact in the owner's manual for the vehicle. The bill would prohibit specified data that is recorded on a recording device from being downloaded or otherwise retrieved by a person other than the registered owner of the motor vehicle, except under specified circumstances. The bill would also require a subscription service agreement to disclose that specified information may be recorded or transmitted as part of the subscription service.

The bill would provide that it applies to all motor vehicles manufactured on or after July 1, 2004. Because a violation of the Vehicle Code is an infraction, the bill would create new infractions, thereby imposing a state-mandated local program. The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement. This bill would provide that no reimbursement is required by this act for a specified reason.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:
SECTION 1. Section 9951 is added to the Vehicle Code, to read:

9951.

(a) A manufacturer of a new motor vehicle sold or leased in this state, which is equipped with one or more recording devices commonly referred to as "event data recorders (EDR)" or "sensing and diagnostic modules (SDM)," shall disclose that fact in the owner's manual for the
vehicle.
(b) As used in this section, "recording device" means a device that is installed by the manufacturer of the vehicle and does one or more of the following, for the purpose of retrieving data after an accident:

(1) Records how fast and in which direction the motor vehicle is traveling.
(2) Records a history of where the motor vehicle travels.
(3) Records steering performance.
(4) Records brake performance, including, but not limited to, whether brakes were applied before an accident.
(5) Records the driver's seatbelt status.
(6) Has the ability to transmit information concerning an accident in which the motor vehicle has been involved to a central communications system when an accident occurs.

(c) Data described in subdivision
(b) that is recorded on a recording device may not be downloaded or otherwise retrieved by a person other than the registered owner of the motor vehicle, except under one of the following circumstances:

(1) The registered owner of the motor vehicle consents to the retrieval of the information.
(2) In response to an order of a court having jurisdiction to issue the order.
(3) For the purpose of improving motor vehicle safety, including for medical research of the human body's reaction to motor vehicle accidents, and the identity of the registered owner or driver is not disclosed in connection with that retrieved data. The disclosure of the vehicle identification number (VIN) for the purpose of improving vehicle safety, including for medical research of the human body's reaction to motor vehicle accidents, does not constitute the disclosure of the identity of the registered owner or driver.
(4) Data is retrieved by a licensed new motor vehicle dealer, or by an automotive technician as defined in Section 9880.1 of the Business and Professions Code, for the the purpose of diagnosing, servicing, or repairing the motor vehicle.

(d) A person authorized to download or otherwise retrieve data from a recording device pursuant to paragraph (3) of subdivision (c), may not release that data, except to share the data among the motor vehicle safety and medical research communities, to advance motor vehicle safety, and only if the identity of the registered owner or driver is not disclosed.
(e) (1) If a motor vehicle is equipped with a recording device that is capable of recording or transmitting information as described in paragraph (2) or (6) of subdivision (b) and that capability is part of a subscription service, the fact that the information may be recorded or transmitted shall be disclosed in the subscription service agreement. (2) Subdivision (c) does not apply to subscription services meeting the requirements of paragraph (1).
(f) This section applies to all motor vehicles manufactured on or after July 1, 2004.

SEC. 2. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

Analysis by W. R. “Rusty” Haight
Collision Safety Institute

In early 2000, the Vetronix Corp of Santa Barbara made the “Crash Data Retrieval (CDR) System” publicly available. The CDR System - essentially a diagnostic “scan tool” like the other scan tools they make for activities such as emissions checks and engine diagnostics - extracts crash data from the air bag control module in some of the cars capable of saving that data in the event of a crash. The system was first capable of extracting data from General Motors (GM) vehicles and in 2003 it was extended to allow access to a limited number of Ford vehicles. In the near future, the system will be expanded to additional Ford models and, before long, other manufacturers’s vehicles will be accessible using this system.

After the system’s release, it was inevitable that crash data would begin to find its way into the courts and, of course, catch the attention of the media. Naturally, since criminal cases generally find their way to trial sooner than civil cases, crash data extracted using the CDR System started

to appear in criminal cases around the country in late 2000 and they continue into 2004.

