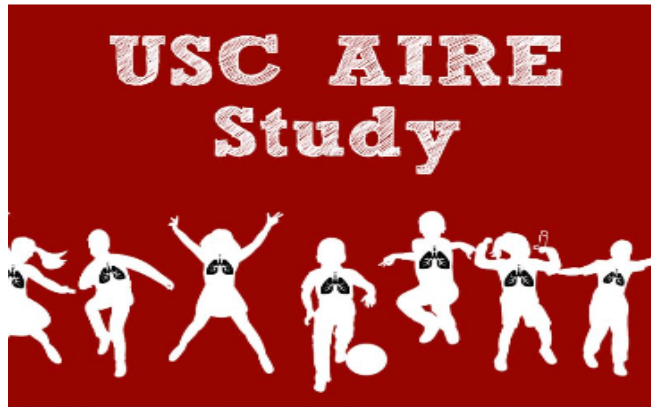


# Assessing Imperial Valley Respiratory Health & the Environment (AIRE) Study

Fall 2022

Keck School of  
Medicine of **USC**



Comite Civico  
Del Valle, Inc.

# AIRE Study Overview



What is the lung health of children in Imperial Valley?



How do environmental factors influence health?



## Partner with schools

Partnerships → Enroll 5 schools in the Northern/Central Imperial Valley

With whom? →

- Parents
- Teachers
- School officials
- Principals



## Health surveys

Who? → Elementary school children

Duration of study → 5 years

Health surveys → Given in the fall & spring each year

## Lung Function Testing

We assessed children's lung health



Why? → To measure lung capacity

## Reporting results

- Annual reports
- Community workshops
- Collaboration for action
- Infographics

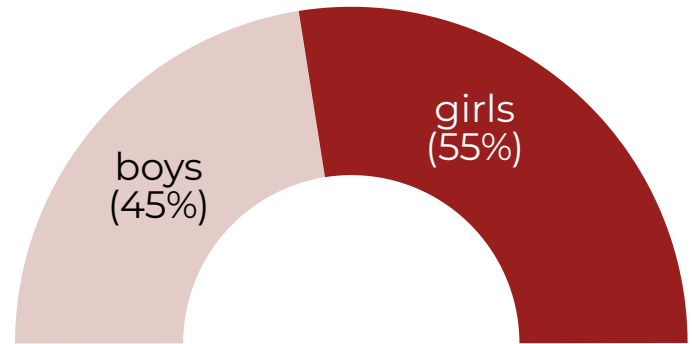


# Study participants at a glance:






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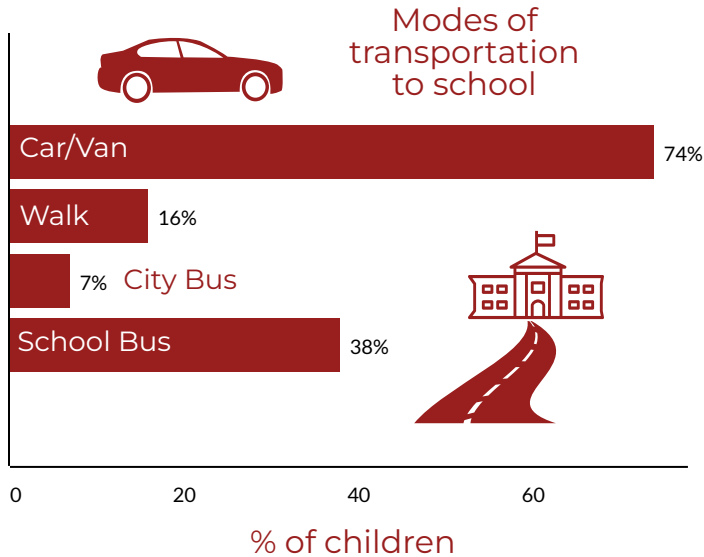
- A total of **744** students participated in the AIRE Study between 2017-2022
- Most students started the study when they were in 2nd or 3rd grade
- More girls than boys participated in the AIRE Study



