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Evaluation of Rear-Seat Belt Laws

According to NHTSA's 2020 National Occupant Protection Use Survey (NOPUS) results, seat belt use by occupants 8 and older continued to be lower in rear seats (80.0%) than in front seats (90.3%) (Enriquez, 2021). Similarly, the 2019 Fatality Analysis Reporting System (FARS) indicates that rear-seat passenger vehicle occupants 8 and older killed in fatal crashes were less likely to be restrained (34%) than front-seat occupants (55%) (National Center for Statistics and Analysis, 2020). Despite these statistics, Kahane (2017) showed that 3-point belts significantly reduce fatality risk for rear-seat passengers of both cars and light-truck vehicles (LTVs) with estimated fatality reductions even greater than those for front-seat occupants.

To be effective, seat belts must be worn. All States except New Hampshire require adult belt use in the front seat. However, as of November 2021 only 32 States and the District of Columbia have laws that cover adult rear-seat passengers (IIHS, 2021). While the 2020 NOPUS found similar use rates in States with laws requiring belt use in all seat positions versus only in front seats (80.4% versus 78.4%), the difference had not been that close in the last 16 years (Enriquez, 2021).

States also differ by the type of seat belt law. A State has a "primary enforcement" law if vehicles can be stopped and occupants ticketed simply for not using their seat belts. Under "secondary enforcement" laws, vehicles must be stopped for another violation before occupants can be cited for seat belt nonuse. Among the 32 States with laws that require rear-seat belt use, 21 States had primary rear-seat belt laws, and 11 States had secondary laws (IIHS, 2021). And while NOPUS shows that front-seat belt use is higher in States with primary versus secondary front-seat belt laws, NOPUS does not distinguish between rear-seat belt law types.

This Traffic Tech summarizes the results from the Office of Behavioral Safety Research's report, *Evaluation of Rear-Seat Belt Laws*. The project had two parts. In the years 2016 to 2020, only three States adopted new rear-seat belt laws. Mississippi and New York enacted primary rear-seat laws, and Alabama enacted a secondary law. In 2021, Connecticut also enacted a secondary law. One objective of this study was to document how two States, Alabama and New York, achieved upgrades to their rear-seat belt laws and to identify the factors affecting the timing of their successes. To meet this objective, the report examined the passages of the 2019 Alabama and the 2020 New York laws. A second objective was to conduct an outcome evaluation of primary and secondary rear-seat belt laws (compared to no law) on adult rear-seat belt use using observations from nine States.

Case Studies

On September 1, 2019, Alabama implemented a law requiring rear-seat occupants 16 and older to wear seat belts. Although its seat belt law provided for primary enforcement of the front-seat belt requirement since December 9, 1999, enforcement of the new rear-seat requirement is secondary. There appear to be three main factors in Alabama's enactment of an adult rear-seat belt law. The precipitating factor was the death of 17-year-old Roderic Scott, a well-known star basketball player in the State. He was riding unbelted in the rear seat and was ejected when the vehicle overturned. The bill to enact an adult rear-seat belt law was introduced a year after Scott's death and signed into law 3 years later. A second factor in the enactment of the law was the advocacy of legislative sponsors who represented Montgomery, Scott's hometown. A third factor was amending the bill to allow for only secondary enforcement, which interviewees described as critical to the bill's passage.

On February 2, 2020, New York Governor Mario Cuomo signed a law requiring seat belt use by occupants 8 or older in for-hire vehicles such as taxicabs. Then a few months later he signed a law requiring belt use by occupants of all ages in the rear seats of personal vehicles. Both laws were implemented on November 1, 2020. New York's seat belt law allows primary enforcement. Three factors appear most important in New York's seat belt law upgrade. The first factor was a change in the State Senate leadership because of the 2018 elections. Previous efforts to pass the rear belt law upgrade had stalled in the Senate, and the new leadership signaled support for the upgrade. A second important development in October 2018 was a horrific limousine crash in which 20 people died, including all 17 passengers, the driver, and two pedestrian bystanders. The crash received massive media coverage focusing in part on the fact that belt use is lower in rear-seats than in front seats and on New York's lack of an adult rear-seat belt requirement. As a result of the crash, the National Transportation Safety Board reiterated its recommendation that New York seat belt laws cover all seating positions in all vehicles. A final factor in New York's belt law upgrade was the long-time leadership of AAA.

Although both States faced different challenges and employed different strategies, their success appeared to include the following.

- Engaging crash victims and the families of crash victims to share their experiences and highlight needed upgrades to the seat belt laws.
- Identifying legislative sponsors willing to push for the law with colleagues and in the media.

- Identifying and being willing to consider concessions if they are necessary.
- Identifying a person or organization to lead a broad-based coalition and to develop an overall strategy, coordinate efforts, and provide consistent messaging to the media.
- Emphasizing the safety and economic benefits of seat belt law upgrades rather than enforcement or citations.
- Developing evidence-based summaries of the benefits of seat belt use and law upgrades.

Observations

The study also conducted observation surveys of rear-seat belt use in nine States, grouped into three triads, so that each triad contained a State with a primary rear-seat belt law, one with a secondary rear-seat belt law, and one with no rear-seat belt law. Triads were created so that State groupings were as similar as possible in terms of front-seat use as well as general population characteristics. Table 1 shows the triads.

Table 1. States by Rear-seat Belt Presence and Law Type

	Primary	Secondary	No law
Triad 1	Texas	Oklahoma	Kansas
Triad 2	Illinois	New York	New Jersey
Triad 3	Kentucky	Tennessee	North Carolina

There are three hypotheses related to the triads:

- *Rear-seat belt use is likely to be higher in States with primary rear-seat belt laws than States with no rear-seat belt laws.*
- *Rear-seat belt use is likely to be higher in States with secondary rear-seat belt laws than States with no rear-seat belt laws.*
- *Rear-seat belt use is likely to be higher in States with primary rear-seat belt laws than States with secondary rear-seat belt laws.*

The results offered support for the first hypothesis. Within each triad, the State with a primary law had higher rear-seat belt use than the State without a law with differences of 0.7 percent (Triad 1), 4.4 percent (Triad 3), and 6.9 percent (Triad 2). The multivariable logistic regression results confirmed the finding with statistically significant odds ratios of 1.7, 4.4, and 6.4.

The results offered more limited support for the second hypothesis. Within each triad, the State with a secondary law had higher rear-seat belt use than the State without a law with differences of 0.7 percent, 1.5 percent, and 12.8 percent. However, the multivariable logistic regression results indicated statistically significant odds ratios (of 1.7 and 5.8) in only two triads.

The results do not support the third hypothesis. Only in one triad did the rear-seat belt primary law State record a higher



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use rate than the secondary-law State, but the relationship was not statistically significant in the multivariable model. In one triad the primary-law State recorded lower belt use than the secondary-law State, and in another triad, the rates were the same.

Discussion

NHTSA's *Countermeasures That Work* (Venkatraman et al., 2021) identifies State primary enforcement seat belt laws as “demonstrated to be effective by several high-quality evaluations with consistent results.” The evidence, however, is based predominantly on studies of front-seat belt use. The findings of this study suggest that primary rear-seat belt laws also demonstrate higher belt use than no seat belt law. The evidence for secondary rear-seat belt laws is not as strong but still suggest higher belt use than no law. In both cases, some of the behavior change may come from the fact that the laws send a “clear and consistent message to the public” about rear-seat belt use. This conclusion is supported by the fact that the case studies found the bills were viewed in terms of safety and education and did not face vocal opposition. As such, the role of enforcement in rear-seat belt laws is unclear.

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