One of the earliest well known cases occurred in Jefferson County, Colorado, and involved a teenage driver who, while speeding, lost control of his car in a yaw and the car ended up going sideways into a utility pole. The prosecution offered the CDR data at trial and showed that the car had been going, at one point, some 78mph - well in excess of either the posted limit or what would be safe on that road. The defense seized on the fact that, at one point, the driver appeared to apply the car's brakes and the crash data showed what appeared to be a substantial speed loss - as though the driver tried to slow the car - before impact. In the end, the driver was acquitted of felony vehicular assault charges (relative to injuries to occupants). Rather than focusing on the fact that the data was ultimately used in part to actually acquit the driver, the media seized on the notion that this was a secret "black box" installed by the manufacturers without the knowledge of unsuspecting owners/drivers and was an extension of some "evil corporate big brother" technology installed to spy on us. More recent media accounts have similarly overlooked this case and focused instead on, for example, "your car as a witness for the prosecution.." Over time, there have been other similar high profile cases involving the Event Data Recorder (EDR) technology. One relatively recent case in south Florida made national headlines starting in USA Today and then other media outlets where data from a crash was used in trial together with the normal reconstruction done and the driver was convicted. Articles about this technology have appeared in national news magazines as well as on the television and radio news nationally in the US and Canada as well as locally. Most, if not all, media accounts ultimately turn their attention from the case at hand - away from the actions of the involved driver who killed or maimed others - and focus on the red herring issue of "privacy" instead.

Without going too much into a discussion of how factually the media "reports" the news as opposed to the sensationalism of the news, "some" knowledge of this system ultimately made its way to the office of California Assemblyman Tim Leslie of the 4 District in California, the Roseville area. In January 2003, Assemblyman Leslie introduced Assembly Bill 213: "Vehicles: Event Data Recorders."

As part of an exchange of correspondence between Assemblyman Leslie and myself, he wrote to me as the bill found its way through committee defending it this way: "AB 213 is a warranted and measured response aimed at protecting consumers from recording devices installed on their vehicles without their permission." In that same correspondence, he continued, "The bill will not stop advancements in motor safety (sic) - it will however prevent unwarranted seizures of the information contained on (sic) these devices." (For my part, I asked Assemblyman Leslie, pointedly, why consumers needed to be "protected" from these devices? I wonder, are there sharp edges or small parts that could be swallowed I wasn't aware of..?)

In the end, over objections by myself directly to Assemblyman Leslie and others in the state legislature in addition to objections forwarded by police officers from throughout California, AB 213 was passed, signed by the former governor and will become California Vehicle Code Section 9951 to take effect in 2004.

But what IS that actual effect? How will it effect our handling of EDR data using the CDR system? There's been a lot of hand wringing since the passage of the section about how it will keep us from getting at EDR data, but will it?

For starters, the section is one of those found in the vehicle code which might be described as an "enabler" or administrative section. It's going to be found after section 9950 which is "statement of horsepower rating of engine" in the Vehicle Code under the "Vehicle Sales" division as it relates to advertising brochures and manuals. The section does not specify an act that any individual could commit. No specificity is offered relative to a "violation" or act or omission opposite to the terms of the section is a "crime" whether infraction, misdemeanor or felony. It's actually broken into several pertinent sub sections and each warrants individual examination.

The first, section 9951(a) basically tries to bring state law on parity with Federal law by directing manufacturers that any car manufactured and sold or leased in California after July 1, 2004 (we're talking about model year 2005 for the most part now) "...which is equipped with one or more recording devices commonly referred to as 'event data recorders (EDR)' or 'sensing and diagnostic modules (SDM),' shall disclose that fact in the owner's manual for the vehicle." This text truly highlights the glaring, utter lack of research conducted on this technology by the Assemblyman's office in preparation of the legislation. Had they stopped mid-hype to check, they'd have learned that General Motors, for example, has been installing this technology in cars going back to about 1990 in one fashion or another and, once it reached the point where their cars truly had an EDR capability, all owner's manuals in all GM vehicles included text which addressed this very point. One example direct from a GM owner's manual I use when conducting the CDR Operator's Certification Course reads: "your vehicle is equipped with a crash sensing and diagnostic module which records information about the frontal air bag system. The module records information about...driver's safety belt usage at deployment. Some modules also record speed, engine rpm, brake and throttle data." How much more clear can it be? In short, we can easily see that sub-section "a" of CVC 9951 is really rendered meaningless before the law even takes effect. Not only has GM already included this information but Ford began putting this type of information in their owner's manuals in 2001 and other manufacturers with similar capabilities have long put such notice in their owner's manuals. GM has, in fact, devoted a full page in the 2004

owner's manual to a description of the system and it's specifically listed in the index as an individual information item.

