

# Asthma Prevention and Management in Bronx, New York and New York State at Large



**State Senator Jeffrey D. Klein**  
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## Introduction

Asthma has been and remains a prevalent problem for many residents of the Bronx, New York City and the state as a whole. Asthma imposes, proportionally, a large burden on New York's healthcare system and affects numerous Bronx residents, especially its children. The prevalence rate in New York was the eighth highest among all states for annual average percentage of current asthma among children 0-17 years of age from 2001 to 2005<sup>1</sup> and nineteenth highest for self-reported current asthma conditions among adults.<sup>2</sup> New York State consistently ranked near or as one of the top states in prevalence of hospitalization rates among children and ER/urgent care use among adults.<sup>3</sup> This higher than average health care service utilization rate is one of the factors that puts New York within the bottom quartile in the indicator of "potentially avoidable use of hospitals and costs of [c]are".<sup>4</sup> Thus the importance of asthma prevention and management cannot be stressed enough. Mere treatment of acute asthma events and its symptoms, while important for those necessary times when asthma puts lives at risk, is not taking the proper holistic approach to the issue. Therefore prevention and management are better tools to curtail the adverse effects of asthma as prevention leads to a better overall quality of life and also leads to improvements in other areas of health such as preventing obesity.

## Local Effects

The Bronx particularly exhibits disproportionately high asthma numbers, even when compared to New York and national averages. The New York City Department of Health determined that the asthma hospitalization rate for Bronx children is 70 percent higher than the rest of the city and 700 percent higher than the rest of New York State (excluding New York City).<sup>5</sup> Additionally, there is a higher rate of death, nearly double than that of the rest of the city at 6 per 100,000 cases, in the Bronx.<sup>6</sup> In 2000, these rates of death from asthma in the Bronx were about three times higher than the national

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<sup>1</sup> Akinbami LJ, *The State of childhood asthma, United States, 1980–2005: Advance data from vital and health statistics*, no. 381 National Center for Health Statistics 2006.

<sup>2</sup> The Kaiser Family Foundation, *State Health Facts: Adult Self-Reported Current Asthma Prevalence Rate*, 2008. Available at: <http://www.statehealthfacts.org/comparemaptable.jsp?ind=87&cat=2>.

<sup>3</sup> The Commonwealth Fund, *Performance Snapshots: Asthma Management*. Available at <http://www.commonwealthfund.org/Content/Performance-Snapshots/Disease-Management--Other-than-Heart-Disease/Asthma-Management.aspx>.

<sup>4</sup> McCarthy, D., How, S.K.H., Schoen, C., et al., *State Scorecard on Health System Performance, 2009: Chartpack*, The Commonwealth Fund, Oct, 2009, at 17. Available at [http://www.commonwealthfund.org/~media/Files/Publications/Fund%20Report/2009/Oct/PDF\\_State\\_Scorecard\\_2009\\_Chartpack\\_FINAL.pdf](http://www.commonwealthfund.org/~media/Files/Publications/Fund%20Report/2009/Oct/PDF_State_Scorecard_2009_Chartpack_FINAL.pdf).

<sup>5</sup> Andrea Diaz & Coralia Barrios, *The Bronx: In Search of a Breath of Fresh Air*, March 2007. Available at <http://www.thebronxjournal.com/the-bronx-in-search-of-a-breath-of-fresh-air/>. See also generally New York State Department of Health, *County Health Indicator Profiles (2004-2008)*. Available at <http://www.health.ny.gov/statistics/chip/bronx.htm#bronx> (showing 166.6 cases per 100,000 persons in 2008, an increase over the previous two years).

<sup>6</sup> *Id.*

average and hospitalization rates are about five times higher.<sup>7</sup> In some neighborhoods in the Bronx it is estimated that 20% of the children have asthma.

Multiple studies have been conducted in the Bronx due to the high levels of asthma. One is the “South Bronx Environmental Health Policy Study”, a five-year study by New York University's School of Medicine and Robert F. Wagner Graduate School of Public Service.<sup>8</sup> Another report is “The Geography of Asthma and Air Pollution in the Bronx: Using GIS for Environmental Health Justice Research” conducted by Lehman College and CUNY Graduate Center.<sup>9</sup> Both reports paint bleak pictures. For instance, the Lehman study, “through proximity analysis, found that people living near (within specified distance buffers) noxious land uses were up to 66 percent more likely to be hospitalized for asthma, and were 30 percent more likely to be poor and 13 percent more likely to be a minority than those outside the buffers.”<sup>10</sup>

Using ground-level monitors and a mobile monitor, the conductors of the “South Bronx Environmental Health Policy Study” determined that “the concentration of industrial facilities in the area coupled with the heavy car and truck traffic exposes residents of the South Bronx to more air pollutants than other New Yorkers.”<sup>11</sup> Industrial areas were linked to higher asthma rates and severe asthma requiring hospitalization was more likely to occur in low-income neighborhoods. This study also shows that soot from exhaust of diesel vehicles also contributes at a high rate to asthma; thus living next to highways was also an environmental contributor.<sup>12</sup>

Unfortunately, the prevalence of highways through the Bronx such as I-87, I-95, I-295, and US-1 means that many school children are in close proximity to highways which exacerbates their chances of becoming asthmatic.<sup>13</sup> For instance, children in South Bronx have about a 20% chance of attending school near a highway, “in the South Bronx, your child is twice as likely to attend a school near a highway as other children in the city,”

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<sup>7</sup> See South Bronx Environmental Health and Policy Study, *Asthma and Air Pollution in the South Bronx*, Robert F. Wagner Graduate School of Public Service. Available at [http://www.icisnyu.org/south\\_bronx/AsthmaandAirPollution.html](http://www.icisnyu.org/south_bronx/AsthmaandAirPollution.html) citing Ruppel Shell, Ellen. *Does Civilization Cause Asthma?*, The Atlantic Monthly. May 2000. Available at <http://www.theatlantic.com/issues/2000/05/shell.htm>.

<sup>8</sup> South Bronx Environmental Health Policy Study, *Final Report of NYU School of Medicine Research*, February 2007, Thurston, George et al. Available at [http://graphics8.nytimes.com/packages/pdf/nyregion/20081002\\_SOM.pdf](http://graphics8.nytimes.com/packages/pdf/nyregion/20081002_SOM.pdf). See also New York University, *NYU Wagner Research Update*, Spring 2005. Available at <http://wagner.nyu.edu/news/files/resSp05.pdf>. Further summary available at [http://www.icisnyu.org/south\\_bronx/admin/files/HandoutWagnerOct162006.pdf](http://www.icisnyu.org/south_bronx/admin/files/HandoutWagnerOct162006.pdf).

<sup>9</sup> Juliana Maantay, *The Geography of Asthma and Air Pollution in the Bronx: Using GIS for Environmental Health Justice Research*, Health & Place 13 (2007) 32–56. Available at [http://www.lehman.cuny.edu/deannss/geography/publications/Maantay\\_Health\\_and\\_Place.pdf](http://www.lehman.cuny.edu/deannss/geography/publications/Maantay_Health_and_Place.pdf). Further information at <http://www.uhfnyc.org/assets/467>.

<sup>10</sup> Maantay *supra* note 6.

<sup>11</sup> *Id.*

<sup>12</sup> *Asthma Linked to Soot from Diesel Trucks in Bronx*, Science Daily, Oct 30, 2006 (discussing the South Bronx Environmental Health and Policy Study). Available at <http://www.sciencedaily.com/releases/2006/10/061017084420.htm>.

