A Breath of Fresh Air
Policies for Comprehensive Asthma Mitigation in New York State

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Introduction

The average person takes approximately 960 breaths an hour. Breathing is a given, but for a large percentage of the U.S. population, breathing does not come easily. Asthma is a respiratory condition characterized by wheezing, coughing, shortness of breath, and chest tightness. This incurable condition can greatly disrupt everyday life, making ordinary activities like walking up a flight of stairs or chasing after a pet a challenge to many. In 2019, 1,419,951 New Yorkers were living with asthma, and this number has likely grown since then. According to the World Health Organization, asthma is the most common chronic disease among children, and is also linked to developmental issues, including behavioral disorders and learning disabilities. Asthma can further be disruptive to children's learning, as asthma is a leading cause of school absenteeism in the U.S. It is challenging to quantify the emotional, physical, and fiscal costs of living with asthma on U.S. families, but it is a harsh reality that many Americans have to face on a daily basis. Indeed, researchers estimate that the annual cost of asthma in the U.S. alone is valued at about $56 billion. Direct costs, including hospitalization, account for roughly $50 billion, whereas indirect costs, including the costs associated with missed work and school, make up roughly $6 billion. These costs are compounded for those without health insurance who face the challenges of affording out-of-pocket costs for treatments and emergencies, plus the cumulative costs of not proactively managing their asthma.

The coronavirus pandemic has added an extra layer of complication to the lives of those who were already dealing with asthma. Asthma can potentially elevate a person's risk for coronavirus-related health complications, and a number of marginalized communities in the U.S., particularly Black and Hispanic communities, are disproportionately plagued by health conditions driven in large part by poor air quality and other environmental hazards. A study from Harvard University found that air pollution was linked with higher coronavirus death rates. Although a number of factors contribute to these disparities, one resounding cause stands above the rest: environmental racism.

Environmental racism refers to the inequitable distribution of environmental burdens and benefits across racial lines. In communities across the country, people of color are disproportionately exposed to environmental health risks, including poor air and water quality. These communities also often lack access to healthy food, green spaces, and healthcare facilities. A 2019 study across 10 U.S. cities found that access to green space correlates positively with income and negatively with racial minority status, particularly in larger cities. This can in part be attributed to corporations utilizing marginalized and under-resourced communities as dumping grounds in their quest for profit, leading to the unmitigated pollution that is driving an array of health crises, including asthma.

The history of environmental injustice in the U.S. is well documented and has direct correlations with asthma and other respiratory conditions. The American Lung Association's 2021 State of the Air report finds that over 40 percent of Americans live in places with unhealthy air quality, and people of color are over three times more likely to be exposed to polluted air than their white counterparts. The 22nd edition of this report series also found evidence that communities of color, and especially Black communities, as well as people with low incomes, are more at risk of harm and premature death due to air pollution exposure. What's more, 2.3 million children and 9.2 million adults with asthma were found to live in counties that received an F for at least one of the two most prevalent and hazardous air pollutants.
that the report assessed: ozone and fine particulate matter. Poor air quality can worsen pre-existing health conditions and foster new ones as well. Even short-term exposure to air pollution is linked to cardiovascular disease and asthma. In a country where ZIP code can affect your health more than your genetic code, people living in poorer neighborhoods or neighborhoods with higher concentrations of non-white individuals can find themselves exposed to otherwise avoidable health risks like asthma.

Our analysis shows that voters are aware of these issues and their effects on frontline communities, and are consequently demanding that action be taken to combat air pollution. Recent Data for Progress polling finds that among likely voters, almost all Democrats (86 percent), almost two-thirds of Independents (65 percent), and nearly half of Republicans (43 percent) support stricter limits on air pollution. Black voters are particularly concerned about air pollution, with 85 percent of likely Black voters in favor of increasing environmental regulations to mitigate air pollution.

**Voters Support Stricter Limits on Air Pollution**

Which statement comes closer to your view, even if neither is exactly right?

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<th>Don’t know</th>
<th>We do not need to issue any more environmental regulations that are just another source of government bureaucracy and never result in any meaningful change.</th>
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<td>Some communities are more likely to develop asthma and other health problems because they are located closer to sources of air pollution. We need to place stricter limits on hazardous air pollution to help these communities.</td>
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December 17–21, 2021 survey of 1,279 likely voters
Substantial epidemiological evidence supports that outdoor air pollution exacerbates asthma. Fine particulate matter (smaller than 2.5 micrometers in diameter), also known as PM$_{2.5}$, is especially concerning, since it can be inhaled deep into the lungs and corrode the alveolar walls. Every year, 3 million to 9 million deaths globally are attributed to outdoor air pollution; Black and Hispanic Americans have the highest PM$_{2.5}$ attributable mortality in the US. Previously, the World Health Organization stated that being exposed to 25 μg/m$^3$ of PM$_{2.5}$ per day was an acceptable, safe level of exposure. But in September 2021, the World Health Organization finished reviewing more than 500 studies and reduced the safe level guidelines drastically, since it has been established that no level of air pollution exposure is safe. As most of the world's biggest cities fail on the WHO air quality guidelines, the effects of environmental degradation will be felt most strongly by those with asthma and other respiratory issues living in urban areas, like New York City. Tackling asthma will involve tackling the sources of air pollution, and exposure to it.

