



New York State

**Centers of Excellence in
Children's Environmental Health**



TESTIMONY

for

**The Committee on Sanitation and Solid Waste Management
of the
The New York City Council**

in support of

**Reducing Diesel Waste Truck Traffic in New York City
Through Policy Measures Such as City Council Bill Int. 495**

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Presented by

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Distinguished Members of the Committee on Sanitation and Solid Waste Management,

Thank you for the opportunity to provide this testimony in support of reducing diesel truck traffic carrying waste through New York City by implementing policy measures including City Council Bill Int. 495.

Background

We are board-certified pediatricians with special expertise in pediatric environmental health. We are part of the Children's Environmental Health Center, based in the Icahn School of Medicine at Mount Sinai in New York City. The mission of the Children's Environmental Health Center is to educate health care providers and others about the scientific and medical aspects of environmental health problems impacting children; and to provide clinical consultation to families, health care professionals, public health officials, and community organizations with concerns regarding children's exposure to environmental health hazards.

As environmental pediatricians, we study the ways that children are exposed to toxic chemicals—through the air they breathe, the water they drink, the foods they eat, and the environments they inhabit, including their homes, day care centers, schools and neighborhood streets (Landrigan et al., 2004).

Children are Vulnerable to the Impacts of Air Pollution

Children are fundamentally more vulnerable than adults to the effects of environmental pollution, and air pollution created by diesel trucks is of particular concern. Children's lungs are growing and developing from infancy through adolescence, which creates increased susceptibility to the harmful effects of the pollutants that are breathed into the lungs. Also, children breathe in and out more often per minute than adults, which gives them proportionally higher exposure to air pollutants. Children with underlying respiratory conditions such as asthma or cystic fibrosis are even more susceptible to the adverse effects of air pollution. The impact of air pollution on a child's lungs can affect the child for the rest of his or her life (Etzel, 2012).

Diesel Truck Pollution is Linked to Many Adverse Health Effects

Diesel exhaust from trucks is a major source of air pollution in NYC, especially in areas with busy roadways. Diesel exhaust is a complex mixture of gases and very fine particles of soot and toxicants that can be breathed deep into the lungs (EPA, 2002). Diesel exhaust is dangerous for the health of NYC residents, especially children and those with underlying medical disorders such as asthma or heart disease. Those who live, work, go to school, or walk near busy roadways are at highest risk for exposure to diesel pollution. Since many New Yorkers live or work near busy roadways, many are at risk of exposure.

There is strong evidence that traffic-related air pollution, including diesel truck pollution, can negatively impact lung function. Studies show that children who live close to high-traffic areas have a higher risk of experiencing asthma symptoms (Kim et al., 2008). There is recent evidence that suggests traffic-related air pollution is also related to the actual development of asthma (Jerrett et al., 2008). A recent study in the South Bronx

further elucidated the specific role of diesel soot, which is an important part of traffic-related pollution. This study used personal air pollution monitors in the backpacks of 40 schoolchildren in the South Bronx and examined the level of diesel soot and other air pollutants in relation to asthma symptoms. The study found that diesel soot specifically is a significant trigger of pollution-related asthma attacks among these Bronx schoolchildren living near roadways (Spira-Cohen et al., 2011). Aside from the effects on asthma, the fine particles in diesel exhaust may also increase allergic and inflammatory responses in the body and may create new allergies (Diaz-Sanchez et al., 1999).

In addition to the lung function deficits and allergy responses seen with diesel exhaust exposure, there is overwhelming evidence that exposure to diesel exhaust can also lead to cancer, cardiovascular disease, and premature deaths (IARC, 2013 and Brook et al., 2010). The International Agency for Research on Cancer (IARC), which is the specialized cancer agency of the World Health Organization (WHO), has officially classified diesel exhaust as a proven human carcinogen linked to lung cancer (IARC, 2013).

The findings of these traffic and diesel exhaust studies highlight the importance of decreasing the diesel truck miles traveled in New York City. This reduction in diesel traffic is especially important for children who live in areas of the city that are particularly overburdened with many sources of air pollution, such as the South Bronx, Northern Brooklyn, and Southeast Queens.

