



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: April 21, 2004

In reply refer to: H-04-16

Mr. Mark R. Ginsberg
Executive Director
National Association for the Education of Young Children
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The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendation in this letter. The Safety Board is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

This recommendation, which addresses child care transportation oversight, is derived from the Safety Board's investigation of an April 4, 2002, accident involving a child care van in Memphis, Tennessee,¹ and is consistent with the evidence we found and the analysis we performed. As a result of this investigation, the Safety Board has reiterated 1 past recommendation and issued 10 new safety recommendations, 1 of which is addressed to the National Association for the Education of Young Children. Information supporting this recommendation is discussed below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendation.

On April 4, 2002, about 8:19 a.m., a 15-passenger Ford E-350 van, driven by a 27-year-old driver and transporting six children to school, was southbound in the left lane of Interstate 240 in Memphis, Tennessee. The van was owned and operated by Tippy Toes Learning Academy (Tippy Toes), a private child care center. A witness driving behind the van stated that the vehicle was traveling about 65 mph when it drifted from the left lane, across two other lanes, and off the right side of the roadway. She said that she did not see any brake lights. The van then overrode the guardrail and continued to travel along the dirt and grass embankment until the front of the van collided with the back of the guardrail and a light pole. The rear of the van rotated counterclockwise and the front and right side of the van struck the bridge abutment at the Person Avenue overpass before coming to rest. The driver was ejected through the windshield

¹ For more information, read National Transportation Safety Board, *Fifteen-Passenger Child Care Van Run-off-Road Accident, Memphis, Tennessee, April 4, 2002*, Highway Accident Report NTSB/HAR-04/02 (Washington, DC: NTSB, 2004).

and sustained fatal injuries. Four of the children sustained fatal injuries, and two were seriously injured.

The Safety Board determined that the probable cause of this accident was the absence of oversight by Tippy Toes Learning Academy and the driver's inability to maintain control of his vehicle because he fell asleep, quite likely due to an undiagnosed sleep disorder; the driver's marijuana use may also have had a role in the accident. Contributing to the accident was the Tennessee Department of Human Services's lack of oversight of child care transportation. Contributing to the severity of the injuries were the use of a 15-passenger van to transport pupils, the nonuse of appropriate restraints, and the design of the roadside barrier system.

During its investigation of this accident, the Safety Board found a number of deficiencies in child care transportation oversight, including deficiencies related to vehicle standards and maintenance, restraint usage, and driver fitness, which are discussed in detail below.

Vehicle Standards

From 1993 through 2002, fatalities to children within school buses averaged just over 5 per year; yet, in that same timeframe, fatalities to children in 15-passenger vans averaged 57. The Safety Board's findings from its investigations of the Memphis and other accidents further support the concept that vehicles built to school bus standard provide superior occupant protection over 15-passenger vans. The Safety Board therefore remains firmly convinced that the safest way to transport children to or from school or school-related activities is in a vehicle built to school bus standards.

In the Memphis accident, the children were being transported to school from Tippy Toes, their child care center, in a 15-passenger van, not a school bus. School buses are built using a design concept known as compartmentalization,² a vehicle so constructed would have kept the children in this accident within their seating area during the initial impact with the light pole instead of being thrown from their seating positions during this initial impact, as predicted by the Safety Board's accident simulation. The intrusion into the seating compartment may also have been lessened because of the school bus's greater joint strength. The Safety Board therefore concludes that had Tippy Toes used a vehicle built to school bus standards to transport the children to and from school, rather than a 15-passenger van, the resulting injuries might have been less severe.

The Safety Board's 1999 study,³ which discussed four accidents involving nonconforming vehicles used for pupil transportation, also found that school buses provide better crashworthiness and occupant protection. The study concluded that had the vehicles involved in

² In school buses, compartmentalization is used to protect passengers from crash impacts. This is accomplished by having the seats closely spaced together, with the seat cushions and high seatbacks covered in an energy-absorbing material. The entire seat structure is designed to absorb energy and to dissipate through deformation the energy of the crash away from the passenger and into the surrounding compartment. In addition to using compartmentalization, small school buses are equipped with lap belts because their size can lead to more passenger movement in a collision.