This air pollution exposure is disproportionately distributed. A recent study led by researchers from the University of Illinois, the University of Washington, and the University of Texas established that Black people are exposed to higher-than-average air pollution concentrations from all emissions sectors, while white people are exposed to lower-than-average air pollution from most emissions sectors. This has led to expansive consequences, including the global phenomenon of the east side of major cities being poorer.

The unjust exposure to air pollution adds to the unequal burden of asthma in low-income communities of color. In 2018, Non-Hispanic Black individuals were 40 percent more likely to have asthma than non-Hispanic whites. In 2019, non-Hispanic blacks were almost three times more likely to die from asthma-related causes than the non-Hispanic white population, and non-Hispanic Black children had a death rate eight times that of non-Hispanic white children. When race and sex are factored in, Black women have the highest death rates due to asthma. One nationwide study found that rates of absence from school due to asthma were two to five times higher for Black and Puerto Rican children, than rates for white or Mexican children. More locally, in East Harlem, Puerto Rican children were most likely to miss school due to asthma.

Delivering on climate change and reducing asthma-related health complications are synergistic efforts. The U.S. Long-Term Climate Strategy analysis shows that the United States can do its part to tackle asthma and climate change alike by greatly reducing its methane emissions. Methane, which has upwards of 34 times the global warming potential of carbon dioxide, is a powerful driver of climate change. By meeting the global goal of the Global Methane Pledge, which aims to reduce warming by at least 0.2 C by 2050 by reducing domestic methane emissions by over 30 percent below 2020 by 2030, the U.S. would avoid 11,000 premature deaths and 1,600 asthma-related emergency room visits. These efforts would also help to combat environmental injustice, as Black children are 34-41 percent more likely to live in areas with the highest projected increases in asthma diagnoses due to climate-driven changes in particulate air pollution. Asthma and environmental justice are climate issues, and the U.S. is well positioned to tackle them synergistically.

There are numerous existing recommendations for managing and living with asthma, but it is time for policy interventions focused on eliminating asthma at the source and allowing people to breathe freely again. Regional agencies are attempting to create air pollution guidelines that match or improve
upon the EPA National Ambient Air Quality Standards or WHO guidelines. There are also many policy interventions occurring on federal and international levels — asthma mitigation is included in the WHO Global Action Plan for the Prevention and Control of NCDs and the United Nations 2030 Agenda for Sustainable Development. International policies, however, are not legally binding and therefore are difficult to legislate.

Developing policy solutions to mitigate asthma and the air pollution that exacerbates it is a moral and political imperative. Targeted, codified, state-level interventions that take community input and environmental justice into consideration — alongside federal policy drivers — are critical for abating the factors that are driving asthma-related health issues in the U.S. Data for Progress seeks to lay out a set of policy recommendations for abating asthma at the state level, with a specific focus on New York state.

Overview of the Existing Policy Landscape

In the United States, the current asthma policy landscape is largely focused on three key areas: increasing rapid access to medication, expanding healthcare to include asthma prevention and mitigation, and broadening patient education initiatives.

1. INCREASING RAPID ACCESS TO MEDICATION

During an asthma attack, respiratory airways become swollen and inflamed, and produce extra mucus, which causes the bronchial tubes to become narrower, making it hard to breathe. A hand-held, portable rescue inhaler can help deliver short-acting beta agonists, such as albuterol, to the lungs, which relaxes the muscles and relieves the spasms. For many years, schools banned students from carrying inhalers, allowing them to only be used in nurses’ offices. However, difficulty in quickly obtaining asthma medication can lead to severe complications — as the airways continue to tighten, the student could have difficulty breathing and could end up needing a trip to the emergency room. Recent policies have turned the tide on this trend. The Asthmatic School-children’s Treatment and Health Management Act of 2004 gives grant preferences to states which mandate their schools to allow children to self-administer asthma medication. Since the introduction of this bill, all 50 states now have laws protecting students’ right to carry and administer asthma medication. Further, the School Access to Epinephrine Emergency Act, which amended the Public Health Services Act in 2013, gives preference in asthma-related funding to schools with trained professionals to administer epinephrine. Epinephrine is required when a patient experiences anaphylactic shock, a severe symptom which can occur in some asthma attacks. However, schools in which funding and resources are scarce may not have the capacity to hire trained professionals or train staff, and thus providing preferential funding to schools that are better-resourced could potentially widen the gap in asthma management in schools.