Asthma and Respiratory Illness in NYC Children

Asthma is a major health issue in NYC, which leads to considerable morbidity, quality of life issues, and healthcare costs. The latest NYC Department of Health and Mental Hygiene (NYC DOH) data from 2013 indicates that 10.9 percent of adults have ever been told they have asthma (NYC DOH EpiQuery, accessed Jan 25, 2015). This is better than the 2012 US lifetime asthma prevalence rate of 13.2% (CDC, 2012). However, the data mask a striking health disparity. The high health-risk District Public Health Office (DPHO) neighborhoods are markedly overburdened with the highest rates for adults in the city: South Bronx (18.8%), North/Central Brooklyn (14.1%) and East/Central Harlem (17.5%). These neighborhoods also bear high traffic burdens for the city (NYC DOH EpiQuery, accessed Jan 25, 2015).

The asthma burden on children is even more striking. Nearly a quarter (23%) of NYC high school students report being told they have asthma, and this has been trending up in the last 10 years. Bronx youth top the list of boroughs, with 26% reporting asthma (NYC DOH EpiQuery, accessed Jan 25, 2015). Students who identify as Hispanic, Black and mixed race bear most of the burden, with up to one-third reporting asthma (NYC DOH EpiQuery, accessed Jan 25, 2015). Childhood asthma places a tremendous burden on the child and family, leading to decreased quality of life when asthma attacks occur, missed schooldays and parent workdays, and substantial healthcare costs.

Air quality clearly correlates to disease, including respiratory disease and heart disease. Cities with better air quality have longer life expectancies, and improvement in air quality correlates with longer life expectancies (Pope, 2009). Closer to home, "PM2.5 pollution [fine particle pollution] in New York City causes more than 3,000 deaths, 2,000 hospital admissions for lung and heart conditions, and approximately 6,000 emergency department visits for asthma in children and adults," (NYCDOH, 2011). Approximately

2,400 of those visits are for children, and more than 20% of the visits could be avoided by reducing the particulate matter from air pollution. Diesel trucks are one major source of particulate matter pollution.

Ozone generated by the nitrogen oxide species released in fuel combustion, such as diesel exhaust, is estimated to carry its own burden of disease. By one estimate, millions of respiratory symptom days per year, hundreds of thousands of restricted activity days and asthma attacks per year, thousands of emergency department days per year, and even hundreds of hospital admissions and deaths could be avoided if NYC were to meet the EPA's ozone standard (Thurston, 1997). The NYC Department of Health also predicts that reductions in ozone can lead to tangible health benefits including decreased numbers of premature deaths, hospital admissions, and emergency room visits (NYC DOH).

A study of air quality in the South Bronx elucidated the correlation between proximity to the Major Deegan Expressway and exposure to soot (aka elemental carbon); diesel emissions are suggested to play "a dominant role" as the source of this exposure (Spira-Cohen et al., 2010). Diesel traffic plays a specific role in generating this type of air pollution. Based on information available from the EPA's National-Scale Assessment of Air Toxics, the cancer risks from diesel emissions are about ten times higher than the cancer risks from all other hazardous air pollutants combined (EPA, 2011). Diesel emissions in the Bronx are the largest contributor to cancer risk of any air pollutant, adding 2,200 cases per 1,000,000 people (Scorecard.goodguide.com, accessed Feb 4, 2015). The same is true for Kings County (2,100 cases) and Queens (2,000) (ibid).

We know there are successful strategies to reduce traffic related pollution. The controlled reduction in automotive traffic during the 1996 Atlanta Summer Olympics was strongly correlated with reduced ozone levels and reduced hospital admissions for children with asthma (Friedman et al., 2001). Here in NYC, idling busses and trucks in school zones have been shown to contribute 20% of the black carbon content of the outdoor air (Richmond-Bryant et al., 2011). Enforcement of limitations on idling has improved the air quality. Considering that the environmental causes of asthma in the U.S. are estimated to cost \$2.2 billion a year, and that we can control these environmental factors, it is imperative to act to reduce these environmental factors (Trasande and Liu, 2011). Cleaner air means better health for children, and reduced healthcare costs for pollution-related diseases such as asthma.

Conclusion: Reducing Diesel Truck Traffic Will Have Positive Health Benefits for NYC

We offer this testimony as physicians who support decreasing diesel traffic on NYC roadways through measures including City Council Bill Int. 495. This bill will help reduce traffic-related pollution by targeting reductions to those communities already overburdened with diesel-intensive waste facilities, traffic pollution and other sources of environmental contamination including the South Bronx, Northern Brooklyn, and Southeast Queens. This bill is coupled with a needed transition to non-diesel truck waste transfer facilities, and will benefit all New Yorkers by ensuring that no other communities suffer from an overconcentration of diesel truck facilities in the future. This legislation is a step in the right direction to creating a safer and healthier environment for our City's children.

