

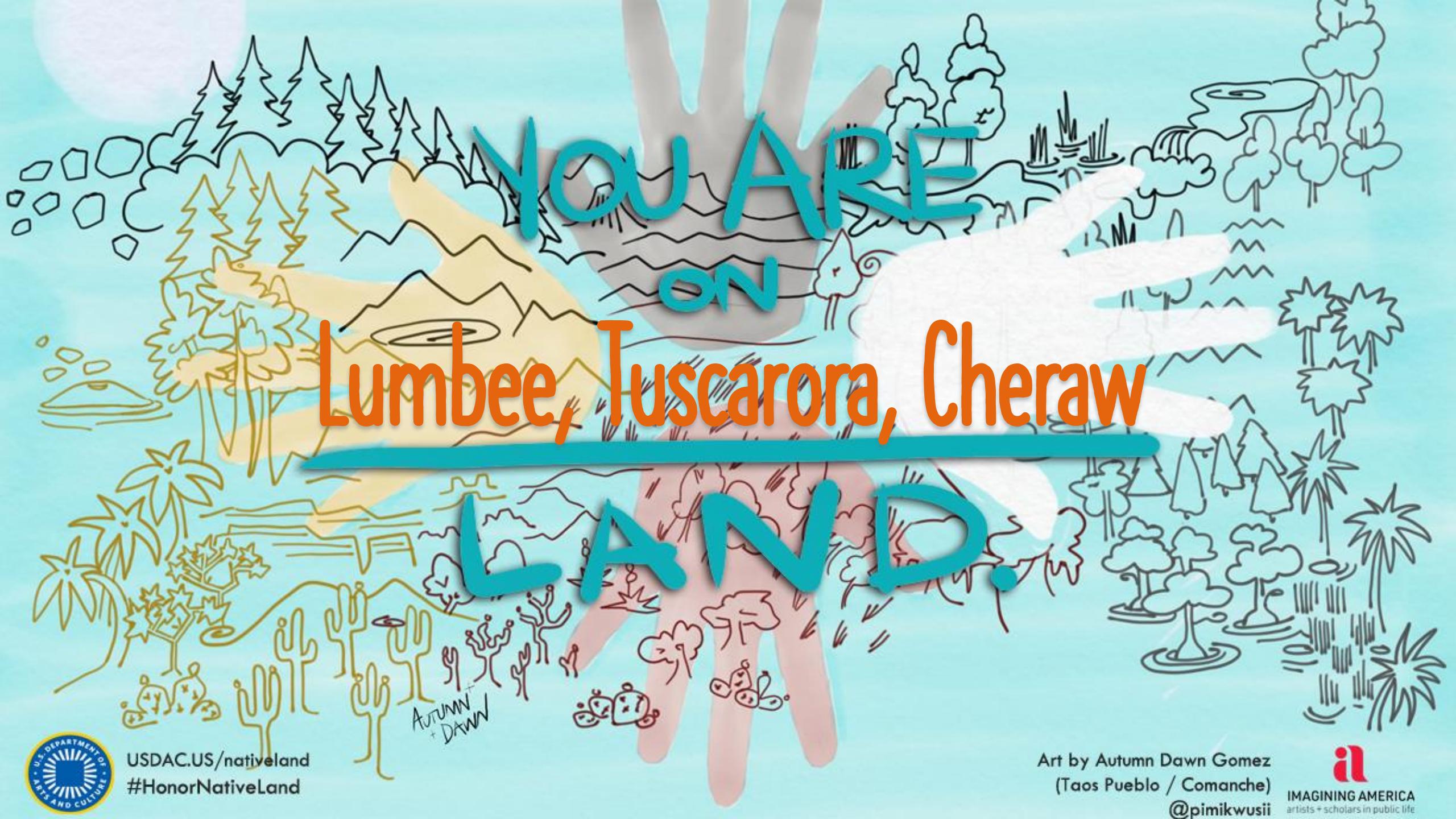


# INHALATION-BASED TOXICITY IN INDIGENOUS COMMUNITIES: DEMOGRAPHIC INEQUITIES IN HEALTH OUTCOMES AND AIR POLLUTION EXPOSURE

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USDAC.US/nativeland  
#HonorNativeLand

AUTUMN  
DAWN

Art by Autumn Dawn Gomez  
(Taos Pueblo / Comanche)  
@pimikwusii



IMAGINING AMERICA  
artists + scholars in public life

# BRIEF OVERVIEW

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- Background:
- BS in Biology/Chemistry, UNC at Pembroke
- MSPH in Epidemiology, UNC at Chapel Hill
- BSN and PhD in Nursing, Duke University
- Postdoctoral Fellowship in Nursing, UNC at Chapel Hill
- Research Interests:
- cardiovascular health disparities in American Indians
- environmental adversities (air pollutants, psychosocial stressors)
- Inflammation
- positive psychological well-being