³ National Transportation Safety Board, *Pupil Transportation in Vehicles Not Meeting Federal School Bus Standards*, Special Investigation Report NTSB/SIR-99/02 (Washington, DC: NTSB, 1999).

these accidents had equivalent occupant crash protection, they probably would have sustained less damage, and the passengers might have suffered fewer and less severe injuries. Consequently, the Safety Board recommended that the 50 States and the District of Columbia:

H-99-22

Require that all vehicles carrying more than 10 passengers (buses) and transporting children to and from school and school-related activities, including but not limited to, Head Start programs and day care centers, meet the school bus structural standards or the equivalent as set forth in 49 *Code of Federal Regulations* Part 571. Enact regulatory measures to enforce compliance with the revised statutes.

Only 11 States have implemented this recommendation. The Safety Board will continue to urge the 39 States that have not done so, and the District of Columbia, to include child care centers in their requirement that school buses or buses built to school bus standards be used for the transportation of children to or from school or school-related activities.

Restraint Usage

Although the Safety Board believes that children should be transported to and from school or day care in a school bus, we understand that child care centers will continue to use other vehicles to transport children as school buses and multifunction school activity buses are phased into use. The continued use of non-school bus vehicles makes the use of restraints even more important because the restraints at least offer some measure of protection. In the Safety Board's simulations, use of available restraint systems was estimated to reduce the overall occupant motion and the potential for ejection and injuries from occupant-to-occupant contacts. The simulations showed that, had the children been restrained in age-appropriate restraints, they probably would have received even less severe injuries. The predicted injuries of the two children who should have been in booster seats (the 6- and 8-year-olds) were estimated to be greatly decreased in the simulation when they were placed in booster seats. This is because the seats provide the proper positioning of the seat belts on smaller children. An additional benefit of the booster seats used in the simulation, high-backed boosters with sides, was that they further contained the occupants within their seating area, reducing potential injuries that would have been caused by contacting other surfaces within the van.

The 6-year-old who was not placed in a booster seat in the simulation⁴ experienced additional predicted injuries due to improper belt placement. The location of the attachment points for the lap/shoulder belts and the shoulder attachment caused the shoulder harness to ride up the torso in the simulation, so that the belt contacted the occupant's neck. Even though the children in seats 3 and 6 were old enough (both were 10 years old) that they were not recommended to use booster seats, the shoulder harness of their lap/shoulder belts quite likely would also have been ill-fitting, crossing the children at the neck due to the location of the upper anchorages. Ill-fitting lap/shoulder belts can lead to further injuries, such as increased risk of

⁴ The 6-year-old occupant in the front passenger seat was not simulated in a booster seat because children 12 and under should not sit in the front seat.

fractures to the spine and serious abdominal injuries.^{5,6} Because 15-passenger vans, as currently configured, locate the shoulder belt upper anchorage high and aft of the passenger, creating a situation where the belt fits poorly, the Safety Board has recommended that manufacturers of 15-passenger vans make lap/shoulder belts adjustable.⁷

The 9-year-old passenger in center seat 7 only had the option of using a lap belt. The Safety Board has long advocated use of lap/shoulder belts in all seating positions because they greatly reduce a passenger's risk of injury during a collision. Restrained by lap belts only, passengers sometimes sustain increased abdominal, head, and neck injuries as a result of pivoting about the lap belt or due to excessive upper body motion. Both the General Motors Corporation and Ford Motor Company (the current manufacturers of 15-passenger vans) plan to install lap/shoulder belts at all seating positions by September 2007, but the belts will not be adjustable.

Driver Fitness

During the course of the investigation, investigators found other issues associated with the Tippy Toes's child transportation program that contributed to this accident. Despite Tennessee Department of Human Services (TDHS) requirements, Tippy Toes had not conducted a background check on or medical examination of the driver. A background check would have revealed the driver's marijuana possession arrest, and a medical examination might have identified the driver's marijuana use and possible sleep apnea. Drug testing also would quite likely have identified the driver's marijuana use. Although Tippy Toes's employees knew of and thought the owners were aware of the driver's marijuana use, nothing was done to prevent him from driving children to and from the child care center. Because Tippy Toes did not forward the driver's application to the TDHS, as required, the TDHS had no record of this driver being employed by Tippy Toes or knowledge that the driver had not been given a background check or medical examination. Reviewing the driver's file would have been one opportunity for the TDHS to identify this driver and ensure he had been properly screened. Even though TDHS personnel had another chance to review the driver's file at Tippy Toes,⁸ they failed to note the lack of a background check or medical examination. The Safety Board concludes that because Tippy Toes did not comply with State law and because the TDHS provided inadequate oversight of Tippy Toes's operations, the accident driver was able to transport children, even though he had not had a background check or medical examination.

