

Feature

Ontario Public Health Association Report

Study finds children may be exposed to polluted air on school buses

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Everyday in Ontario, approximately 800,000 children board a school bus. A recent study by the Ontario Public Health Association (OPHA) entitled, “School Buses, Air Pollution and Children’s Health,” suggests that children can be exposed to significant amounts of air pollution while travelling on school buses.

The OPHA study found that school buses, which are largely fuelled by diesel, can be self-polluting, with emissions from tailpipes and engine compartments polluting the air on-board.

The on-board concentrations are also influenced by local air quality, traffic density, wind direction, the position of the windows, as well as idling and queuing practices.

Several exposure studies have demonstrated that concentrations of air pollutants on school buses can be several times greater than concentrations in outdoor air.

The pollutants of greatest concern are fine particulate matter and diesel particulate matter, which have been associated with a broad range of acute and chronic health effects, including:

- Aggravation of asthma, leading to more frequent and severe asthma attacks.
- Increases in respiratory infections.
- Reduced lung function.
- Aggravation and development of allergies.
- Increases in emergency room visits, hospital admissions, and premature deaths.

An increased incidence of chronic heart and lung diseases, including lung cancer.

These exposures are of particular concern because they involve children whose lungs are still developing.

Numerous studies have demonstrated that children are more sensitive to the acute and chronic effects of air pollution than adults. In addition, with an asthma rate of 12 per cent among Canadian children, there could be as many as 96,000 asthmatic children riding school buses in Ontario.

Air pollution studies have clearly demonstrated that asthmatic children are particularly vulnerable to air pollution.

Most children only spend a short period of time on the bus each day. However, given the number of children exposed, and the high levels of exposure that can be encountered, school bus emissions represent a significant public health concern.

This is a health risk that can be reduced. Technologies exist to significantly diminish on-board exposures. One study found that on-board exposures could be virtually eliminated by installing a diesel particulate filter on the exhaust system, using a crankcase filtration device in the engine compartment, and fuelling the bus with ultra-low sulphur diesel fuel that will be widely available later this year. Newer generations of school buses (2007+ model years) will be much cleaner than the ones on the road today.

The OPHA recommends that the Ontario Ministry of the Environment establish a “healthy school bus program” that encourages retirement of older school buses, and retrofits for newer school buses that have many years of service remaining.

The OPHA also recommends that the government of Canada establish a “healthy school bus fund” to support action at the provincial level.

Finally, the report recommends developing anti-idling/low emission driving programs in partnership with Natural Resources Canada, the Ontario School Bus Association, and school boards.

A PDF of the report is posted on the OPHA website (www.opha.on.ca/resources/schoolbus.pdf).

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