<sup>13</sup> *Id.*

according to Rae Zimmerman, professor of planning and public administration at the Robert F. Wagner Graduate School of Public Service.<sup>14</sup> “About half of the pre Kindergarten to 8th grade students in the South Bronx attend schools located within 150 meters (500 feet or less than two city blocks) of a highway or truck route . . . [and a]bout half of all pre Kindergarten to 8th grade public elementary school students in the South Bronx attend schools close to industrially-zoned land (within 1/8 of a mile or two and a half city blocks) containing waste transfer stations and other facilities associated with high diesel truck traffic and pollution emissions.”<sup>15</sup>

However, action is being taken against this increasing problem. Even before the studies confirmed the severity of the asthma epidemic in New York’s Communities, Senator Jeff Klein, then-Assemblyman Jeff Klein, was working to combat it in the Bronx.<sup>16</sup> In 2002, based on studies conducted by Senator Klein, St. Barnabas Hospital began to operate the Breathing Easy Mobile Asthma Screening Program—a mobile asthma unit—which offers asthma screening, education and referrals after Senator Klein procured a \$250,000 appropriation for its founding.<sup>17</sup> Stating that “[asthma is] the No. 1 cause of school absenteeism in the Bronx . . . [but, ] if you know how to manage asthma, you can live a very full and productive life.”<sup>18</sup>

Senator Klein is continuing his efforts to further evaluate the effect of having so many highways running through the communities of the Bronx. Senator Klein, in collaboration with the New York State Department of Environmental Conservation, had temporary air monitors placed next to the Whitestone Bridge and near Monsenior Scanlon High School to get accurate readings of the levels of pollutants that are being inhaled by area citizens outside of the South Bronx. This information will support policy initiatives which should help the citizens of the Bronx and New York State, as a whole, lead healthier and more manageable lives. Much needs to be done in our local communities in terms of preventing the occurrence of asthma, as well as of reducing the severity of asthma attacks to reduce health care costs.

## Asthma Prevention

The importance of asthma prevention and management has been stressed in many public health studies including a report published by the Commonwealth Fund.<sup>19</sup> “Asthma is the sixth-most prevalent chronic disease overall and the most prevalent chronic disease in children.”<sup>20</sup> About 20 million [23 million in 2008<sup>21</sup>] Americans including 6 million [7

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<sup>14</sup> *Id.*

<sup>15</sup> *See supra* note 5 at 3-4.

<sup>16</sup> *See, e.g., A Special Report on Asthma from the New York Assembly*, Committee of State-Federal Relations. Available at <http://assembly.state.ny.us/comm/StateFederal/20010901/>.

<sup>17</sup> Bob Kappstatter, *New Asthma Van is a Breath of Fresh Air*, NY Daily News, March 19, 2002. Available at [http://articles.nydailynews.com/2002-03-19/local/18198084\\_1\\_mobile-clinic-asthma-breath-of-fresh-air](http://articles.nydailynews.com/2002-03-19/local/18198084_1_mobile-clinic-asthma-breath-of-fresh-air).

<sup>18</sup> *Id.*

<sup>19</sup> The Commonwealth Fund, *Asthma Management*. Available at <http://www.commonwealthfund.org/Content/Performance-Snapshots/Disease-Management--Other-than-Heart-Disease/Asthma-Management.aspx>.

<sup>20</sup> *Id.*

million in 2008] children and adolescents currently have asthma. Also, “[a]sthma results in almost 500,000 hospitalizations, 14 million missed school days, 15 million lost work days, and 4,100 deaths each year in the United States. Economic costs amount to \$11.5 billion [\$15.6 billion in 2010 dollars<sup>22</sup>] for treatment and \$4.6 billion [\$5.1 billion in 2010 dollar] in lost productivity”.<sup>23</sup> It also impacts the quality of life for New York’s adults and children as it may increase the risk of obesity by limiting physical activity as well as the ability to play with other children.

The prevalence of asthma in New York City presents similar demographic distributions with the rest of the state except for age group (Table 1).<sup>24</sup> Low income, low education levels, high body mass index (BMI), as well as being black and/or Hispanic, are common characteristics that are associated with the prevalence of asthma. This distribution pattern is consistent with those reported by other public health studies. Research studies have noted a correlation between the epidemic of obesity and that of asthma.<sup>25</sup> The correlation between asthma and race and poverty was further highlighted in prior research findings which stated that higher rates of asthma also tracked higher concentrations of African Americans or Puerto Ricans, and especially tracked elevated poverty levels in New York City.<sup>26</sup>

NYC distinguishes itself from the rest of the state by having a high prevalence among children less than eighteen years old, compared to the age group observed in the rest of the state (eighteen to thirty-four years old). In both NYC and elsewhere, the elderly have the lowest prevalence of asthma but the highest mortality rate. This is mostly due to complications from other medical conditions suffered as a result of age. However, as the aim of this initiative is prevention, children are the major demographic of this report.

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<sup>21</sup> American Lung Association, *Trends in Asthma Morbidity and Mortality*, 2010. Available at <http://www.lungusa.org/finding-cures/our-research/trend-reports/asthma-trend-report.pdf>.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> New York State Department of Health, *National Asthma Survey-New York State Summary Report*. Available at [http://www.health.state.ny.us/statistics/ny\\_asthma/pdf/national\\_asthma\\_survey\\_nys.pdf](http://www.health.state.ny.us/statistics/ny_asthma/pdf/national_asthma_survey_nys.pdf).

<sup>25</sup> See, e.g., Platts-Mills T.A., Carter, M.C., Heymann, P.W., *Specific and Nonspecific Obstructive Lung Disease in Childhood: Causes of Changes in the Prevalence of Asthma*, *Env’tl Health Perspect.*, 2000, 108 (suppl 4): 725-731.

<sup>26</sup> Claudio L. et al., *Prevalence of Childhood Asthma in Urban Communities: The Impact of Ethnicity and Income*, *AEP*, 2006, (vol. 16 no. 5):332-340 (noting that Harlem, South Bronx, and Central Brooklyn were examples of such neighborhoods). Available at <http://www.drLuzClaudio.com/PDF/CommunityHealth/PrevalenceofAsthmainChildren.pdf>. See also Lin S, Fitzgerald E, Hwang S, Munsie J, Stark A., *Asthma hospitalization rates and socioeconomic status in New York State (1987–1993)*, *J. of Asthma*, 1999; 36:239–251 and Claudio L, Tulton L, Doucette J, Landrigan P., *Socioeconomic factors and asthma hospitalization rates in New York City*, *J. of Asthma*, 1999; 36:343–350.

**Table 1.** Demographic Distribution of Current Asthma Prevalence

Demographic distribution	New York City	Rest of State
Age	Children <18 years old	18-34 years old
Income	Low	Low
Education	Low	Low
Race/Ethnicity	Minority: Black & Hispanic	Minority: Black & Hispanic
BMI	High	High

Based on the demographic distribution of asthma, children under the age of eighteen and people of low socioeconomic status (SES) and high BMI were selected as targets for this initiative. Specifically, to curb asthma among children it is important to restrict in-utero exposure to smoke either from a mother who smokes or a mother who is exposed to second-hand smoke. Further, improving school environments including managing school bus emissions was emphasized. What should also be considered is an informational intervention which targets children living in a low SES home/neighborhood. For instance, pest control in low SES neighborhoods can benefit low income minority children due to the well documented association between the high level of mouse and cockroach allergens with high asthma-prevalent neighborhoods.<sup>27</sup> Finally, increasing medical access for low SES children can help to prevent severe asthma attacks that can result in emergency department visits and/or hospitalization.<sup>28</sup> Since high level BMI is also a factor associated with asthma, the strategies tailored for obesity/overweight can also help to prevent asthma. In sum, indoor air quality, outdoor air quality, and access to medical care are three major components of the following policy recommendations.

## Policy Recommendations

Based on the research findings presented above, the following strategies should be considered to address this issue on the state level. At the local level other initiatives may also help address the issue of asthma such as land use rezoning or subdivision changes that can increase park land, locate new schools away from heavily congested roads and highways and industrial areas, and increasing the capacity of the rail transport to haul goods so that fewer diesel trucks are needed.