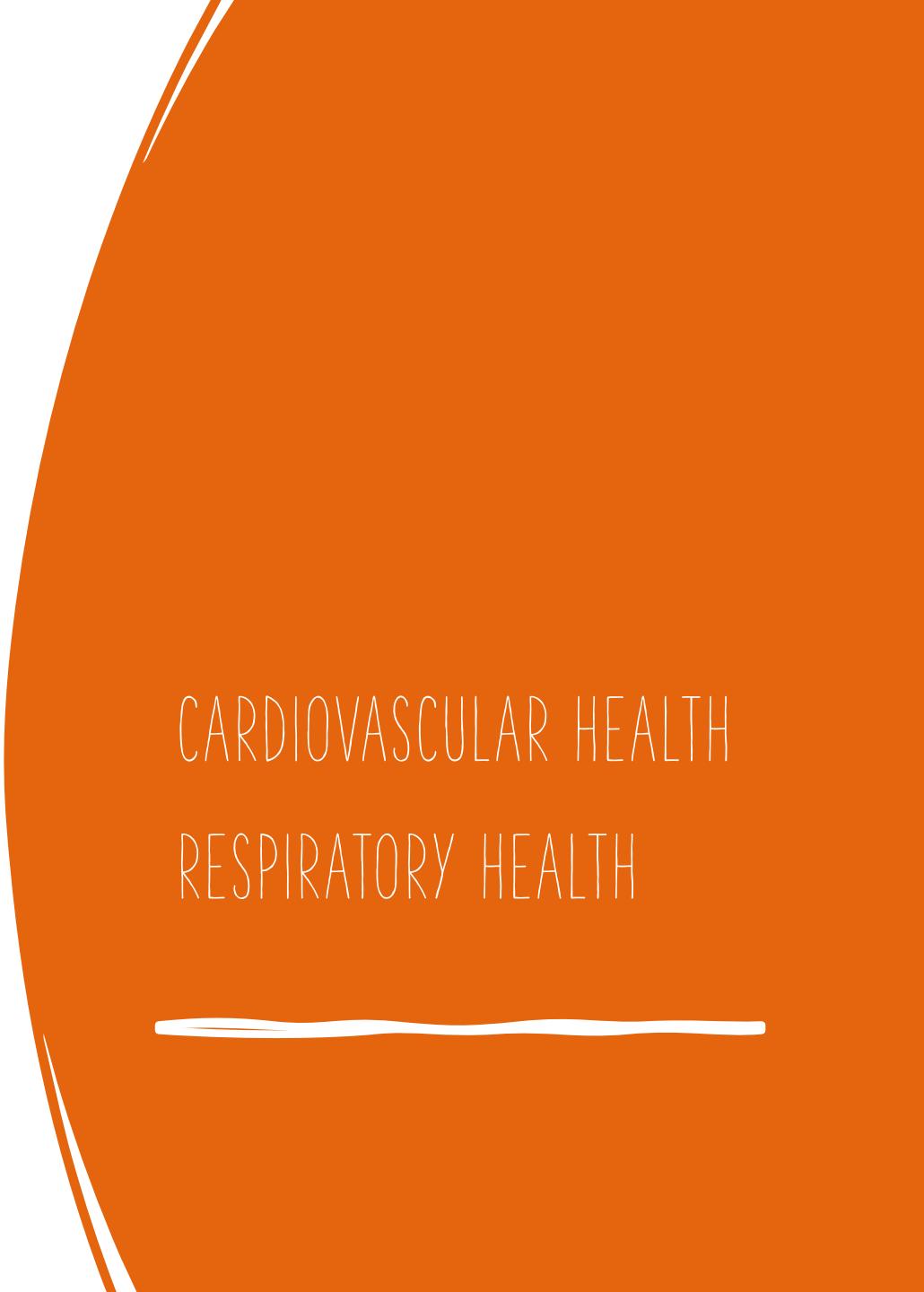
# FAMILY ROOTS

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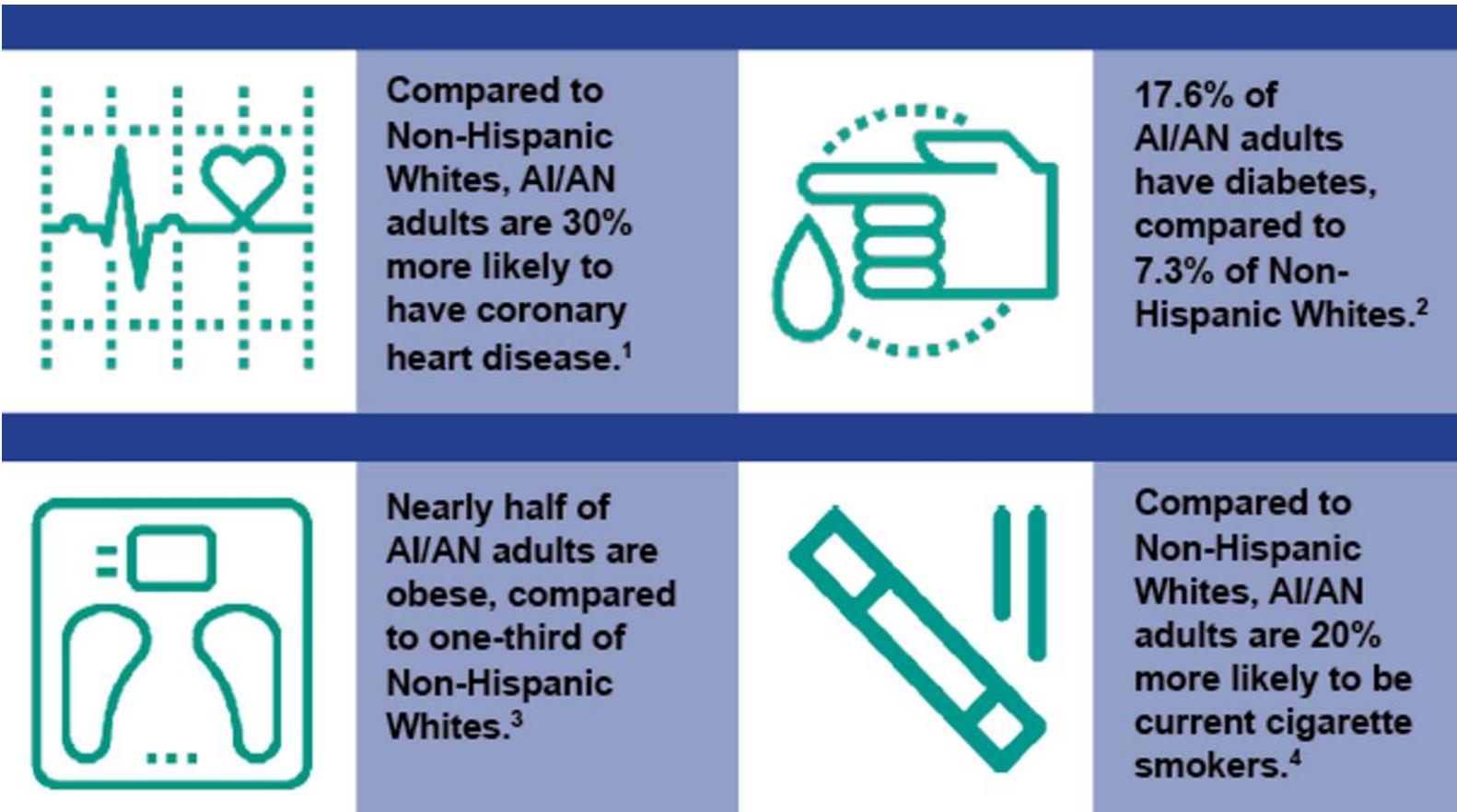
# AMERICAN INDIAN HEALTH DISPARITIES

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A large, solid orange circle is positioned on the right side of the slide. It features two thin white curved lines: one on the left side that dips into the circle, and another on the right side that extends outwards. The circle is centered on the slide.

CARDIOVASCULAR HEALTH  
RESPIRATORY HEALTH

# CARDIOVASCULAR HEALTH DISPARITIES



American Indians and Alaska Natives (AI/AN) experience higher rates of chronic diseases than non-Hispanic Whites.  
[Urban Indian Health Institute; data from CDC, CC BY-ND](#)

