NHTSA's Fatal Accident Reporting System

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[Accurate, reliable, and complete highway-traffic accident data are critical to well-planned and effective safety programs at the national, state, and community levels. Unfortunately, traffic safety program managers have been seriously handicapped by the lack of adequate data for planning and evaluation purposes.

Complete data on all fatal traffic accidents, personal injury accidents, and property damage accidents would provide valuable information for safety program development. Current accident records systems, however, simply do not provide these complete data bases.

This article describes the Fatal Accident Reporting System (FARS), administered by the National Highway Traffic Safety Administration (NHTSA). It is generally accepted as the most complete data base for fatal traffic accidents available today. The present file permits a variety of analyses not possible a few years ago. The Transportation Research Board considers this system a significant development in the national effort to improve the collection, analysis, and use of traffic accident data. - *Editor*]

The Fatal Accident Reporting System (FARS) is a computerized file that contains data on all fatal motor vehicle traffic accidents in the 50 states, the District of Columbia, and Puerto Rico that meet two criteria for inclusion in the system. To be included in the system, an accident must have involved a motor vehicle in transport on a trafficway and must have resulted in the death of an involved person (occupant of a vehicle or a nonmotorist) within 30 days of the accident.

Congress passed the Federal Highway Safety Act in 1966, which created NHTSA. Fundamental to the purpose of this agency is the collection of accident data that can identify safety problems, suggest solutions, and provide an objective basis for evaluating the effectiveness of motor vehicle safety standards and highway safety countermeasures.

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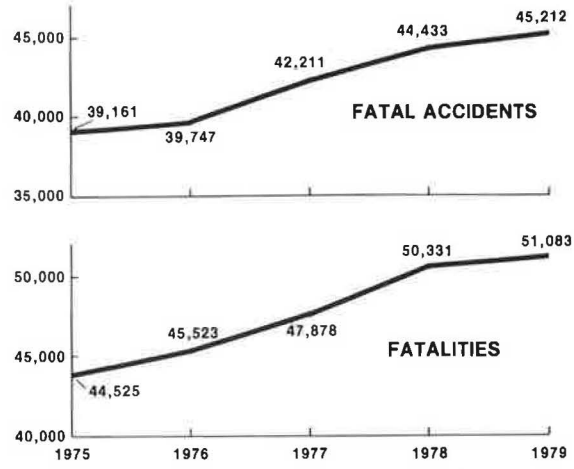
FARS was conceived, designed, and developed by NHTSA. Fatal accident data have been collected under FARS since 1975.

The system works this way. NHTSA has a contract with an agency in each state for the purpose of data collection. The contracts are managed by NHTSA personnel located in NHTSA's 10 regional offices. These persons are known as Regional Contract Technical Managers (RCTMs). Examples of state agencies that are awarded the contracts are

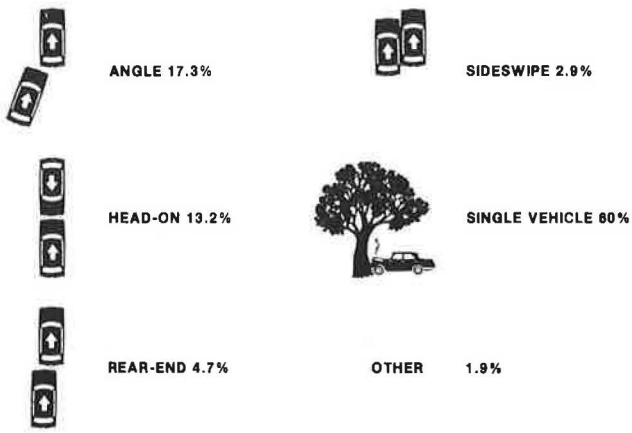
state highway department
state highway safety division
state department of public safety
state department of transportation
governor's highway safety office
highway patrol

THE ANALYSTS

The specific state employee or employees in the agency who are assigned the task of gathering, translating, and



Number of fatal accidents and fatalities, 1975-1979.



