

The Summer of Smoke: ecosocial and health impacts of a record wildfire season in the Northwest Territories, Canada

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Collaborative on Health and the Environment
Webinar

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Government of NWT

Introduction – Wildfires and Health

- Trauma, injury associated with direct human-wildfire interactions
- Increased risk of respiratory morbidity and overall mortality in populations exposed to wildfire smoke
- Indigenous populations especially vulnerable
 - Disproportionately affected by evacuation orders in Canada
 - Elevated risk of hospitalization for cardiac and respiratory problems in Australia
 - Implications for food and nutritional security



**Fires and smoke outside of Yellowknife
(summer 2014) www.myyellowknifenow.com**



Introduction – The Summer of Smoke

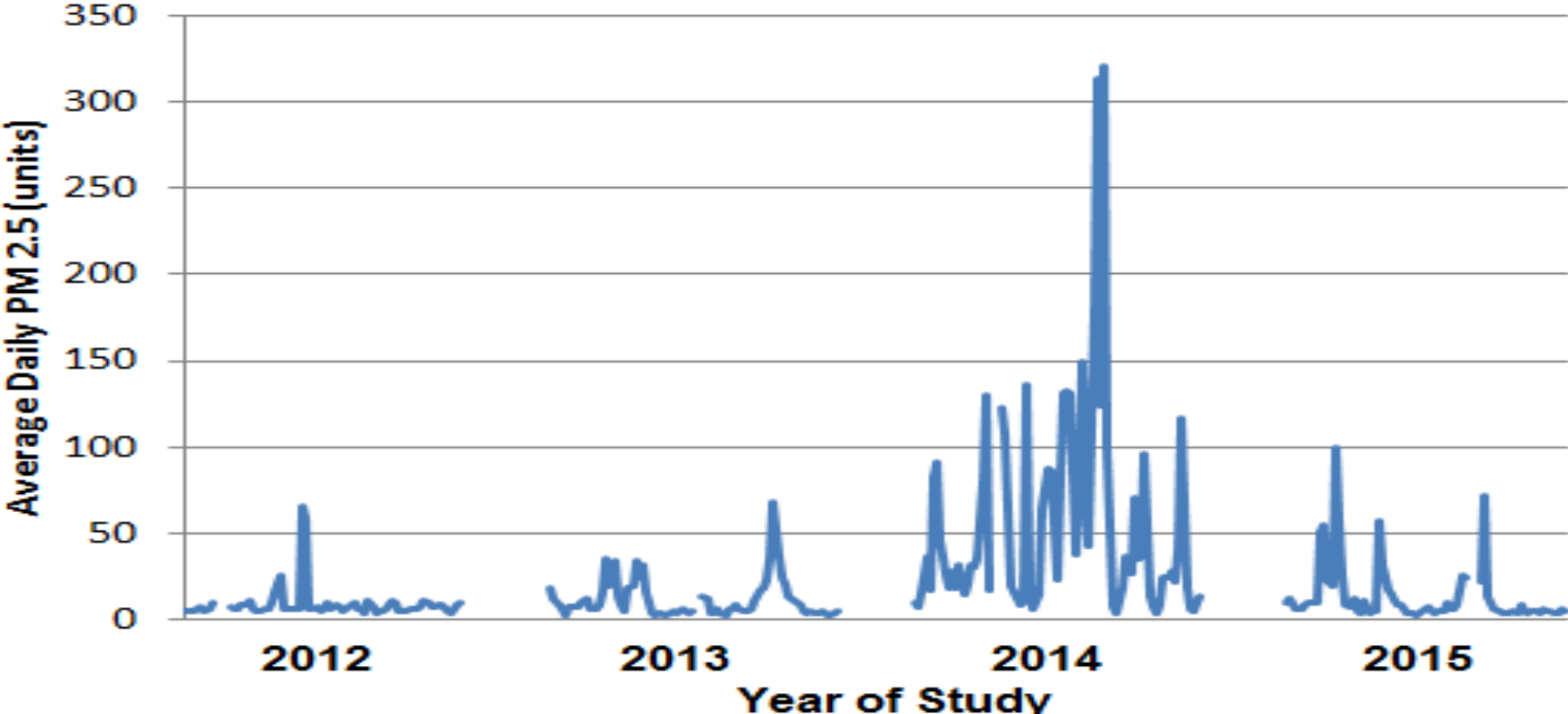
- Summer 2014 (June – August)
- 35,000 km² of forest burned
- \$56.1 million CAD (\$43.4 million USD) in fire fighting costs
 - Budget ~ \$7 million CAD
- Community of Kakisa underwent voluntary evacuation
- Increased incidence of emergency room visits for respiratory problems
- Mental and emotional health impacts



