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Air quality monitoring program launched in neighborhoods where asthma is most prevalent

A 2021 report from the Asthma and Allergy Foundation of America (AAFA) ranked the city of Milwaukee, Wisconsin second in the United States for the most asthma-related emergency department visits, according to *WUWM FM*, the US National Public Radio station in Milwaukee. Now, a $500,000 grant from the United States Environmental Protection Agency (EPA), awarded through the Wisconsin Department of Natural Resources (DNR), is supporting a new program to address that challenge.

Researchers from the Children's Health Alliance of Wisconsin, a program of the Children's Wisconsin Foundation, are partnering with the Milwaukee public schools in the Breathe SMART (Safety Monitoring Air 'Round Town) program. It will create a community-based network of air quality monitors in the Milwaukee neighborhoods with the highest rates of hospitalizations and emergency room visits related to asthma. Based on postal zip codes, the monitors will be installed on approximately 15 school rooftops over the next three years, a timeframe designated by the EPA grant.

The air quality monitors will focus on particulate matter, 2.5 microns or smaller in size ($PM_{2.5}$). A previous article in *Inhalation* noted "the EPA indicates $PM_{2.5}$ has many sources. Some particles are 'emitted directly from sources such as construction sites, unpaved roads, fields, smokestacks or fires.' However, 'most particles form in the atmosphere as a result of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industrial facilities and vehicles.'"

In addition, the EPA's website explains that "researchers have long linked asthma…with exposure to air pollution." It also states that "air pollution can make asthma symptoms worse and trigger asthma attacks."

Obtaining hyper-local data

Air quality data can vary from one city block to the next, however, hyper-local data can be difficult to obtain. "That's what we're looking to provide," said Carissa Hoium, program lead for environmental health at Children's Health Alliance of Wisconsin. While the Wisconsin DNR currently operates three regulatory monitors in Milwaukee, none are located in the zip codes with the greatest asthma burden, noted *WUWM FM*.

The Breathe SMART program rooftop monitors will capture $PM_{2.5}$ air quality data. However, students at the participating schools can collect additional samples using portable air monitors.

"More data in the hands of the public is always a good thing," commented Erin Lee, a board member of Fight Asthma Milwaukee Allies (FAM Allies). The organization was founded in 1994 and was one of the first asthma coalitions in the US. "I'm interested in increasing capacity around air quality data. It's something that we look for and we use so I was happy that there were more resources coming to the community."

Community initiatives to avoid pollution

As data is gathered, workshops will be presented to train residents and community members how to access real-time air quality data about their neighborhoods, explained Hoium. "They'll learn what the data means and what they can do to avoid poor air."

Hoium provided examples of day-to-day decisions people might make to avoid pollution on an unhealthy air day saying, "Perhaps go outside and shoot hoops in the driveway in the evening, once the air quality improves. Or maybe today isn't the best day to open up all of the windows in the house."

The Breathe SMART team will also work with the host schools to help reduce students' exposure to poor air. "Maybe it's best to keep kids in for recess on days that the air quality index is reading as very unhealthy," Hoium recommended. "Schools can also do activities such as creating idle-free zones," which could reduce exposure to vehicle exhaust.

She suggested larger initiatives too, for example, "When possible, walking and biking can reduce vehicle emissions. That's something that could have a cumulative effect across a neighborhood. More involved measures include electric school buses or shifting schoolyard designs so that playgrounds don't sit right next to major thoroughfares."

An environmental injustice

"Poor housing conditions and the proximity to transportation corridors and industry, along with a lack of resources to pay for medications, contribute to poor asthma outcomes in Milwaukee," Hoium said.

She explained these health inequities are the legacy of racist redlining policies, which siloed communities of color into less desirable parts of the city. Today, this means children in these neighborhoods are not only more likely to develop asthma but may also have more trouble managing the disease.

"Low-income populations and communities of color are more likely to live in areas with poor air quality," added Hoium. "These groups breathe in far more air pollution than they are creating themselves. It's really an environmental injustice."