States have also led the way in developing comprehensive asthma action: 16 states currently have laws or guidelines to implement asthma action plans and increase access to timely treatment, and most U.S. states now have laws or regulations to stock albuterol and epinephrine in not only schools but also large public spaces. At present, New York state only has stocking guidelines, which are not codified into law. In January 2021, the School-Based Allergies and Asthma Management Program Act increased federal grant preference to states that encourage more schools to have proper school-based asthma and allergy
management programs. This grant administration style could, rather than incentivizing the less-resourced schools to do better as intended, potentially lead to more inequity in asthma treatment in richer versus poorer school districts.

2. EXPANDING HEALTHCARE TO INCLUDE ASTHMA PREVENTION & MITIGATION

The Children’s Health Act of 2000 “established asthma as a specific focus within the Public Health Service Act and authorize[d] appropriation of funds to improve the availability of treatment and prevention in communities with a high asthma prevalence, to upgrade asthma surveillance, and to support an interdisciplinary, cross-agency study of the federal role in asthma prevention.” This act laid the groundwork for national asthma policy by denoting asthma as a public health focus in the new millennium and calling directly for action to combat it. Later, the Children’s Asthma Treatment Grants Program increased funding for medical care and patient education in areas with high asthma prevalence. However, gaps remain in translating the funding into effective asthma mitigation, especially given that broad umbrella asthma education may not be effective when applied in diverse communities or schools with low literacy rates. The increased asthma surveillance has just sharpened the national picture of the rapidly increasing rates of asthma and the growing inequity since 2001, demonstrating that this funding alone was not enough.

More recently, the Affordable Care Act (ACA), one of most significant regulatory overhauls to the U.S. healthcare system in history, has two major provisions which pertain to asthma patients. The law, signed in 2010, offers Medicaid-insured children and adults the option to choose a “health home” — an individual provider, community clinic or health team — which would be responsible for their comprehensive asthma care. The ACA also allows Medicaid to cover assistance through managed care organizations (MCOs).

A study from the George Washington University School of Public Health found that “In 2002, Monroe Plan for Medical Care — a Medicaid MCO plan in New York state — launched a program for children with asthma, providing specialty clinical care, case-management services, educational materials, home environmental assessments, and supplies for reducing exposure to environmental triggers.” The plan proved to be effective, and for every $1 spent, $1.48 was saved in direct medical costs through a 60 percent reduction in hospitalizations and 78 percent reduction in emergency room visits.

Despite the ACA’s proven capacity to make tangible impacts on the U.S. healthcare system and sick Americans’ lives, there has been an ongoing, partisan battle to repeal it. The law, known informally as Obamacare, has been highly politicized and fraught with debate on Capitol Hill. Despite the political warfare surrounding the legislation, the ACA has increased the number of insured Americans since it was enacted and expanded Medicaid coverage in numerous states — and expansion is highly favored by likely voters. Countless people suffering from asthma and other health conditions rely on ACA-provided protections to live. Legislators must prioritize the will of their most vulnerable constituents and protect the ACA rather than playing politics when it comes to healthcare.

While the ACA made strides toward improving healthcare in the United States, there is still significant work to do. In a recent tweet, Vermont Senator Bernie Sanders questioned the discrepancies in asthma inhaler pricing in the U.S. versus Canada, asserting that it is unfair for the U.S. pharmaceutical industry
to charge Americans about 10x the cost that Canadians pay for the same prescription. Sanders has been a longtime advocate for prescription drug reform, and has continued to use his platform to push for increased access to affordable healthcare. The Build Back Better Act (BBBA), which is currently in a holding pattern in Congress, would help ease some of the financial burdens placed on Americans with chronic health conditions like asthma. If implemented, this legislation would allow the federal government to negotiate the costs for drugs that are covered through Medicare Part B and Part D. Without this ability, pharmaceutical companies are empowered to continue to hike prescription drug prices as they have in past years; increases have risen as high as 10 percent in 2021. Recent Data for Progress polling finds that if Medicare could negotiate to lower the costs of prescription drugs, 65 percent of all voters — 77 percent of Democrats, 67 percent of Independents, and 51 percent of Republicans — would be more likely to support the bill. It is a moral imperative that the BBBA is passed, with comprehensive healthcare measures in place, to alleviate the unnecessary burden of sky-high medical costs on Americans.

While longer-term federal healthcare reforms are currently out of scope of this memo, incentivizing drug companies to put people over profit by establishing financial medical care protections is not only highly favorable with voters but can also alleviate the financial burdens faced by people with asthma.

