

# Smoke-Free Cars for Kids

## Moving Forward with New Research

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## Background

Previous research demonstrates levels of secondhand smoke (SHS) in cars can be extremely high due to the restricted area in which the smoke is circulated. Therefore, SHS in vehicles poses a significant health risk to passengers, especially children. Despite the known risk, only eight states have laws prohibiting smoking in vehicles when children are present.



Nationally, 1 in 5 nonsmoking 6-12 graders report being exposed to SHS in a vehicle.

Kids exposed to SHS are at greater risk for:

- ✓ Bronchitis
- ✓ Pneumonia
- ✓ Reduced lung function
- ✓ Increased respiratory infection
- ✓ Chronic coughs
- ✓ Middle ear infections

## New Research

### Research Design

In 2014-15, the Center for Energy and Environment (CEE) in Minneapolis, Minn. conducted a first-of-its-kind study about the impacts of SHS in vehicles. They ran 170 tests on what happens to the levels of secondhand smoke inside of a car when the driver smokes a cigarette. Researchers:

- ✓ Used fine particulate matter ( $PM_{2.5}$ ) as their measure of secondhand smoke and tested levels using TSI Sidepak photometers.
- ✓ Tested the levels of  $PM_{2.5}$  in several different situations including vehicle type, driving speed, car ventilation and fan mode, window position and season.
- ✓ Measured levels of  $PM_{2.5}$  from the start of smoking until the concentration decreased to the level it was at before smoking began.



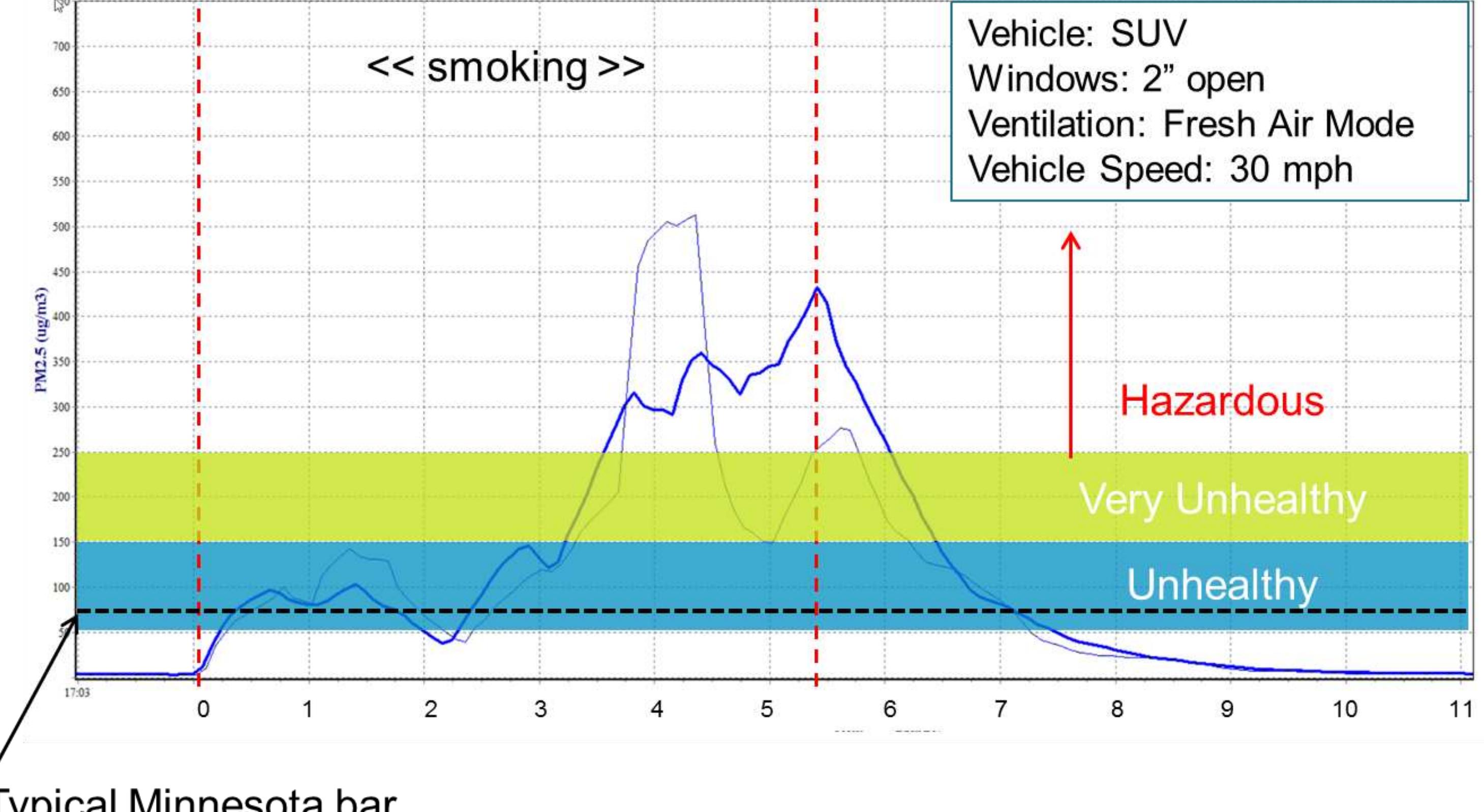
Fig. 1:  $PM_{2.5}$  measurements were taken in the front passenger seat and two back seat locations using TSI Sidepak photometers. Injection of  $CO_2$  and  $CO_2$  concentration measurements were used to estimate ventilation rates.



### Research Findings

- ✓ The average peak concentration across trials with closed windows was  $2,013 \pm 1,283 \mu\text{g}/\text{m}^3$  with a maximum of  $5,612 \mu\text{g}/\text{m}^3$ , levels which far exceed the "Hazardous" level on the EPA's Air Quality Index (AQI).
- ✓ When the active smoking and post-smoking periods were combined, the passenger's total  $PM_{2.5}$  exposure averaged  $12,250 \text{ min}^*\mu\text{g}/\text{m}^3$ .
- ✓ This means that spending 30 minutes in a vehicle during and after smoking is about equal to sitting in a typical smoky bar for three hours.

### Sample $PM_{2.5}$ Measurements



1

Educate parents and decision makers: kids being exposed to secondhand smoke in vehicles is STILL a problem! Exposure rates are high and exposure is detrimental to kids' health. If a parent wouldn't take their child to a smoky bar for three hours, they shouldn't smoke with their child in the car!

### Educational Materials

- ✓ Smoke-Free Cars for Kids video
- ✓ Secondhand Smoke Exposure in Vehicles Factsheet
- ✓ Kids in Cars Infographic
- ✓ Secondhand Smoke Exposure in Vehicles Webinar



2

Pass comprehensive "smoke-free cars for kids" laws. These laws should:

- Protect all kids under age 18;
- Be enforced by local and state law enforcement;
- NOT be a primary offense.



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