One might argue that "no one reads the owner's manual anyway, so what good is that?" While the legislature at least recognized case law in this regard such that the courts have long held that the owner's manual was sufficient notice to the consumer and that the consumer has a specific responsibility for having read the owner's manual for their car, what other method of dissemination of this information would one suggest? The very inclusion of this text in the CVC section is an acknowledgment that this type of notice is sufficient.

While on one hand, one of the intended safety benefits of this system is relative to the issue of driver awareness, on the other hand, unless the government takes stops to increase that awareness, how can it be done effectively? For example, the manufacturers put extensive seat belt use information in the owner's manual but it's the government who stresses the importance of seat belt use thru "click it or ticket" campaigns and the "Vince and Larry" commercials. But the manufacturers aren't required to take any further action to push seat belt use so why should the be so required in this respect? From a practical perspective we can't, after all, require manufacturer's to take out expensive ads in newspapers or buy air time to supplement the standing requirement the consumer has to be familiar with the content of their owner's manual. Studies from Europe suggest that the sheer number of crashes can be reduced by as much as 25- 30% where people know that the car they're driving has a data recorder installed. So, while I'm very supportive of the effort to make knowledge of the EDR component's existence and installation more commonplace - more well known so long as it's accurately portrayed to the general public - I'm open to suggestions as to how to do it apart from the unwitting role the media has already played in this regard by sensationalizing the privacy issue.

I suggested to Assemblyman Leslie that, as with seat belt use, the government might reasonably assume that role and he replied that there was no sate money available for such a program. He wrote to me: "The state should not expend taxpayer dollars that will only serve to educate those drivers who own GMs and Fords about a device that can be, as you mentioned in your correspondence, easily read about in the owner's manual."

But let's assume that section "a" has application, the test of that application is then the "b" subsection which defines a "recording device:"

"...as used in this section, 'recording device' means a device that is installed by the manufacturer of the vehicle and does one or more of the following, for the purpose of retrieving data after an accident:
(1) Records how fast and in which direction the motor vehicle is traveling.
(2) Records a history of where the motor vehicle travels.
(3) Records steering performance.
(4) Records brake performance, including, but not limited to, whether brakes were applied before an accident.
(5) Records the driver's seatbelt status.
(6) Has the ability to transmit information concerning an accident in which the motor vehicle has been involved to a central communications system when an accident occurs."

First, the sub-section specifies that a "recording device" is something installed by the manufacturer for "the purpose of retrieving data after an accident." The actual device we're talking about - the specific term SDM is used in the language of this section and the legislative counsel's digest over and over - is installed for the purpose of controlling the supplemental restraint system: the air bags and seat belt pretensioners. The device runs the diagnostic on the air bag system in the car then analyzes crash pulse data to make the deployment/no-deployment decision in a crash event and is a safety component first, last and always. It is installed for the express purpose of protecting the occupants using supplemental restraints (air bags and seat belt pretensioners). As something of a bonus, it MAY also record crash data. It was not installed for "the purpose of retrieving data after an accident."

More to the point, in the law, when it says "if one does x AND y, it is a violation..." that means one has to do BOTH "x" AND "y" or it's simply not a violation of that section. So taking that into consideration, let's see what's actually then covered by this section starting with item (1) which says it's a "recording device" if it "records how fast and in which direction the motor vehicle is traveling." None, not one, of the air bag control modules in cars, trucks and other SUVs on the road record both speed AND direction. None, period. So this first item just doesn't apply but it demonstrates the unadulterated ignorance of the system and lack of meaningful research done by the people who cobbled this legislature together.