### *I. Indoor Air Quality*

#### A. Encourage a Smoke-free Environment when Raising Children

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<sup>27</sup> Davis, L.E., Lee, J., Garg, R., et al., *Asthma in New York City*, *J. of Asthma*, 2003, 40 (supp.): 55-61; *Asthma Varies among New York City Neighborhoods*, posted on the Pediatric SuperSite on March 3, 2010. Available at <http://www.pediatricsupersite.com/view.aspx?rid=61499>; Olmedo OE. #225, Presented at 2010 Annual Meeting of the American Academy of Asthma, Allergy and Immunology; Feb. 26-March 2, 2010; New Orleans; Baruchin, A., *For Minority Kids, No Room to Breathe*, *NYTimes*, Aug. 30, 2007.

<sup>28</sup> New York City Department of Health and Mental Hygiene, *Creating a Medical Home for Asthma: Introduction*. Available at <http://www.nyc.gov/html/doh/html/cmha/introduction.html>.

It is well-known that exposure to tobacco smoke triggers asthma attacks. For instance, a nested case-control<sup>29</sup> study found that adult-onset asthma is associated with self-reported environmental tobacco smoke (ETS).<sup>30</sup> Acute exacerbations of asthma in children has been documented in medical records due to exposure to environmental tobacco smoke. This ETS was detected by parent-reports and urine cotinine levels (a test used to determine if the subject was exposed to tobacco smoke).<sup>31</sup> The worldwide enactment of laws to limit indoor tobacco smoking also demonstrated that second-hand smoke causes various health problems including asthma.<sup>32</sup>

## 1. Current State Laws

New York State is one of twenty-seven states that have comprehensive laws that prohibit smoking in indoor areas open to the public and workplaces including bars and restaurants. Smoking restriction laws have effectively limited second-hand smoke and asthma. Moreover, in June of 2010, New York enacted the highest cigarette tax in the country at \$4.35 per pack.<sup>33</sup> This very high tax has also helped to reduce tobacco consumption and the incidence of first- and second-hand smoke. Public Health Law Research<sup>34</sup> has reported on the effectiveness of the reduction of ETS.<sup>35</sup>

In a systematic review, a Community Guide [Publication] expert panel reviewed 10 studies that assessed the effectiveness of smoking bans and restrictions as means [to reduce] exposure to secondhand smoke in workplaces. . . . The reviewers identified reductions in self-reported exposure or actual nicotine vapor in 9 of the 10 studies. Reductions in vapor measures ranged from 44 percent to 97 percent.<sup>36</sup>

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<sup>29</sup> Note that “[i]n a nested case-control study, cases of a disease that occur in a defined cohort are identified and, for each, a specified number of matched controls is selected from among those in the cohort who have not developed the disease by the time of disease occurrence in the case.” Ernster, VL., *Nested Case Control Studies*, *Prev. Med.*, Sept., 1994, 23(5): 587–90.

<sup>30</sup> Thorn, J., Brisman, J., & Toren, K., *Adult-onset Asthma is Associated with Self-reported Mold or Environmental Tobacco Smoke Exposures in the Home*, *Allergy*, 2001, 56: 287-292.

<sup>31</sup> Chilmonczyk, B. A., Salmun, L. M., Negathlin, K. N., et al., *Association Between Exposure to Environmental Tobacco Smoke and Exacerbations of Asthma in Children*, *NEJM*, 1993, 328: 1665-1669.

<sup>32</sup> Boyle, P., Autier, P., Bartelink, H., et al., *European Code Against Cancer and scientific justification: third version*, 2003 *Ann. Oncol.*, 2003, 19 (7): 973–1005.

<sup>33</sup> Glenn Blain, *Legislature Oks raising cigarette tax \$1.60 to U.S. high \$4.35!*, *New York Daily News*, June 22, 2010. Available at [http://www.nydailynews.com/news/2010/06/22/2010-06-22\\_nail\\_in\\_coffin\\_legislature\\_oks\\_raising\\_cig\\_tax\\_160\\_to\\_us\\_high\\_435\\_a\\_pack.html](http://www.nydailynews.com/news/2010/06/22/2010-06-22_nail_in_coffin_legislature_oks_raising_cig_tax_160_to_us_high_435_a_pack.html).

<sup>34</sup> Public Health Law Research is a national program of the Robert Wood Johnson Foundation. It is housed at the Temple University Beasley School of Law.

<sup>35</sup> National Program Office Staff, *Evidence Briefs: Workplace Smoking Bans and Restrictions*, Dec. 7, 2009. Available at <http://www.publichealthlawresearch.org/public-health-topics/drugs-alcohol-and-tobacco/evidence-brief/workplace-smoking-bans-and-restriction>.

<sup>36</sup> Public Health Law Research, *Workplace Smoking Bans and Restrictions*, Dec. 7, 2009, citing Hopkins DP et al., *Reviews of Evidence Regarding Interventions to Reduce Tobacco Use and Exposure to Environmental Tobacco Smoke*, *Am. J. Prev. Med.* 2001; 20(2S). Available at

As a result of the enactment of these laws, patients with asthma reaped the benefits brought by the reduction of exposure to second-hand smoke. After the State of Arizona passed smoking bans in 2006, studies showed a reduction in hospital admissions for asthma.<sup>37</sup> In addition, on July 11, 2007 “the National Asthma Council Australia, [introduced] tougher smoking laws in New South Wales and Victoria as a major health victory . . . [because] the ban will benefit all patrons with asthma”.<sup>38</sup>

While the effectiveness of these efforts has been encouraging, further efforts to curb smoking has been slowed due to the lack of full funding of programs that discourages kids from starting to smoke and encourage existing smokers to quit.<sup>39</sup> New York State received a thumbs down on “Tobacco Prevention Control and Spending” due to “significantly decreasing funding for its state tobacco control program this year [FY2010].”<sup>40</sup> This situation, if not improved, poses continued threats to people, especially children, with asthma because there remains poor indoor air quality in the remaining smokers’ homes.

## 2. Restricting In-utero Exposure to Environmental Tobacco Smoke

Interventions for children can start as early as during fetal development. The demographic distribution of asthma has much in common with the distribution of mothers who smoke before and during their pregnancy and these numbers generally track education and economic-status levels.<sup>41</sup> New York State (excluding New York City) was ranked higher than the national average in the percentage of women who smoke before and during their pregnancy.<sup>42</sup> Further, the number of mothers who quit smoking during pregnancy is less than many other states.<sup>43</sup>

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<http://www.publichealthlawresearch.org/taxonomy/term/13/all?page=1>. Community Guide is available at <http://www.thecommunityguide.org/index.html>.

<sup>37</sup> Herman, P.M., Walsh, M.E. *Hospital Admissions for Acute Myocardial Infarction, Angina, Stroke, and Asthma After Implementation of Arizona's Comprehensive Statewide Smoking Ban*. American Journal of Public Health, 2010, published online ahead of print May 13, 2010. DOI: 10.2105/AJPH.2009.179572

<sup>38</sup> *Asthma Body Applauds Smoking Ban, Australia*. Medical News Today. July 10, 2007. Available at: <http://www.medicalnewstoday.com/articles/76311.php>.

<sup>39</sup> American Lung Association. *Most States Falling Short on Tobacco Policies*. Available at: <http://www.lungusa.org/about-us/our-impact/top-stories/most-states-falling-short-on.html>.

<sup>40</sup> American Lung Association. *State of Tobacco Control 2009*. Available at:

<http://www.stateoftobaccocontrol.org/2009/states/state-summary.html?state=ny#spending>.

<sup>41</sup> Refer to Introduction section for the demographic distribution of asthma. Source for distribution of maternal smoking during pregnancy:

CDC. *State Estimates of Neonatal Health-Care Costs Associated with Maternal Smoking—United States, 1996*, Morbidity and Mortality Weekly Report, October 8, 2004, 53 (39): 915-917. Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5339a2.htm>.

<sup>42</sup> Centers for Disease Control and Prevention, *Trends in Smoking Before, During, and After Pregnancy—Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 31 Sites, 2000-2005*. May 29, 2009 MMWR 58, No. SS-4.