The BBBA and the recently signed Infrastructure Investment and Jobs Act (IIJA) not only have the power to tackle a number of health inequities but also issues pertinent to environmental justice. In addition to healthcare costs, Americans are unsurprisingly also concerned about pollution in their households, ranging from air and water pollution to toxic mold and lead pipes. Home pollutants can serve as triggers for those suffering from asthma, and the BBBA also includes funding for cleaning lead pipes, with $9 billion allocated for nationwide lead service line reduction and an additional $970 million for rural water and wastewater programs. The IIJA further provides funding for lead pipe remediation, with $15 billion in funding for the nationwide replacement of lead service lines and reduction of lead in drinking water systems. In a national survey, DFP found that roughly three-quarters of likely voters are concerned about air and water pollution in their homes, over two-thirds are concerned about toxic mold, and over half are concerned about lead paint and water pipes.
Notably, Black and Latino voters are more concerned about household pollution than their white counterparts— an important consideration in the context of environmental justice as marginalized groups have historically borne the brunt of pollution in the U.S.
3. BROADENING PATIENT EDUCATION INITIATIVES

In 2008, the Centers for Disease Control (CDC) reported that less than half of patients with asthma reported being taught how to avoid triggers and appropriately manage their conditions. The National Asthma Education Prevention Program (NAEPP), created in 1989, outlines expert guidelines for community patient education for self-management of asthma triggers. However, following these detailed expert guidelines can often be challenging for healthcare providers, and under- or mis-education can lead to mismanagement of asthma regimens. This leads to a widening asthma inequality in communities of color where English proficiency is low, distrust of the medical sector is high, and asthma burdens are even higher. Recently, novel culturally sensitive asthma-education programs have been proven to be effective in Black and Hispanic communities.

The CDC’s National Asthma Control Program (NACP), created in 1999, funds 25 state, territorial, and municipal health departments to investigate means for bolstering asthma-mitigation services. The ultimate goal of this program is to deliver effective and sustainable reductions in asthma-related deaths and hospital visits, as well as missed school and workdays, and other limitations associated with asthma. Education is a focal point of the program — with training opportunities for healthcare professionals, and educational opportunities for individuals with asthma, their families, and the general public. One metric that the CDC uses to measure the success of this program is by tracking reductions in emergency room visits and hospitalizations. This allows the CDC to track improvements in the health of children with asthma.

NACP used a six-tiered approach for asthma management, entitled the EXHALE approach:

E: Education on asthma self-management;
X: Extinguishing smoking and exposure to secondhand smoke;
H: Home visits for trigger reduction and asthma self-management education;
A: Achievement of guidelines-based medical management;
L: Linkages and coordination of care; and
E: Environmental policies or best practices to reduce indoor and outdoor asthma triggers.

The CDC currently has informational guides detailing what EXHALE can look like in states like Michigan, Missouri, Montana, and Utah. At present, there is no such guide for New York.

In addition to EXHALE, the NACP has developed a new initiative called Controlling Childhood Asthma and Reducing Emergencies (CCARE), which focuses on reducing asthma-related hospitalizations and emergency room visits by 500,000 by August 31, 2024. The program offers its 25 grantees various resources to help them develop asthma-mitigation programs, including America Breathing Easier, a report detailing the goals and scope of the program, and a Guide for State Health Agencies In the Development of Asthma Programs.

New York is one of the 25 grantees of this program and has its own unique strategy for reducing asthma locally. The state’s Department of Health created a platform called New York’s Action Against Asthma, which includes a New York State Guide for Asthma Management in Schools. This platform has similar goals for managing asthma as the NACP, including increasing policies supportive of asthma control, bolstering evidence-based asthma-control services, and improving quality of life for individuals with asthma and their families.
There have also been calls from policymakers in New York state to take further action against asthma. Senator Kirsten Gillibrand (D-NY) has been a decades-long advocate for asthma mitigation in New York, and proposed a plan to help children suffering from asthma by equipping the state’s schools and families with the resources they need to fight this chronic ailment. The plan is centered around making inhalers available to children in need, improving school asthma-management plans, training more asthma educators, and investing in asthma-related research and data collection. Translating this plan into state-level legislation that helps deliver on asthma prevention and mitigation in New York is critical for inspiring nationwide changes in how our country manages this incurable condition.

While New York has taken great strides toward curbing asthma, the sheer number of efforts could potentially have adverse effects. Blanket mandates that establish the same guidelines and metrics for success for municipalities and school districts with their own unique capacities, access to resources, and level of education set up under-resourced communities for failure in reducing asthma rates. This can be countered by prioritizing the administration of asthma programs in under-resourced and high-risk communities, synergizing efforts where possible, being more directive with funding, and ensuring that people have the resources and education needed. It’s time to go beyond the nascent asthma-mitigation efforts in New York. By reducing exposure to asthma, improving access to healthcare and asthma-safe conditions, and empowering children, parents, and educators with better asthma-management techniques, the state of New York can reduce asthma prevalence at the source.

Policy Recommendations for Reducing Asthma in New York State

1. REDUCING EXPOSURE TO AIR POLLUTANTS

The largest sources of particulate matter air pollution in the U.S. are electric power generation; industry, commercial, and residential establishments; and road transportation. New York City and Long Island have some of the dirtiest electric power generation in the country, producing 0.06-0.07 lbs of PM$_{2.5}$ for every megawatt-hour produced, which is especially concerning because NYC accounts for 33 percent of New York state energy consumption. As the United States strategizes on the road to Net Zero emissions, clean grids will need to reduce not just greenhouse gas emissions, but also air pollution emissions, to ensure that our just transition centers climate solutions that go hand in hand with addressing public health concerns.