# CARDIOVASCULAR HEALTH DISPARITIES AMONG AMERICAN INDIAN WOMEN

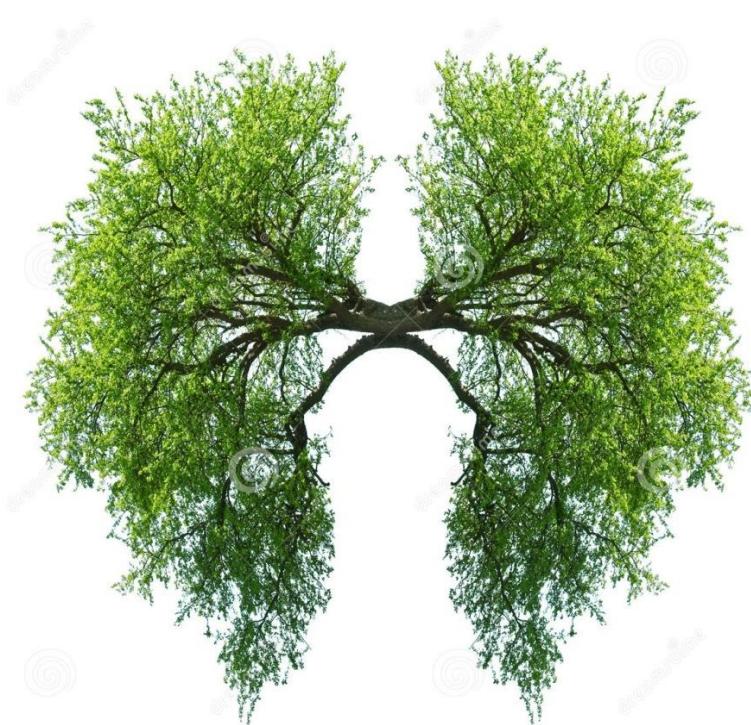
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- AIAN women ages 25-49y have disproportionate CVD mortality rates<sup>5</sup>
  - Black women: 46/100 000
  - AIAN women: 40/100 000
  - White women: 19/100 000
  - Latinx women: 11/100 000
  - Asian Pacific Islander: 7/100 000