Map of the Northwest Territories, Canada



24-hour mean PM_{2.5} from Yellowknife Air Quality Station During the Study Period



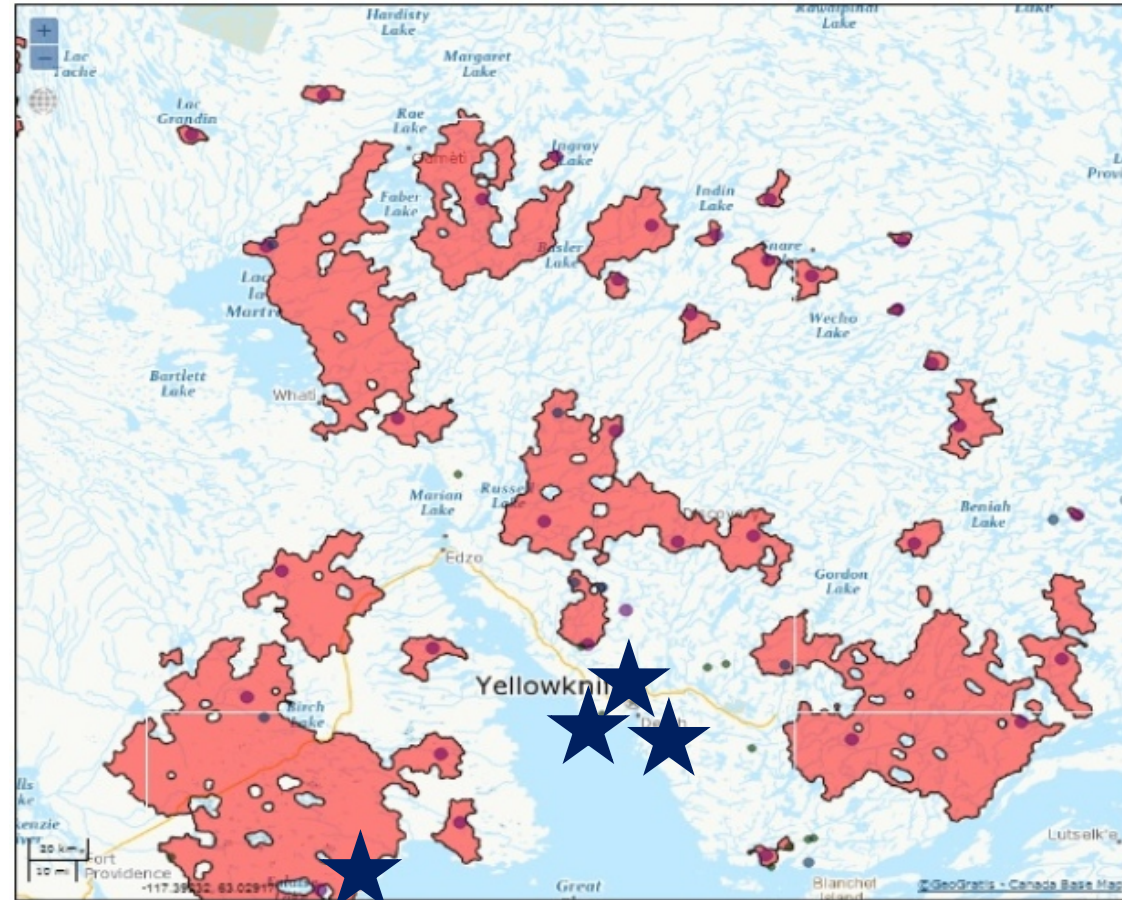
Health System Utilization

- Compared health system utilization between 2014 and the average of 2012 and 2013 (with 2015 as a comparator year)
 - 48% increase in dispensed salbutamol (prescription inhaler)
 - Significantly ($p < 0.0001$) more clinic visits for asthma, pneumonia, cough
 - Double ER visits for asthma; 57% increase in ER visits for pneumonia
 - All measures subsequently decreased in 2015



Partnership

- Intersectoral and interdisciplinary team:
 - Canadian Association of Physicians for the Environment
 - Ecology North (NGO)
 - Local Physicians
 - Yellowknife Dene First Nation
 - Ka'a'gee Tu First Nation
 - Qualitative researchers
 - Epidemiologists
 - Broad community support
- Yellowknife; N'Dilo, Detah, Kakisa



Map of NWT forest fires, summer 2014



Qualitative Methods

- Co-development of semi-structured interview guide
- Purposive sampling to allow for inclusion of diverse backgrounds and experiences
- 30 interviews conducted using video recording
- Thematic analysis of transcripts



Screen shot from community documentary

Qualitative Results

- Key themes:
 1. Consequences for mental and emotional wellbeing
 2. Consequences for physical activity and wellbeing
 3. Separation from the land and traditional activities
 4. Adaptation and resilience
 5. Situating the summer of smoke within broader environmental change



CBC North



Mental and Emotional Wellbeing

- Uncertainty, fear, sadness, anxiety, anger
 - Prominent in Kakisa (underwent voluntary evacuation)
- Isolation
 - Neighbours
 - Communities
 - Land and traditional activities



CBC North



Mental and Emotional Wellbeing

“Well, it took a toll on me because being stressed out from the fires and never knowing when we had to leave to be evacuated we didn't know if we were going to come home to a community or to our houses... **Not knowing what lies around the corner there.** So it was really stressful.... It was really draining because you don't know what's in store for us when we got back home”