<sup>43</sup> *Id.*

Various research studies also revealed the direct connection between in-utero exposure to tobacco smoke and asthma.<sup>44</sup> For instance, a study conducted by researchers in Keck School of Medicine, Department of Preventive Medicine, University of Southern California suggested the existence of a strong relationship:

In utero exposure to maternal smoking without subsequent postnatal [environmental tobacco smoke] exposure was associated with increased prevalence of physician-diagnosed asthma, asthma with current symptoms, asthma requiring medication use in the previous 12 month, lifetime history of wheezing, current wheezing with colds and without colds, persistent wheezing, wheezing with exercise, attacks of wheezing causing shortness of breath or awakening at night in the previous 12 month, and wheezing requiring medication or emergency room visits during the previous year.<sup>45</sup>

Moreover, maternal smoking during pregnancy is correlated with many other adverse health consequences. The most asthma-related area of concern is its influence on body weight. Maternal smoking during pregnancy was reported to be associated with childhood obesity, even after paternal smoking and a number of other potential confounders were adjusted.<sup>46</sup> Another study conducted by the same researchers discovered a dose-dependent association between intrauterine exposure to inhaled smoke products and obesity/overweight that could not be explained by a wide range of other factors.<sup>47</sup> As presented above, obesity/overweight children are more likely to have asthma, and therefore, restricting in-utero exposure of tobacco smoke can help to control asthma by reducing the risks of becoming obese or overweight among children.

Interestingly, maternal smoking during pregnancy not only increases the risks of obesity or being overweight, but is also associated with low birth weight (< 2,500g). In 2006, the California Air Resources Board (ARB) formally identified ETS as a Toxic Air Contaminant (TAC), the rationale of which rooted in a report on ETS and its health effects.<sup>48</sup> This new report reaffirms many of the adverse health effects associated with ETS, especially in children who live in homes where smoking occurs," said ARB Chairman, Dr. Robert Sawyer.<sup>49</sup>

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<sup>44</sup> U.S. Department of Health and Human Services, *Women and Smoking: A Report of the Surgeon General*, 2001.

<sup>45</sup> Gilliland FD, Li YF, Peters JM, *Effects of maternal smoking during pregnancy and environmental tobacco smoke on asthma and wheezing in children*, Am J. Respir. Crit. Care Med., 2001 Feb; 163(2):429-36. Abstract available at <http://www.ncbi.nlm.nih.gov/pubmed/11179118>.

<sup>46</sup> Kries, R.V., Bolte, G., Baghi, L., & Toschke, A. M. *Parental Smoking and Childhood Obesity-Is Maternal Smoking in Pregnancy the Critical Exposure?*, 2008 Int'l. J. of Epidemiology, 37: 210-216.

<sup>47</sup> Kries R. V., Toschke, A. M., Koletzko, B., & Slikker, Jr., W. *Maternal Smoking during Pregnancy and Childhood Obesity*, 2002 American Journal of Epidemiology, 156 (10):954-961.

<sup>48</sup> California Environmental Protection Agency, Press Release, *California Identifies Secondhand Smoke as a "Toxic Air Contaminant"*, Jan 26, 2006. Available at <http://www.arb.ca.gov/newsrel/nr012606.htm>.

<sup>49</sup> *Id.*

Low birth weight is one of the adverse consequences of ETS. Low birth weight, in turn, is a risk factor for asthma. Studies show that low birth weight is associated with contracting asthma during childhood (twelve years old), adolescence (by seventeen years old), and young adult (twenty-six years old).<sup>50</sup> This association is “unlikely to be confounded by genetic or shared environmental factors”, according to a study that investigated the relationship among twin enrollees.<sup>51</sup> What makes the intervention targeting of in-utero exposure more compelling is that, although a strong independent contribution of very low birth weight (VLBW, <1,500g) to asthma prevalence was identified in both white and black children, “the prevalence of VLBW...was tripled in African American (high asthma prevalence race) compared with white children”.<sup>52</sup>

Studies have examined the effectiveness of various strategies to help women quit smoking. Punitive measures placed in legislation tend not to motivate women to stop smoking during pregnancy, as suggested by various public health and public advocacy groups such as American Medical Association, American Public Health Association, Association of Family and Conciliation Courts.<sup>53</sup> According to related literature, the most promising interventions are smoking cessation programs, social support, and tailored advice and information from health care professionals.<sup>54</sup> It is recommended to:

*a. Increase awareness.* Because high prevalence of both asthma and maternal smoking during pregnancy is highest among people with lower education levels, it is not surprising that the harmful consequences of smoking during pregnancy are not well known among this population. Strategies could include:

i. Distribution of information on the adverse effects of smoking during pregnancy (firsthand and secondhand smoke) by healthcare

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<sup>50</sup> Yuan, W., Basso, O., Sorensen, H. T., & Olsen, J., *Fetal Growth and Hospitalization with Asthma during Early Childhood: a Follow-up Study in Denmark*, *Int'l. J. of Epidemiology*, 2002, 31 (6): 1240-45.

Seidman, D. S., Laor, A., Gale, R., et al., *Is Low Birth Weight a Risk Factor for Asthma during Adolescence?*, *Archives of Disease in Childhood*, 1991, 66: 584-87; Shaheen, S.O., Sterne, J.A.C., Montgomery, S.M., & Azima, H., *Birth Weight, Body Mass Index and Asthma in Young Adults*, *Thorax*, 1999, 54: 396-402.

<sup>51</sup> Villamor, E., Iliadou, A., & Cnattingius, S., *Is the Association Between Low Birth Weight and Asthma Independent of Genetic and Shared Environmental Factors?*, *Am. J. of Epidemiology*, 2009, 169 (11): 1337-43.

<sup>52</sup> Brooks, A., Byrd, R.S., Weitzman, M., et al., *Impact of Low Birth Weight on Early Childhood Asthma in the United States*, *Arch Pediatr. Adolesc. Med.*, 2001, 155: 401-06.

<sup>53</sup> The Center for Reproductive Law & Policy. *Part I. Punishing Women for their Behavior During Pregnancy: An Approach That Undermines Women's Health and Children's Interests*. New York: Center for Reproductive Law & Policy; 1996. Available at <http://www.drugpolicy.org/library/womrepro.cfm>.

<sup>54</sup> Lumley, J., Oliver, S.S., Chamberlain, C., Oakley, L., *Interventions for promoting smoking cessation during pregnancy*, *Cochrane Database of Systematic Reviews* 2004, Issue 4. Art. No.: CD001055. DOI: 10.1002/14651858.CD001055.pub2; Windsor, R.A., Cutter, G., Morris, J., et al., *The Effectiveness of Smoking Cessation Methods for Smokers in Public Health Maternity Clinics: A Randomized Trial*, *Am. J. of Public Health*, 1985, 75 (12): 1389-92.

providers, insurers, and pregnancy programs, *e.g.*, Medicaid and WIC.

ii. Require monitoring of expectant mothers' smoking statuses and offer continuous tailored discussion of quitting smoking with expectant mothers during their prenatal care by health care providers.

*b. Reduce barriers.* As stated by Irene Centers, coordinator for Kentucky Department for Public Health's tobacco prevention and cessation program, "Quitting smoking is a challenging goal that often requires repeated attempts before success is achieved", and "... if given the resources, support and information they need, women will make the right choices for themselves and their babies." The Giving Infants and Families Tobacco-Free Starts (GIFTS) program in Kentucky achieved great success by "not only offer[ing] women individualized support for smoking cessation during and after pregnancy, but also address[ing] many of the barriers that keep women from quitting". Kristin Ashford, ARNP, an assistant professor at the University of Kentucky College of Nursing and GIFTS program administrative coordinator indicated that "[w]hat GIFTS supports do beyond other state programs is screen for depression, social support, domestic violence and secondhand smoke exposure. These are four of the primary barriers that can keep pregnant women from trying to quit or stay quit."<sup>55</sup> In New York State, the following services could be added to existing tobacco control programs for pregnant women or to other pregnancy related programs such as WIC.