⁵ C. Gotschall, A. Better, D. Blaus, M. Eichelberger, F. Bents, and M. Warner, "Injuries to Children Restrained in 2- and 3-Point Belts," *42nd Annual Proceedings of the Advancement of Automotive Medicine*, 1998.

⁶ J. Garrett and P. Braunstein, "The Seat Belt Syndrome," *Trauma*, Vol. 2 (1962): 220.

⁷ The Safety Board is now evaluating Ford Motor Company's and General Motors Corporation's responses to Safety Recommendation H-03-25. For more information on this safety recommendation, read National Transportation Safety Board, *15-Passenger Van Single-Vehicle Rollover Accidents, Henrietta, Texas, May 8, 2001, and Randleman, North Carolina, July 1, 2001*, Highway Accident Report NTSB/HAR-03/03 (Washington, DC: NTSB, 2003).

⁸ Tippy Toes received five on-site inspections during the time in which the accident driver was employed. These inspections, which were performed by the same person, occurred between December 18, 2001, and March 7, 2002.

The accident driver was a known frequent marijuana user and, according to children and parents, had sometimes smoked marijuana while driving the child care van. Because marijuana can affect a driver's perception and reaction, riding with this driver was dangerous. Although the TDHS did not require preemployment drug testing for child care center drivers at the time of the accident, the agency now requires an initial drug screening and prohibits those who test positive from driving for a child care center. The TDHS still does not require random drug tests. The Safety Board concludes that had drug testing been conducted, the accident driver's drug use would quite likely have been detected and he may have been prohibited from transporting children. All highway transportation providers in the United States, from school bus drivers to motorcoach drivers to truck drivers, must submit to both preemployment and random drug testing. Child care transportation providers, who transport young children on a daily basis, should be held to at least the same strict standards as other commercial drivers.

Oversight

Public schools currently require that school buses be used to transport children to or from school and that all drivers hold a commercial driver's license and have a medical examination. Beginning in 2006, the Head Start program will require its centers to use vehicles built to school bus standards, restrain children in age-appropriate restraints, and require drivers to hold a commercial driver's license and have a medical examination. Children being transported to and from child care centers deserve the same level of protection as their siblings and neighbors being transported to Head Start or to public elementary or high schools.

Tippy Toes's owner did not conduct a background check on the driver, did not inquire about previous traffic or drug convictions, and did not require that the driver complete a medical examination. Moreover, not only was the owner aware of the driver's marijuana use, and did nothing to restrict or stop him from driving children to or from school, she apparently was also aware that two of the attendants believed that one of their primary responsibilities was to keep the driver awake. Furthermore, the owner allowed children to be transported without seat belts or child restraints, thereby violating the State restraint laws. Had the owner fulfilled any of her responsibilities regarding the transportation of children, this accident may not have occurred or the consequences may have been less severe. Therefore, the Safety Board concludes that the complete absence of driver and transportation operations oversight on the part of Tippy Toes's owner led to this accident.

Following this accident, Tennessee established stricter requirements for child care center transportation. This new law includes requirements, phased in from 2003 to 2007, for the use of vehicles built to school bus standards and age-appropriate restraints; for annual vehicle inspections; for driver background checks, drug tests, and medical examinations; for commercial driver's licenses; and for vehicle identification. Similarly, a fatal accident in South Carolina⁹ prompted that State to pass a law requiring vehicles built to school bus standards, child restraints, and annual vehicle inspections. However, Tennessee and South Carolina enacted these stricter laws *only after* fatal accidents involving child care transportation. Further, based on the lack of

⁹ A 15-passenger van carrying students from a private school to a swimming pool was struck by a tractor-semitrailer that failed to stop at a red light. One passenger was fatally injured and several others were seriously injured. The Safety Board did not investigate this accident.

positive response to previous safety recommendations to require the use of vehicles built to school bus standards and the use of booster seats,¹⁰ the Safety Board does not believe that significant progress has been made nationally in child care center transportation safety. The Safety Board concludes that the absence of a comprehensive safety oversight system for child care transportation places children who are being transported to and from child care centers at risk.