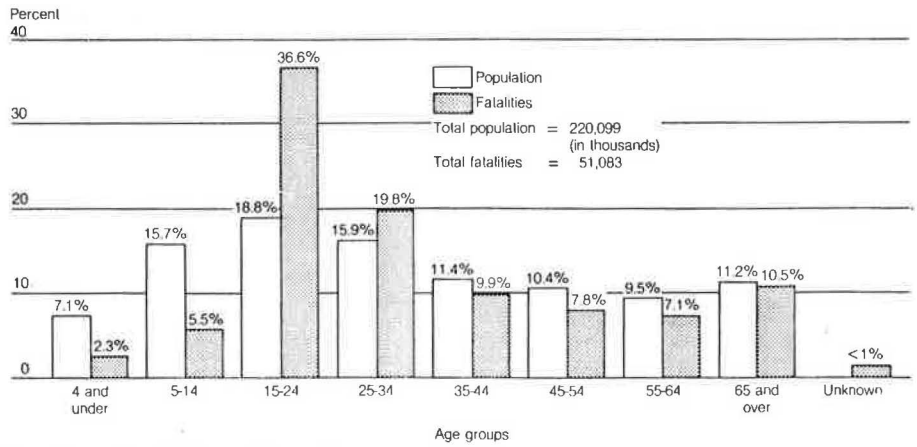
Accidents by manner of collision, 1979.

transmitting the data are called FARS analysts. The number of analysts in each state and their salaries are determined by the state with approval from NHTSA. The services and expenses of the analysts are funded by NHTSA.

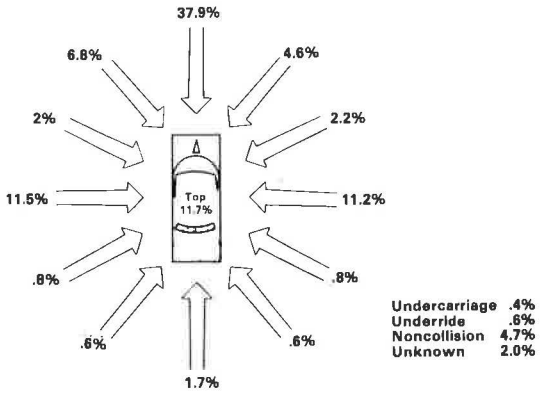
Data concerning fatal motor vehicle traffic accidents are transcribed from the state's own source documents familiar to the analysts to federal forms. The analysts are responsible for gathering all the documents needed to "code" a case (i.e., complete the federal forms). The analysts' sources may include the following:

police accident report
state vehicle registration files
state driver licensing files
state highway departments
vital statistics
death certificates
coroners and medical examiners reports
hospital medical reports
emergency medical services reports

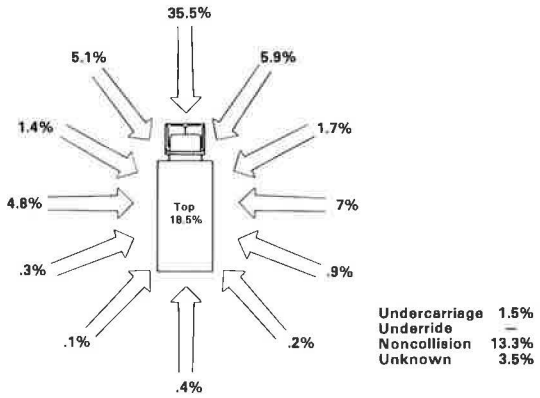
Percentage distribution of population and fatalities.



Source for population: U.S. Bureau of Census, July 1979 estimates.



Passenger-car occupant fatalities by principal point of impact.



Heavy-truck occupant fatalities by principal point of impact.

As indicated above, these forms are the state forms that are not uniform across all states, nor are all form types available to the analyst in every state.