To tackle the PM$_{2.5}$ emissions from electric power generation, the state of New York must:

1. Reduce consumption and usage;
2. Rapidly transition to renewable sources of energy;
3. Incentivize behavioral changes that reduce usage during peak demand hours, since peak usage requires the usage of “peaker plants” which are often old and highly polluting; and
4. Revise air pollution permitting structures to account for historical impacts of environmental injustice on highly polluted neighborhoods.
Delaying a just transition to clean energy is not only bad for the planet, it is also detrimental to community health, particularly to those suffering from asthma.

Electric utilities across New York state are offering users the option to choose the source of their energy, thus giving consumers more of a say in the clean energy transition. ConEdison in New York City and Westchester County allows utility customers to purchase 100 percent clean energy; Central Hudson Gas & Electric offers a “clean energy marketplace.” Residential clean energy utility transitions would be strengthened by:

1. Community action campaigns to increase awareness about the option to switch to renewables;
2. Workshops, to provide accessible technology and training to help community members switch their electricity source to renewables; and
3. Subsidies to incentivize the switch to clean energy portfolios.

As for reducing industrial air pollution, New York state must strengthen the requirements for accountability of Environmental Impact Assessments as designated by the State Environmental Quality Review Act (SEQR).

Reducing commercial and residential air pollution can be challenging due to the distributed nature of emissions. In California, the Bay Area Air Quality Management District has led the charge on reducing air pollution on “Spare the Air Days.” When air quality is predicted to be especially low, the agency issues a public advisory that makes it illegal to burn wood. “Voluntary information programs” like this one have demonstrated significant improvement in air quality. It is time for New York state to follow in the footsteps of agencies across the country that are using Spare the Air advisories to directly target individual-scale emissions, particularly in regards to road-based transportation emissions.

Road transportation emissions can be reduced in a multitude of ways, but often policies tackling these can be counterintuitive. Initially, ride sharing was marketed as a way to reduce vehicle usage, but research has shown that Uber and Lyft, in practice, can increase vehicle miles traveled by 90 to 157 percent. Further, many planners try to solve traffic problems by creating more lanes, which actually increase induced demand which makes traffic worse. Capacity expansion is not a viable long-term solution to urban traffic congestion.

Instead, the tried and tested method of reducing transportation emissions is creating better public transportation infrastructure. One study found that when Deutsche Bahn and local transit companies in Germany refused to pay workers a living wage, the resulting transit workers’ strikes and the subsequent transit shutdowns forced residents to use more private transportation, resulting in a 14 percent increase in particle pollution and 11 percent increase in hospital admissions for respiratory diseases among young children. On the other hand, Los Angeles County found that making transit free for students would have immense community health benefits due to reduced pollution emissions (as well as co-benefits in community safety and mobility). Boston is taking steps to rapidly expand free-fare service.

In terms of improving transit systems, bus rapid transit systems can reduce CO emissions by 40 percent, and PM emissions by 6.7 percent. Further, investing in bike infrastructure can prevent thousands of air pollution and crash-related deaths and increase mobility within cities.
Therefore, New York state must improve transit by:

1. Making public transportation free, starting with low-income communities and then expanding to all residents;
2. Investing in expanding bus rapid transit infrastructure, including bus lanes and actuated traffic signals; and
3. Improving bike infrastructure, such as bike shares, protected bike lanes, parking racks, and specialized traffic signals.

The federal government should also heed this advice. The IIJA allocates 80 percent of transportation funding to roads and highways, and only 20 percent to public transport. This is a missed opportunity to fund mass transit systems that could drastically reduce pollution emissions, especially given the historic disproportionate impact of air pollution from vehicles that is experienced by communities of color in New York state.

Additionally, road transportation emissions can be cut by speeding up the switch to electric vehicles. Currently, the Charge NY initiative offers electric car buyers the Drive Clean Rebate of up to $2,000, and the state has banned all sales of gas-powered cars by 2035. Additional state incentive structures for electric vehicles would further expedite the transition, many of which have been proven to be highly economically and environmentally beneficial in other states.

Such electric vehicle incentives include:

1. Public charger benefits;
2. High-occupancy vehicle lane access;
3. License fee reductions;
4. Free parking;
5. Emissions test exemptions; and
6. Electricity discounts.

Further, New York state should adopt California’s Voluntary Accelerated Vehicle Retirement Program to include personal vehicles, especially considering the proven emissions reductions benefits of similar programs in California. One study showed that giving a payment of approximately $2,100 to owners for scrapping personal vehicles older than 20 years would yield more than $200 million in social benefits (including environmental benefits from air pollution reduction and safety benefits from accident reduction), with a 3.4 total benefit-cost ratio. Including light commercial vehicles in this accelerated vehicle retirement program would add $25 million in environmental benefits from air pollution reduction and $4 million in safety benefits.

