



# School Bus Drivers

**N**early one in 13 school-age children has asthma.<sup>1</sup> So, it's very likely that students with this chronic, but manageable, disease ride your bus each day. Because you're in daily contact with students who have asthma, it's vital for you to understand some basic facts about asthma and how to deal with it. You're also in a position to help them manage their asthma by taking steps to limit exposure to one of the "triggers" that can cause an asthma episode.

**“Diesel fumes are a potent asthma trigger for some children.”**

# Why Learning About Asthma is Important to School Bus Drivers

*Children who have asthma are very sensitive to respiratory irritants. You can help promote the health of the children under your care by turning off your engine whenever you can*

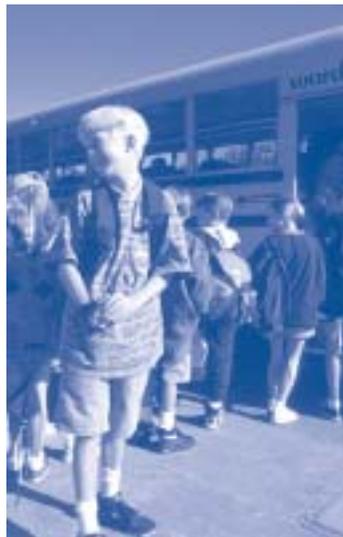
## DIESEL EXHAUST AND IDLING

More than 24 million children in the U.S. ride a bus to and from school each day. On average, students spend an hour and a half each weekday in a school bus. Diesel exhaust from idling school buses poses a health risk to both drivers and children. Idling buses emit exhaust fumes, which concentrate at ground level and enter both the passenger compartments of the buses and school classrooms through ventilation systems. Children are more susceptible because their respiratory systems are not fully developed. Bus idling, bus queuing and open windows increase the level of diesel exhaust inside a school bus 5 to 15 times higher than outside monitoring sites.<sup>2</sup>

## COSTS OF IDLING

Idling wastes fuel and money and is harder on a diesel engine than restarting or driving. School buses typically use about half a gallon for each hour. If a school bus fleet has 50 buses and each bus reduces its idling time by 30 minutes per day, at \$1 per gallon of diesel fuel, the fleet would save \$2,250 per school year in reduced fuel costs.

Turning off the engine reduces wear and tear on the engine, saving additional money on maintenance and increasing the life of the engine.





# What School Bus Drivers Need to Know

---

## What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling. The wheezing or whistling sound that is heard is air trying to make its way around the mucus and inflammation in the lungs. Coughing is the body’s natural response to rid itself of the mucus. The outcome is a child experiencing an “asthma episode” or a flare up of his/her symptoms.

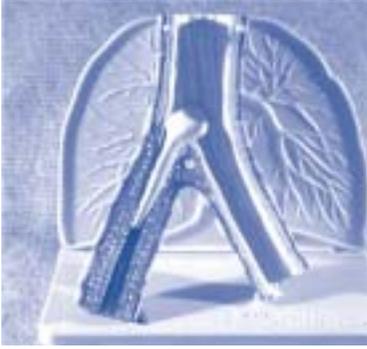
Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g., after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

---

## Recognizing the Signs of an Asthma Episode

Children themselves are often the best source for identifying an asthma episode. Children who have asthma often learn to identify their own unique early warning signs — the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis. An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.



During the initial phase of an asthma episode a child may exhibit one or more of these signs:

**Changes in breathing:** Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

**Verbal complaints:** Often a child who is familiar with his/her asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include “dry mouth” or a more general “I don’t feel well” or “I’m scared.”

**Behavior changes and other signs:** Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.

---

## What Causes Asthma Episodes?

Children who have asthma have airways that narrow more easily than children without asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.” Each child with asthma reacts to a different set of factors.

**Diesel fuel (fumes)** is considered an “irritant” trigger that causes a child’s sensitive airways to spasm causing painful coughing and swelling. Indoor air quality can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children.

---

## Exercise-Induced Asthma (EIA)

EIA occurs when a child has participated in strenuous physical activity and his/her lungs are reacting to environmental (cold/hot/humid/dry) changes. Exercise that exposes a child to cold air like **skiing, skating** or **hockey** or even exercise involving warm and humid air such as **swimming** can lead to an asthma episode.

EIA many times begins after the activity has finished (sometimes hours afterward). Since children typically ride a school bus home from an athletic event, the potential for a child to develop EIA while riding the bus afterward is high. Any child who has asthma and participates in sports should carry his/her rescue inhaler to the athletic field. Or, if not previously approved through the school nurse, the coach should carry the inhaler.



## Asthma Medications

Asthma is treated based on how severe the child's symptoms are at any given time. Two types of medications are typically used to treat asthma:

- Quick relief (reliever) or rescue and
- Controller or preventive.

The most common asthma medications most school staff will come in contact with are the *quick relief or rescue medications*. These medications are taken when asthma symptoms flare up or a child is experiencing an "asthma episode." They quickly relieve symptoms, or help prevent exercise-related symptoms. You most frequently see a student use this medication in an inhaler form when symptoms are flaring up.

***A note about inhaled corticosteroids: Inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medication available for asthma.***

Remember that all medications have potential for side effects. Some common complaints with rescue medications are: ***nervousness, jitteriness, nausea*** and in some cases, ***drowsiness***. If side effects are excessive or the child complains of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.