References

Content for this article was based on and excerpted from:

- New monitors will collect air quality data where asthma hits hardest. Lina Tran, WUWM FM, December 14, 2022. https://www.wuwm.com/term/environment/2022-12-14/new-monitors-will-collect-air-quality-data-where-asthma-hits-hardest.
- Biden-Harris Administration announces almost $1.5 million for three community air pollution monitoring projects in Wisconsin. November 3, 2022. https://www.epa.gov/newsreleases/biden-harris-administration-announces-almost-15-million-three-community-air-pollution#:~:text=News%20Releases%3A-,Biden%2DHarris%20Administration%20Announces%20Almost%20%241.5%20Million%20for%20Three%20Community,Pollution%20Monitoring%20Projects%20in%20Wisconsin&text=Today%2C%20the%20U.S.%20Environmental%20Protection,air%20quality%20monitoring%20in%20Wisconsin.
- Fight Asthma Milwaukee Allies, Inc. https://www.famallies.org.
- The links between air pollution and childhood asthma. October 22, 2018. https://www.epa.gov/sciencematters/links-between-air-pollution-and-childhood-asthma.

US EPA funds projects in 37 states to enhance community air quality monitoring

In November 2022, the United States Environmental Protection Agency (EPA) and the Biden-Harris Presidential Administration announced $53.4 million in funding for 132 air monitoring projects in 37 US states. The three-year grants will be sourced by the Inflation Reduction Act and American Rescue Plan and are designed to enhance air quality monitoring in communities across the US.

Among the awardees are two local governments and one organization in the state of Wisconsin, namely the Wisconsin Department of Natural Resources, Children's Hospital of Wisconsin, Inc. and the city of Madison. Together, they will receive $1,429,746.

"The projects are focused on communities that are underserved, historically marginalized and overburdened by pollution," the EPA news release noted. "The grant selections further the goals of President Biden's Justice40 Initiative and Executive Order, 'Tackling the Climate Crisis at Home and Abroad,' which directs that 40 percent of the overall benefits of certain Federal investments flow to overburdened communities that face disproportionately high and adverse health and environmental impacts."

"For too long, underserved communities have been overburdened by air pollution," stated Debra Shore, EPA regional administrator. "Clean air is vital for building healthy, thriving communities. EPA is proud to work with our community partners to provide those in need with these critical air-monitoring resources."

The news release also quoted two members of the US Congress who represent Milwaukee and Wisconsin. "Too often, one's zip code determines one's air quality," said US Congresswoman Gwen Moore

of Wisconsin's 4th Congressional District, which includes most of Milwaukee. "And in Milwaukee, these realities create health disparities for our residents. I am proud to have supported both the American Rescue Plan and the Inflation Reduction Act, which made these equity-centered grants possible, and will empower my constituents with the information and tools to protect their health."

"I voted for the Inflation Reduction Act because it is delivering federal funding to help monitor and enhance our air quality and protect the health of Wisconsin families," said US Senator Tammy Baldwin of Wisconsin. "As the COVID-19 pandemic and the threat of air pollution continue to impact residents with asthma, I am thankful that these investments from the Biden administration will provide real-time information to identify air pollutants and work to improve the air that Wisconsinites breathe every day."

References

Content for this article was based on and excerpted from:

- Biden-Harris Administration announces almost $1.5 million for three community air pollution monitoring projects in Wisconsin. November 3, 2022. https://www.epa.gov/newsreleases/biden-harris-administration-announces-almost-15-million-three-community-air-pollution#:~:text=News%20Releases%3A-,Biden%2DHarris%20Administration%20Announces%20Almost%20%241.5%20Million%20for%20Three%20Community,Pollution%20Monitoring%20Projects%20in%20Wisconsin&text=Today%2C%20the%20U.S.%20Environmental%20Protection,air%20quality%20monitoring%20in%20Wisconsin.
- New monitors will collect air quality data where asthma hits hardest. Lina Tran, WUWM FM, December 14, 2022. https://www.wuwm.com/term/environment/2022-12-14/new-monitors-will-collect-air-quality-data-where-asthma-hits-hardest.