

The mission of the Office of Motor Carrier and Highway Safety is to develop and promote, in coordination with other Departmental modes, data-driven, analysis-based, and innovative programs to achieve continuous safety improvements in the Nation's highway system, intermodal connections, and motor carrier operations. The Office of Motor Carrier Research and Standards manages the safety regulatory program and the central research management function for Motor Carrier and Highway Safety.

There are eight major research and technology focus areas: regulatory evaluation and reform; compliance and enforcement; driver training and performance management; driver alertness and fatigue; driver physical qualifications; car-truck proximity; HAZMAT safety and cargo tank integrity; and crash causation and profiling.

Driver alertness and fatigue primarily supports current and future hours-of-service rule-making activities, along with fatigue outreach and fatigue management technology development.



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Motor Carrier Scheduling Practices

Introduction

The Federal Highway Administration's (FHWA) Office of Motor Carrier and Highway Safety began a 4-year research project in September 1997 to evaluate the role of motor carrier scheduling practices in interstate commercial motor vehicle (CMV) driver fatigue. An understanding of motor carrier operational scheduling requirements and practices is fundamental to any attempt to improve government safety policies and regulations pertaining to CMV driver fatigue. This study seeks to: (1) assess the operational scheduling requirements of interstate motor carriers of passengers and property that affect CMV driver fatigue; and (2) identify carrier scheduling and related safety practices that have a positive effect on safety performance.

The focus of the study is on the management processes and activities associated with driver scheduling and on commercial vehicle driving environments, rather than how existing hours-of-service regulations for CMV drivers influence carrier scheduling. This technical brief provides an interim update of the study; the research is scheduled to be completed in Summer 2000.

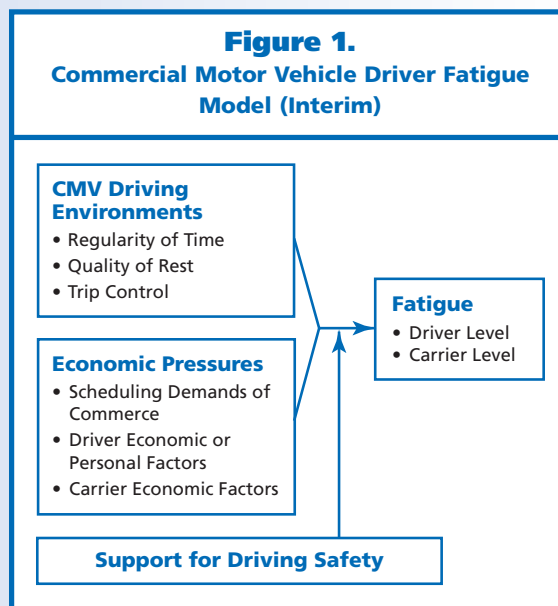
Methodology

The study may be depicted as a five-step research process: model development; survey development; data collection; data analysis; and interpretation and presentation of results. Researchers have completed an extensive review of driver fatigue literature, conducted carrier firm site visits and interviews, and held discussions with focus groups comprised of carrier personnel involved in driver scheduling (i.e., drivers, dispatchers, safety directors, and management).

Upon approval from the Office of Management and Budget, surveys will be mailed to each of these carrier personnel groups to generate data that will allow researchers to determine the actual nature and extent of operational requirements and various scheduling and other safety-related practices. These data will then be analyzed to identify relationships between scheduling and associated practices and safety performance.

Model Development

The three primary sources of information used in the development of the Commercial Motor Vehicle Driver Fatigue Model (Figure 1) were the literature review, focus groups, and carrier site visits and interviews. Researchers developed the model to identify the various scheduling-related factors that influence driver fatigue, non-scheduling factors that may also have an effect on driver fatigue, and measures of driver fatigue. Three categories of factors that may affect driver fatigue emerged from the literature review; these were truck/bus driving environments, economic pressures, and support for driving safely.



Researcher

This study is being performed by the Trucking Research Institute and Iowa State University, in collaboration with the National Private Truck Council and Daecher Consulting Group. Contract No: DTFH61-96-X-00022.

Distribution

This Tech Brief is being distributed according to a standard distribution. Direct distribution is being made to the Resource Centers and Divisions.

Availability

The study final report will be available in Fall 2000.

Key Words

scheduling practices, driver fatigue, survey, driver, dispatcher, safety director, management, symposium of experts.

Notice

This Tech Brief is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The Tech Brief provides a synopsis of the study's final publication. The Tech Brief does not establish policies or regulations, nor does it imply FHWA endorsement of the conclusions or recommendations. The U.S. Government assumes no liability for its contents or their use.



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From the focus groups, it appeared that the major scheduling concerns of drivers include: regularity/irregularity of driving time, degree of trip control, quality of rest while working, scheduling demands, and drivers' individual economic pressures. By far, unanticipated trip delays were the most frequently cited reason for driver fatigue and stress during the focus group sessions and site visits. These focus groups served to validate the findings from the literature review and to provide operational and organizational examples to aid in the development of survey instruments.

In addition, researchers made site visits to 13 CMV operators to observe their driver-scheduling practices and to obtain a better understanding of the carriers' operating practices and systems. Interviews were also conducted with drivers, dispatchers, safety directors, and senior executives at each company. Although the emphasis was not on factors influencing driver fatigue, several interviewees expressed views that were consistent with those in the focus groups.

Survey Development

Drivers, dispatchers, safety directors, and top-level managers or executives will be surveyed to obtain data needed to test the efficacy of the driver fatigue model. Separate survey instruments have been developed for truck and bus operators. Additionally, a short form of the driver version has been developed for use in surveying drivers at truck stops. While a unique survey instrument was developed for each category of carrier personnel, each of the four surveys has similar questions. Comparisons of perceptions among the four groups are expected to be useful in the data analysis and interpretation of the results. Also, multiple perspectives will assist in determining the validity and accuracy of the responses. The survey is expected to help identify areas where carriers should focus safety improvement efforts.

Each survey instrument went through a rigorous review and revision process and was pre-tested by carrier personnel from the target populations. After the surveys were revised to address their concerns and suggestions, they were reviewed by the Project Steering Committee, pre-tested by drivers, carrier executives, safety directors, and dispatchers, and submitted to the Office of Management and Budget for approval.

Continuing Research

In the data collection phase, researchers intend to select, at random, 500 interstate motor carriers of passengers and property for which the FHWA has safety performance data. Each participating motor carrier company will receive seven surveys, one each for the top-level manager and safety director, two for dispatchers, and three for drivers. Each participating motor coach company will receive five surveys, two for drivers and one each for the top-level manager, safety director, and dispatcher.

The data analysis will be focused on several objectives, including:

- Determining the key factors that influence commercial driver fatigue;
- Developing definitions or a typology of "driving environments," and estimating the number of CMV drivers that fall into each environment;
- Identifying carrier scheduling and related practices that affect driver fatigue and safety performance; and
- Synthesizing the findings of this project with those from other research efforts to derive implications for government safety regulations and carrier management efforts.

After the survey results have been received and analyzed, the project team will prepare a draft report and convene a symposium of experts (e.g., experts in traffic management, shift work, motor carrier operations and safety, motor coach operations and safety, and other areas) to review the findings. The symposium will also develop recommendations for scheduling "best practices" for enhancing safety and determine the broader implications for government safety regulations and for carrier management. The team will incorporate the input from the symposium into the study final report, which is expected to be available by Fall 2000.