Motor Vehicle Fire Research Institute
Awarded Contracts

Title: Facilitate FARS Data Improvement Workshops

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Purpose:

The Fatality Analysis Reporting System (FARS) is one of the most important and frequently used data systems on traffic crash related deaths in the world. Initiated in 1975 by the National Highway Traffic Safety Administration (NHTSA), the FARS contains important information pertaining to fatal motor vehicle crashes that occur in the United States (US). FARS adheres to strict definitions of a fatal crash (e.g. death from the crash must occur within 30 days of the crash to be included in FARS; the crash must involve a motor vehicle in transport on a public roadway; etc.) and rules regarding coding of data. Therefore, FARS does not include information on certain fatal motor vehicle crashes that do not fit FARS definitions and rules. Based upon death certificate and other data sources, it has been estimated that motor vehicle related fatalities that occur on private property, result in a death more than 30 days after the crash, involve a death without a crash occurring (e.g. suffocation, fire) etc. (i.e. do not fit the FARS definition), may account for 1,000 to 2,000 more deaths annually than appear in FARS.

Up to 100 data elements or more are collected for each crash, including information about the crash location and crash scene, on each of the vehicles involved in the fatal crash, and all the drivers, passengers and pedestrians/bicyclists involved in the crash. FARS has been used to identify vehicle safety issues, highway safety problems, examine trends, evaluate countermeasures, and provide key statistics on fatal crashes occurring in the Nation. FARS data sources include police accident reports, driver licensing records, vehicle registration files, coroner's and medical examiner's reports, emergency medical services (EMS) log sheets, death certificates, hospital reports, and roadway inventories, as examples. FARS Analysts in each State gather data sources and code the information in an electronic FARS file. Some data elements are readily available to these FARS Analysts, while other data are difficult to obtain.

Recently, NHTSA has released reports generated by Integrated Project Teams (IPTs) on high priority initiatives to address: Safety Belt Use, Impaired Driving, Rollover Mitigation and Vehicle Compatibility. An IPT report on Data Improvement (which includes FARS data) is expected soon.

Every data element in FARS is important for analysis purposes and it is imperative that data are as complete and as accurate as possible for these analyses to be useful. This is especially true for the following key data elements which are used very frequently in safety investigations and analyses: (1) fire occurrence, (2) rollover occurrence, (3) the results of blood alcohol concentration (BAC) tests on drivers and pedestrians, (4) prior driving while intoxicated (DWI) convictions for drivers involved in fatal crashes, and (5) restraint system use for each occupant

involved in fatal crashes (including helmet use for motorcycle riders). These elements are used particularly in motor vehicle safety investigations and analyses and traffic safety program evaluations.

For example, FARS data are used to determine the incidence of vehicle fires in fatal crashes and whether the fire caused the death of any occupant. The relative frequency of fires by year/make/model of the vehicle where the fire occurred is used to determine if there is a potential safety problem in fuel tanks for specific vehicles. It is important for FARS Analysts to use every source of information available to assess whether a fire occurred and then to provide accurate information on the vehicle involved and the injuries sustained. For several reasons, there is good evidence that fire occurrence is underreported in FARS.

It is equally important to determine if a rollover occurred in the crash and to accurately record the vehicle identifying information and the injuries to occupants, including whether they were ejected or not from the vehicle. Vehicle rollovers cause an inordinate number of fatal injuries, so it is important to obtain accurate information concerning their occurrence. There is also some evidence that fires occur more frequently in fatal rollover crashes.

It is essential that the BAC data be as complete as possible in FARS so that trends in alcohol-related fatalities can be tracked and that the problem of drinking drivers and pedestrians can be monitored accurately. In addition, numerous research projects funded by NHTSA and other safety organizations use BAC data in FARS to evaluate the effectiveness of various impaired driving countermeasures around the nation. In 2002, BAC test results were available in FARS for only 65% of the fatally injured drivers and 25% of the surviving drivers. Moreover, the percent of fatally injured drivers with a known BAC result has been decreasing nationally in recent years. Obtaining this BAC data on drivers is so important that the U.S. Congress, in writing the TEA 21 legislation, included improving BAC reporting rates in FARS as one of the criteria for States to qualify for federal Section 410 grant funding. In the case of surviving drivers involved in fatal crashes, many States are passing laws which allow hospitals to report illegal BACs (obtained routinely by medical personnel) to the police. In examining FARS data for recent years, there were about 12 States with very high rates of “BAC Test Given, Results Unknown” for driver fatalities and about 7 States with very high “Unknown BAC” rates for surviving drivers.

