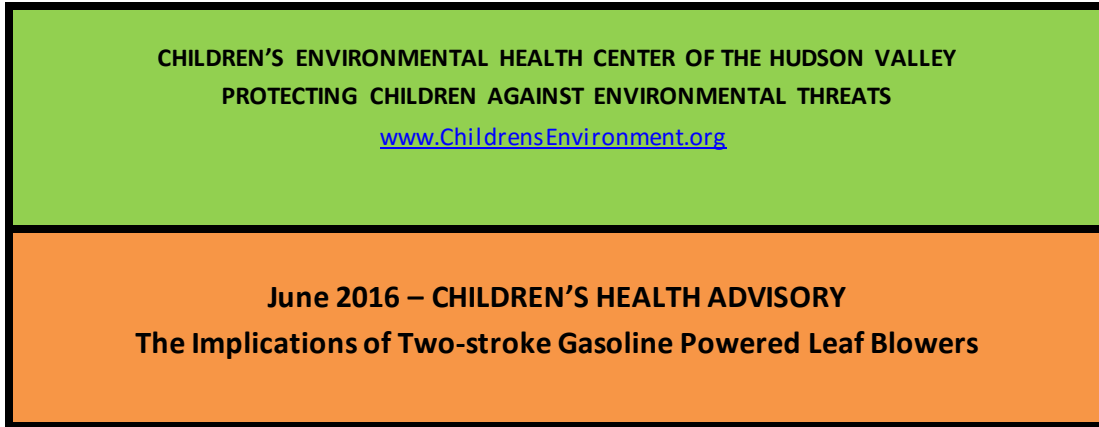


## Children's Environmental Health Center of the Hudson Valley

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**June 2016:** With seasonal changes occurring, bringing more people outdoors with yard work to be done many people look to use convenient, lightweight, two-stroke gasoline-powered leaf blowers. While its popularity has boomed since its inception in 1970, the use of this machinery is associated with adverse health outcomes.

### **Leaf Blowers**

Internal combustion power tools such as two-stroke gasoline-powered leaf blowers, pose multiple hazards to human health. Leaf blowers impact air quality through the emission of airborne particles contributing to haze, smoke, and dust. Emissions from the use of a leaf blower for the time length of one hour are comparable to the emissions of a newer automobile driving 350 miles; however, a leaf blower concentrates all of its emissions in one area. The decrease in air quality poses risk to those within the vicinity of its use; the severity of risk is impacted by the amount of emissions one is exposed to, as well as the exposure time.

### **Leaf Blowers and its Emissions**

Emissions from two-stroke gasoline-powered leaf blowers include particulate matter. Particulate matter emitted from leaf blowers includes carbon monoxide, nitrogen oxides, and hydrocarbons which combine with other gasses in the atmosphere to form ozone. The size of particulate matter can significantly impact its health effects because if particulate matter is respirable, then it may be able to penetrate deep in the lungs. Emissions from two-stroke gasoline-powered leaf blowers can also include pesticides, mold, and animal fecal matter.

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### **Adverse Health Outcomes from Exposure to Leaf Blower Emissions**

Exposure to particulate matter can have various health effects. Carbon monoxide exposure is associated with headaches, dizziness, weakness, and nausea. Nitrogen oxide exposure is associated with asthma symptoms, and increased emergency room visits and hospitalizations for respiratory issues.

Hydrocarbon exposure is associated with eye and respiratory irritation. Ozone exposure is associated with airway constriction, sore throat, shortness of breath, and coughing. It is also associated with eye, nose, and throat irritation worsening allergies. After long-term, chronic exposure, it is associated with adverse health outcomes such as lung disease, irregular heartbeat, and decreased lung function.

### **Vulnerable Populations**

Populations most susceptible to harmful effects from gasoline-powered leaf blowers include children and the elderly. Children are at an increased risk of adverse health outcomes as their lungs are still developing, making them more sensitive to environmental hazards. Children also breathe in more air per pound of body weight per day than adults, and thus inhale more air pollutants. Additionally, they are also closer to the ground and have more hand to mouth behavior which may increase exposure to pollutants. Exposure to these emissions is increased if physically active during the time of exposure, as greater quantities of air are inspired.

### **How to Protect Yourself**

- ✚ Wear personal protective equipment
- ✚ Use rakes, brooms, and electric leaf blowers
- ✚ Ban summertime usage on two-stroke gasoline-powered leaf blowers
- ✚ Increase board of health inspections to enforce guidelines regarding pollution regulation
- ✚ Fine companies and individuals using two-stroke gasoline-powered leaf blowers

### References

Fitz, D., Pankratz, D., Pederson, S., & Bristow, J. (n.d.). Determination Particulate Emission Rates from Leaf Blowers. Retrieved June 13, 2016, from <https://www3.epa.gov/ttnchie1/conference/ei15/session5/fitz.pdf>

Health. (n.d.). Retrieved June 13, 2016, from <https://www3.epa.gov/pm/health.html>

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Leaf Blowing Matters. (n.d.). Retrieved June 13, 2016, from

[http://webcms.pima.gov/UserFiles/Servers/Server\\_6/File/Government/Environmental/Quality/Air/FugitiveDust/LeafBlowingMattersEnglish.pdf](http://webcms.pima.gov/UserFiles/Servers/Server_6/File/Government/Environmental/Quality/Air/FugitiveDust/LeafBlowingMattersEnglish.pdf)

Medical Grounds for a Restriction on Internal Combustion Power Tools and Leaf Blowers. (n.d.).

Retrieved June 13, 2016, from <http://www.lincolntown.org/documentcenter/view/733>

QUALITY CONTROL OF ABRASIVE BLAST CLEANING OPERATIONS.PDF ... (n.d.). Retrieved June 13, 2016,

from <http://libraries.esy.es/quality-control-of-abrasive-blast-cleaning-operations.pdf>

What is particle pollution? - US Environmental Protection ... (n.d.). Retrieved June 13, 2016, from

<https://www3.epa.gov/pm/pdfs/pm-color.pdf>

YONKERS SUMMER LEAF BLOWER BAN GOES INTO EFFECT. (n.d.). Retrieved June 13, 2016, from

<https://yonkersinsider.files.wordpress.com/2013/05/press-release-yonkers-summer-ban-on-leaf-blowers.pdf>