Item (2) would be that the device "records a history of where the motor vehicle travels." Again, none, not one of these modules does that. In the end, this item is really laughably irrelevant.

Item (3) suggests the device would be covered if it "records steering performance." None do so this is again an irrelevant and meaningless description.

Item (4) requires that the device: "records brake performance, including, but not limited to, whether brakes were applied

before an accident." While no device records "brake performance" - a term not really defined in the section as written but suggesting everything from some manner of a braking friction coefficient to how well the brakes performed to stop or slow the car - it does go on to suggest that one aspect would be "whether the brakes were applied before the accident."

In reality, some - but not all - GM air bag control modules (SDMs) record whether or not the brake SWITCH was in an "on" or "off" condition for some period essentially before a crash, but that doesn't necessarily mean that the brakes were actually APPLIED "before the accident" nor does that describe any measure of "performance." Moreover, when one considers that (a) this doesn't apply to all GM vehicles because some don't have what's known as "pre-crash" data to include brake switch position recording nor does it apply to (b) any Ford vehicle because none of those systems record ANY "pre-crash" data, then one might argue that this item is (1) overly broad or vague, (2) doesn't provide "equal protection" (applies to one manufacturer and not another) and/or (3) singles out only certain makes and models of vehicles with systems which have that capability. In any case, we see again clearly the utter lack of research done by the legislator in the preparation of this bill.

Item (5) stipulates that this law will apply to a vehicle which "records the driver's seatbelt status." But what is the "status" of a seat belt? I think this demonstrates that someone showed the legislator a CDR report because that wording is direct from the report for a GM download, but in terms of a Ford download the word "status" is simply not used. Again, one might easily argue that this item is overly broad or vague, it doesn't provide "equal protection," or targets only certain makes of vehicles with systems which have the capability to capture "status." In other places in the law, the word "status" is used to refer to "under or over a certain age" - curfew is, for example, a "status" crime - or could it mean it's "status" is "present in the car" or that it's "tangled..." In any event, we see again the utter lack of reasonable research done by the legislator in the preparation of this bill.

Item (6) is interesting because it's clearly written with a specific system in mind where it describes a unit which "has the ability to transmit information concerning an accident in which the motor vehicle has been involved to a central communications system when an accident occurs." In the legislative legal counsel's analysis it specifically mentions the GM optional subscription service known as OnStar. In Assemblyman Leslie's correspondence to me, he writes "OnStar is entirely different than EDRs and SDMs because by subscribing to the service, car-owners are opting-in to having a device on their car..."

While he starts out correctly pointing out that OnStar is entirely different than an SDM or EDR, he misses the more important difference: the air bag control module (whether the GM SDM or Ford RCM) simply does not have the ability to transmit anything to any "communications system" (system?). So, this item doesn't apply either.

OnStar, for example, is an optional package installed in a GM vehicle using equipment that is separate and apart from the air bag control module. While it does rely on a signal from the SDM that there's been a deployment of the air bags to activate the crash notification system it's an important distinction to note that that's done in the OnStar component, NOT in the SDM and we download nothing from OnStar or the OnStar equipment using the CDR System.

So, when we look at the module this law is supposed to target, we find it's either grossly misidentified or so poorly identified in the language of this section that one can easily argue the section is ultimately meaningless but there's a more important point yet to come: access authority.

The section reads, up to this point, that there's got to be a mention in the owner's manual that this system exists in the subject car (section "a") if it does any of these things (section "b"). The next section (section "c") goes on to define who can then access data if it meets the requirements of section "b." It reads:

"Data described in subdivision (b) that is recorded on (sic) a recording device may not be downloaded or otherwise retrieved by a person other than the registered owner of the motor vehicle, except under one of the following circumstances: (1) The registered owner of the motor vehicle consents to the retrieval of the information.
(2) In response to an order of a court having jurisdiction to issue the order.
(3) For the purpose of improving motor vehicle safety, including for medical research of the human body's reaction to motor vehicle accidents, and the identity of the registered owner or driver is not disclosed in connection with that retrieved data. The disclosure of the vehicle identification number (VIN) for the purpose of improving vehicle safety, including for medical research of the human body's reaction to motor vehicle accidents, does not constitute the disclosure of the identity of the registered owner or driver.
(4) The data is retrieved by a licensed new motor vehicle dealer, or by an automotive technician as defined in Section 9880.1 of the Business and Professions Code, for the purpose of diagnosing, servicing, or repairing the motor vehicle."

