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Child Safety: School Bus Still Best

Experts weigh the merits of changing safety standards of school buses.

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Taking a bus to school is the safest way to go, statistics show. But accidents sometimes happen, and children may face other hazards on a bus besides the risk of being hurt in a crash. When it comes to getting kids safely to and from school, there's always room for improvement.

"The safety record of school transportation is just about untouched by any other mode," Eric Bolton, spokesman for the National Highway Traffic Safety Administration (NHTSA), tells WebMD.

Every year school buses carry some 24 million students and collectively travel more than 4 billion miles. Considering how many kids the buses carry and the distance they cover, deaths on the road are extremely rare. School buses have a rate of 0.2 deaths per 100 million miles traveled. The rate of deaths in automobiles is eight times higher.

That's how safety officials like to put it, because it's a statistically accurate way of comparing risks. Here's another way to look at it: Over a span of 11 years, from 1994-2004, a total of 71 passengers on school buses died in crashes. In the year 2004 alone, traffic accidents killed 31,693 people traveling in cars and light trucks.

No matter how impressive statistics involving millions of kids and billions of miles are, they tend to pale when we hear the name of a single child who has come to harm, especially when that harm could have been prevented.

Seat Belts on the Bus

By law, kids on bikes must wear helmets, and in cars kids must be secured in an approved safety restraint at all times. So it may be a surprise to learn that federal law does not require seat belts on most school buses.

Every so often, a school bus accident makes national headlines and inflames the long-running controversy over making seat belts mandatory.

Some school buses are equipped with seat belts. The states of New York, New Jersey, and Florida have their own laws requiring lap belts on all school buses, but not belts that go over the shoulder and lap -- or "three-point restraints" in safety lingo -- like cars have. Individual school districts elsewhere may choose to have seatbelts on their buses as they see fit.

All small buses in the U.S. are required to have lap belts, too. These bus types are built on van bodies. The conventional big, yellow school bus, however, is designed to meet a different federal safety standard.

Using Seats for Safety

A key safety concept in full-sized school buses is called "compartmentalization." The thickly padded bench seats are spaced close together and have high backs, creating a compartment that protects passengers in a collision.

The NHTSA contends that compartmentalization alone is adequate crash protection, and that to

mandate seat belts in addition would be messing with success. Seat belts, officials say, limit the number of kids who can squeeze into a bus seat. That might mean some schools would have to buy more buses, or else tell kids to find another way to school. "You're going to require that these displaced students use much riskier transportation modes," Bolton says, referring to the relatively low rate of deaths in school bus crashes.

Using Seats for Safety continued...

"That's a position that we ascribe to as an industry," says Mike Martin, executive director of the National Association for Pupil Transportation. "We try to follow [NHTSA's] guidance whenever we can."

The American Academy of Pediatrics, however, wants to see three-point safety belts in every school bus, a position it has held since 1996. "We are still in favor of that," says Denise Dowd, MD, a member of the academy's Committee on Injury and Poison Prevention and chief of the section of injury prevention at Children's Mercy Hospital in Kansas City, Mo.

Dowd says too little is known about injuries to conclude that buses are safe enough without seat belts. "There's not any good tracking system or accumulation of data for nonfatal injuries that you can tie directly to school buses," she tells WebMD.

What's more, compartmentalization is designed primarily to protect passengers in head-on or rear-end collisions. What happens if, for example, a bus tips over?

In October 2005 such an accident occurred in the rural community of Plainfield, N.H. A bus taking kids home from school ran off the shoulder of a narrow, winding dirt road and flipped on its side. None of the 28 children on board was injured. All but one were wearing seat belts.

It's easy to imagine how unrestrained kids on the high side of the overturned bus could have been hurt, or could have injured others, by tumbling out of their seats. But no one knows for sure, because this kind of accident hasn't been studied. "There's a lot of evidence that's lacking," Dowd says.

According to Superintendent Russell Collins, Plainfield school buses have been equipped with lap belts for more than a decade. But in a sparsely populated district, where the bus stops for most students at their own driveways, school administrators haven't had to weigh safety vs. reduced passenger capacity. "That issue has never come up," Collins says.

Bus Stop Safety

More kids die when they're hit by a school bus than when riding in school buses, according to the NHTSA.

It could happen like this. A second-grader clambers down from the school bus and starts for home, when a sheet of paper, a very important handout from his teacher, slips out of the binder he carries. Caught by the wind, it sails under the bus. He dashes after it. The brake disengages. The engine revs. The wheels turn.

