

Improving Indoor Air Quality in Alaskan Native Populations and Other Indigenous Communities in North America



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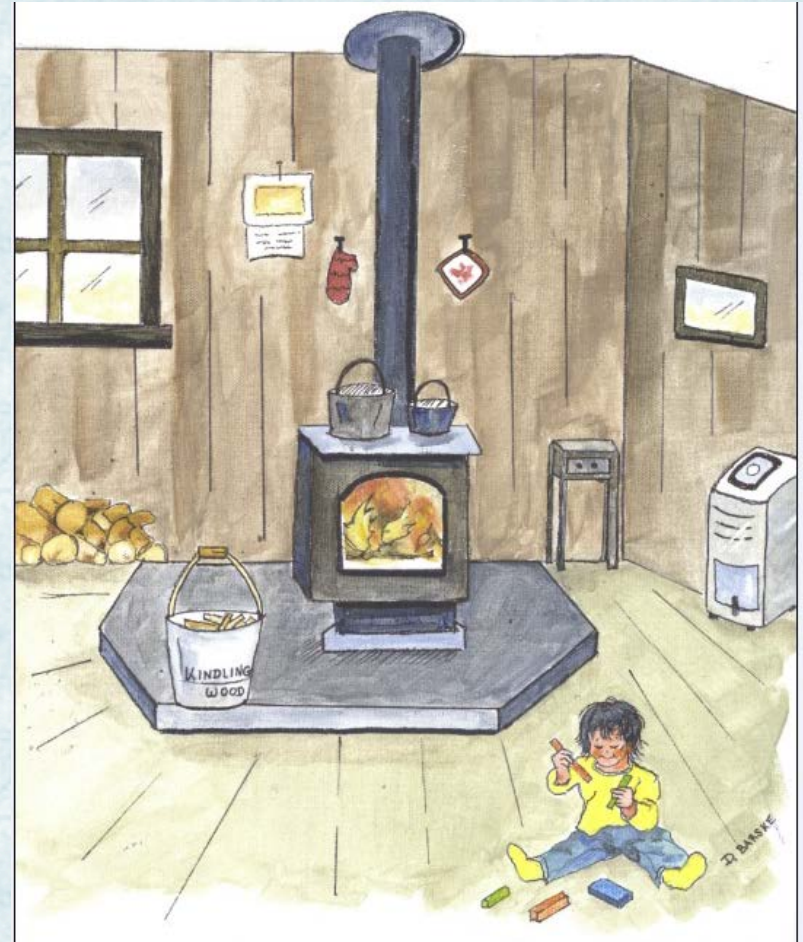
Alaska Native Respiratory Health*

- 1 in 4 babies hospitalized each year
- Over 50% of children have reactive airway disease
- Highest rates of respiratory syncytial virus
- Highest rates of invasive pneumococcal disease
- Bronchiectasis still common
- 68% of infant hospitalizations

*Statistics based on children from the Yukon Kuskokwim Delta. References available upon request.

Project Goals

- Reduce the need for respiratory medical treatment by improving indoor air quality
- Develop a model that can be replicated in other indigenous communities of North America



Our Approach

- Identify children with serious respiratory conditions
- Assess health condition and home environment
- Perform targeted home remediation
- Collect pre- and post-remediation air quality and lung health data
- Share information with North American partners

The Children

- 67 children between the ages of 3 and 12 years
- 68% had severe respiratory conditions







Typical Rural Alaska Homes





















Preliminary Results*



- Indoor Air Quality
- Child Lung Health

**Because data has only been available for a short time formal analysis is still ongoing. All results are preliminary and should be interpreted with caution.*

Impact on Indoor Air Quality*

- 45% decrease in carbon dioxide
- 65% decrease in VOCs
- 49% decrease in PM_{2.5}**

**All results are preliminary*

***PM_{2.5} results based on homes that received a wood stove and burned wood during the pre- and post-remediation air sampling period.*

Potential Impact on Child Health

- Frequent clinic visits
- Early observations suggest improvement
- It's still too early to know for sure*

**Additional years are needed to determine effectiveness of the interventions. Future activities include review of medical records to confirm the self-reported data and comparison of results with those from a control group.*

Thank You!

- Commission for Environmental Cooperation
- Partners in Mexico and Canada
- EPA Children's Health
- EPA Region X Tribal Air Quality
- CDC Arctic Investigations Program
- Alaska HUD
- Yukon Kuskokwim Health Corporation
- Bristol Bay Area Health Corporation
- Native Village of Kwethluk
- Hooper Bay Traditional Council

The time is now!

“Native housing in its present state is utterly inadequate. I feel little can be done to improve this until we have a more fundamental knowledge and understanding of the complex factors involved. It seems very probable that any dwelling which will prove satisfactory for these harsh climates will involve a radical departure in design from anything we now have. It would not appear to be going too far to say that little progress in the attack on tuberculosis in the Eskimo population can be made until some way is found to improve the physical conditions of their dwellings.”

*Richard Green, Sanitary Engineer, USPHS
Excerpt from Letter, May 12, 1948*