Assuming we're dealing with a module that somehow fits the description of section "b," we can find here a list of those who can access data stored in this module apart from the car's registered owner. While we shouldn't overlook the fact that the registered owner might not be the driver at the time of a given crash and whose actions would seem to be those the

Assemblyman would seem to want to protect, let's examine item (1). Item (1) calls for the registered owner to give consent to the "download" of the data. But, Mr Assemblyman, what about when the driver and/or registered owner are dead in the car after the crash?

Informed consent is a relatively complex legal concept that is debated and discussed daily in medical malpractice cases across the country. It often comes down to the question: did the subject understand the implications of the consent given? In terms we're likely more familiar with, contemplate how often the consent search of a car by police becomes the subject of a motion to exclude evidence based on the way the consent was requested or given. I think this is another clear example of the lack of forethought and information in the writing of this legislation. So, without guidance as to what will constitute adequate consent - perhaps we should quiz the owner or driver on the contents of the owner's manual in the field? - the section leaves us again wanting for detail, for specificity and adequate guidance. (We've all heard it one time or another: "Objection, your honor, vague and ambiguous. Lacks foundation.")

Part (2) calls for release of information in response to a court order; a search warrant. That would seem clear enough. In essence, it really restates the obvious: if a court issues a warrant one can do whatever the warrant allows.

Part (3) is the most interesting of the group of exceptions. It allows retrieval of the data for the "purpose of improving motor vehicle safety." Is that not the reason for a police crash investigation in the first place? Is that not why we enforce laws or collect crash information? I contend that effective crash investigation - whether done by the police, the government or a private entity - is the ultimate foundation of motor vehicle safety. To that end, collection of ALL available evidence or information is a necessary component. If we don't have sufficient crash information available to develop meaningful crash statistics there is no hope we can implement one of the "Three E's of Traffic Safety:" engineering, enforcement or education. If we don't have enough information about why a crash or cluster of crashes happened, we can't re-engineer the road or the car, we can't develop effective selective enforcement plans and we can't educate the driving public to improve traffic safety; even if Assemblyman Leslie says the state doesn't have money to do that. In that regard then, one can easily argue, as has been done for decades, that effective, complete crash investigations to include the gathering of ALL available crash information - particularly to include that information from the EDR component in the car - is the cornerstone of traffic safety and therefore specifically authorized under the section.

The last part, item (4) allows for data retrieval "by a licensed new motor vehicle dealer, or by an automotive technician as defined in Section 9880.1 of the Business and Professions Code, for the purpose of diagnosing, servicing, or repairing the motor vehicle." This again illustrates the sheer ignorance of those who put this legislation together. No auto dealer and only an "automotive technician" involved in forensic auto exams as opposed to ordinary repair has bought the CDR System from Vetronix. The CDR system is simply not a repair related scan tool.

This is an important distinction that comes up with respect to the type of data the CDR System extracts from the car's air bag control module and what it does not extract. It extracts CRASH data. There are other scan tools which extract service related data a dealer or "automotive technician" might find helpful in terms of repair but the CDR system extracts and interprets crash data truly unrelated to a repair function.

