

AIR POLLUTION AND PRETERM BIRTH

"Protect Yourself and Your Baby"

What does preterm birth and low birth weight mean?

Babies born too early (**preterm birth**)- delivered **before 37 weeks** and babies born too small (low birth weight) 5.5 lbs **are more likely to die before their first birthday**. Exposure to air pollution has been identified as a significant cause of both preterm birth and low birth weight.

What Black pregnant mamas need to know about air pollution and preterm birth.

Air pollution is linked to experiencing preterm birth and delivering a low birth weight baby. Every year, air pollution attributes to about 16,000 babies born too early in the U.S. [1]

WHAT IS AIR POLLUTION?

WHAT

Air pollution is the presence of harmful substances in the atmosphere that can cause damage to humans, other living beings, and the environment.

INDOORS

- House dust / Animal dander
- Viruses & bacteria
- Cleaning products
- Mold
- Carbon monoxide

WHERE

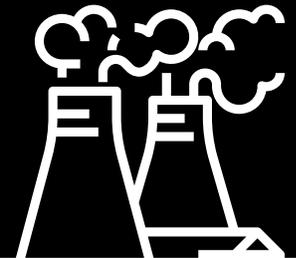
Particulate matter (PM_{2.5}) is solid and liquid particles floating in the air.

OUTSIDE

- Smoke from fires & charcoal BBQ pits
- Car emissions/exhaust
- Gasoline
- Emissions from processing plants

TYPES

Common types of air pollution are **gases, particulates, and biological pollutants**



How does air pollution increase the risk of preterm birth?

Increased levels of toxic chemicals in the blood can cause immune system stress, weakening the placenta surrounding the baby and leading to preterm birth. [2]

Pollutants and particulate matter contribute to the risk for preterm birth by altering the gestational age at birth. [3]



Why are Black women at the highest risk of exposure to air pollution?

Air pollution is a serious global threat for all of us. However, pregnant Black women are at especially high risk. **Black women are more likely to live in unfinished neighborhoods with less green space** and trees and within heavy traffic zones and nearby manufacturing. Unprotected exposure to high levels of concentrated pollution makes Black women and families more vulnerable. [4]

Unfinished neighborhoods are also more likely to have higher levels of PM_{2.5} in the air. You can tell when PM_{2.5} levels are especially high---the particles in the air reduce visibility and cause the air to appear hazy when levels are elevated. **All Black women are predicted to experience a heavier burden of direct human pollution** of the air through exposure to secondhand cigarette smoke. Smoking in Black communities is the second highest amongst all race/ethnic groups.

Fresno has some of the highest levels of pollution burden as determined by Calenviroscreen 4.0. This puts all Black pregnant mothers at risk. The highest levels of PM_{2.5} in Fresno is in the 93706 zip code. [5]

WHAT CAN YOU DO TO PROTECT YOURSELF AND YOUR BABY?

1. Try to plan your next pregnancy! Wait at least 18 months (birth spacing) before getting pregnant again. Waiting can improve the health outcomes of your baby. Additionally, longer birth spacing allows for the mother's body to adequately heal, detox from previous pollution exposure, and prepare for future pregnancies.

2. Wear your mask! Wearing a mask helps to protect you from COVID-19. It can also protect you from air pollution. Wearing a mask is the norm these days, so continuing to wear a mask is another way to protect yourself and your baby from harmful pollutants.

3. Get the help you need to stop smoking. Avoid secondhand smoke. Smoking among Black folks is the second highest rate among all race/ethnic groups, and Black women have the highest rates of smoking while pregnant. Smoking is harmful to pregnant women, their babies, and the neighborhood air. [6]

4. Spending time with friends and exercising are alternate ways to reduce stress. Walking is great if you feel safe in your neighborhood. Or try a follow-along yoga video on YouTube!

5. Try to use natural products to clean your home, such as vinegar and baking soda. Common harmful household products include bleach and oven cleaner. If possible, ask someone else to do heavy cleaning. If not, take protective measures such as opening the doors/windows and wearing gloves and a face mask while cleaning your home.

6. Prioritize civic engagement. Support local efforts to protect your neighborhood from additional industrial and manufacturing sites.

7. Vote! Register to vote and commit to vote in every election. People that vote have healthier outcomes.

8. Monitor the air quality: The purple air monitoring table has guidelines for avoiding bad air. The best air days are when the readings are in the green level, and worst air days are when readings reach the red levels. Sign up for notifications at: <https://map.purpleair.com/>

Reminder: Remember to check your iron status with your doctor. All women of child-bearing age should take 400mg of folic acid every day---even if they don't plan to get pregnant! It's one of the easiest ways to prevent birth defects if taken early in pregnancy!

One way to get folic acid is to eat broccoli, eggs, greens or beans. **Go to your local WIC** to get help with covering your folic acid intake.