# What School Bus Drivers Can Do

## Tips for School Bus Drivers

- ✓ When arriving at loading areas to drop off or pick up children, buses should be turned off as soon as possible to eliminate idling time and reduce harmful emissions. The school bus should not be restarted until it is ready to depart.
- ✓ If buses need the engine to run the flashing lights, consider changing the circuit configurations so that the battery can power the flashing lights without the engine running.
- ✓ Limit the idling time during early morning warm-up to what is recommended by the manufacturer (generally 3 to 5 minutes). In colder climates, block heaters can help warm the engine to avoid starting difficulties and shorten warm-up time.
- ✓ If you arrive early during the winter, ask to wait inside the school.

### CERTAIN EXCEPTIONS TO IDLING POLICIES MAY BE MADE (CONSISTENT WITH STATE REGULATIONS) UNDER THE FOLLOWING CONDITIONS:

- ✓ It is necessary to run the engine in order to operate safety equipment.
- ✓ The outside temperature is between +32 and –10 degrees (F), idling is allowed for up to 15 minutes.
- ✓ The outside temperature is below –10 degrees, idling is allowed without time restrictions.
- ✓ You need to maintain a safe temperature for students with special needs.



### “CLEAN SCHOOL BUS USA”

School buses are the safest way for children to get to school. However, pollution from diesel vehicles has health implications for everyone, especially children. By working together, we can reduce pollution from public school buses and make buses a very clean way for children to get to school. Clean School Bus USA brings together partners from business, education, transportation, and public health organizations to work toward these goals:

Encouraging policies and practices to eliminate unnecessary public school bus idling

Upgrading (“retrofitting”) buses that will remain in the fleet with better emission control technologies and/or fueling them with cleaner fuels.

Replacing the oldest buses in the fleet with new, less polluting buses.

For more information or to participate in the “Clean School Bus USA” program, go to the Environmental Protection Agency (EPA) website. <http://www.epa.gov/cleanschoolbus/>  
Or the Office of Environmental Assistance (OEA) <http://www.moea.state.mn.us/ee/noidle.cfm>

---

## Emergency Measures for Handling an Asthma Episode or Emergency

### Symptoms of breathing trouble:

- Unusually slow or fast breathing
- Breathes unusually deep or shallow
- Gasping for breath
- Wheezing, gurgling, high-pitched noises
- Skin unusually moist
- Skin flushed, pale, ashen/ bluish looking
- Person feels short of breath
- Person feels dizzy or light-headed
- Chest pain or tingling in hands or feet
- Person feels apprehensive or fearful
- Coughing
- Speaking in clipped or short bursts of speech
- Possibly restlessness or upset stomach

### Care of asthma and breathing trouble:

- Remain calm and reassure the child.
- Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
- If an asthma episode is suspected, give sips of room temperature water (*if available*).
- Elevate arms to shoulder level and provide support for the arms (*back of seat*).
- Notify your dispatcher.
- Give medication if ordered and available (*some students carry asthma inhalers with them*).

### CALL 911 IF:

- Lips are blue or nail beds are blue -or-
- Child is having difficulty talking, walking or drinking -or-
- “Quick relief” or “reliever” medication (*inhaled reliever such as albuterol*) is ineffective, unavailable, or used too recently to repeat. -or-
- You see neck, throat, or chest retractions (*Sucking in of the skin between ribs or at base of the neck*) -or-
- There is nasal (*nares*) flaring when inhaling -or-
- Child is in obvious distress -or-
- There is an altered level of consciousness/confusion -or-
- Child’s condition is rapidly deteriorating

Provide prompt care for students who are having breathing difficulty.

***“A child may have only one or a combination of the above but each of these symptoms is evidence of a real asthma crisis developing!”***

---

## What to Do:



1. Contact dispatcher and notify that a child may be starting symptoms consistent with an asthma episode and request assistance.
2. If the child begins to wheeze, coughs, is short of breath or even appears more restless or anxious than usual, ask the child to sit quietly in an upright position. Reassure the child in a calm voice and do not leave the child alone.
3. Consult the child's asthma action plan or emergency care plan (if available).
4. **If the child carries an inhaler, direct him/her to use rescue medication.**  
(Even if you are not sure the symptoms are progressing or prevalent enough, it is safest to give the child a puff of their rescue medication rather than waiting. Many times, the child can tell you immediately if medication is required).
5. If asthma symptoms do not improve or are progressing rapidly call 911.
6. Above all, don't panic! Remaining calm and reassuring the child that he/she will be okay helps alleviate the child's anxiety and may prevent symptoms from becoming worse.

---

## Relevant Legislation

### MINNESOTA SCHOOL BUS IDLING LAW

*Minnesota Statutes, Section 123B.885*

"All operators of diesel school buses must minimize, to the extent practical, the idling of school bus engines and exposure of children to diesel exhaust fumes."

*(This pertains to bus drivers lining up buses waiting for the children to exit the school and load the buses. Unless, due to inclement weather (i.e. too cold or too hot), the buses engine should be shut off until all children are loaded onto the bus).*

#### *Parking:*

"On and after July 1, 2003, diesel school buses must be parked and loaded at sufficient distance from school air-intake systems to avoid diesel fumes from being drawn into the systems, unless, in the judgment of the school board, alternative locations block traffic, impair student safety, or are not cost effective."

*(IAQ (indoor air quality) can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children.)*

#### Citations

<sup>1</sup> National Center for Health Statistics, National Health Interview Survey, 1999.

<sup>2</sup> Environmental Protection Agency (EPA) website. <http://www.epa.gov/cleanschoolbus/>  
Or the Office of Environmental Assistance (OEA) <http://www.moea.state.mn.us/ee/noidle.cfm>