New York state has the opportunity to be a leader on climate by leveraging its purchasing power and rapidly transitioning the state’s fleet to entirely electric vehicles. For this, the state can pick from a wide array of electric truck offerings from companies including Ford, Toyota, Rivian, and GM. New York City itself owns 30,000 vehicles — the largest municipal fleet in the country — which would give the possibility of negotiating a bulk purchase discount. This transition would signal New York state’s leadership in the Race to Zero campaign — a global effort to reduce carbon emissions by 2050.
Reducing asthma rates is directly applicable to the U.S.’s plans for mitigating climate change in the near term. Reducing air pollution through clean energy will alone help avoid more than 300,000 premature deaths in the United States — alleviating these and other severe impacts that also fall disproportionately on communities of color and low-income communities. Investments in emerging clean industries will not only reduce rates of asthma, they will also enhance our competitiveness and propel sustained economic growth. Other investments, including in better ventilation systems, can further mitigate asthma symptoms.

Better ventilation can lead to better indoor air quality. HEPA filters are linked to significantly lowered asthma rates, but need to be cleaned approximately every three months in order to remain effective. During the coronavirus pandemic, New York state has recently started suggesting that businesses regularly inspect filters. Further, some air purifiers significantly reduce the frequency of asthma-medication usage and nasal symptoms, but some can damage lungs and worsen asthma. Other allergen-reducing methods have been proposed but lack conclusive results.

To summarize, New York state must:

1. Codify and enforce COVID-era HEPA filter inspection guidelines;
2. Subsidize costs of new filters, cleaning materials and janitorial training for New York public schools;
3. Subsidize costs for purchasing, installing, and maintaining ozone-free air purifiers in each classroom;
4. Ban the sale and usage of “ozone generating” air purifiers; and
5. Bridge the information gap on allergen-reduction benefits by funding research studies in diverse cohorts.

Reducing exposure to air pollution, however, is not enough. These efforts must go hand in hand with efforts to improve healthcare and school conditions for those who are already affected by asthma.

2. IMPROVING ACCESS TO HEALTHCARE & ASTHMA-SAFE CONDITIONS

In addition to reducing drivers of asthma and preventing the disease from continuing to grow in numbers, it’s critical to help those already suffering from asthma to manage the condition. At present, inhaled corticosteroids are the preferred method of treatment for asthma via asthma inhalers. Inhalers are a highly effective method for controlling, albeit not curing, asthma, by preventing and alleviating symptoms like wheezing, coughing, or difficulty breathing. Rescue inhalers are essential for combating asthma attacks, but access to albuterol and epinephrine is unequally spread.

Asthma medication access in schools varies by socioeconomic status (SES). Schools with high SES have been found to have six times the number of epinephrine injectors than low SES and low English proficiency schools. An untreated or severe asthma attack could demand a visit to the emergency room, and asthma-related emergency room visit rates are two to four times higher in redlined communities. As asthma prevalence goes up, the increase is disproportionately distributed. Between 2001 and 2009, the asthma prevalence increase in all children was 1.6 percent, but only 0.3 in white children. However, asthma rates increased 4.1 percent in Black children and 27 percent in Hispanic children. New York state currently has albuterol and epinephrine stocking guidelines, but these guidelines are not codified into law and are thus challenging to enforce. By following suit of the states that have laws or regulations to stock schools and large public spaces with albuterol and epinephrine, with a targeted focus on low SES and other high-impact areas, New York can help bridge the gap in asthma management.
In addition to this inequity in access to asthma medication, studies have shown that asthma medications may have varying levels of efficacy on different racial groups, and asthma drugs may be less effective for some people of color (POCs) than their white counterparts. Historically, asthma research has been conducted most prominently on individuals with European descent, and thus the efficacy of different asthma medications has been proven largely in these individuals. Meanwhile, Black and Puerto Rican children have been found to respond least well to albuterol and other inhaler drugs; these groups have different asthma-causing genetic factors than populations with European descent, but receive drugs developed on research on populations with European descent. Research shows that albuterol is less effective and could even be detrimental for those with a certain protein (the arg16/arg16 beta2-receptor) in their genes, which is more common in Black people than white populations.

Research to better understand how to close this racial gap is of the utmost importance for understanding how to deliver effective asthma treatments to people of different racial and genetic backgrounds.

Physical barriers to healthcare, including lack of transport and proximity to healthcare facilities, can lead to numerous issues in the near and long term for asthma patients. Those with chronic health issues like asthma require a higher level of care. Transportation barriers can translate to barriers to healthcare access via rescheduled or missed appointments, delayed care, and missed or delayed medication use. This can result in poorer management of this chronic illness, which can result in further asthma-related complications over time. Improving physical access to healthcare by increasing public and affordable transport access, building new healthcare facilities in rural and under-resourced communities, and increasing access to home care are all possible avenues that New York state should consider exploring.