# AIRE Study Schools

	Participants in AIRE Study	Distance to nearest major roadway	Distance to agricultural field	Agricultural burns within 1 mile, 2016-2019
School A 	200 students	8.2 miles	2,200 ft	1
School B 	47 students	15 miles	2000 ft	8
School C 	273 students	0.43 miles	600 ft	0
School D 	123 students	750 ft	600 ft	0
School E 	101 students	1000 ft	300 ft	5

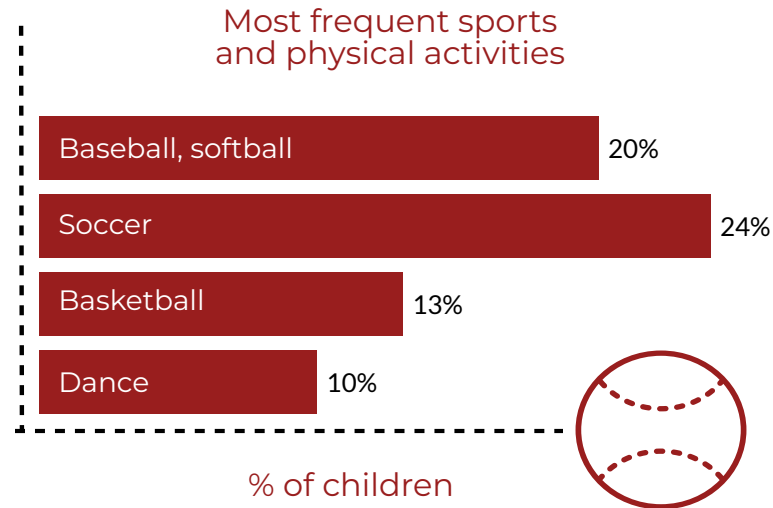
# Physical Activity and Transportation



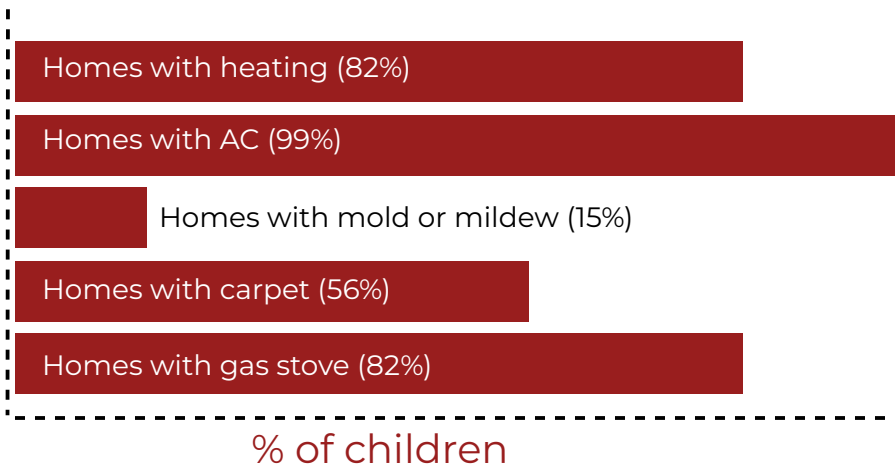
42% of children spend at least half of their weekdays after school

**OUTSIDE**

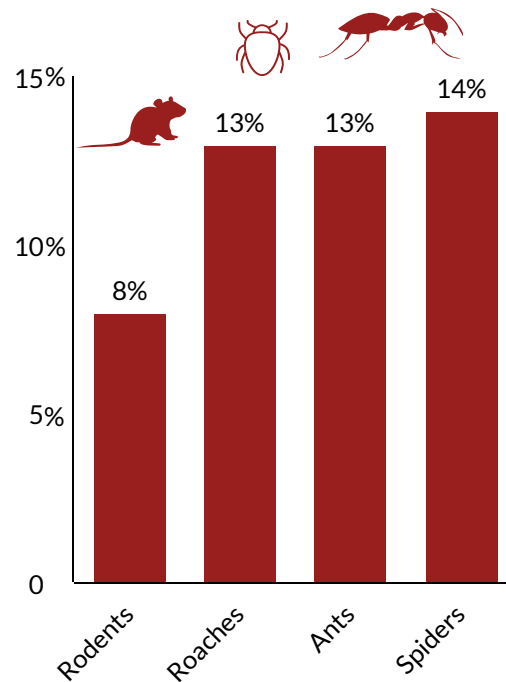
55% of children play a sport at least twice per week



