



# ASTHMA SEVERITY DETERMINANTS AND NEEDS ASSESSMENT IN CHILDREN LIVING ON THE NAVAJO NATION: A PILOT STUDY

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## ○ Navajo Nation

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- Peter Nez
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- Navajo Epidemiology Center
- Community members of Tuba City, AZ; Chinle, AZ; Fort Defiance, AZ; & Window Rock, AZ

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## ○ University of Arizona

- Native American Research Training Center (NARTC)
- Desiree Jones, Chantal Nez, & Janette Priefert



# WHAT WE WILL DISCUSS TODAY

## ○ **Background**

- Childhood asthma on the Navajo Nation
- Asthma basics

## ○ **Discussions with families living on the reservation [NNR-16-247]**

- Semi-structured interviews (i.e., Standardized questionnaires & Qualitative discussions)
- Tuba City, AZ ( $n=13$ )

## ○ **Future directions**

- Collaboration with Navajo Nation, National Jewish Health & University of Arizona
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# WHY ASTHMA ON NAVAJO?

*"I feel helpless. . .I ask, why us? I try to understand it and just deal with it. There's a process. . .with dealing with it."*

*~Navajo Mother~*

# ASTHMA'S IMPACT ON NAVAJO FAMILIES LIVING ON THE RESERVATION

## ○ Asthma Prevalence

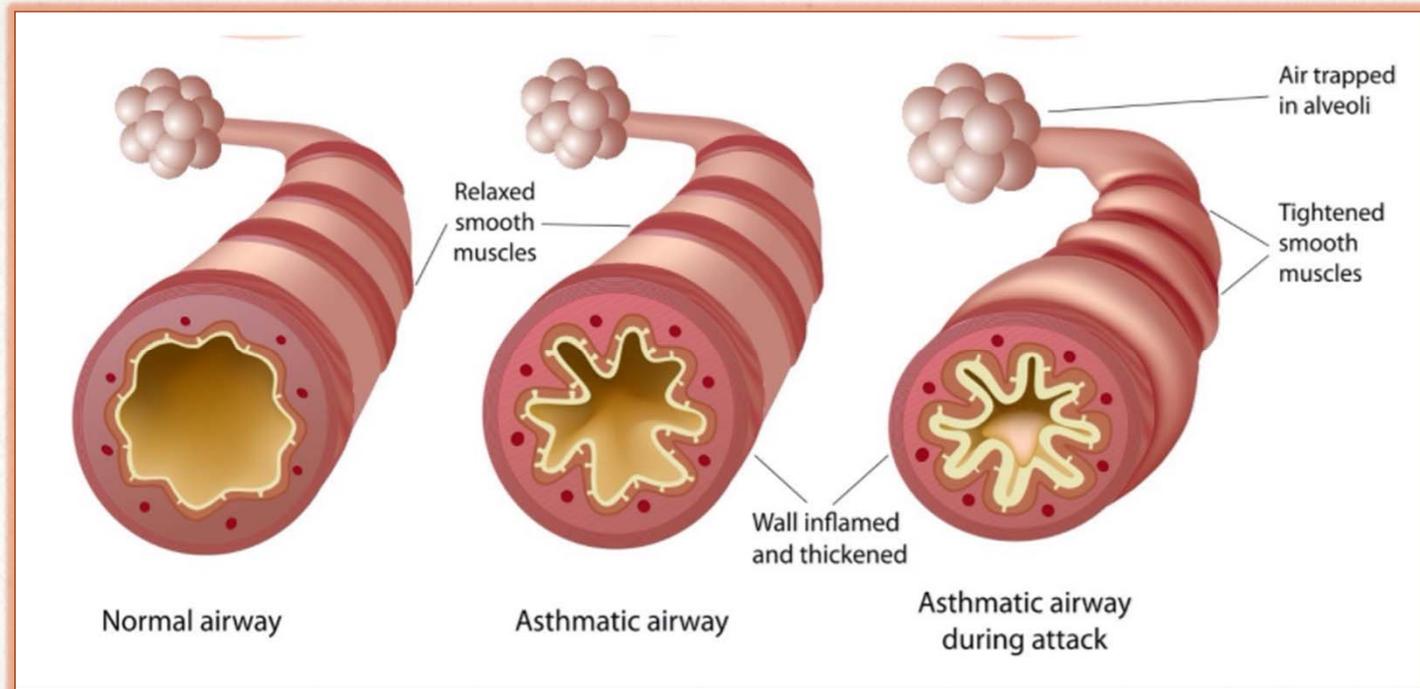
- 10% of U.S. children
- Approximately 20% of Navajo children living on the reservation