What’s more, offering free asthma testing in schools can ensure early detection of this chronic illness, which in turn can help stave off lifelong side effects. Free testing for vision, hearing, and speech conditions is already commonplace in most U.S. schools, and thus schools can apply these existent testing mechanisms to asthma. By using the Guide for Asthma Management in Schools as a framework, New York state can facilitate new school requirements to ensure that schools:

1. Establish asthma-medication policy and provide guidelines and resources that help make the policy enforceable;
2. Have emergency protocols for asthma; and
3. Improve asthma-medication stocking and authority to administer in schools.

There is also an opportunity to bolster alternative sources of healthcare in New York. Exercise can be a determinant of health, and urban green spaces can positively benefit health, including by improving air quality in a community. Increased and equitable access to green spaces can also offer psycho-social benefits. In U.S. cities, poverty level and racial minority status are negatively associated with access to green spaces and parks.

In New York, the Environmental Justice Community Impact Grant Program provides community-based organizations with funding for projects that address environmental and public health concerns. Previously awarded projects have included green infrastructure projects, which can create jobs, empower communities, and improve air quality. These projects can also facilitate increased access to recreation areas, which has positive physical and psychological health benefits that can be advantageous to asthma patients.
Green infrastructure projects are typically grant-funded and thus short-term endeavors. By establishing long-term funding for green infrastructure projects, as well as methodologies for evaluating their success, the state of New York can address the legacy of environmental injustice.

1. Therefore, to eliminate the asthma-treatment inequity and improve access to healthcare and asthma-safe conditions, New York state must:
2. Go beyond “suggested guidelines” and follow suit of the states that have enforceable laws or regulations to stock schools and large public spaces with albuterol and epinephrine;
3. Fund ongoing research on the true efficacy of current asthma medication for people of color, and if necessary, support research and development of new drugs designed for diverse populations;
4. Expand the CDC's EXHALE efforts and develop an informational guide detailing what EXHALE can look like in New York state specifically;
5. Subsidize asthma-related healthcare costs (including inhalers, nebulizers, air purifiers) for New York residents;
6. Establish long-term funding for green infrastructure programs.

Despite all of the aforementioned methods for improving access to asthma-related healthcare, education still remains a barrier that can prevent effective treatment and mitigation of asthma overall. If individuals or families with asthma have access to treatment but not the knowledge needed to effectively manage the condition, this can lead to lifelong and potentially fatal health complications

3. EMPOWERING CHILDREN, PARENTS, AND EDUCATORS WITH BETTER ASTHMA MANAGEMENT TECHNIQUES

Even when physical access to healthcare exists for those seeking asthma treatment, education can remain an obstacle to dealing with this condition. Misuse or misadministration of asthma medication, a misunderstanding of when to seek help versus self-medicate, and/or a lack of understanding as to where and how to seek treatment can all result from a lack of asthma-management education.

In order to deliver targeted, statewide reductions in asthma rates and asthma-related health complications, New York must establish an avenue for garnering input from diverse stakeholders, community leaders, and most importantly, asthma sufferers who can help identify the unique needs that must be addressed in their communities to make asthma less cumbersome and less prevalent throughout the state.

A recently introduced New York State Assembly Bill (A5828), also known as the Lydia Soto Law, would establish a Minority Coordinating Council on Asthmatic Affairs within the state's Department of Health. This council would be responsible for assessing the asthma risk factors specifically faced by minority citizens of the state. The council would identify barriers preventing minority populations from accessing asthma treatment, developing actionable mechanisms for addressing disparities in asthma care, and creating a statewide asthma-awareness campaign to help New Yorkers learn more about mitigation efforts. The Lydia Soto Law is precisely the targeted legislative vehicle that could help address the many facets of asthma-related healthcare; however, funding for recommendations from the Minority Coordinating Council on Asthmatic Affairs must be secured to ensure that its work is not conducted in vain. Research and awareness campaigns are critical first steps toward mitigating any issue in a community, but tangible action must accompany this work. We must go beyond words without action to truly help those who are suffering with asthma.
Bolstering school infrastructure to detect, treat, and mitigate asthma — a leading cause of school absenteeism — is also a critical policy intervention. Children spend a significant portion of their day at school. Children, parents, and educators must be given the resources needed to successfully combat this condition in a meaningful way.

Education provides yet another example of the numerous intersections between the fight against asthma and the fight against climate change. The Green New Deal for Public Schools Act (H.R.4442), recently introduced by New York Representative Jamaal Bowman, seeks to invest $1.43 trillion over 10 years in public schools and infrastructure to combat climate change. Many of the proposed projects and programs would directly contribute to asthma-mitigation efforts both nationally and in New York.

