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U.S. Department of Transportation

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Washington, D.C. 20590

Subject: Comments in response to a notice of proposed rulemaking

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14 April, 2022

Dear Administrator:

Thank you for the opportunity to comment on the National Survey of the Use of Booster Seats which we support.

SafetyBeltSafe U.S.A. (SBS USA) is the national non-profit agency dedicated to promoting child passenger safety. Offering more than forty years of experience in this field, we focus on provision of technically accurate, best-practice information and education to parents, practitioners, and specialists in the field of child passenger safety. We maintain a strong, grassroots focus in order to inform our advocacy and regulatory work. This focuses our continued attention on reducing deaths and injuries of children by the consistent, correct use of child restraints.

SafetyBeltSafe U.S.A. considers the national survey of the use of booster seats by U.S. children an important contribution to understanding the levels of protection from motor vehicle crash injury for those under age 13. The data generated provide a timely insight into current norms and trends in how children are restrained. For example, key findings from the most recent survey (2019) show significant progress in levels of safe restraint of children but also highlight ongoing risks including:

- 30% of children age 4 – 7 riding at risk through incorrect restraint choice, with age 6 – 7 as a key time for inappropriate transition to safety belts.
- Significant risk burden carried by children age 8 – 12 through premature use of safety belts only.
- Demographic data indicate populations to target with additional educational efforts.
- Significant progress was made over a ten-year period in encouraging best practice in restraint choice; however, no progress was seen over this period in reducing the percentage of unrestrained children, showing that educational efforts are still having less impact on the most at-risk children.

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This timely information is of critical importance to child passenger safety advocates and educators in focusing their efforts on populations currently most at risk. Therefore, we support this ongoing effort to comply with the TREAD Act of 2000.

We note, however, that the Act was passed 22 years ago. This means that the options available to families to protect their children today are very different from those when the Act was written. Today, many children can and would be best served to remain in seats with an internal harness longer than age 4; indeed, children often will fit in a seat rear facing weighing up to 30-50 lbs. (Product availability has made it possible for 16 states and DC to mandate rear facing to age 2, greatly increasing safety for the youngest passengers.) In addition, extensive research undertaken on children and belt fit in the wide range of motor vehicles in use in the U.S has shown clearly that children need to be evaluated for child restraint use until age 10 – 12. Before this age, most children do not fit correctly in safety belts without a booster seat. The belt is likely to rest on the abdomen, not the pelvis, as children do not develop iliac crests before ages 10-12. In sum, it is not only critical to collect data and report it as before for comparative purposes but also to restructure collection and reporting to understand the findings in the light of the resources available today to reduce injury and death for children riding in motor vehicles.

To support our recommendation, we point to research that supports the assessment tool we presented more than 20 years ago: the 5-Step Test. In summary, the 5-Step Test is a simple method of understanding if a child fits properly in a safety belt without a booster. It is predictive because it takes into account the differing proportions of children of the same age and height and the variable proportions of motor vehicle seating positions. SafetyBeltSafe U.S.A. assessed the fit of more than 9100 children in vehicles over the years and found that only half fit at age 10 and some did not fit at age 12.

Researchers (citations listed below) found that:

- “Overall, these results (Reed & Klinich data) support the conclusion that relatively few children under 12 years of age can ‘graduate’ from a booster without experiencing a marked degradation in lap belt fit.”*
- “Substantial proportions of children meeting AAP height guidelines for using safety belt only do not meet safety requirements for fit, especially in larger, commonly used vehicles (large SUVs and trucks).”**
- ...79,859 children with full data included in comparing belt vs. booster outcomes. Booster seat use associated with 29% reduction in risk of injury (19% adjusted for other factors which might reduce risk). From ‘02-’15: 92% in belts only but up from 2% in ‘02 to 14% of 8 – 12-year-olds by 2015.***
- taller and older children have a better chance of achieving a good seat belt fit. However, with variations in seat geometry between vehicles, no single simple metric clearly defines an appropriate transition to the adult seat belt.****
- National Health and Medical Research Council of Australia supports the “5 step test” to judge belt fit at about ages 10-12.

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- Louisiana has introduced the 5-Step Test into their revised child passenger safety law:

Age/Size	Restraint Use
Birth to at least 2 years old	Ride rear facing in an infant or convertible child safety seat
At least 2 years old and has outgrown the rear facing seat by height or weight	Ride in a forward-facing child safety seat with an internal harness
4 years old and has outgrown the forward-facing seat with internal harness by height or weight	Ride restrained in a belt positioning child booster seat using a lap shoulder seat belt
9 years old or has outgrown the booster seat and can pass the 5 Step Test	Ride restrained with a lap shoulder seat belt secured correctly on the vehicle seat
Younger than 13 years old	Ride in the rear seat of a vehicle, when available and properly restrained

A child who can be placed in more than one category shall use the more protective category. Child safety seats must be used according to the manufacturer's instructions.

5 Step Test: The seat belt fits correctly when the child sits all the way back against the vehicle seat, the child's knees bend over the edge of the vehicle seat, the belt fits snugly across the child's thighs and lower hips and not the child's abdomen, and when the shoulder strap snugly crosses the center of the child's chest and not the child's neck.