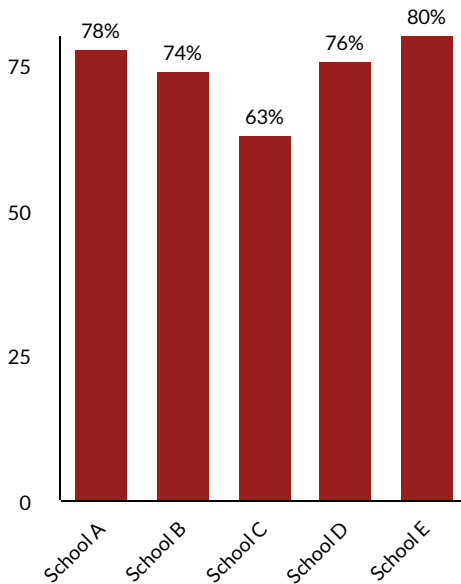
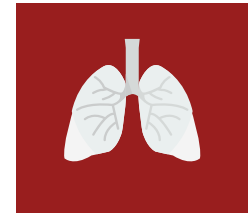
# Home Characteristics



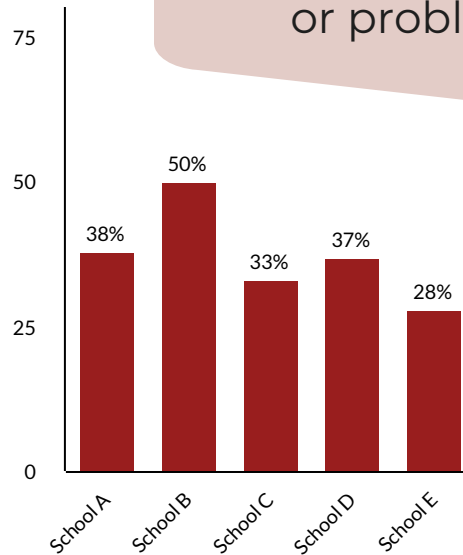
**14%** of children are exposed to secondhand smoke at home