This bill seeks to:

- Allocate $446 billion in Climate Capital Facilities Grants to fully fund healthy green retrofits for the highest-need schools, as measured by the CDC Social Vulnerability Index. In addition to bringing down electricity costs, this can help reduce greenhouse gas (GHG) emissions and asthma rates among students;
- Invest $40 billion for a Climate Change Resiliency Program to increase the resiliency of the U.S. public school system and Indigenous schools during natural disasters, climate change-related weather events, and public health crises, including asthma;
- Increase the ability of public school systems to advance climate and environmental justice; and
- Create climate resiliency plans and projects that procure electric school buses and install public charging infrastructure for electric school buses and electric vehicles.
Last year, DFP polling found that voters across the political spectrum support federal initiatives to build EV chargers across the country. 68 percent of all likely voters are in favor of this initiative, including 86 percent of Democrats, 71 percent of Independents, and 48 percent of Republicans.

**Voters Support Federal Initiatives to Build EV Chargers Across the Country**

The federal government recently announced an initiative to build new electric vehicle (EV) charging stations across the country.

Do you support or oppose this initiative?

<table>
<thead>
<tr>
<th>Strongly support</th>
<th>Somewhat support</th>
<th>Don’t know</th>
<th>Somewhat oppose</th>
<th>Strongly oppose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All likely voters</strong></td>
<td>32%</td>
<td>36%</td>
<td>12%</td>
<td>15%</td>
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<tr>
<td><strong>Support</strong></td>
<td>68</td>
<td>27</td>
<td>-41</td>
<td></td>
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<tr>
<td><strong>Oppose</strong></td>
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<td></td>
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<tr>
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<td>+68</td>
<td>+76</td>
<td></td>
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</table>

Partisanship

<table>
<thead>
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<th>Party</th>
<th>Strongly support</th>
<th>Somewhat support</th>
<th>Don’t know</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Democrat</td>
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<td>Independent</td>
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<tr>
<td><strong>Support</strong></td>
<td>86</td>
<td>71</td>
<td>-15</td>
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<tr>
<td><strong>Oppose</strong></td>
<td>10</td>
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</table>

December 17–21, 2021 survey of 1,279 likely voters

The IIJA invests $5 billion in new federal funding over five years for electric and low-emission school buses. Efforts between both IIJA and BBBA can help reduce asthma-related environmental justice concerns in particular. Lower-income students may bus to farther distances to reach better-resourced schools, and a recent report found that in New York specifically, Black students had the longest travel time to the nearest high-quality school in all grade levels. The GND for Public Schools can use New York schools as a case study for the efficacy of this plan for reducing GHG emissions and making schools more environmentally friendly and asthma conscious for students, teachers, and staff alike.

Sociocultural and linguistic barriers can be disruptive to asthma-mitigation efforts in New York. Varying misconceptions about asthma and distrust of the medical industry are widespread in some communities of color throughout the U.S. due to historic abuses suffered by these communities. Since New York is one of the most culturally diverse states in the U.S., it is not surprising that the reasons for underuse of long-term control medications are also diverse. What’s more, resources advising individuals and families on how to manage asthma can be inaccessible to diverse populations when using highly technical or jargon-heavy language.
New York state therefore offers the perfect platform for piloting culturally sensitive asthma-education programs, using success stories as frameworks for conducting culturally sensitive and relevant asthma-management programs. Education need not be yet another hurdle that New York asthma patients are burdened with.

In order to empower children, parents, and educators with better asthma-management techniques, New York state should prioritize:

1. Establishing a Minority Coordinating Council on Asthmatic Affairs or similar advisory body to increase minority representation in asthma-mitigation efforts and funding recommendations brought forth by the council;
2. Passing the Green New Deal for Public Schools Act;
3. Standardizing statewide baseline asthma-mitigation protocols in New York public schools that ensure adherence to New York’s Asthma Action Plan — including improving ventilation and asthma-medication availability in schools; and
4. Increasing funding for New York public schools to develop targeted asthma-mitigation efforts, including: improving communication between schools and doctors, guaranteeing funding for teacher training for medical emergencies like asthma, and improving funding for nursing offices and school health-related services.

New Yorkers from all backgrounds and levels of education deserve to have a fighting chance in managing asthma. These policy recommendations show how we can make sure that everyone in New York state knows how to manage their asthma and has the resources to do so.

**Conclusion**

In order to meet our goal of maintaining global warming levels below 1.5 °C by the year 2030, and combat critical issues like asthma that are exacerbated by climate change, we need targeted, local approaches that work synergistically with community efforts and empower frontline communities to take action. We must break down climate science and apply it to everyday public health issues that affect people and are comprehensible. We must hold historic polluters accountable, mitigate future pollution while managing existing pollution, and avoid the practice of victim blaming for those suffering from health issues like asthma, particularly for their contributions to climate change as a result of their ailments. No one chooses to have asthma, and the physical, emotional, and financial toll is burdensome enough without blaming victims. Clean air is a right, not a privilege, and comprehensive, targeted asthma reduction and mitigation policies can help improve public health, reduce climate change, and advance environmental justice.
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