



Investigating the Safety and Training of Commercial Motor Vehicle Operation by Deaf and Hard of Hearing Drivers

BACKGROUND

The Federal Motor Carrier Safety Administration (FMCSA) uses physical qualification standards as a means of ensuring commercial motor vehicle (CMV) drivers are physically capable of safely carrying out the activities of their job. CMV drivers operating in interstate commerce are required to meet the hearing physical qualification standard established in 49 CFR 391.41(b)(11). Previous FMCSA-sponsored research found limited literature on the safety of drivers who are deaf or hard of hearing and concluded that the evidence did not support that deaf or hard of hearing drivers are at an increased risk for a crash. In 2013, FMCSA began granting medical exemptions from its hearing standard for deaf and hard of hearing CMV drivers on a case-by-case basis.

OBJECTIVES

The first objective of this project was to evaluate the literature to gain a better understanding of the safety implications of CMV operations by deaf and hard of hearing drivers. The second objective was to identify and document procedures and recommendations that can be safely and effectively used to train and test deaf and hard of hearing CMV drivers.

METHODS

The project objectives were accomplished through (a) an evaluation of the existing literature; (b) a review of driving requirements associated with deaf and hard of hearing drivers; (c) interviews with licensed audiologists and Deaf culture experts; and (d) interviews with driving school personnel who have worked with applicants who are deaf or hard of hearing in preparation for obtaining a commercial driver's license.

A systematic search of electronic databases was conducted to identify and collect literature on deaf and hard of hearing drivers. Well-established scales were used to develop a 10-item checklist to assess how the research was designed, conducted, and reported, resulting in a quality assessment score.

Existing driving requirements were identified for deaf or hard of hearing drivers within the United States and internationally primarily through online searches. Other countries were selected based on similarities in transportation policies and infrastructure to that found in the United States.

Audiologists and Deaf culture experts for the interviews were identified using a variety of approaches, including identifying prominent authors cited in the literature review, contacting prominent institutions conducting relevant research, reviewing conference presenters in related fields, searching audiologist databases, and receiving recommendations from other audiologists.

Driving schools were interviewed to understand the schools' perspectives on the challenges of training deaf or hard of hearing students, effective approaches for meeting these challenges, and the success of deaf or hard of hearing graduates. The schools were selected to represent a variety of geographic locations, sizes, and types (e.g., public, private) with experience training more than one deaf student.

FINDINGS

Individuals who are deaf or hard of hearing may operate both passenger vehicles and CMVs in the United States and internationally; however, driving requirements vary and operation of CMVs in the United States is limited. Extensive research on deaf or hard of hearing drivers was not available in the literature. This included a lack of numerical data on the size of the deaf and hard of hearing population and the number of deaf or hard of hearing individuals who drive. Effectively, there was no research or information available in the literature on training deaf or hard of hearing individuals to drive a CMV.

The results of the project indicated a lack of data and empirical evidence on the safety and performance of deaf or hard of hearing drivers. There were few studies on the crash risk of deaf and hard of hearing drivers and very little data available on the crash risk of deaf or hard of hearing CMV drivers. There was no scholarly consensus in the literature on whether deaf or hard of hearing drivers have a greater crash risk than drivers who are not deaf or hard of hearing. For these reasons, as well as the lack of quantitative data on the deaf and hard of hearing population broadly, an empirical evaluation of crash risk was not possible.

Interviews explored experiences, adaptations, and concerns associated with deaf or hard of hearing drivers from the perspective of audiologists and Deaf culture experts. Many of these experts emphasized the successful ways deaf and hard of hearing individuals have adapted in driving contexts. When deaf and hard of hearing individuals interact with law enforcement, some of these experts raised concerns about the possibility of communication breakdowns.

The driving school personnel interviewed stated there are challenges in training deaf or hard of hearing students, but these challenges can be reasonably addressed through adaptations and accommodations. These personnel largely agreed that after a period of trial and error while training their first deaf student, most of the process of training deaf students was not significantly different, longer, or more difficult than that of training students without hearing loss. None of the experts interviewed provided evidence of significant safety risks associated with deaf or hard of hearing CMV drivers during training in the classroom or when on the road. The experts interviewed made recommendations to improve training of deaf and hard of hearing individuals and for driver and vehicle adaptations to assist deaf and hard of hearing individuals.

CONCLUSIONS

None of the various sources included in the report provided clear evidence of increased crash risk associated with CMV drivers who are deaf or hard of hearing. While more research and data are needed to draw firm conclusions on deaf and hard of hearing driver safety, this project provided valuable insights and recommendations for training and testing these drivers.

To read the complete report, please visit:
<https://rosap.ntl.bts.gov/view/dot/78523>