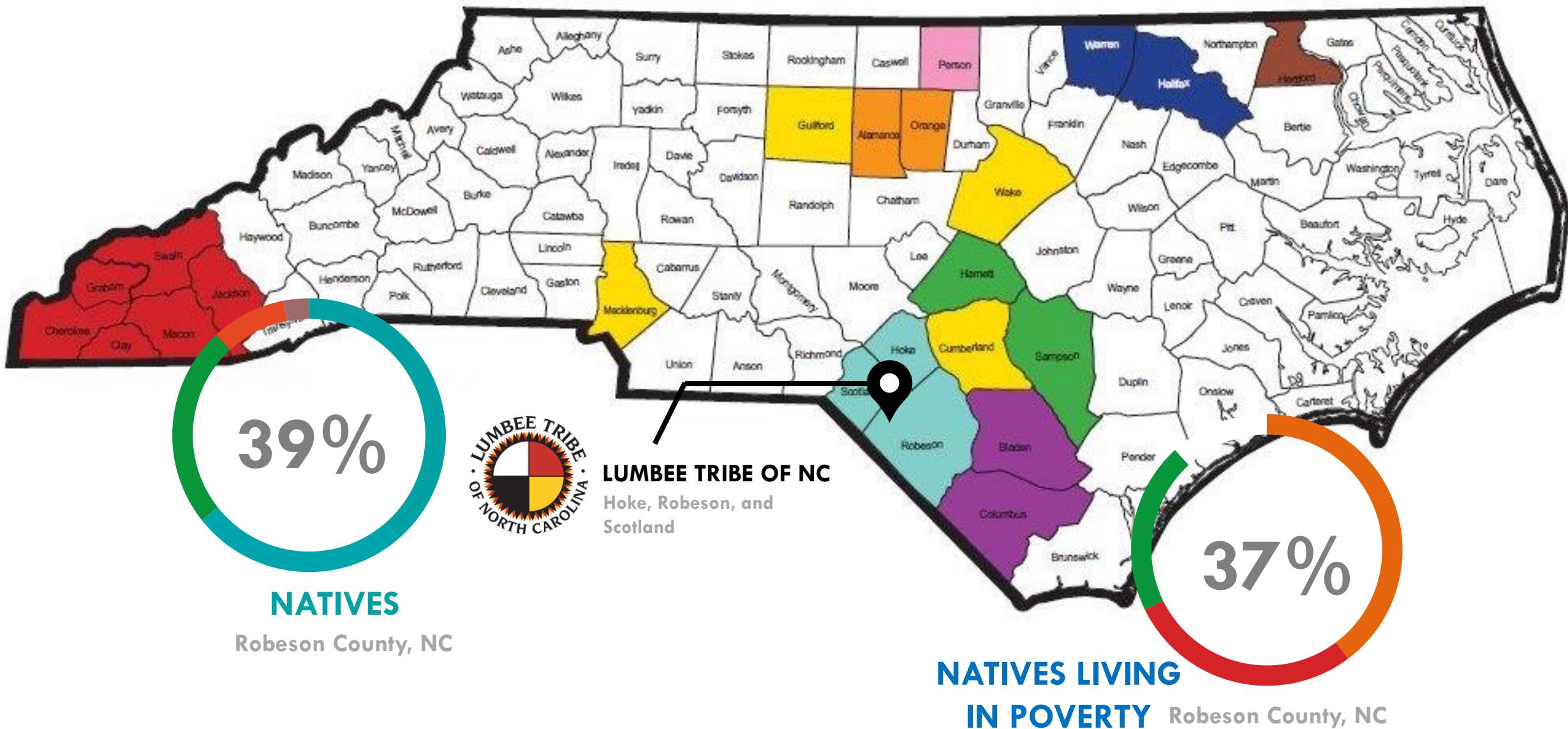
# RESPIRATORY HEALTH DISPARITIES

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- Asthma is the most common chronic disease of childhood
- Children from low-income and ethnic minority backgrounds are disproportionately affected
- Asthma prevalence and mortality rates are reportedly higher among AIAN children than White children
  - 14.6% as compared to 9.2%<sup>6</sup>
  - 11.15 higher odds of inpatient mortality from asthma hospitalizations<sup>7</sup>
- In NC, the number of asthma-related hospital discharges in American Indian children are 3.4 times the number in White children (245 vs. 71.8 per 100,000 respectively)<sup>8</sup>