An aspect not addressed yet in this narrative and not specifically addressed in the vehicle code section is access authority in police work as a function of normal police crash investigation. Surely one of the concerns voiced even before this is legislation was offered was about how or if a police agency should develop policy with respect to when officers should download data, harvest and impound air bag control modules and now deal with the provisions of this section. I think it should be clear by now that the police already have sufficient authority to remove light bulbs for filament examination, seat belts for an indication of use in a crash and other car parts - just as the air bag control module is a car part - and such activity is already covered by ample case law and really the activity is clearly part of the third (3) item which allows for downloading in the interest of traffic safety so why wasn't that addressed in this section in more detail? The last part of the new section reads: "(d) A person authorized to download or otherwise retrieve data from a recording device pursuant to paragraph (3) of subdivision (c), may not release that data, except to share the data among the motor vehicle safety and medical research communities, to advance motor vehicle safety, and only if the identity of the registered owner or driver is not disclosed." What this says is that if you collect the data as part of a traffic safety effort you can exchange that data with others so long as you don't identify the owner or driver of the subject car. What's important to note here is that paragraph (3) specifies that including the VIN in the downloaded data DOES NOT constitute an identification of the individual owner or driver.

What's not addressed here and again, as so many times before, illustrates the lack of real, meaningful research that went into this legislation, is that necessarily when this information becomes part of a police crash report, the driver(s) and owner (s) will most assuredly be identified in the report. In short, the text is again meaningless because it can't address the practicalities of the use of this data and runs counter to established rules of discovery in both civil and criminal cases.

A final entry in the section reads: "(2) Subdivision (c) does not apply to subscription services meeting the requirements of paragraph (1)." This confusing text would appear to say that if the owner or driver has a subscription service (for example

OnStar) then I take it to mean that simply having that subscription service constitutes consent (as described in paragraph (1)). Finally, in the context of this technology, “privacy” is an interesting and necessary concept to include and examine in this discussion. By definition, the concept of privacy is focuses on the idea that “personal” information about an identifiable individual can be kept from others where that individual has an expectation of the privacy of that information. Privacy is “the quality of being secluded from the presence or view of others” where “private” is something “confined to particular persons or groups or providing privacy.”

When one drives down the road, in a public place, in plain view, doing something that can be seen by those in the area, recorded by still photography or video and replayed without their consent, for example, on public television...where does one have an “expectation of privacy” with respect to the driving conduct that can be observed in plain view and do I need to point out that that conduct is the very data collected in the case of a crash?

I contend, and I believe there’s ample case law to support this painfully obvious position, that drivers simply do not have an expectation of privacy for the act of driving and, moreover, have none relative to the limited but focused information captured by the EDR component. I contend that there is simply no extension of “privacy” to the act of driving in a public place and in plain view. But let’s put it in the context of the information potentially gathered by one of these EDR components.

(1) Seat belt use (not “status”). Since, in California not wearing the seat belt is a primary ticketable offense, it follows that the law reasonably recognizes that anyone outside the car - a passing police officer for example - can see whether or not the belt’s being worn because that activity is in plain view. Clearly, no privacy exclusion is extended to that observation and there is the obvious recognition that a driver can expect no privacy for actions he takes or fails to take while driving. In the context of this technology, the confirmation of that seat belt use in a crash using the EDR component is not an infringement on the driver’s privacy notwithstanding the fact that there is very obviously no expectation of privacy in the situation described. After the crash, the reconstructionist is going to confirm this belt use by belt examination or examination of the body for appropriate marks from the belt, so the information from the Ford system that the belt is buckled or engaged or an indication of buckled or unbuckled as defined by “status” on GM products is confirming, corroborating information and not private or personal.

(2) Vehicle speed is similarly a public act. Anyone standing on the corner can see, photograph and video tape the car go by at “X”mph in a “Y”mph speed zone. Eyewitness to crashes are called upon all the time to give their estimate of the vehicle’s speed before the crash in trial and when interviewed at the scene by the police. Police officers using radar for enforcement first make a visual estimate of the car’s speed - in a public place - before they use radar to confirm their visual observation and estimate just as in reconstructing a crash we would in some fashion figure the vehicle’s speed then corroborate it with the EDR data. So, again we have a situation where the driving activity observed is something done in a public place where they’re no expectation of privacy with respect to the act.

(3) Engine rpm and throttle position really go hand-in-hand. By way of example, we see a car stopped at a stop sign and hear the engine suddenly roar and the tires squeal as the car accelerates quickly from a stop. We’re observing - again in a public place and in plain view - the application of likely a high percentage of wide open throttle and we’re hearing the engine rpm as a function of the engine sounds and the evidence of that application and result as a function of the acceleration scuff on the ground where the car started. When the car crashes, the police at the scene are going to further document this activity thru an analysis of the marks the car left accelerating from a stop and ultimately from its speed at impact from more tire marks and bent metal.