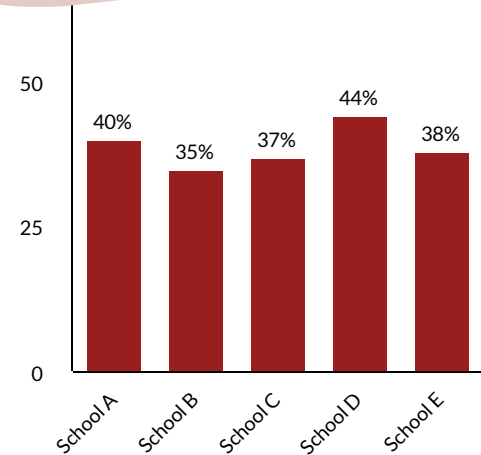
# Children's respiratory health



Allergies



Recurrent cough  
or bronchitic symptoms

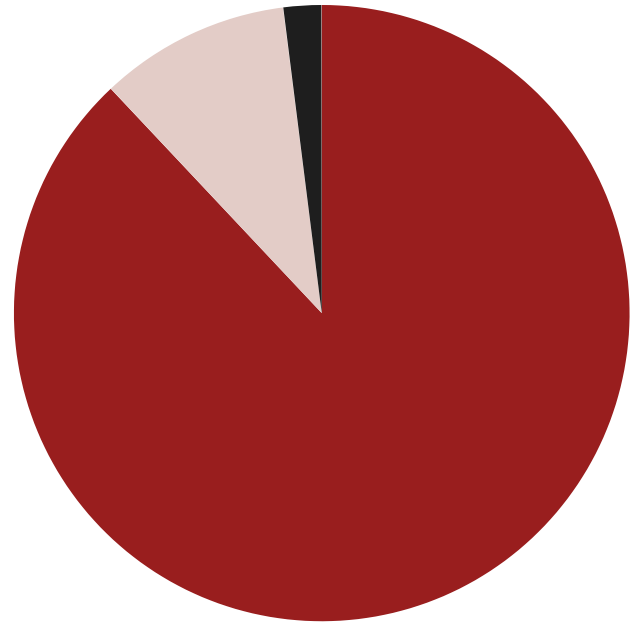


Wheeze

29% of children regularly woke up at night due to wheezing or problems breathing

# Lung function

Great news! 88% of children had normal lung capacity

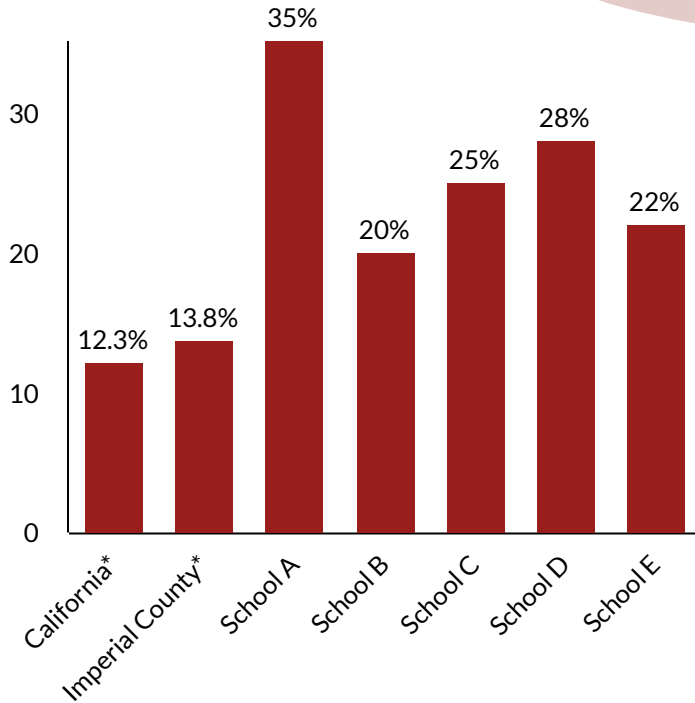


■ Normal (88%) ■ Mildly reduced (10%) ■ Reduced (2%)

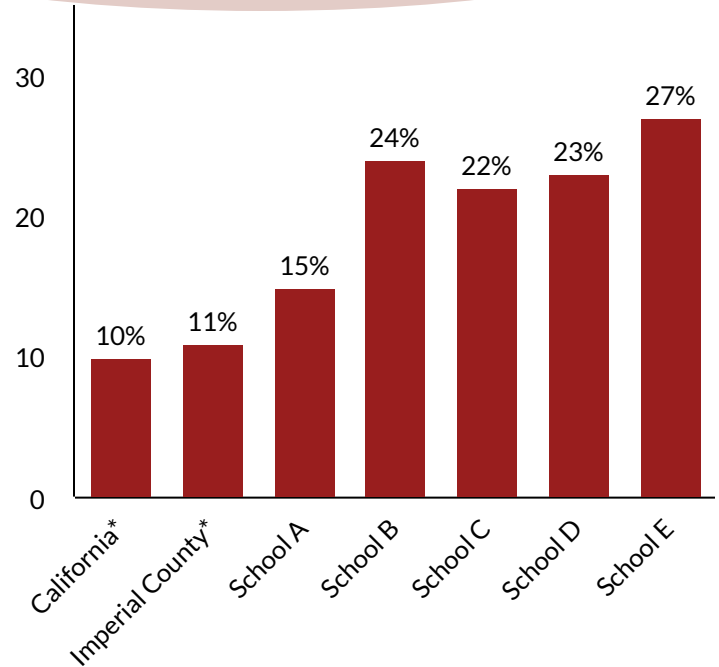


# Asthma

Asthma is the leading, serious, chronic illness among children in the United States



Lifetime prevalence of asthma among children



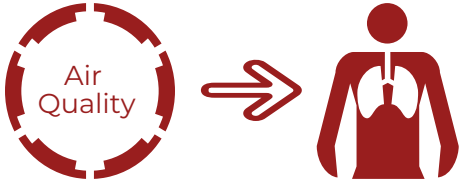
Lifetime prevalence of wheeze or asthma-like symptoms among children NOT diagnosed with asthma

\* Source: California Health Interview Survey

# Environmental Exposures and Asthma



**Air quality** and environmental exposures are risk factors in respiratory health. Conditions like asthma can be exacerbated due to poor air quality.