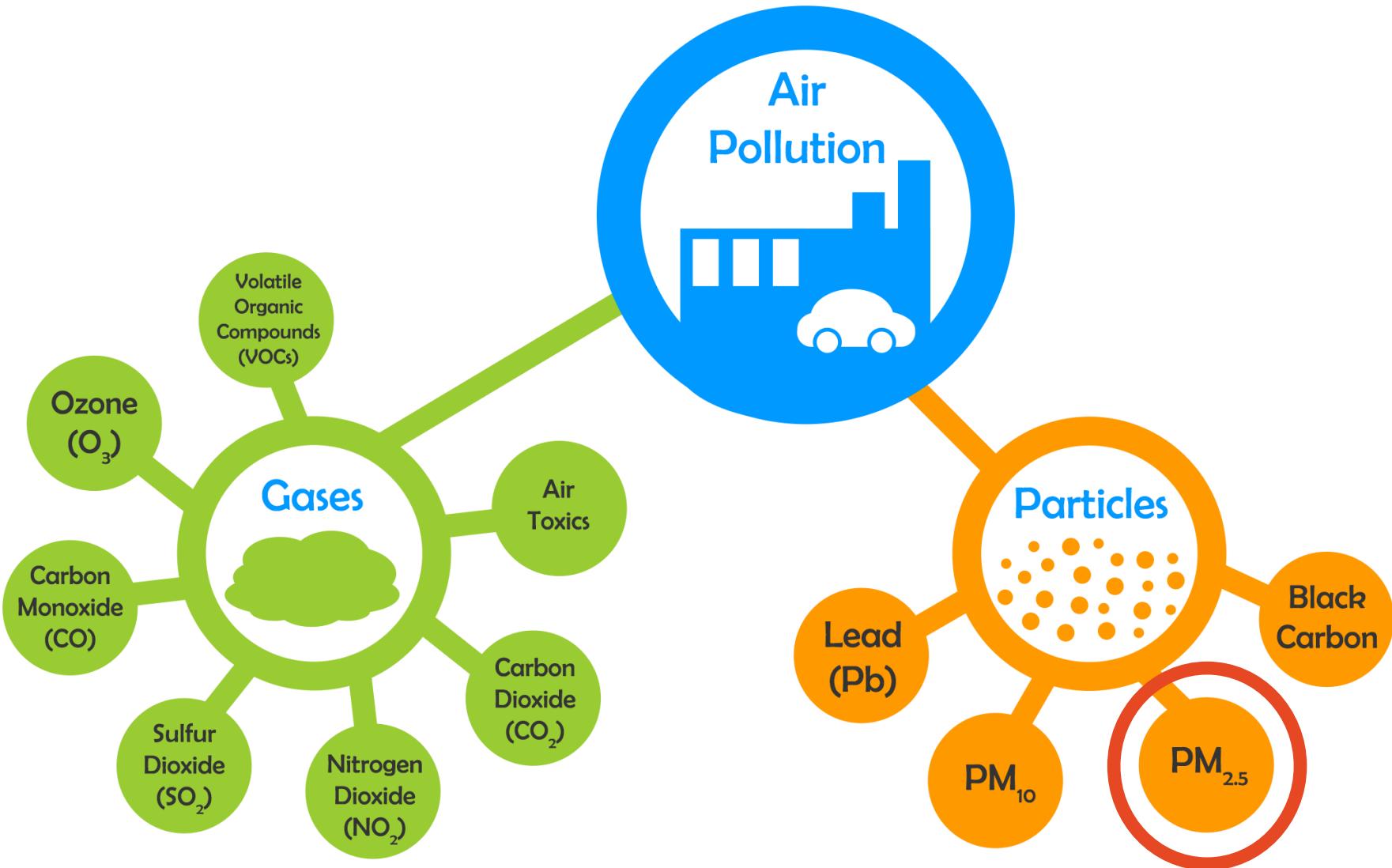
# N.C. TRIBAL AND URBAN COMMUNITIES



# INEQUITIES IN AIR POLLUTION EXPOSURE

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# WHAT ARE THE SOURCES OF AIR POLLUTION?

Outdoor air pollution affects urban and rural areas and is caused by multiple factors:



