Overview

The objective of the Case-Control Commercial Driver Individual Differences Study (CDIDS) is to examine a wide array of driver and situational factors and determine the prevalence of these factors as well as their relationship to being involved in a crash. The study’s goal is to identify and prioritize commercial motor vehicle (CMV) driver individual differences with respect to risk factors. Primarily, these individual differences will consist of personal factors such as demographic characteristics, medical conditions, personality traits, personal attitudes, and behavioral history; however, they will also include work environmental conditions, such as carrier operations type and compensation method.

The CDIDS will identify risk factors by linking the characteristics of individual drivers with their driving records during the duration of the study, especially the occurrence or absence of safety-related events, including: preventable crashes, crashes regardless of preventability, moving violations, and vehicle inspection violations. In particular, there are four specific study goals: (i) determine whether individual factors such as demographic characteristics or medical conditions result in increased risk for a CMV crash or violation, (ii) determine if there is a relationship between fleet characteristics and protocols and CMV driver performance and health, (iii) identify contributing factors leading to a CMV crash, and (iv) track carriers and CMV drivers for up to three years after the initial CMV driver survey to identify additional crash data and validation of study results.

Methods

This study involves the collection of driver medical and personality data and other driver factors (e.g., fleet pay, training) to examine the relationship between these factors and safety-related events. A total of 20,000 drivers will be involved in the study.

Participant Recruitment

VTTI is teaming with Road Ready, Inc., a company that is well-known to FMCSA and is focused on electronically storing truck drivers’ 649-F data. Road Ready has several large fleets as clients and has solicited participation from J.B. Hunt and Driving Ambition. To meet the goal of obtaining data from 21,000 CMV drivers, additional trucking fleets may be recruited by Road Ready for participation in the CDIDS.

Tracking Driver Risk Outputs

Participants will complete the study instruments and then be followed for up to
The VTTI team will monitor participating CMV drivers’ involvement in safety-related events (e.g., crashes, moving/inspection violations). These CMV drivers will be flagged as potential case drivers. The cohort approach considers cases from 20,000 participants. However, the gold standard of safety evaluation, preventable DOT recordable crashes, can be tracked from all the CMV drivers in the participating fleets, which consist of much larger sources for crashes.

There should be a sufficient frequency of DOT recordable crashes over the three years of data collection; however, lower severity crashes will be selected based on availability. Access to drivers’ most recent medical examination data will be provided by the fleet.

**Operationally Defining “Case” Drivers**

From the sample of 21,000 CMV drivers, cases will be identified and compared to controls. This classification is based on the safety outcomes of each driver and is also applicable for the prospective cohort approach in the proposed study.

VTTI’s ongoing Onboard Safety Systems Effectiveness Evaluation study, funded by FMCSA, is using carrier-collected data to assess the safety benefits of three different onboard safety systems (Hickman et al., 2009). Based on data from 15 different CMV fleets, VTTI identified the following crash severities: preventable DOT recordable crash, any DOT recordable crash, and any crash. A DOT crash is an occurrence involving a CMV on a public road in intrastate or interstate commerce which results in a fatality, injury to a person requiring immediate treatment away from the scene of the crash, or disabling damage to a vehicle requiring it to be towed (this is the most serious crash irrespective of driver and/or passenger injury.) There should be a sufficient frequency of DOT recordable crashes over the 3-year data collection period in the CDIDS to obtain at least 3,000 cases (4,467 preventable and non-preventable DOT recordable crashes over three years). VTTI may use lower severity crashes and/or other safety events, such as moving violations and/or out-of-service violations, to identify case CMV drivers if there is an insufficient frequency of DOT reportable crashes during the three years of data collection.

**Data Collection**

**Driver Medical Examination**

Road Ready will be responsible for the collection of the driver medical examination data obtained from the completed Medical Examination Report for Commercial Driver Fitness Determination (Form 649-F).

**Driver Survey Content**

The 60-minute Driver Survey will obtain demographic information about the participant, as well as life history information known to be relevant to driving safety. The survey will also assess various aspects of personality and/or self-reported risky driving behaviors.

**Fleet Manager Survey**

The VTTI team will administer a Fleet Manager Survey to a representative from each of the fleets participating in this study to collect information about fleet characteristics (e.g., haul type) and protocols (e.g., pay, training).

**Follow-up Survey**

A brief 20-minute Follow-up Survey, will be administered to case drivers in the prospective approach shortly after their case event. This survey will aid in determining if any recent life events/stressors (e.g., problems at home) may have been a contributing factor to the case event. Since participants in the prospective approach will be new drivers (thus, have limited experience with the fleet), the job satisfaction questionnaire will be distributed in the follow-up survey. Drivers in the prospective approach selected as matched controls to the cases will also be given the survey; however, they will complete it at the end of the study.

In 2009, VTTI completed a distracted driving study specifically focused on commercial motor vehicles. A key finding was that drivers are 23 times more likely to be involved in a crash when texting while driving than those who were not texting while driving.

According to statistics from NHTSA, 3,380 people were killed in 2009 as a result of collisions with large trucks.

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