

Asthma Awareness & Electric School Buses

MESSAGING GUIDANCE

THE PROBLEM

Asthma is a [leading cause](#) of chronic illness and school absences in children.

- Approximately [4.7 million children](#) in the United States suffer from asthma.
- Black children are [twice as likely](#) to suffer from asthma than white children, and nearly [eight times more likely to die](#) from asthma than white children.
- 36% of children with asthma [end up in the emergency room](#).
- [44% of children with asthma have uncontrollable asthma](#), which leads to more ER visits, hospitalizations, and absences from school.

Asthma is worsened by breathing in toxic fumes, like from diesel vehicles.

- Exposure to [smog and particulate matter pollution](#) raises the risk of asthma.
- All [vehicles that burn fuel](#), like gas or diesel, contribute to these kinds of pollution.

Most U.S. school buses run on diesel, which can worsen asthma symptoms and attacks.

- [Nearly 90%](#) of U.S. school buses are powered by diesel.
- When diesel fuel is burned in an engine, it emits many [toxins](#) and [known carcinogens](#) that harm health and pollute the air.
- These diesel toxins have been proven to [cause heart and lung disease](#) as well as [cancer](#).

Children are especially vulnerable to these toxins.

- Children breathe more air per pound of body mass, have higher respiratory rates and whose lungs are still developing.
- Decades of scientific research have found that diesel pollution [reduces children's lung capacity](#), [slows children's brain development](#), and is linked with higher incidences of [bronchitis, asthma, and pneumonia](#).

Riding in diesel school buses puts children's health at risk.

- [20.5 million children](#) ride school buses each day.
- When children ride in a diesel school bus, they breathe in this pollution [inside the cabin](#), while loading the bus, and when passing by its tailpipe, which is at child height.
- A landmark 2001 study found diesel school buses expose children to [four times](#) more pollution than riding in a passenger car.
- Children in [low-income](#) families, [Black children](#), and [children with disabilities](#) are more likely to ride the bus to school and be exposed to these toxins.
- This exposure is also especially harmful for children [who already have asthma](#).

THE SOLUTION

Electric school buses clean up the air children breathe.

- Battery-powered electric school buses do not have a combustion engine and therefore do not have a tailpipe, eliminating harmful toxins.
- The lack of tailpipe pollution also improves air quality for communities the buses drive through, including where patients with chronic heart and lung conditions work and live.

THE IMPACT

By transitioning to zero-emission school buses, we can reduce children's asthma attacks, hospital visits and premature deaths.

- A [2024 study](#) by the American Lung Association concluded that transitioning to zero-emission vehicles (such as electric school buses) and clean electricity generation by 2050 would result in:
 - At least 500 fewer infant deaths
 - 2.8 million fewer pediatric asthma attacks
 - 2.7 million fewer upper respiratory symptoms
 - 1.9 million fewer lower respiratory symptoms
 - 147,000 fewer acute cases of bronchitis
- Additionally, a [2024 study](#) by the Harvard T.H. Chan School of Public Health found that replacing diesel school buses with electric models may lead to up to **\$247,600 in climate and health benefits per bus**, depending on the bus type and location. Researchers quantified the benefits associated with reduced climate pollution, lower adult mortality rates, and fewer childhood asthma cases.
- A [2023 study](#) by the University of Southern California found that adding 20 zero-emission vehicles per 1,000 residents was associated with a 3.2 percent decrease in asthma-related Emergency Room visits in that zip code.

FOR MORE INFORMATION

Resources

- American Lung Association: [The Electric School Bus Solution](#)
- World Resources Institute: [Why We Need to Transition to Electric School Buses](#)
- U.S. Green Building Council: [Particulate Matter \(PM2.5\) in Schools](#)
- Clean Air Task Force: [Deaths by Dirty Diesel](#)
- Natural Resources Defense Council: [The Long Road to Safer School Buses](#)
- California Air Resources Board: [Children's School Bus Exposure and Mitigation Studies](#)

Materials

- [Electric School Buses for Health - Michigan Slide Deck](#) - please reach out to Kindra Weid to use or modify this slide deck
- [AESB Toolkit for Health Professionals](#)

Articles to Share

- **NEW VIDEO!** [National School Nurses Association Podcast *Beyond Band-aids* - Electric School Buses: Driving Cleaner Air and Healthier Students](#)
- [OPINION: Children with Asthma Breathe Easier With Electric School Buses](#)
- [Tired of diesel fumes, these moms are pushing for electric school buses](#)
- [Electric School Buses Bring Air Quality Benefits to Utah](#)
- [Electric school buses are a breath of fresh air for children](#)
- [Huge health and climate benefits of replacing old diesel school buses with electric in the United States](#)

Scientific Studies

- Weir E. **Diesel exhaust, school buses and children's health.** CMAJ. 2002 Sep 3;167(5):505. PMID: 12240819; PMCID: PMC121970. <https://pmc.ncbi.nlm.nih.gov/articles/PMC121970/>
- Choma EF, Robinson LA, Nadeau KC. **Adopting electric school buses in the United States: Health and climate benefits.** Proc Natl Acad Sci U S A. 2024 May 28;121(22):e2320338121. doi: 10.1073/pnas.2320338121. Epub 2024 May 20. PMID: 38768355; PMCID: PMC11145267. <https://pmc.ncbi.nlm.nih.gov/articles/PMC11145267/>
- Wes Austin, Garth Heutel, Daniel Kreisman. **School bus emissions, student health and academic performance.** Economics of Education Review. Volume 70, 2019, Pages 109-126, ISSN 0272-7757. <https://doi.org/10.1016/j.econedurev.2019.03.002>.
- Ireson RG, Ondov JM, Zielinska B, Weaver CS, Easter MD, Lawson DR, Hesterberg TW, Davey ME, Liu LJ. **Measuring in-cabin school bus tailpipe and crankcase PM2.5: a new dual tracer method.** J Air Waste Manag Assoc. 2011 May;61(5):494-503. doi: 10.3155/1047-3289.61.5.494. PMID: 21608489. <https://pubmed.ncbi.nlm.nih.gov/21608489/>
- Gauderman, J, et al. **The Effect of Air Pollution on Lung Development from 10 to 18 Years of Age.** Published September 9, 2004. N Engl J Med 2004;351:1057-106. DOI: 10.1056/NEJMoa040610. VOL. 351 NO. 11. <https://www.nejm.org/doi/full/10.1056/nejmoa040610>