## ○ Asthma Severity

- ↑ Emergency Department (ED) visits
- ↑ Overnight hospitalizations



# WHAT IS ASTHMA?

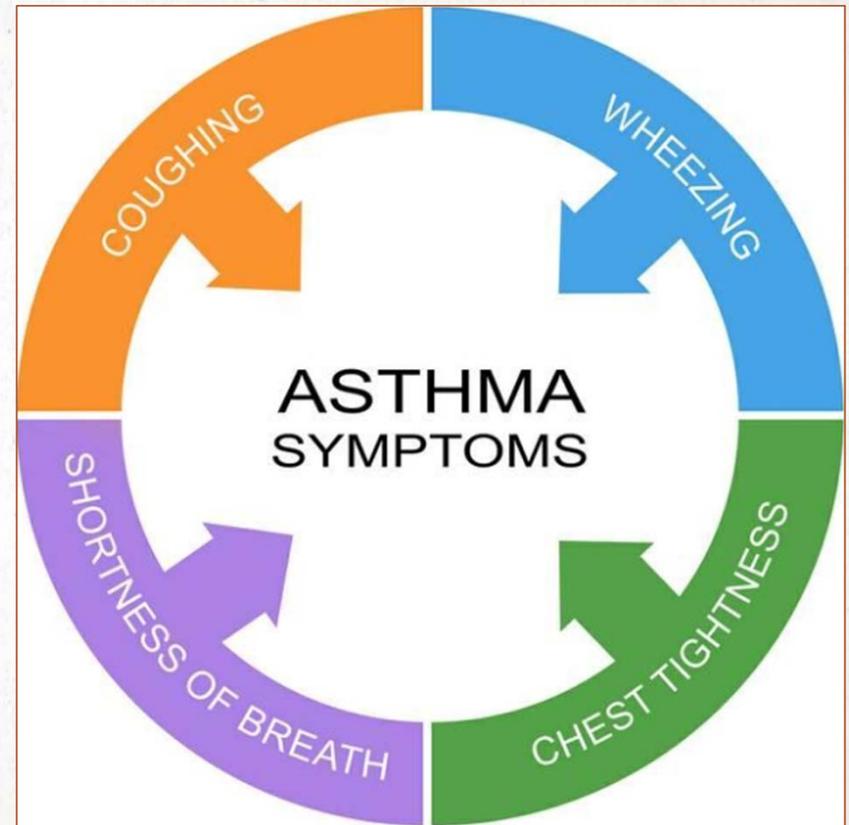


- **Chronic**, inflammatory lung disease that often begins during childhood

# ASTHMA SIGNS & SYMPTOMS

## ○ May include ANY of the following:

- Coughing
- Chest tightness / Chest retractions
- Wheezing / Whistling in the chest
- Shortness of breath / Struggling-to-breathe / Shallow breathing
- Difficulty speaking
- Noisy breathing / Breathing hard or fast
- Nasal flaring
- Blueness around the lips or fingernails`



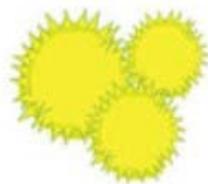
# COMMON ASTHMA TRIGGERS



Dust Mites



Pets



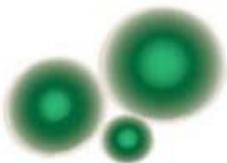
Pollen



Smoking



Pollution



Mold



Cold Air



Viral Infections



Chemical Fumes



Exercise

# LITERATURE REVIEW

## ○ Environmental concerns for children with asthma on the Navajo Nation

- Systematic Integrative Literature Review
- Primary search terms included “Asthma” AND “Navajo” OR “Navaho” OR “Diné” or “Dineh”
- 7 Environmental Risk Domains:
  1. Wood burning stove
  2. Indoor stove heating
  3. Commercial tobacco smoke OR Mountain smoke
  4. Indoor allergens
  5. Coal-fired power plants AND mining
  6. Desertification, Desert dust storm events OR Wildfire severity
  7. Diesel exhaust exposure
- Only 4 articles were specific to the Navajo Nation