- i. Carbon monoxide monitoring;
- ii. Depression, social support and domestic violence screening and referrals;
- iii. Referrals for smoking cessation for household members;
- iv. Ongoing support by counseling and educational materials;
- v. Financial incentives such as shopping voucher or diaper coupons for quitting for more than four weeks.

*c. Fiscal Concerns.* Opponents who are against programs that provide financial incentives to encourage women to quit smoking considered the approach a waste of money.<sup>56</sup> However, a report presented on Britain's

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<sup>55</sup> *New Program Helps Pregnant Women Give Up Smoking, Kentucky*, Medical News Today, April 10, 2009. Available at <http://www.medicalnewstoday.com/articles/145569.php>.

<sup>56</sup> In this program, an expectant mum is eligible for the first £20 voucher at the four-week quit date and then monthly during her pregnancy as well as for two months beyond the birth of her baby. Pregnant smokers will also be assigned a Significant Other Supporter (SOS), who could be a relation or close friend, whose aim is to keep the pregnant woman smoke-free.

National Health Service Rotherham board meeting estimated that “interventions to reduce smoking in pregnancy could result in savings to the NHS at a rate of up to £4 for every £1 spent on the intervention.”<sup>57</sup> In the U.S., estimated smoking-attributable neonatal expenditures (SAEs) were \$704 per maternal smoker in 1996 dollars. New York State (excluding NYC) was ranked second highest in preventable SAEs. SAEs per maternal smoker were even higher among subgroups than under Medicaid or uninsured (\$842 vs. \$582 with private or other insurance) and among African Americans (\$1,207 vs. \$651 of their white counterparts).<sup>58</sup> If the mother smoked during pregnancy, the average additional costs attributable to smoke exposure in the first year after birth increased to \$1,358 per mother (vs. \$704 per maternal smoker for neonatal care).<sup>59</sup> This number would inevitably increase as these children grow and contract the various diseases that were programmed to develop during their fetal development. Compared to these amounts, the financial incentives and other initiatives recommended in this report are well worth it.

## B. Smoke-free Homes

On June 27, 2006, U.S. Surgeon General Richard H. Carmona issued a comprehensive report on the health hazards of exposure to second-hand smoke.<sup>60</sup> The report claimed that “there is no safe level of exposure to secondhand smoke” and “even brief exposure to secondhand smoke can bring on respiratory symptoms such as coughing, wheezing, and breathlessness, and can trigger asthma attacks in asthmatic children”. The negative effect of exposure to secondhand smoke during childhood on asthma onset and exacerbation was recorded and confirmed by various research studies.<sup>61</sup> More research results are available in the Surgeon General’s report. The report also highlighted that a national initiative, smoke-free home, was established and “aims to increase doctors’ awareness of the importance of smoke-free homes and to keep them up to date on the most effective ways of reducing children’s secondhand smoke exposure and convincing parents to stop smoking and to make their homes smoke

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<sup>57</sup> £40 Vouchers for Mothers to Be Who Quit Smoking, Stop Smoking. Available at <http://smoking-quit.info/40-vouchers-for-mothers-to-be-who-quit-smoking>.

<sup>58</sup> CDC, *supra* note 27.

<sup>59</sup> Miller, D. P., Villa, K. F., Sivapathasundaram, D. S., & Hogue, S. L., *Birth and first-year costs for mothers and infants attributable to maternal smoking*, *Nicotine Tob Res.* 2001; 3: 25-35.

<sup>60</sup> U.S. Department of Health and Human Services, *Surgeon General’s Report States Secondhand Smoke is a Serious Health Hazard*, Prevention Report, 2006, 21 (1): 1-6. Available at <http://odphp.osophp.dhhs.gov/pubs/prevrpt/volume21/iss1vol21.pdf>.

<sup>61</sup> Gilliland, F. D., Li, Y., & Peters, J.M., *Effects of Maternal Smoking during Pregnancy and Environmental Tobacco Smoke on Asthma and Wheezing in Children*, *Am. J. of Respiratory and Critical Care Medicine*, 2001, 163 (2): 429-436; *see also* Chilmonczyk, B. A., Salmun, L. M., Negathlin, K. N., et al., *Association Between Exposure to Environmental Tobacco Smoke and Exacerbations of Asthma in Children*, *NEJM*, 1993, 328: 1665-1669; Larsson, M.L., Frisk, M., Hallstrom, J., et al., *Environmental Tobacco Smoke Exposure During Childhood is Associated with Increased Prevalence of Asthma in Adults*, *Chest*, 2001, 120 (3):711-717; Thorn, J., Brisman, J., & Toren, K, *Adult-onset Asthma is Associated with Self-reported Mold or Environmental Tobacco Smoke Exposures in the Home*, *Allergy*, 2001, 56: 287-292.

free.” The advocacy of smoke free homes is based on the fact that “even the sophisticated ventilation system cannot completely eliminate secondhand smoke exposure.”

Besides other strategies, targeting large residential building owners who might be able to help establish a smoke free home environment for all residents, especially low-income families, would help to lower asthma rate. Oregon became the first state to require a landlord to disclose their smoking policy when this new law amended the Oregon Revised Statutes Title 10, Chapter 90 §§ 479.250-479.300, which took effect January 1, 2010.<sup>62</sup> A similar local law was also passed by the city of Buffalo as “[t]he law helps tenants protect themselves from second-hand smoke, and it helps smokers develop an understanding about whether they can smoke, which will avoid the many conflicts that make it to court”.<sup>63</sup> Moreover, such law is a potentially effective strategy to encourage landlords to make their apartment buildings smoke-free as “[a] smoke-free building is more attractive to tenants and tends to get higher payments”.<sup>64</sup> Because such law will cost the state little money, it is recommended that this approach be considered to control asthma prevalence for the State of New York.

### C. Pest Control in Homes and at School Buildings

Pest control is a dilemma in terms of controlling asthma. Rachel L. Miller, MD, of the Columbia University Medical Center presented at the 2010 Annual Meeting of the American Academy of Asthma, Allergy and Immunology that “more than four episodes of wheezing were associated with higher levels of cockroach or mouse allergens found in a child’s bed dust”<sup>65</sup>. On the other hand, exposure to pesticide applications is a potential cause, as well as a trigger, of an asthma attack. The chemical molecular makeup of many pesticides can cause overwhelming burden for the lung cells to detoxify, as well as various immune and muscular effects, which helps explain the causal effects of pesticides exposure on asthma.<sup>66</sup> Similarly, molecular mechanisms such as altering nerve function controlling the smooth muscle lining of the airway<sup>67</sup> and causing direct cell damage<sup>68</sup> illustrated the trigger effects of pesticides on asthma attack.

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<sup>62</sup> 2009 Oregon H.B. 2135. Available at

<http://www.leg.state.or.us/09reg/measures/hb2100.dir/hb2135.en.html>.

<sup>63</sup> Davis, H. L., *Buffalo Landlord Required to Disclose Smoking Policy to Tenants*, Buffalo News, July 09, 2010. Available at <http://www.buffalonews.com/incoming/article45540.ece>.

<sup>64</sup> *Id.*

<sup>65</sup> *Asthma varies among New York City neighborhoods*, Posted on the Pediatric SuperSite on March 3, 2010. Available at <http://www.pediatricsupersite.com/view.aspx?rid=61499> .Source: Olmedo OE. #225. Presented at 2010 Annual Meeting of the American Academy of Asthma in New Orleans, Allergy and Immunology; Feb. 26-March 2, 2010.

<sup>66</sup> Salameh, P.R., Baldi, I., Brochard, P., et al., *Respiratory Symptoms in Children and Exposure to Pesticides*, *European Respiratory J.*, 2003, 22: 507-512.