Again, relative to how many millions of kids are let off at bus stops every afternoon, very few fatal accidents of this sort actually happen. Children routinely get lessons at school about the danger of getting in the way of buses, among other bus stop safety rules. Various mirrors help bus drivers see all around the bus, and gates that swing out on the exit side remind children not to cross too close in front of the bus. Drivers are also trained to follow procedures intended to prevent them from accidentally running over their passengers.

Bus Stop Safety continued...

Heedless motorists pose a risk, too. Studies have shown that in a single day, hundreds of thousands of cars will pass stopped school buses illegally, and that's not because a stopped bus is inconspicuous.

"It's 40 feet long, it's 11 feet high, it's yellow, it's got flashing red and yellow lights on it, it's got a stop arm that comes out; it's almost inconceivable that people don't see it," Martin says.

No one should be satisfied until the rate is zero, but children are rarely killed by other vehicles at bus stops. The average is five deaths each year in the U.S.

Safety Tips for Kids

Children should learn these basic safety rules:

Stay at least 10 feet away from a bus until it's time to get on. Then wait your turn and get on one at a time.

Before stepping off the bus, look to be sure a car isn't coming.

Don't linger or play near the bus after you leave it.

Take 5 giant steps out in front of the bus before you cross the street. Be sure the driver sees you and signals that it's OK to cross in front of the bus.

Before crossing the street, make sure all cars on the road are stopped.

Diesel Exhaust Danger

In May 2006, two California environmental advocacy groups filed a lawsuit against Laidlaw Transit, the nation's biggest school bus contractor. The suit alleges that the company exposes children to hazardous diesel exhaust, and therefore, under California law, must warn parents and anyone riding on its buses about the danger.

The Environmental Law Foundation and Our Children's Earth Foundation, the groups who brought the suit, are not voices in the wilderness. Many public health and safety organizations, as well as government agencies, share concerns about children's exposure to diesel fumes.

Diesel engines power most school buses in the U.S. The Environmental Protection Agency (EPA) classifies diesel exhaust as a "likely human carcinogen," meaning that exposure to diesel fumes has been shown to increase the risk for [cancer](#). The exhaust also contains tiny particles that lodge deep in the lungs when inhaled. These particles may damage the lungs and may worsen respiratory conditions such as [asthma](#). The EPA states that children are especially vulnerable to bad health effects from breathing diesel exhaust.

Children may breathe diesel exhaust while riding inside a school bus, studies show. Researchers from the National Resources Defense Council and the University of California Berkeley tested actual school buses used to transport San Francisco school kids. They found levels of diesel fumes to be four times higher inside the buses than in cars driving in front of the buses.

Another recent study, sponsored by the California Air Resources Board, looked at several Los Angeles school buses built between 1975-2002. Levels of diesel fumes inside the buses were much higher than background levels of diesel pollution typically found in urban areas of the U.S. Older buses had the dirtiest inside air.

Reducing Diesel Emissions

The EPA is working to reduce diesel pollution by school buses in a variety of ways. One has been to strengthen emissions standards for new diesel vehicles. The agency also gives grants to help schools buy newer, cleaner buses, and to install pollution control devices on older ones. Another effort aims to discourage the practice of letting engines idle when buses are parked, such as when they are waiting to load children after school.

"We agree that we need to definitely do whatever we can to have cleaner-burning engines," says Martin. Nevertheless, he says he does not believe that bus exhaust poses an immediate threat to children. "It shouldn't be something that scares people into taking their kids off the school bus."

"This is a serious problem, but I think it's a solvable problem," says Rich Keller, senior attorney for the National Resources Defense Council and director of the group's clean vehicles and fuels project.

"[The] EPA put in place, for example, extremely strong diesel regulations for new engines in 2001 that will result in engines, starting this fall, that are 90% cleaner than the ones that are being sold today," Keller tells WebMD. "If your child is on a very dirty 1988 school bus and the new buses won't

arrive until after she or he graduates, that's no consolation."

Rather than pull kids off the bus, concerned parents can press their school district to retrofit older buses with technology that makes them run cleaner. A diesel exhaust filter can reduce harmful particle gas emissions by 60%-90% and costs \$5,000-\$10,000. Also, a much cleaner diesel fuel called ultra-low sulfur diesel will be available nationwide in October 2006. This fuel will cost 8 to 25 cents more per gallon than regular diesel.

These options may be within reach even for schools operating on meager budgets, because grant money from many sources is available. "There is dedicated funding for these diesel retrofits that will be spent in the school districts where the parents make the most noise," Keller says.

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