**Countries cannot tackle air pollution alone.**  
It is a global challenge we must all combat together.

CLEAN AIR FOR HEALTH

#AirPollution

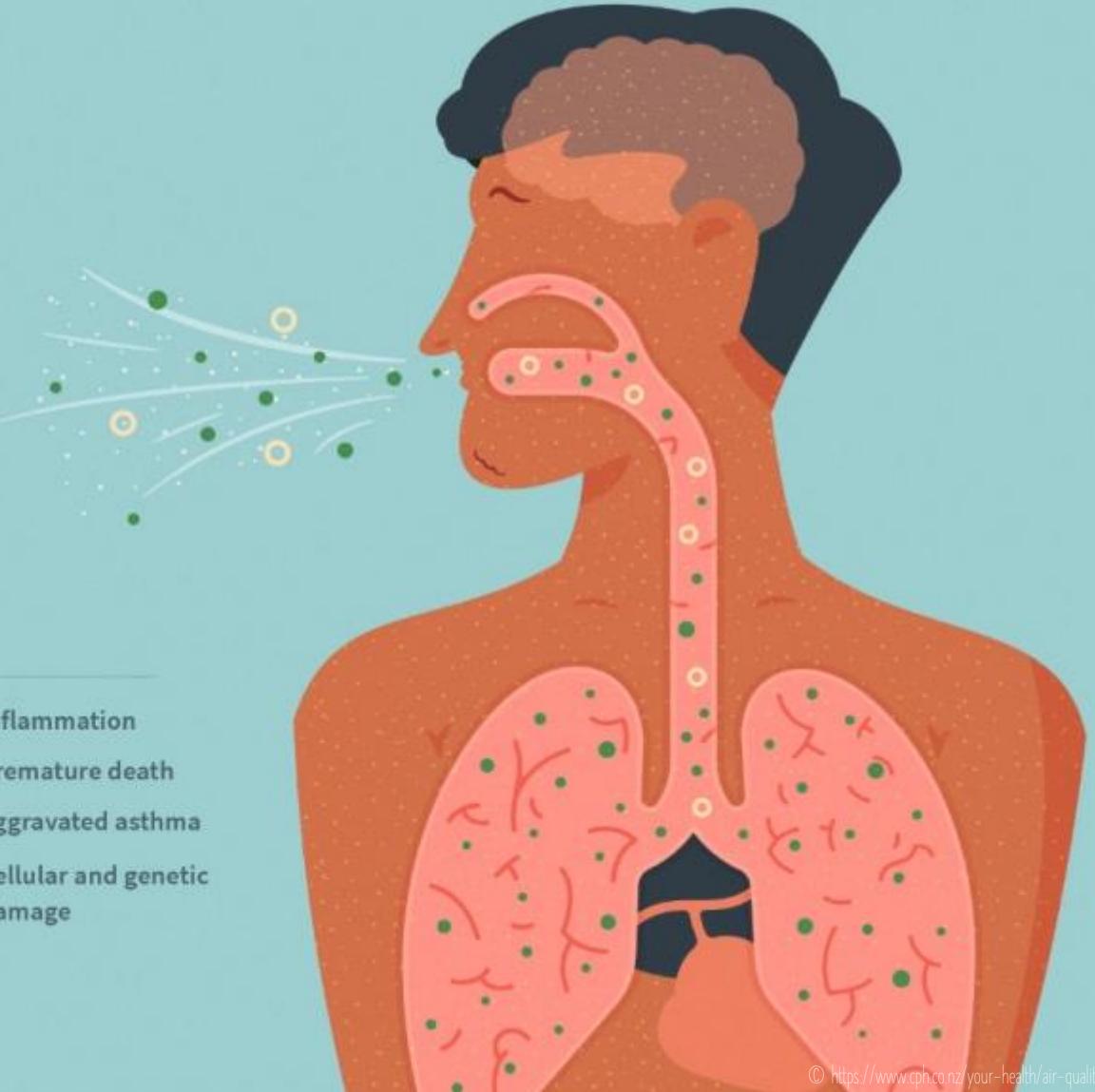


© torranceair.org

- Coarse PM can reach the nose and throat.
- Fine PM can reach deep into the lungs.
- Ultrafine PM can pass into the bloodstream and be transported throughout the body.