<sup>67</sup> Field, M., *2002 Asthma the Breathtaking Disease. The Magazine of Johns Hopkins Bloomberg School of Public Health*. Available at [http://www.jhsph.edu/publichealthnews/magazine/archive/Mag\\_Fall02/Asthma.html](http://www.jhsph.edu/publichealthnews/magazine/archive/Mag_Fall02/Asthma.html).

“Epidemiologic studies suggest that children with asthma may breathe easier if they are exposed to fewer pesticides at home and at school. And parents and school administrators may breathe easier knowing that they are not harming the children’s developing nervous systems.”

-Dr. Ruth Etzel, MD, PhD, George Washington University School of Public Health and Health Services

Based on these research findings, some States mandate that schools use less-toxic alternative applications to replace traditional pesticides. For instance, NYCRR §155.4(d)(2) establishes a comprehensive maintenance plan for all major building systems to ensure that the building is maintained in a state of good repair. Such a plan shall include provisions for an approach which integrates the least toxic pest management methods and establishes maintenance procedures and guidelines which will contribute to acceptable indoor air quality. The comprehensive maintenance plan shall be made available for public inspection.

New York also signed into law Chapter 85 of the Laws of 2010, introduced by Senator Foley, which restricts the use of pesticides around schools and day care centers, except for emergency use. The rationale was to protect the health of children and encourage the development of non-poisonous alternatives. Children, especially those at very young age, are more sensitive to exposure to pesticides. For instance, a study shows that infant and toddlers are 4.5 times and twice more likely to develop asthma than older children, respectively.<sup>69</sup>

“Studies have shown that early life is crucial for the development of the immune and the respiratory systems. Our data suggest that pesticide exposure during early childhood increases asthma risk by age 5, with exposures in the first year of life having the greatest impact on childhood asthma occurrence and its persistence in school-aged children.”

- Mohammed Towhid Salam, MD, University of Southern California, Department of Preventive Medicine, Los Angeles, CA.

In the 2010-11 New York State Legislative Session, Senator Grisanti and Assemblyman Magnarelli introduced legislation S.4522/A.7706 which would deregulate “minimal risk pesticides” as defined by the United States Environmental Protection Agency under the Federal Insecticide, Fungicide, and Rodenticide Act Section 25(b). Such pesticides use only inert ingredients such as

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<sup>68</sup> Mushak, E.W. & Piver, W. T., *Agricultural Chemical Utilization and Human Health*, *Env'tl Health Perspectives*, 1992, 97: 269-74.

<sup>69</sup> Salam, M.T., Li, Y. F., Langholz, B., & Gilliland, F. D., *Early-life environmental risk factors for asthma: Findings from the children’s health study*, *Env'tl Health Perspectives*, 2004, 112 (6): 760-65.

mint, castor oil, geranium oil, white pepper, and other such ingredients.<sup>70</sup> While the main purpose of this bill is to encourage the use of environmentally safe pesticides, it also serves the dual purpose of being safer to humans. By deregulating these types of inert pesticides, it lowers their costs and incentivize their use.

Illinois requires using Integrated Pesticide Management (IPM) in child care facilities (Public Act 93-0381). The law requires:

- Adopt an IPM program following the guidelines of the Illinois Department of Public Health (IDPH).<sup>71</sup>
- Appoint a childcare employee to oversee pest management operations and record keeping.
- Establish notification procedures to notify parents of plans to apply pesticides between two and thirty days before application.
- Notify IDPH in writing if your facility cannot adopt an IPM program because it is not economically feasible.
- Never apply pesticides when children are present.
- Remove toys and items mouthed or handled by children prior to pesticide application.
- Keep children out of the treated areas for at least two hours after pesticide application or as specified on the product label.
- Stop routine pesticide spraying; pesticides are used only as a last resort and least-toxic options are always utilized.

A bill similar to Illinois' law should be considered in New York to protect infants, toddlers, and young children who attend a day care facilities from developing asthma in their later lives. Also, a bill should be considered to require schools, public and private health insurance programs, and physicians to distribute educational material to parents. The rationale is that often high asthma prevalence is apparent in low-income, low-education neighborhoods and that free sources of information should be made available to these residents who may not otherwise have access to these information sources. In providing the avenues for information and education, the residents should become aware of the relationship between asthma and the home environment, as well as effective prevention strategies.

## *II. Outdoor Air Quality*

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<sup>70</sup> For a full list see *Minimum Risk Pesticides*, United States Environmental Protection Agency. Available at [http://www.epa.gov/oppbppd1/biopesticides/regtools/25b\\_list.htm](http://www.epa.gov/oppbppd1/biopesticides/regtools/25b_list.htm).

<sup>71</sup> A guideline titled *Developing and Implementing an Integrated Pest Management Program in Schools and Day Care Centers* was published in October, 2009. Available at [http://www.idph.state.il.us/envhealth/pdf/IPM\\_Guidelines.pdf](http://www.idph.state.il.us/envhealth/pdf/IPM_Guidelines.pdf).

The control of in-utero exposure to smoking is a strategy that is targeted to both downstate and upstate residents; improving outdoor air quality is the strategy that should be tailored to downstate areas. Diesel emissions contribute largely to the poor air quality in inner-city areas. The American Lung Association cites numerous studies that established an association between diesel exhaust and the aggravation of asthma.<sup>72</sup> The biological mechanisms of diesel exhaust that increase health risks among children were presented by the Trade, Health & Environment Impact Project, a collaboration of community and University of Southern California.<sup>73</sup> Their findings were:

- Exposure to diesel exhaust can disrupt the immune system. This will increase a sensitive person's risk of having allergic reactions to other things in their environment.
- Lab animals and human volunteers exposed to diesel exhaust got asthma-like inflammation in their airways.
- Particulates and ozone from traffic causes cell damage to the lung lining, as well as through inflammation.
- Children are highly susceptible to the health dangers from diesel exhaust.
- Children raised in heavily polluted areas face the prospect of reduced lung capacity and prematurely aged lungs.
- Fine particulates can get into children's narrow airways and lodge deep within the lung, where they are more likely to stay and be absorbed.
- Children also have higher breathing rates than adults, which can increase their exposure to air toxins per unit of body weight.

“School aged children are a vulnerable group often exposed to agents that have been shown to be a risk factor for the development or exacerbation of asthma symptoms. One of the primary agents is diesel exhaust from school buses. Exposure is worse when buses are lined up idling, picking up and dropping off students, and when buses are moving through heavy traffic. Restricting the amount of time students spend near diesel buses or changing the fuels of such vehicles are both viable options to controlling this exposure.”<sup>74</sup> According to the Department of Education, New York State “has the largest fleet of school buses and vehicles in the nation. Over 50,000 vehicles are used in the State each day to transport over 2.5 million school children to and from school. Simply stated, new York State transports ten percent of all the nation's pupils. In a year, our school buses travel over 225 million miles.” Thus it comes as no surprise that while New York State is one of the only five states that scored above the national average in all three categories evaluated by Union of Concerned Scientists (UCS): Soot Pollution Grade, Cleanup Program Rank, and Smog Pollution Rank, our score for soot pollution did not

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<sup>72</sup> Available at [http://www.alaw.org/air\\_quality/outdoor\\_air\\_quality/facts\\_about\\_diesel\\_exhaust.html](http://www.alaw.org/air_quality/outdoor_air_quality/facts_about_diesel_exhaust.html).

<sup>73</sup> Regional Asthma Management & Prevention, *Asthma and Diesel Fact Sheet*. Available at <http://www.rampasthma.org/?s=diesel>.