Effective 8/1/2019

Due to widespread use at the time of 4'9" as a standard for moving children out of boosters, SafetyBeltSafe U.S.A. did a study in 2011 to see if the 4'9" standard used by many to determine a safe metric for recommending children stop using booster seats is appropriate. We found that 27% of children taller than 4'9" we tested did not fit in the safety belt properly, but 5% of those shorter than the 4'9" passed the fit test, which also takes into account that children, not dummies, are being assessed by asking the question: Can the youngster hold the position for the whole trip—whether 20 minutes or 2 hours?

Based on the findings listed and subsequent research assessments that have been reported, SafetyBeltSafe U.S.A. would make the following recommendations for the coming survey:

- Take into consideration the changes in available restraint options.
- Focus on numbers of children in each age range under age 4 in rear-facing restraint systems, especially looking at states with laws with that requirement.
- Similarly, focus on the number of children in the 4-7 range, most of whom can ride in seats with internal harness systems, who have been shifted to boosters or belts only.
- Do a visual inspection of tether attachment in forward-facing seats with harness systems since that is an area of longstanding concern due to poor attachment rates.
- Provide a breakdown of restraint choice by age and state so that the impact of varying state laws can be examined.
- Use the 5-Step Test to ask parents with children using safety belts only to conduct the test in their own vehicles. Record the findings. (This may be a way of rewarding participants by pointing out that in most states, non-use and non-fit equal a violation of state law.) Although height alone cannot predict fit, and many parents of older children do not share the child's height accurately, it would be useful to record height along with results of the 5-Step Test to see if the findings we reported are seen in the national population surveyed.

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- As for the 8-12 year-old research population, it would be very useful to compare fit at each age range. We have seen that state laws have a strong “educational” effect so that if an age is listed and there is in the law a general statement of how the belt should lie for correct use, many adults do not understand the latter component. Therefore, they go by the age mentioned, leading to improper protection being a widespread problem for children ages 8-12. Initially, NHTSA encouraged laws that mentioned age 8; at the time, it was a way to move past age 4 and indeed, it also fit with the limited range of products on the market. Today, there are boosters that are designed to be used by children up to 120 lbs. It would be very useful to know where the country is in relation to the goal of age 10 or 12 for booster use. This could affect laws being improved, which, as we know, tends to increase compliance.
- Just having the 5-Step Test as part of the assessment would show how out-of-step the booster use method seems to have been IF the majority of children without boosters “fail” it. That would improve the messaging for the future.
- In California, the Strategic Highway Safety Plan, Occupant Protection, has an Action Item to promote the 5-Step Test through agencies that serve the public and to marshal the Child Passenger Safety Technicians to reach out to their communities. Besides the key role booster use can play in protecting children in crashes, teaching the 5-Step Test to children empowers them to protect their bodies, when they are on their own, as these children are away from family most of their active days. It is a benign starter-issue in the long process of teaching children to protect themselves from bodily effects from alcohol, drugs, cigarettes, human intrusions, etc. without the psychological upset that these other topics often ignite within families. This can be a positive by-product, improving their lives. When this aspect is raised with families in context, they often find this a positive aspect of the process.

In summary, SafetyBeltSafe U.S.A. is eager to see the survey go forward, based on the law from 2000. We further strongly advocate for some changes that will answer the questions that advocates, parents, and certainly lawmakers would want to know:

- Are the rear-facing-to-age 2 laws working in states that have them vs. states without that requirement?
- Where are we now in relation to booster use vs. booster need and do we need to be more explicit as is the 5-Step Test to get families to understand which guidelines to use to understand when it is safe to leave the booster in the garage? As an example, do parents in California understand the description of correct use in the law or respond to age 8, or 4’9” as shown by their behavior?

Thank you for your attention and your plans to answer key questions that can determine program efforts.



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Footnotes:

* Reed, M.P. and Klinich, K.D., 2016. Predicting vehicle belt fit for children ages 6–12. *Traffic Injury Prevention*, 17(1), pp.58-64. Summarized in 3/16 *SafetyBeltSafe News*: Based on detailed measurements of kids and cars.

** Morse, A.M., Aitken, M.E., Mullins, S.H., Miller, B.K., Pomtree, M.M., Ulloa, E.M., Montgomery, J.S. & Saylots, M.E., 2017. Child Seat Belt Guidelines: Examining the 4'9" Rule as the Standard. *Journal of Trauma and Acute Care Surgery*, ePub

*** Anderson, D.M., Carlson, L.L. and Rees, D.I., 2017. Booster seat effectiveness among older children: evidence from Washington State. *American Journal of Preventive Medicine*, 53(2), pp.210-215.

**** Parab, A., Whyte, T., Albanese, B., Bilston, L., Koppel, S., Charlton, J.L., Olivier, J., Keay, L. and Brown, J., 2022. Can age or height define appropriate thresholds for transition to adult seat belts? An analysis of observed seat belt fit in children aged 7–12 years. *International Journal of Environmental Research and Public Health*, 19(3), p.1524.