None of the information contained in the EDR component is “private,” and none is done where there is an expectation of privacy. The EDR component doesn’t record voice conversations. It doesn’t record the name of the driver, his driver license number or any of his PERSONAL information therefore this is NOT about “privacy.” The new CVC section even goes so far as to sate what the Federal government has already stated, that being the disclosure of the VIN doesn’t constitute an individual identification. Privacy in this context is nothing more than a red herring issue. What it records - WHEN it records it - is objective information about what was happening with the car when the crash occurred. We need to not loose sight of that distinction when media or desperate lawyers try to turn this into a privacy witch hunt.

When the EDR data is used correctly, it’s used as a supplement to a normal reconstruction and gives us - whichever side of a case we’re working on - corroborating and supporting information about a crash and it’s part of a larger traffic safety effort in one fashion or another.

Vehicle Code Section 9951 will take effect - such as that might turn out to be - in 2004. As pointed out, the “a” subsection will change nothing the manufacturers do and, of course, will change nothing a reconstructionist does.

The “b” section which ostensibly would define what the “device” can do is really so ineffectively written it is a virtual certainty that if a lawyer tries to use that as the basis to exclude EDR evidence - although there’s no provision for that in

this section - that one can argue it simply doesn't apply to the types of devices we're actually dealing with in cars today.

As to the "c" section which would theoretically define who can access the data in the EDR component, lawyers I've talked to who both actually understand the EDR technology and have read this section tell me that no reasonable judge around is going to exclude evidence based on this vehicle code section not only because of it's vague and inaccurate descriptions and text in the "b" section and elsewhere but moreover because there are already so many exceptions to "ownership" of information about or in a car during a police crash investigation they point out that this really changes nothing in that respect and won't supercede existing provisions and the law.

Having said that, I would still recommend strongly that police officers who anticipate using a CDR system meet with their local prosecutor's office and discuss the differences between a download at the scene of a crash during the at-scene investigation as opposed to a download after the car's been impounded for further examination and draw a comparison between the capture of data in each of those situations with the removal of, for example, a lamp for filament examination. They should also point out the text of the new CVC section and the flaws in that section as noted in this narrative.

Ultimately, the discussion should go to the question of "do you, Mr Prosecutor, want me to get a warrant for this data every time, in each of these situations or not?" More often than not, they will tell you that it's not necessary but, some will suggest it's the "safest" approach. You should then work with them to set forth the wording of that warrant so it's consistent and covers the actual activity keeping in mind that it may lead to a requirement to obtain a warrant for ANY car part - ie: bulbs - you examine or plan to use as evidence in a crash related case.

Another consideration here has to do with the harvesting and retention of the air bag control module itself. For my part, I strongly recommend that investigators make every effort to leave the module intact in the car. A download of the data can and should be done without removing the module from the car and the module itself is largely meaningless as an exhibit in trial. While it makes for interesting "show and tell," removing it can lead to a spoliation claim against the investigator and his company or police agency and is really an unnecessary step.

In the "private sector," for civil cases, there are already well established rules of discovery allowing access to and inspection, documentation and examination of the opposing side's car after a crash. This activity was clearly not anticipated by the CVC section. While the section talks about downloading only with a court order or with the owner's consent, when the car is made available as part of normal discovery, those concepts fall to the wayside. In short, for those who follow the normal rules of discovery in civil cases, this section is again meaningless.

In the final analysis, while AB 213 that ultimately became CVC 9951 is, well, interesting and has caused some unnecessary hand wringing, it's largely meaningless to our current reconstruction activities using this technology in both law enforcement and the private sector so long as we read and understand it. We should each in our respective jobs have already contemplated the best way to access data such that it would be admissible and, as a function of adequate training in this technology, we should understand the operation and limitations of the components and use of the extracted data to support our normal reconstruction activities toward traffic safety.