<sup>74</sup> *Id.*

reach the highest grade.<sup>75</sup> These same soot particulates that are often a byproduct of diesel engines in school buses and trucks were also cited as an issue in the Bronx studies of schoolchildren with asthma.<sup>76</sup>

Several simple non-costly strategies that target school bus emissions can effectively reduce the pollution level. They were selected from a report conducted by researchers from Yale University and University of Connecticut.<sup>77</sup> In excerpt form of seven of thirteen points, this report suggests:

- **Prohibit Bus Idling:** Drivers should be required to turn off bus engines immediately upon reaching their destinations. Buses should not be turned on until fully loaded. This is especially important when buses are queued while loading and unloading at schools and transfer stations. Exceptions should include conditions that would compromise passenger safety—*e.g.*, extreme weather conditions, idling in traffic. In cases where engine operation is necessary to activate safety equipment such as flashing lights, buses should be retrofitted to permit battery operation. Idling restrictions should be defined by state statute and include clear and substantial enforcement power. This regulation shall incorporate the consideration of weather conditions[ such as allowing drivers to idle their engines in winter to keep them warm].
- **Require School Buses to Use Ultra Low Sulfur Fuels:** Ultra low sulfur diesel fuel (<15 ppm) should be required for all school buses. Acid aerosols, ozone precursors, and fine particulate emissions would be substantially reduced in the vicinity of children.
- **Allocate the Cleanest Buses to the Longest Routes:** . . . require[] emissions testing to distinguish between clean and dirty buses.
- **Set Priorities:** Priority for replacement with low emission vehicles, retrofit technologies, and filtration equipment should be assigned to communities with the highest ambient pollution levels, and to bus routes with the highest traffic intensity within communities.
- **Limit Ride Duration:** School districts should reduce students' exposure to air pollution by limiting time spent on buses. This is already regulated by some town policies. Limiting ride duration would reduce exposure to pollution generated by diesel buses, and by other traffic.
- **Require Routine Maintenance:** Buses should be monitored and maintained to ensure that emissions remain at their lowest possible level. Special care should be taken to ensure that exhaust systems are fully intact and secure, and that engine compartments are completely sealed from interior passenger space.

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<sup>75</sup> Monahan, P., *School Bus Pollution Report Card 2006: Grading the States*, Union of Concerned Scientists, May, 2006. Available at [http://www.ucsusa.org/assets/documents/clean\\_vehicles/pollution-report-card-2006-1.pdf](http://www.ucsusa.org/assets/documents/clean_vehicles/pollution-report-card-2006-1.pdf).

<sup>76</sup> See *supra* note 9.

<sup>77</sup> Wargo, J, et al., *Children's Exposure to Diesel Exhaust on School Bus*, Env't'l and Human Health, Inc., February, 2002. Available at <http://www.ehhi.org/reports/diesel/diesel.pdf>.

- **Test Tailpipe Emissions:** Tailpipe emissions should be routinely tested on all school buses.

Some action has been taken on this front already. New York City has recognized some of these concerns and addressed them in their own code. New York City Administrative Code § 24-163 addresses retrofitting buses to the use of ultra low sulfur diesel fuel to lower emissions. In consultation with the Department of Health, the Education Department in 2008 passed rules to also limit idling. Section 156.3(h) of Title 8 NYCRR was added and applies to all school districts under the Department and requires that all buses parked on school grounds or in front of schools must turn off their engines while waiting for children to load. With such rules and regulations in place on both the State and local level, it is a good start towards limiting exposure of soot and other particles in our children. However, these rules can go further and Chapter 670 of the laws of 2007 can be expanded to include private passenger vehicles on school grounds as well.

### *III. Access to Medical Care*

Increasing access to medical care is another important approach recommended to control asthma. The management of asthma with straightforward and fact-based strategies has already been well established. However, as suggested in the Introduction section of this report, asthma disparities can still be observed between people with high and low SES. This raises the concern of the availability of medication and medical care by low-income people, especially children.

#### A. Access to Treatment

As reported in *The New York Times*, the lack of access to high quality care and medication is a crucial factor that contributes to asthma disparities.<sup>78</sup> The article asserts that “[s]uccessful asthma care depends on regular medical maintenance, and poor urban children has less reliable access to doctor’s offices and clinics, more often relying on emergency room visits for treatment.”<sup>79</sup> This being the case, it is recommended that legislation and public policy initiatives may be aimed at increasing access of medical care for asthma patients. These initiatives could include increased training of personnel in school-based health centers to ensure quality care can be provided to students in need, especially for school districts at low income neighborhoods. This initiative could work in tandem with current laws regarding asthma control at school settings such as Education Law § 916 which allows children with asthma to carry inhalers in a school setting along with Public Health § 2599-b which addresses obesity program development and lists asthma as a complication to obesity. Also recommended in regards to access to treatment is the regulation of asthma drug prices in order to enhance availability and increase eligibility for Elderly Pharmaceutical Insurance Coverage (EPIC).

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<sup>78</sup> Aliyah Baruchin, *For Minority Kids, No Room to Breathe*, NYTIMES, Aug. 30, 2007. Available at <http://health.nytimes.com/ref/health/healthguide/esn-asthmachildren-ess.html>.

<sup>79</sup> *Id.*

## B. Medical Home

Medical Home, also known as patient-centered Medical Home (PCMH), is not a building, but, according to the National Center for Medical Home Implementation, is “an approach to providing comprehensive primary care.”<sup>80</sup> Some highlights of the care approach include making the family the principal caregiver with support given by the primary care physician through communication channels open at all times and information with all necessary parties organized in a central database.<sup>81</sup>

Medical Home has become a popular method of care intervention with the enactment of the Patient Protection and Affordable Care Act and passage of the Health Care and Education Reconciliation Act.<sup>82</sup> The crux of medical home is allowing better access to care and many states are actively pursuing demonstration programs and rollouts, as reported by Patient-Centered Primary Care Collaborative (PCPCC).

Numerous scientific resources have demonstrated the prevalence and effectiveness of medical home. For instance, in February 2007, Centers for Disease Control and Prevention researchers published a study involving interviews with 5,400 parents with children 19- to 35-months which concluded that continuous primary care in a medical home leads to higher vaccination rates.<sup>83</sup> In 2008, Homer et al. reviewed thirty-three articles on medical homes for children with special health care needs and concluded that it “provide[d] moderate support for the hypothesis that medical homes provide improved health-related outcomes.”<sup>84</sup> In 2009, a survey of parents or legal guardians of children with special health care needs found that 47.1% of the children had a medical home, and the children with a medical home had “less delayed or forgone care and significantly fewer unmet needs for health care and family support services” than the children without a medical home.<sup>85</sup> Lastly, in 2010, Reid et al. demonstrated within the Group Health system in Seattle that a medical home demonstrate “improvements in patients’ experiences, quality, and clinician burnout through two years. Compared to other Group Health clinics, patients in the medical home experienced 29 percent fewer emergency

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<sup>80</sup> National Center for Medical Home Implementation, <http://www.medicalhomeinfo.org/>.

<sup>81</sup> Overview available at <http://www.medicalhomeinfo.org/downloads/pdfs/AAP-WebFactSheet2010.pdf>.

<sup>82</sup> Medical home, a.k.a. patient-centered medical home (PCMH), “is an approach to providing comprehensive primary care to adults, youth and children. The PC-MH is a health care setting that facilitates partnerships between individual patients, and their personal physicians, and when appropriate, the patient’s family”. —American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, and American Osteopathic Association. Joint principles of the patient-centered medical home. March, 2007. Available at [http://www.acponline.org/advocacy/where\\_we\\_stand/medical\\_home/approve\\_jp.pdf](http://www.acponline.org/advocacy/where_we_stand/medical_home/approve_jp.pdf).

<sup>83</sup> Allred, N.J., Wooten, K.G., Kong, Y., *The association of health insurance and continuous primary care in the medical home on vaccination coverage for 19- to 35-month-old children*, *Pediatrics*, 2007, 119 (Suppl 1): S4–11; abstract available at

[http://pediatrics.aappublications.org/cgi/content/abstract/119/Supplement\\_1/S4](http://pediatrics.aappublications.org/cgi/content/abstract/119/Supplement_1/S4).

