Introduction to Climate Change

Effects on Air Quality

Mary Mullan
Tribal Air Quality Program
Introduction

The Alaska Native Tribal Health Consortium (ANTHC)

Who We Are...

Largest tribally managed health organization in the US

Vision: Alaska Native people are the healthiest people in the world

Mission: Providing the highest quality health services in partnership with our people and the Alaska Tribal Health System
To Accomplish Our Vision And Mission...

Our continued work in the Department of Community Environment & Health, helps better understand between our environment, climate, and health

- Air & Healthy Homes
- Contaminated Sites
- Local Environmental Observer Network (LEO)
- Food Security
- Emergency Preparedness
- Environmental Health Field Services
- Capacity & Training

A healthy environment is necessary for healthy people
How The Environment Plays A Role

• Environmental Exposures and Risk

• Routes of Exposures
  - **Inhalation**
  - Ingestion
  - Contact
  - Absorption
Climate Change

Climate change is a long-term change in the earth’s climate and can change the environment in which we live.

Photos: Alaska LEO Observers
Carbon Dioxide

The primary greenhouse gas contributing to climate change is carbon dioxide.

**CO₂ Absorbed and emitted naturally by:**
- plant and animal respiration
- volcanic eruptions
- ocean-atmosphere exchange

**CO₂ From Human Activities:**
- fossil fuel burning
- changes in land use

Over 30 billion tons of CO₂ are released into the atmosphere every year by human activities.
Air Quality And Climate Change, What We Know...

- Extended Warmer Temperatures
- Increased Dust From Dryer Seasons
- Longer Wildfire Seasons
Who Is At Risk??

Wildfires and road dust have different size particulates. Regardless of the source, these tiny particulates are approximately 2.5 - 10 micrometers in diameter and can cause increased health risks.

Especially those with heart or lung disease, elders, and children
Wildfires

According to the Alaska Wildland Fire Information:

- In 2015, 768 fires in Alaska burned more than 5.1 million acres
- In 2016, 558 fires in Alaska burned more than 500k acres
What We Can Do…

Provide steps to protect those at risk from wildfire smoke by:

- Education
- Wildfire prevention
- Reducing outdoor activities
- Watch for symptoms such as coughing or shortness of breath
- Keep indoor air clean

Let’s Clear the Air: Protect Yourself from Wildfire Smoke
Road Dust

Sources of dust in rural Alaska

- Dirt/gravel roads
- Unpaved airport runways
- Exposed riverbeds/shorelines
- Un-vegetated lots
- Gravel pits and stockpiles
Longer and Dryer Summers Increase the Duration of Dry Conditions
What’s In The Dust??

- Chemicals
- Bacteria
- Fungi
- Heavy metals

Contamination from oils, fuel, waste spillage, toxins from landfill, etc.
What We Can Do....

Provide steps to protect those at risk from longer dust seasons by:

- Education
- Slowing down
- Reducing number of vehicles on road
- Improve road surface
- Spread water or dust palliatives
- Clean indoor air
Conclusion

• Begin planning for and implementing innovative adaptation strategies.

• Involve many people in a shared and active dialogue. This includes community members; clinical, public health and environmental health providers; local environmental coordinators; and local, regional and state Tribal organizations.

• Integrate traditional knowledge and science to better understand impacts.
Questions??

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