Thank you very much for considering this testimony.

Sincerely,



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References

Brook RD, Rajagopalan S, Pope CA, Brook JR, Bhatnagar A, et al. Particulate matter air pollution and cardiovascular disease: An update to the Scientific Statement from the American Heart Association. *Circulation*, 2010; 121: 2331-2378.

Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance – United States, 2011. *MMWR* 2012; 61(No. 4).

Diaz-Sanchez D, Garcia MP, Wang M, Jyrala M, Saxon A. Nasal challenge with diesel exhaust particles can induce sensitization to a neoallergen in the human mucosa. *J Allergy Clin Immunol*, 1999; 104(6): 1183-1188.

Environmental Protection Agency (EPA). Health Assessment Document for Diesel Engine Exhaust. May 2002. Accessed online (Jan 23, 2015) at: <http://www.epa.gov/ttnatw01/dieselfinal.pdf>

Environmental Protection Agency. (2011). National-Scale Assessment of Air Toxics. Retrieved Oct 14, 2013 from http://www.scorecard.org/env-releases/def/hap_diesel.html.

Etzel RA, ed. *Pediatric Environmental Health* 3rd Edition. Elk Grove Village, IL. American Academy of Pediatrics; 2012.

Friedman MS, Powell KE, Hutwagner L, Graham LM, Teague WG. Impact of changes in transportation and commuting behaviors during the 1996 Summer Olympic Games in Atlanta on air quality and childhood asthma. *JAMA*, 2001; 285:897-905.

International Agency for Research on Cancer (IARC). Monograph: Diesel and Gasoline Engine Exhausts and Some Nitroarenes, Volume 105. Accessed online (Jan 23, 2015) at: <http://monographs.iarc.fr/ENG/Monographs/vol105/mono105.pdf>

Jerrett M, Shankardass K, Berhane K, Gauderman WJ, Kunzli N, Avol E, et al. Traffic-related air pollution and asthma onset in children: A prospective cohort study with individual exposure measurement. *Environmental Health Perspectives*, 2008; 116(10): 1433-1438.

Kim JJ, Huen K, Adams S, Smorodinsky S, Hoats A, Malig B, et al. Residential traffic and children's respiratory health. *Environmental Health Perspectives*, 2008; 116(9): 1274-1279.

Landrigan PJ, Kimmel CA, Correa A, Eskenazi B. Children's health and the environment: Public health issues and challenges for risk assessment. *Environmental Health Perspectives*, 2004; 112(2): 257-265.

New York City Department of Health and Mental Hygiene. EpiQuery: NYC Interactive Health Data. Accessed online (Jan 25, 2015) at: <https://a816-healthpsi.nyc.gov/epiquery/>

New York City Department of Health and Mental Hygiene. Air Pollution and the Health of New Yorkers: The Impact of Fine Particles and Ozone. Accessed online (Jan 25, 2015) at: <http://www.nyc.gov/html/doh/downloads/pdf/eode/eode-air-quality-impact.pdf>

Pope CA, Ezzati M, Dockery DW. Fine-Particulate Air Pollution and Life Expectancy in the United States. *The New England Journal of Medicine*, 2009; 360(4): 376-386.

Richmond-Bryant J, Bukiewicz L, Kalin R et al. A multi-site analysis of the association between black carbon concentrations and vehicular idling, traffic, background pollution, and meteorology during school dismissals. *Science of the Total Environment*, 2011; 409: 2085-2093.

Spira-Cohen A, Chen LC, Kendall M, Sheesley R, Thurston GD. Personal exposures to traffic-related particle pollution among children with asthma in the South Bronx, NY. *Journal of Exposure Science and Environmental Epidemiology*, 2010; 20(5): 446-56.

Spira-Cohen A, Chen LC, Kendall M, Lall R, Thurston GD. Personal Exposures to traffic-related air pollution and acute respiratory health among Bronx schoolchildren with asthma. *Environmental Health Perspectives*, 2011; 119(4): 559-565.

Thurston G. Clean Air Act: ozone and Particulate matter standards. Hearings before the Subcommittee on Clean Air, Wetlands, Private Property and Nuclear Safety of the Committee on Environment and Public Works, US Senate. Washington (DC): US GPO; 1997. p. 124.

Trasande L, Liu Y. Reducing the staggering costs of environmental disease in children, estimated at \$76.6 billion in 2008. *Health Affairs*, 2011; 30(5): 863-870.