<sup>84</sup> Homer, C.J., Klatka, K., Romm, D., et al., *A review of the evidence for the medical home for children with special health care needs*, *Pediatrics*, 2008, 122 (4): e922–937. Abstract available at <http://pediatrics.aappublications.org/cgi/content/abstract/122/4/e922>.

<sup>85</sup> Strickland, B.B., Singh, G.K., Kogan, M.D., et al., *Access to the medical home: new findings from the 2005-2006 National Survey of Children with Special Health Care Needs*, *Pediatrics*, 2009, 123 (6): e996–1004. Abstract available at <http://pediatrics.aappublications.org/cgi/content/abstract/123/6/e996>.

visits and 6 percent fewer hospitalizations. [They] estimate total savings of \$10.3[0] per patient per month twenty-one months into the [program]”.<sup>86</sup>

Currently, there are three on-going demonstration programs in New York. These are EmblemHealth Medical Home High Value Network Project targeting New York City and surrounding counties,<sup>87</sup> CDPHP Patient-Centered Medical Home Pilot focuses on Albany,<sup>88</sup> and Hudson Valley P4P-Medical Home Project is designed specifically for Hudson Valley.<sup>89</sup> New York City also developed *Creating a Medical Home for Asthma* program.<sup>90</sup> “The team-based approach encourages all clinic personnel to work together as a team to effectively deliver patient-centered asthma management and care. Therefore, CMHA is designed to offer a training program that teaches clinic staff- including physicians, nurses, laboratory technicians, clerical staff, and receptionists-strategies to increase communication between the patient and health care provider, as well as to deliver effective asthma treatment using the latest treatment protocols.”<sup>91</sup> The evaluations of these demonstration programs are underway. New York may encourage or mandate the creation of Medical Homes for asthma patients, especially children.

## Conclusion

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<sup>86</sup> Reid, R.J., Coleman, K., Johnson, E.A., et al., *The group health medical home at year two: cost savings, higher patient satisfaction, and less burnout for providers*, Health Affairs, 2010, 29 (5): 835–43. Abstract available at <http://content.healthaffairs.org/content/29/5/835.abstract>.

<sup>87</sup> This project [EmblemHealth Medical Home High Value Network Project] seeks to determine whether the provision of enhanced payment and support for redesign and care management results in greater transformation of supported practices to medical homes and better performance on measures of quality, efficiency, and patient experience than in comparison practices. The evaluation is conducted as a randomized controlled longitudinal study—PCPCC. Available at <http://www.pcpcc.net/content/emblemhealth-medical-home-high-value-network-project-0>.

<sup>88</sup> The primary focus of the CDPHP Medical Home Pilot is to create a new primary care reimbursement methodology that is sustainable and scalable. The hypothesis we are testing is whether the aggregate savings associated with better health outcomes and lower utilization is sufficient to fund the enhanced compensation/reimbursement model and support practice adoption of the medical home—PCPCC. Available at <http://www.pcpcc.net/content/cdphp-patient-centered-medical-home-pilot>.

<sup>89</sup>The Hudson Valley is implementing innovative programs to potentially improve quality and reduce the cost of health care delivered. First, THINC is facilitating diffusion of electronic health record (EHR) implementation in office practices of the Hudson Valley. Second, THINC RHIO is also offering a strategic approach to pay for performance (P4P) and medical home implementation among payers and providers across the Hudson Valley that will serve as a model for New York State. The THINC P4P-Medical Home project brings together multiple health plans that service the Hudson Valley region. Using standardized measures agreed upon by providers and payers, the project will provide performance incentives from multiple payers to providers. Third, the THINC P4P project will provide an added financial incentive for private practice physicians who implement and reach Level 2 of Physician Practice Connections-Patient Centered Medical Home (PPC-PCMH), NCQA’s national recognition system for physician practices—PCP. Available at <http://www.pcpcc.net/content/hudson-valley-p4p-medical-home-project>.

<sup>90</sup> Evans, D., Mellins, R., Wiesemann, S., et al., *Creating a Medical Home for Asthma: Introduction*, Available at <http://www.nyc.gov/html/doh/html/cmha/introduction.html>.

<sup>91</sup> *Id.*

Asthma threatens the quality of life of a large number of New Yorkers, especially children, African Americans, people with lower socioeconomic status, and obese and overweight individuals, all of whom are disproportionately adversely affected by asthma. New York may take a number of steps to help reduce children's exposure to these harmful materials:

- 1) reduce in-utero exposure to secondhand smoking through providing information to parents and expectant mothers and allow greater access to quitting programs;
- 2) establish smoke-free homes;
- 3) control pests in the home, work, and school environment, but manage the appropriate use of pesticides in the school setting and child care facilities;
- 4) limit exposure to school bus diesel exhaust and other emissions on school grounds; and
- 5) increase access to quality medical care.

To further some of these goals, legislation is being introduced which takes a multifaceted approach to the many challenges asthma brings to our communities, especially the Bronx. This legislation will:

- 1) Provide for a program of asthma disease management and control within the Department of Health which provides various services to health care providers, patients, and others. It also authorizes the commissioner of health to make grants and provides for a study of asthma incidence and prevalence. Lastly it creates an advisory panel which provides an annual report on the program;
- 2) Require teachers in public and non-public school systems to be trained in identifying and responding to asthma emergencies in accordance with standards to be prescribed by the Commissioner of Education in consultation with the Commissioner of Health;
- 3) Address in-utero exposure to smoke by implementing preventive tactics through information distribution from healthcare providers, insurers, and pregnancies programs as well as requiring healthcare providers to monitor expectant mothers' smoking statuses and tailor a discussion to their needs;
- 4) Require the rental agreement in buildings of four units or more to include a disclosure of smoking policies which must state whether smoking is prohibited on the premises or portions of the premises and identify places it is allowed if the lease states it is only allowed in limited areas;

- 5) Expand Chapter 670 of the Laws of 2007 to include private passenger motor vehicles in the idling vehicles ban while picking up and dropping off students. Also expands the section to include private schools;
- 6) Expand nebulizer awareness, training, and access to require one in each school and require regulations by which nebulizers and other asthma medication may be administered by school nurses or other authorized persons as determined by the Commissioner of Health;
- 7) Create an asthma tracking program to identify trends in the times, places and demographics of those afflicted with asthma to collect information for the basis of continued addressing of asthma;
- 8) Limit the use of chemicals in public buildings and schools known to exacerbate the symptoms of asthma;
- 9) Encourage the DEC to revise its regulations that pertain to the use of toxic pesticides in public schools—specifically NYCRR 155.4(d)(2);
- 10) Add to the Public Health Law under Program Development terms which adds emphysema, chronic bronchitis, and other chronic respiratory diseases to a list of programs designed to reduce incidence rates and prevalence in children; and
- 11) Add to the Public Health Law a section which expands the childhood obesity prevention program to also include strategies to curtail incidence of asthma, emphysema, chronic bronchitis, and other chronic respiratory diseases to enable a safe increase in physical activity to also help curb obesity.

These are key strategies to improve asthma management because various factors can cause asthma and trigger asthma attacks. Secondhand smoke, pest and pesticide applications, and diesel exhaust are three major allergens for asthma and all can be found in the day-to-day life of many citizens of the Bronx as well as other areas of New York. Treatment and information also remains an important aspect to holistically address this predominant issue. However, as this issue also interrelates to other health issues such as childhood obesity, aspects of treatment, as well as management, can share resources with existing programs and simply integrate without high associated costs. Focus remains on schools and youth as solid scientific evidence shows that prevention, especially conducted earlier in life, is effective and efficient in controlling asthma prevalence and improving asthma management. Thus prevention should be the critical focus for addressing the alarming asthma rates in both the Bronx and in New York State. This legislation and policy recommendations will go a long way in helping address asthma which will lead to better, healthier lives for the children who will be able to attend school more regularly, get better exercise, and breath a sigh of relief along with their supportive families.

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