“Unknown” data rates for other key elements mentioned above (prior DWI convictions and occupant restraint usage) are also high in some States. While quality control measures in FARS are state-of-the-art, human resources are limited and it is very difficult for Federal monitors to uncover all the reasons for incomplete or inaccurate data in these areas. There is an urgent need for a special quality control effort to improve reporting rates in these critical areas of FARS.

In particular, PIRE will to perform the following tasks to improve data reporting rates and data accuracy in FARS in the States in NHTSA Regions I through X via a series of Workshops held for FARS Analysts. It is anticipated that at least two Workshops will be held in 2004. FARS Analysts from States in two NHTSA Regions combined may attend a Workshop in some instances.

Task 1: Analyze Unknown Data Rates for Key FARS Elements

1.1 PIRE will examine reporting rates for the years 1975, 1980, 1985, 1990, 1995, 2000, 2001 and 2002 in the selected data elements on a State-by-State basis for the States in each NHTSA Region compared to the rates in the Nation as a whole. While the States with the highest number and rate of "Unknowns" in 2002 will be highlighted, it is also important to determine if any States had similarly high "Unknown" rates in the past and have corrected the problem. At a minimum, "Unknown" data rates will be generated from FARS for:

- Fire Occurrence (for each vehicle, including as "Most Harmful Event")
- Rollover (for each vehicle)
  - First Event
  - Subsequent Event
- Reporting of BAC results:
  - Surviving Drivers
  - Fatally Injured Drivers
  - Fatally Injured Pedestrians
    - In Crosswalk
    - Not in Crosswalk
  - Prior DWI convictions for drivers
- Restraint system use for each motor vehicle occupant:
  - Aged 16-20
  - Other ages
- Motorcycle Rider Helmet Use

1.2 PIRE will determine fire occurrence rates from FARS in each State using FARS data for the last three available years (2000-2002). These rates will be calculated three ways: number of fire occurrences in FARS (a) per total number of vehicles in fatal crashes for that State in that year, (b) per 100,000 registered vehicles in that State for that year, and (c) per 100 million vehicle miles traveled in that State in that year. The 5-10 States with the lowest fire occurrence rates for 2000-2002 will be examined further to investigate whether underreporting of fires in that State may be a factor in the low rate.

Task 2: Develop Agenda for FARS Data Improvement Workshops in each NHTSA Region

In consultation with NHTSA, PIRE will develop an agenda for a NHTSA sponsored FARS Data Improvement Workshop for representatives of the States in NHTSA Regions I through X to be held between July 2004 and June 2005, probably in a major city located in one of NHTSA's 10 Regions. Workshops may include two NHTSA Regions in some instances. Each Workshop will be about one and a half days in length and will include a mix of presentations, discussions, break-out meetings and problem-solving sessions. Key officials from each State will be invited to attend by NHTSA. PIRE will present the findings of the analyses performed in Task 1 at the Workshop and other speakers and experts will be scheduled.

Task 3: Facilitate Workshop

In consultation with NHTSA, PIRE will help facilitate the workshop to discuss high "Unknown" data rates, issues that may result in inaccurate data, and the reasons for them. PIRE will document the problems and issues brought out in the discussion sessions and classify the key data issues for each State. Classifications shall include, but are not limited to, issues such as:

- Data source problems (e.g. not able to obtain death certificate to verify a fire death)
- Legal barriers in obtaining the desired data (e.g. such as not having access to certain data due to pending litigation)
- Administrative problems or policy issues (privilege, confidentiality, etc.)
- Communication problems/issues (not contacting the right person)
- FARS definitions and data entry rules (e.g. interpretations from the FARS Coding Manual)
- Other

PIRE will also lead discussions in the availability and use of such key records as:

- Death certificates
- Vehicle Identification Number (VIN)
- Vehicle Registration Files (especially for out-of-state vehicles)
- Driver Records (especially for out-of-state drivers)

PIRE will also lead discussions on the following issues:

- Definition of a motor vehicle crash death within 30 days of the crash
- Possible underreporting of vehicle fires, especially in rear-end collisions (and crashes involving police vehicles)
- Crashes involving stationary vehicles off the roadway, especially where the fire and the death occurs in the parked vehicle
- Various sources of information for vehicle fires or rollovers
- Use of FARS Analysts from other States to help with coding

Task 4: Report

PIRE will write a brief report summarizing key findings from the Workshop and make recommendations for improving data in FARS. A section of the report will be totally dedicated to the findings and recommendations associated with the accurate reporting of fire related deaths. The report will be submitted within 20 days of the completion of each Workshop.