A comprehensive child care transportation safety program should consist of vehicle, driver, and operational requirements. In addition to being built to Federal school bus standards, vehicles used for child care transportation should be maintained and inspected routinely to ensure that they are in good working order. Although the accident van's worn brake pad, grooved brake rotor, and the low rear tire inflation pressures did not contribute to the accident, these problems are indicative of poor maintenance. The accident investigation further revealed that major driver deficiencies escaped scrutiny because the driver's records were not reviewed, the driver never received a background check or a medical examination, and the driver's drug use was tolerated. Drivers employed by child care centers should undergo a criminal background check and a physical examination to detect health or other problems that would impair their driving and endanger the children's safety. Drivers should also be required to submit to preemployment and random drug testing to detect illicit drug use. Further, an oversight agency should review this driver information, to ensure that child care centers do not overlook driver violations. Finally, so that passersby can report unsafe drivers, child care vehicles should be labeled with the names and phone numbers of the child care center and pertinent oversight agency. One witness said she had seen the Memphis driver sleeping in the vehicle, but had nowhere to report this issue beyond the child care center; because the driver was reported to fall asleep at red lights, others may also have noticed his habits, but had no practical means of notifying anyone of their concerns. Witnesses also stated they believed the child care operator knew of the driver's drug use but ignored it. Had these witnesses known the number of the oversight agency, they could have alerted the agency to this unsafe driver.

Based on the circumstances of this and other accidents, the Safety Board is recommending that the States and the District of Columbia implement a comprehensive oversight program for child care transportation that includes the following elements: use of vehicles built to school bus standards or of multifunction school activity buses; a regular vehicle maintenance and inspection program; a requirement that occupants wear age-appropriate restraints at all times; a requirement that drivers receive a criminal background check and have a medical examination to determine fitness to drive; preemployment, random, postaccident, and "for cause" drug testing for child care transportation providers and the prohibition of anyone who tests positive for drugs from transporting children; review by an oversight agency of periodic driver background checks, medical examinations, and drug test results; and a requirement that child care vehicles be labeled with the child care center's and oversight agency's names and phone numbers.

To reinforce efforts by the States to establish comprehensive child care safety oversight programs, the Safety Board proposes that NAEYC, as part of its accreditation program, establish

¹⁰ For more information on State responses to Safety Recommendations H-99-22 (vehicles built to school bus standards) and H-96-14 (booster seats), read NTSB/HAR-04/02, appendix B.

a transportation safety accreditation that requires applicants to implement the same oversight elements that the Safety Board proposed in its above recommendation to the States. Therefore, the National Transportation Safety Board recommends that the National Association for the Education of Young Children:

As part of your accreditation program, establish a transportation safety accreditation that requires applicants to implement the following elements:

- Use of vehicles built to school bus standards or of multifunction school activity buses;
 - A regular vehicle maintenance and inspection program;
 - A requirement that occupants wear age-appropriate restraints at all times;
 - A requirement that drivers receive a criminal background check and have a medical examination to determine fitness to drive;
 - Preemployment, random, postaccident, and “for cause” drug testing for all child care transportation providers and the prohibition of anyone who tests positive for drugs from transporting children;
 - Review by an oversight agency of periodic driver background checks, medical examinations, and drug test results; and
 - A requirement that child care vehicles be labeled with the child care center’s and oversight agency’s names and phone numbers.
- (H-04-16)

While the U.S. Department of Health and Human Services (DHHS) does not prescribe health and safety requirements, it requires that child care facilities receiving funds meet State requirements for health and safety. Further, the DHHS provides resource information on its Web site for child care providers, including links to National Highway Traffic Safety Administration’s recommendations on child restraints. The Safety Board concludes that the DHHS, which provides child care and development funds to the States, is well-positioned to supply guidance and information on the safe transportation of children to child care providers. To assist child care providers in meeting future State criteria for child care transportation, the Safety Board will ask that the DHHS publish, distribute to local offices, and place on its Web site, information on the circumstances of this accident and the Safety Board’s recommendation for a comprehensive child care transportation oversight program, as well as the Safety Board’s previously published information on 15-passenger van safety.

The Safety Board also issued safety recommendations to the State and District of Columbia child care transportation oversight agencies, the State and District of Columbia Departments of Transportation, and the American Association of State Highway and Transportation Officials. In addition, the Safety Board reiterated Safety Recommendation H-99-22 discussed earlier in this letter to 39 States and the District of Columbia.

Please refer to Safety Recommendation H-04-16 in your reply. If you need additional information, you may call (202) 314-6177.

Chairman ENGLEMAN CONNERS, Vice Chairman ROSENKER, and Members GOGLIA, CARMODY, and HEALING concurred in this recommendation.

By: Ellen Engleman Connors
Chairman