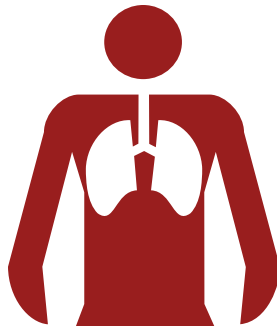
Asthma related emergency room visit rates for children ages 5-17 in Imperial County are the **highest of any county in California.**

Location	visits per 10,000
<b>Imperial County</b>	<b>125</b>
Riverside County	54.4
San Diego County	39.0
California	58.4

\* Source: California Department of Public Health, California Asthma Dashboard, 2019.

# Preliminary research findings

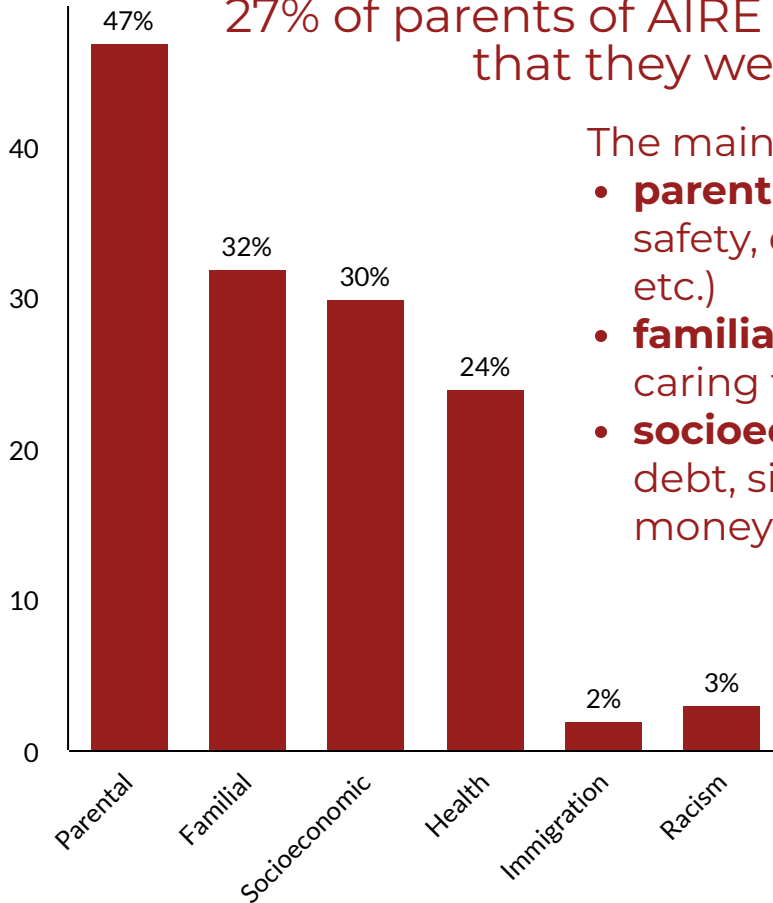
Higher levels of PM in Imperial County are associated with more wheeze symptoms among AIRE Study participants



Associations between air pollutants and breathing problems are stronger among **children with asthma**

# Parents' perspective

27% of parents of AIRE Study participants reported that they were **often** stressed



The main sources of parents' stress were:

- **parental** (concern for child's well-being or safety, difficult interactions with children, etc.)
- **familial** (family conflicts, living with or caring for relatives)
- **socioeconomic** (feeling lonely/isolated, in debt, single parent, not having enough money, etc.)

14% of parents of asthmatic children regularly felt "helpless" when their child experienced breathing problems

All of us at the Children AIRE Study thank you for your support over the years and look forward to continued partnership to improve children's health in Imperial Valley.