A FARS analyst generally performs the following tasks:

1. Obtains a copy of the police accident report (PAR) for all fatal motor vehicle traffic accidents occurring in the state,
2. Obtains location classification information from maps or from the state highway department,
3. Accesses the vehicle registration files for information on involved vehicles,
4. Accesses the driver records for certain information on all involved drivers,
5. Accesses blood toxicology reports or results,
6. Codes and submits cases that are complete enough to avoid rejection or abortion (all mandatory elements complete),
7. Obtains death certificates or other similar information (e.g., autopsies), and
8. Updates cases as additional or revised information becomes available.

Once the data have been gathered and transcribed,

	Passenger Car	Motorcycle	Light Truck	Medium Truck	Heavy Truck
Passenger Car	5545	1442	3165	294	1977
Light Truck			493	90	617
Medium Truck				10	37
Heavy Truck					125

Vehicle mix in two-vehicle fatal accidents, 1979.

they are entered into a computer. All but two states enter the current year's data via a remote data entry (RDE) system. This system allows the analyst to sit at a terminal in their own offices and enter data directly into the master file. Edit checks are incorporated into the system to allow for on-line checking of data for consistency and range. This system can only be used to enter data. The other method of data entry is by batch submission whereby either a magnetic tape containing the data is submitted by the state or the actual documents are submitted and the data are keyed to tape.

As a practical matter, the FARS analysts vary in their background. Some analysts, in addition to the essential gathering and coding of FARS data, perform analysis of the data while others are unit supervisors. Some are fully dedicated time-wise to FARS while others have additional assignments or responsibilities within their state organizations. Some are full-time employees of the state agencies, others are part-time employees.

Analysts in certain states must visit other offices within driving or walking distance in order to obtain needed information. At other times, a visit to another location within the same building is necessary. In still other situations, some sort of state government message or messenger system exists. Electronic access to certain data within the state is often possible or regular mail may be used. In short, all of the information needed to code a case automatically does not flow to the FARS analyst or come through the organization that employs the analyst.

Since the implementation of FARS, there has been a level of turnover among the analysts. The rate of introduction of new personnel who must become familiar with the system has been as high as 1.3 per month across the nation.

THE DATA

The coding forms and the FARS system are slightly modified annually to conform to changing user needs. There are three data levels:

1. Accident level. This level contains the accident characteristics such as the time and location of the accident, the first harmful event, whether it is a hit-and-run accident, whether a school bus was involved, the number of vehicles and persons involved, weather conditions, etc.
2. Vehicle/driver level. This level contains data on each vehicle and driver involved in the accident. Specific data include the type of vehicle, its role in the accident,

Occupant fatality mix in two-vehicle fatal accidents, 1979.

Other Vehicle In Accident	Vehicle In Which Fatality Occurred: Passenger Car	Light Truck	Medium Truck	Heavy Truck
Passenger Car	6,919	1,046	21	74
Light Truck	2,862	606	14	32
Medium Truck	326	91	11	7
Heavy Truck	2,359	725	33	148

its initial and principal impact points, whether rollover or fire occurred, the most harmful event, the driver's record, license status, etc.

3. Person level. This level contains data on each person involved in the accident. The data collected are the person's age and sex, person type (driver, passenger, nonmotorist, or unknown), alcohol involvement, injury severity, etc.

Whether the data are submitted in batch or RDE form, they are processed through many edit checks to assure accuracy before they are placed on the master file. The FARS has two types of edit checks: (a) range checks to ensure that the codes submitted are valid—for example, a code of "4" for the element "sex" would be rejected by the system since "1," "2," and "9" are the only valid codes (1 = male, 2 = female, 9 = unknown); and (b) consistency checks to ensure that no inconsistent data are placed on the master file. For example, if an analyst codes 11:00 a.m. as the time of the accident and dusk as the light condition, the system would reject the two element values.

In batch, the analysts are given an "error listing" of those cases in which such errors occurred. They then resubmit coding forms with the corrected values. In RDE, the system prints the errors as soon as the data are entered. The analysts are then able to immediately correct the data.