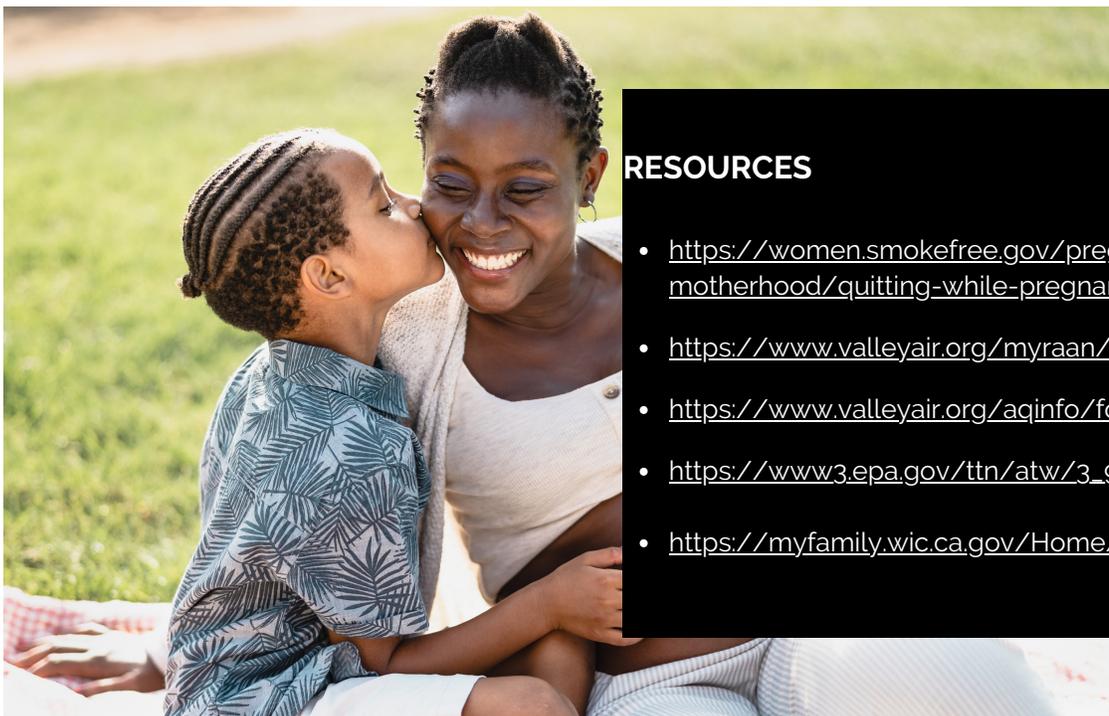


PurpleAir

Air Quality Index	Who Needs to be Concerned?	What Should I Do?
Good 0-50	It's a great day to be active outside.	
Moderate 51-100	Some people who may be unusually sensitive to particle pollution.	<p>Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.</p> <p>Everyone else: It's a good day to be active outside.</p>
Unhealthy for Sensitive Groups 101-150	Sensitive groups include people with heart or lung disease, older adults, children and teenagers.	<p>Sensitive groups: Reduce prolonged or heavy exertion. It's OK to be active outside, but take more breaks and do less intense activities. Watch for symptoms such as coughing or shortness of breath.</p> <p>People with asthma: should follow their asthma action plans and keep quick relief medicine handy.</p> <p>If you have heart disease: Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your health care provider.</p>
Unhealthy 151 to 200	Everyone	<p>Sensitive groups: Avoid prolonged or heavy exertion. Move activities indoors or reschedule to a time when the air quality is better.</p> <p>Everyone else: Reduce prolonged or heavy exertion. Take more breaks during all outdoor activities.</p>
Very Unhealthy 201-300	Everyone	<p>Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better.</p> <p>Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when air quality is better.</p>
Hazardous 301-500	Everyone	<p>Everyone: Avoid all physical activity outdoors.</p> <p>Sensitive groups: Remain indoors and keep activity levels low. Follow tips for keeping particle levels low indoors.</p>

PARTNERS

This community health brief was developed in partnership with: Venise Curry, MD | Co-chair, Fresno GROWS Best Babies Zone (BBZ)



RESOURCES

- <https://women.smokefree.gov/pregnancy-motherhood/quitting-while-pregnant/quit-for-two>
- <https://www.valleyair.org/myraan/>
- <https://www.valleyair.org/aqinfo/forecast.htm>
- https://www3.epa.gov/ttn/atw/3_90_024.html
- <https://myfamily.wic.ca.gov/Home/WICOfficeGrocer>

REFERENCES

[1,2,3] "Air Pollution & Preterm Births in the United States." NYU Langone Health, med.nyu.edu/departments-institutes/pediatrics/divisions/environmental-pediatrics/research/policy-initiatives/air-pollution-preterm-births.

[4] Sohrabi, Soheil, Zietsman and Khreis Hanneen. The burden of diseases assessment of ambient air pollution and premature mortality in urban areas: the role of socioeconomic status and transportation." International Journal of Environmental research and public health. Pp. 1-18. 2020

[5] "Fresno Air Quality Index (AQI) and California Air Pollution: AirVisual." Fresno Air Quality Index (AQI) and California Air Pollution | AirVisual, www.iqair.com/us/usa/california/fresno.

[6] "Tobacco Use in Racial and Ethnic Populations." American Lung Association, www.lung.org/quit-smoking/smoking-facts/impact-of-tobacco-use/tobacco-use-racial-and-ethnic.