(female participant from Kakisa).



Physical Activity and Wellbeing

- Time spent indoors
 - Lethargy
 - Conscious decrease in outdoor exercise
 - Connection to mental health
- Irritants from smoke
 - Headaches
 - Shortness of breath
 - Eye irritation
- Respiratory problems
 - Prominent among those with pre-existing conditions



CBC North



Separation from the land and traditional activities

- The 'lost summer'
- Implications for physical activity
- Implications for mental and emotional wellbeing
- Implications for food and nutritional security



CBC North



Separation from the land and traditional activities

“It was like we didn’t have a summer, for me, because, usually we get outside, we do things on the water...we enjoy being in the North. We enjoy being outside. We enjoy the environment. We enjoy cooking. Everything that’s outside, we enjoy, and, I feel like I lost that...that impacts you emotionally and mentally”
(female participant from Yellowknife).



Separation from the land and traditional activities

“It was the lost summer...the attachment to the land and place, what it does, and when you get alienated, you know, from that place...it takes a deep, emotional toll, if not a spiritual toll”

(female participant from Yellowknife).



Adaptation and Resilience

- Fire proofing homes prior to wildfire season
- Opening of indoor recreation centres
- Community concern and support



Conclusions

- Comprehensive planning and education
 - Prior, during, and following wildfire events
- Implications for health resource allocation
 - Support for mental health
- Improved risk communication
 - Smoke forecasting
- Inclusive of local values, traditions, connection to land



Title screen from community documentary



Acknowledgements

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Ka'a'gee Tu First Nation

Communities of Detah, N'Dilo, and Kakisa

Ecology North (Yellowknife)

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Thank You

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