An important part of the FARS program is quality control of the data. The system edit checks discussed in the preceding section are a major part of the overall quality control program: the data have to pass many tests before they are placed on the master file. However, there are other types of problems that are not captured through this process: timeliness, completeness, and accuracy of the data (beyond the edit checks).

The timeliness of submissions is monitored by the FARS staff in Washington, D.C., as well as the 10 RCTMs. The monitor reports show, among other things, the number of fatalities so far submitted by each state. It is updated every week.

NHTSA has currently, or had recently, several programs to continually monitor and improve the quality of the data.

AVAILABILITY OF DATA

NHTSA makes the FARS data available to the public. The data are maintained in two file formats:

1. Master file. The data reside as they are submitted by the analyst. These data are only for internal use and cannot be released.

2. Analytical file. The data are reformatted to conform with Privacy Act laws. This is a sanitized version of the master file in which some identifying information, such as the unique portion of the vehicle identification number, has been deleted. In fact, the safeguards for privacy that are afforded by the FARS files are greater than those afforded by the Privacy Act because the personal information that the act is designed to protect is deleted from all FARS files. The data are available for every year that FARS has been in operation, i.e., 1975-1980. The analytical files are in the current year's format to make cross-year analyses easier to perform. Thus, the current year's code can be used even if it was different in the earlier years.

Users can access the data in three ways:

1. Obtain a tape of the file from NHTSA and process the data by using their own computer systems. The only cost involved is the cost of the tape.

2. Request data from NHTSA's National Center for Statistics and Analysis (NCSA). There is no charge for the request, but it is important that the request be specific. The usual timeframe for responding to these inquiries is approximately two weeks.

3. Obtain an account with NHTSA's computer contractor. This enables users to access the analytical file as they deem necessary. The data are accessed by using simple, user-oriented languages.

Fatalities by body type in United States, 1979.

Body Type	Fatalities
Nonoccupant	9,156
Convertible	498
2-door sedan, hardtop, coupe	17,075
4-door sedan, hardtop	6,513
Stationwagon	2,052
On/off road vehicle	665
Other Auto	80
Unknown Type Auto	1,570
Motorcycle	4,709
Moped	107
Other Motorcycle (minibikes, motorscooters, etc.)	43
Unknown Motorcycle	31
School Bus	17
Cross Country Bus	6
Transit Bus	8
Other Bus	4
Unknown Bus Type	4
Snowmobile	49
Farm Equipment	139
Dune/Swamp Buggy	34
Construction Equipment	19
Ambulance	11
Large Limousine	1
Campers/Motor Homes	66
Fire Truck	14
Pickup	5,338
Van	1,019
Truck Based Stationwagon	97
Single Unit Truck (Low GVW)	206
Single Unit Truck (Med GVW)	48
Single Unit Truck (Hi GVW)	60
Single Unit Truck (Unk. GVW)	90
Tractor-Trailer Combination	945
Truck with Cargo Trailer(s)	41
Truck-Tractor Pulling no Trailer	41
Unknown Type Truck	58
Unknown Type	269
TOTAL	51,083

NHTSA publishes the FARS data in a report each year. This publication, entitled ***FARS Annual Report***, is available to the public. These annual reports contain highlights of the year's data but include past-year data in some analyses for comparison purposes.

NATIONAL CENTER FOR STATISTICS AND ANALYSIS

NCSA is an office under Research and Development in NHTSA that collects, maintains, analyzes, and dispenses data on various aspects of the highway safety environment. Chief among the data systems managed by NCSA are the following:

1. The National Crash Severity Study (NCSS)—a file of accidents involving passenger cars that sustained sufficient damage to require towing,
2. The Pedestrian Injury Causation Study (PICS)—a file of pedestrian injury accidents,
3. The National Electronic Injury Surveillance System (NEISS)—a joint effort of NHTSA and the Consumer Product Safety Commission (CPSC) to collect data on a census of traffic accident injuries reported to a sample of hospital emergency rooms,
4. The National Accident Sampling System (NASS)—a scientifically chosen sample of accidents designed to be representative of the nation with known error limits, and
5. FARS—a census.

For additional information, write to

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