## ○ Findings

- Environmental injustices have historically, disproportionately and systematically affected First Nation populations including Navajo
- Some exposures are well recognized (i.e., wood burning stoves, coal, dust storms, & wildfires)
- Other exposures are **less** recognized but easily modifiable (e.g., diesel exhaust from schools busses)

# DISCUSSIONS WITH FAMILIES LIVING ON THE NAVAJO RESERVATION



- **Tuba City, AZ**
  - Tuba City Regional Health Care Center
  - October 2016
- **Interviewed 13 families with children with asthma**
  - Recruited by primary care physicians (PCP)
  - 11 Navajo families & 2 Hopi families ( $n=13$ )
- **Conducted semi-structured interviews**
  - Standardized asthma questionnaires
  - Qualitative questions

# ASTHMA SURVEYS

## ○ Childhood asthma questionnaires

- Pediatric Asthma Caregiver's Quality of Life Questionnaire
- Childhood Asthma Control Test for Children 4-11 years

## ○ Additional questions regarding asthma severity

## ○ Findings

- Children's age range (7-16 years)
- 47% male
- Parents reported good asthma control (mean Childhood Asthma Control Test score = 21.6)
- 58.8% of children had an asthma episode during past year
- 47% of children had been hospitalized during past year

# QUALITATIVE QUESTIONS: ASTHMA CARE

*“The health care providers need to explain to me – why is prednisone bad? I need to know why.”*

*~Navajo Parent~*

# PRIMARY ASTHMA CARE



## ○ Health care needs

- Asthma medications are difficult to refill
- Health care providers need to explain the disease process & options
- Parents requested more asthma education & community awareness

# QUALITATIVE QUESTIONS: ENVIRONMENT

*“We burn coal inside and there is a tamarack grove behind our house – the pollen is bad. But, then you drive and see pollution.”*

*~Navajo/Hopi Parent~*

# ENVIRONMENT

## ○ Environmental concerns

- Burning wood & coal inside the house
- Blowing dust, dirt, fine sand & wildfires
- Uranium & coal mining / Coal-burning power plants
- Animals
- Mold

## ○ Suggestions by parents

- Air purifiers/filters in the home



## QUALITATIVE QUESTIONS: SCHOOLS

*“My daughter couldn’t carry her inhaler because the nurse locked it away. But then she couldn’t breathe and the nurse was at lunch. The nurse was the only person with a key to that cabinet.”*

*~Navajo Mother~*

# SCHOOLS



- **Families expressed many needs for their child at school**
  - More awareness / asthma education for school principals, teachers & coaches
  - Asthma protocol for emergencies
  - Access to asthma medications
  - Asthma triggers

# NEXT STEPS

## ○ Reduce childhood asthma disparities

- 6-year NIH-funded partnership with the Navajo Nation, National Jewish Health & University of Arizona
- Work with 3 Navajo communities: Tuba City, AZ; Chinle, AZ; & Fort Defiance, AZ
- IHS facilities, Navajo Epidemiology Center, Schools & Chapter Houses



# AN ASTHMA COLLABORATION TO REDUCE CHILDHOOD ASTHMA DISPARITIES ON THE NAVAJO NATION



## ○ Research Team

- Hanna Phan, PharmD, FCCP
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- Lynn B. Gerald, Ph.D., M.S.P.H
- Bruce Bender, Ph.D.
- Peter Nez, Navajo Nation
- Teshia Solomon, Ph.D.
- Aaron Kobernick, M.D., M.P.H.
- Andy Liu, M.D

**QUESTIONS?**

