

What Parents Need to Know About Diesel School Buses

If your kids are riding a diesel bus to school, chances are they're being exposed to unacceptable cancer risk.

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1. Why should I worry about my kids breathing diesel exhaust from their school bus? After all, they ride inside the bus, not outside where the exhaust fumes are.

The truth is that tailpipe exhaust often dirties the air inside school buses -- sometimes in quantities far higher than are found *outside* the bus. And diesel exhaust is bad for your child: It contains carcinogens, as well as tiny particles that can cause or worsen breathing problems.

2. How much diesel exhaust gets into school buses?

To help answer this question, researchers from NRDC, the Coalition for Clean Air and the University of California at Berkeley measured air quality inside typical school buses as they traveled along real elementary-school bus routes in the Los Angeles area. They took continuous measurements inside the buses, and compared these to air quality both just outside the buses and in passenger cars traveling ahead of the buses tested. They took readings while idling with the motor running, while traveling up and down hills or driving slowly, and while making frequent stops. And most of the buses tested did not emit a significant amount of visible black smoke. In other words, the tests re-created real-life conditions.

The results were alarming. Our study found that levels of diesel exhaust inside a school bus can be four times higher than those found in passenger cars driving just ahead of the bus. And the diesel levels inside the buses were more than eight times the average diesel-exhaust content of California air.

3. What are the health effects of diesel exhaust inside school buses?

Diesel exhaust has serious health effects that have been extensively documented. For instance,

numerous studies have shown that diesel fumes cause cancer, particularly lung cancer. In fact, government regulators estimate, based on lifetime risks, that diesel exhaust is responsible for 125,000 cancers nationwide.

Since children often ride buses to school every day for many years, their exposure adds up -- which translates into an unacceptably high risk of getting cancer later in life. Out of every million children that ride a school bus an hour or two each day during the school year, 23 to 46 of them may eventually develop cancer from the excess diesel exhaust they inhale on their way to and from school.

Other health effects are also troubling, though harder to quantify. The particles in diesel exhaust impair the lungs and aggravate diseases like emphysema and bronchitis; they can also worsen - or trigger -- asthma attacks. What's more, children are more susceptible than adults to these effects -- they breathe faster and their lungs are less able to defend themselves from pollutants. In addition, exposures early in life can return to haunt them as they age, in the form of chronic health problems.

4. Do all school buses run on diesel fuel?

Not all, but most. The vast majority of the nearly half a million school buses in this country -- which carry more than 23 million children to and from school every day -- still use diesel fuel, even though less harmful fuels are available.

5. Are the California buses you tested really like those that my child rides?

The buses we tested, manufactured in the mid- to late-1980s, have the same engines and emissions controls as employed elsewhere in the country -- and remain in fairly common use in school districts across the country. California school buses may in fact run slightly cleaner than other school buses because the diesel fuel sold and used in California has lower sulfur content than average diesel fuel elsewhere in the country. But this difference would not likely change our assessment of the risk diesel exhaust poses to kids in general.

6. Are all diesel buses equally dangerous?

Older buses may have worse emissions than newer ones. Many school districts still use old models. Buses built in the mid- to late-1980s, for instance, are very common. There are school districts in California, Washington and Texas, for example, that are still using school buses more than 20 years old.

Age is not the only factor. Maintenance can also make a big difference -- two 1986 buses among our test fleet had very different levels of diesel exhaust inside.

The important point is that diesel buses carry unacceptable levels of risk for children. Whether a diesel bus is old or new, whether its tailpipe spouts black plumes of exhaust or emits no visible pollution -- diesel exhaust is simply dangerous to kids.

7. Should I keep my children off the school bus?

Although you should be concerned, you probably don't need to pull your kids off the bus. The health risks from diesel exhaust are related to the number of years children ride the bus. There's generally no need for children to stop riding school buses right away, but it is important for school districts to replace -- or at least retrofit -- the dirty diesel buses as soon as possible, so

children aren't exposed to hazardous fumes for years.

For children with asthma or other respiratory problems, the situation may be different. If your child's symptoms seem to get worse on the school bus, consult your pediatrician -- it may make sense to explore finding other ways to get your child to and from school.

8. What can I do to reduce my children's exposure to diesel exhaust?

The best option is to push your school district to replace diesel buses with alternative-fuel buses (see below). But there are easy interim steps that lower your child's exposure to diesel fumes.

Our study found that levels of diesel exhaust inside buses are highest when the windows are closed. Also, when the windows are closed the exhaust accumulates in the back of the bus. Whenever weather allows, school bus windows should stay open.

Another helpful step is to have children sit toward the front. As children get on the bus to go to school, they should take the closest seat possible to the front of the bus -- children with the longest rides will thus be sitting in the part of the bus with the least exposure. They should get those same seats on the way home. Ask school officials, bus companies and bus drivers to follow these simple steps.

A further interim step is to modify your school district's buses to make them less polluting. Devices that trap particulates can be installed on buses that run on low-sulfur diesel fuel, which is currently available only in limited supplies in a few areas. If you live in one of them -- southern California, the San Francisco Bay Area, Houston or New York City -- you can urge school officials to install particulate traps. Keep in mind, however, that although particulate traps do reduce emissions, they have not been proven to reduce harm to children; they are not a substitute for converting to cleaner buses. (New federal rules will make low-sulfur fuel more widely available, but this process will take several years.)

9. What's the best alternative to diesel-powered school buses?

Buses that run on compressed natural gas and propane are much cleaner and just as reliable. More and more school districts are turning to these kinds of buses. Research on alternative fuels and technologies continues; other alternatives -- including battery- or fuel-cell-powered buses and buses that run on a combination of fuel and batteries -- may be on the horizon.

10. How can my school district possibly afford to replace its school buses?

There's no doubt about it -- a new school bus is a big-ticket item. But there are many local, state and federal funding sources that can help offset the additional up-front costs of buying alternative-fuel buses. (See Chapter 7 of NRDC's report [No Breathing in the Aisles](#) for more information.) Still, more funding is needed to convert all of our nation's school-district fleets to cleaner fuels, and parents should urge federal, state and local policymakers to make replacing old, dirty-diesel buses a top priority in their budgets.

Alternative-fuel buses are more expensive to buy, but they can cost less to run and maintain -- over time, a school district can recoup the initial cost of switching over. Additional long-term savings that cannot be ignored: the drop in health-care costs that will result from fewer children being exposed to harmful levels of diesel exhaust.

11. I've heard about "green diesel" -- is this also a good alternative?

So-called green diesel is an improvement over existing diesel technology, but it is still dirtier than alternative-fuel technologies. Most important, it hasn't been proven to sufficiently reduce the cancer risk associated with diesel emissions. There's another drawback: green-diesel technology hasn't been certified by any government agency -- and even when certified, it won't be an option for most school districts until at least 2006 due to the limited quantities of the low-sulfur diesel fuel it depends on. "Green diesel" is no substitute for cleaner fuels.

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[No Breathing in the Aisles: Diesel Exhaust Inside School Buses](#)

February 2001 study from NRDC and the Coalition for Clean Air shows that excess exhaust levels on school buses were 23 to 46 times higher than levels considered to be a significant cancer risk according to the U.S Environmental Protection Agency and federal guidelines.

NRDC: <https://medium.com/natural-resources-defense-council/climate-change-is-our-problem-we-can-solve-it-2aaf1ded1905#.ab9ahfv7i>