Examples of PM health effects:

Stroke	Inflammation
Coughing	Premature death
Throat irritation	Aggravated asthma
Difficulty breathing	Cellular and genetic damage
Respiratory and cardiovascular disease	

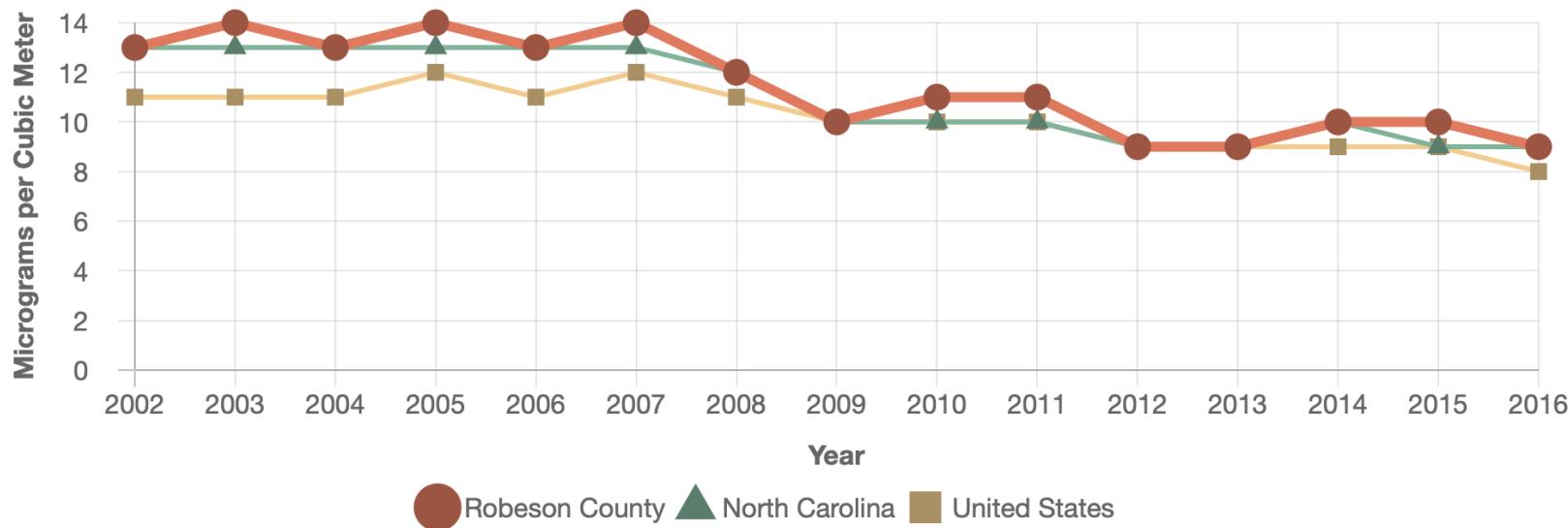


© <https://www.cph.co.nz/your-health/air-quality/>

## Air pollution - particulate matter in Robeson County, NC

### Average Density of Fine Particulate Matter: County, State and National Trends

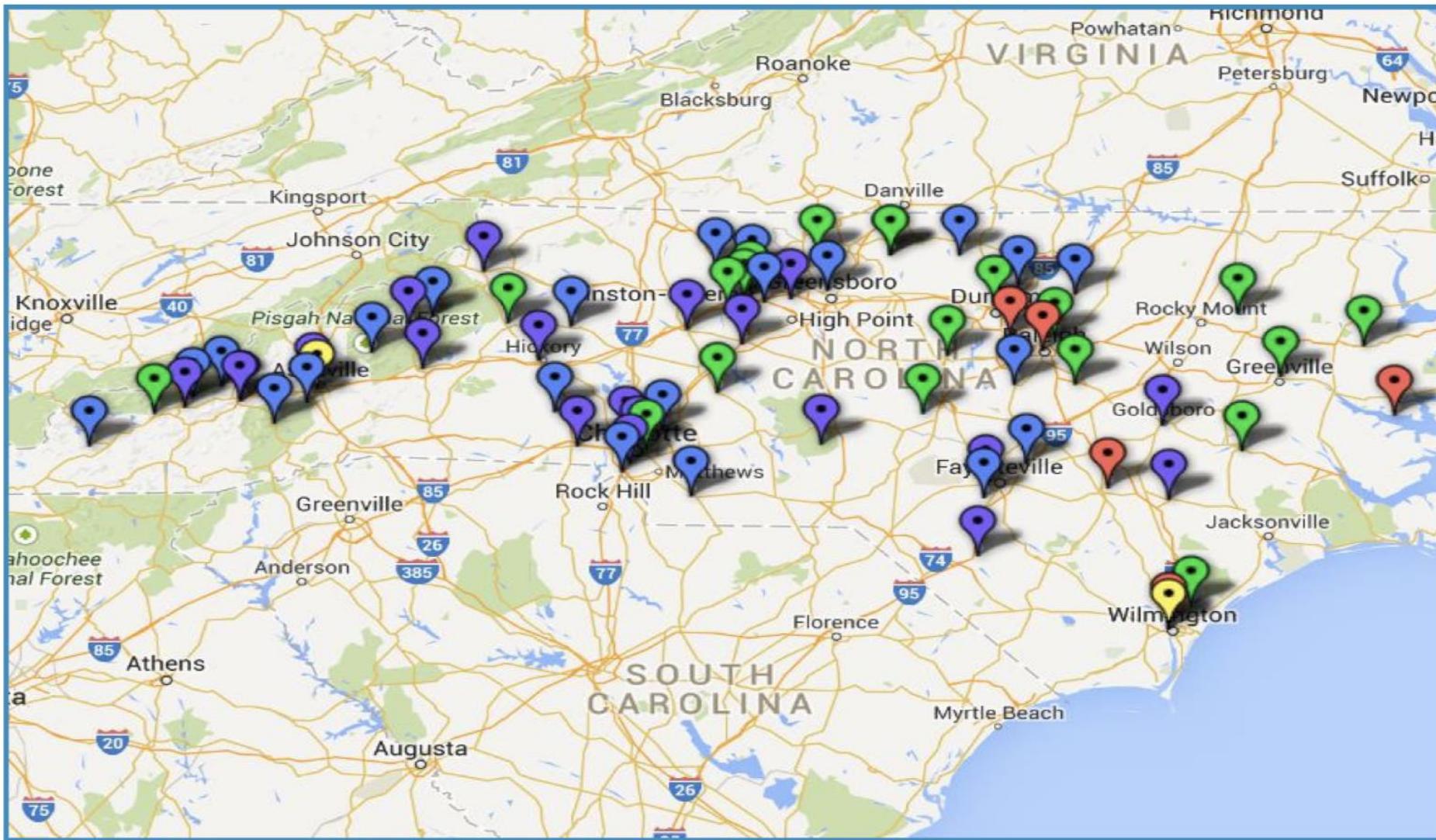
Robeson County is getting better for this measure.



#### Notes:

Data in this trend graph are taken from the Environmental Public Health Tracking Network, and will not match data used in the 2014-2016 Rankings.

# EPA MONITORS IN NORTH CAROLINA



# HAPPI PROJECT OVERVIEW

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- Title: Hazardous Air Pollutants, Positivity, and Inflammation (HAPPI)
- Specific Aims:
  - Examine the associations between PM and cardiovascular-associated inflammatory markers in AI women
  - Examine the associations between psychological states and cardiovascular-associated inflammatory markers in AI women
  - Determine whether positive psychological states buffer (moderate) the association between PM and cardiovascular-associated inflammatory markers in AI women



# A STUDY TO HELP MANAGE ASTHMA IN CHILDREN (ASTHMA-C)<sup>9</sup>

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- Specific Aim
  - to assess the relationship between family management of child asthma and maternal depressive symptoms
- Cross sectional study
- Setting
  - 2 pediatric clinics located in southeastern North Carolina
- Sample
  - 60 mothers who self-identified as Lumbee and their children were recruited for the study from a pediatric clinic



# INDUSTRIAL AGRICULTURE IN ROBESON COUNTY, NC

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PANDEMIC OF INJUSTICE

[HTTPS://WWW.YOUTUBE.COM/WATCH?V=HBKJ\\_NGDG\\_0&T=20S](https://www.youtube.com/watch?v=HBKJ_NGDG_0&t=20s)



# FUNDING SOURCES

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- National Institutes of Environmental Health Sciences (NIEHS)
- UNC Center for Environmental Health and Susceptibility
- UNC Institute of Environmental Health Solutions
- National Institute of Nursing Research (NINR)

# REFERENCES



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# NYA:WEH

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