

# An Application of a Population Health Framework to Understand Respiratory Health Among First Nations People

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## ABSTRACT

**Background:** Living conditions in many First Nations communities are associated with adverse respiratory outcomes. The Saskatchewan First Nations Lung Health project is a new prospective cohort study of aboriginal people being conducted in two First Nations reserves to evaluate potential health determinants associated with respiratory outcomes. We are adopting Health Canada's Population Health Framework to accomplish the four specific objectives of (i) conducting an assessment of relationships between health determinants and respiratory outcomes; (ii) developing and conducting intervention strategies aimed at addressing and redressing issues identified in the consultation process and those emerging from baseline studies; (iii) reassessing by means of a prospective evaluation of lung function and the effectiveness of intervention strategies; and (iv) assessing health care utilization patterns with regard to respiratory health outcomes.

**Methods:** The study is being conducted over 5 years (2012-17) in two phases, baseline and longitudinal. Currently we are in the process of collecting *baseline survey* data for adults (commenced in the summer 2012) from the two aboriginal reserves to accomplish objective 1. The baseline adult survey consists of a questionnaire-based evaluation of individual and contextual factors of importance to respiratory health (with special focus on chronic bronchitis, chronic obstructive pulmonary disease, asthma and obstructive sleep apnea). Clinical lung function and allergy tests are being conducted with the consent of study participants..

**Significance:** The information from this project will assist in addressing and redressing many of the issues involved including the provision of adequate housing, health lifestyle practices, and in planning for health service delivery.

- Socio-economic factors such as Low family income, low educational attainment, and inadequate housing are more prevalent among Aboriginal people.
- Socio-economic factors are related to respiratory health outcomes.
- Colonization as an aboriginal-specific historical contextual factor is a risk factor for poorer health status.
- Residential schools have had deleterious effects on Aboriginal peoples' health including inadequate education, negative effects on employment and living conditions, which impact health, including respiratory health.
- To date, determinants of respiratory health in First Nations people living on reserves and means of addressing and redressing issues have not been well established, and form the core of the activities of this proposal.

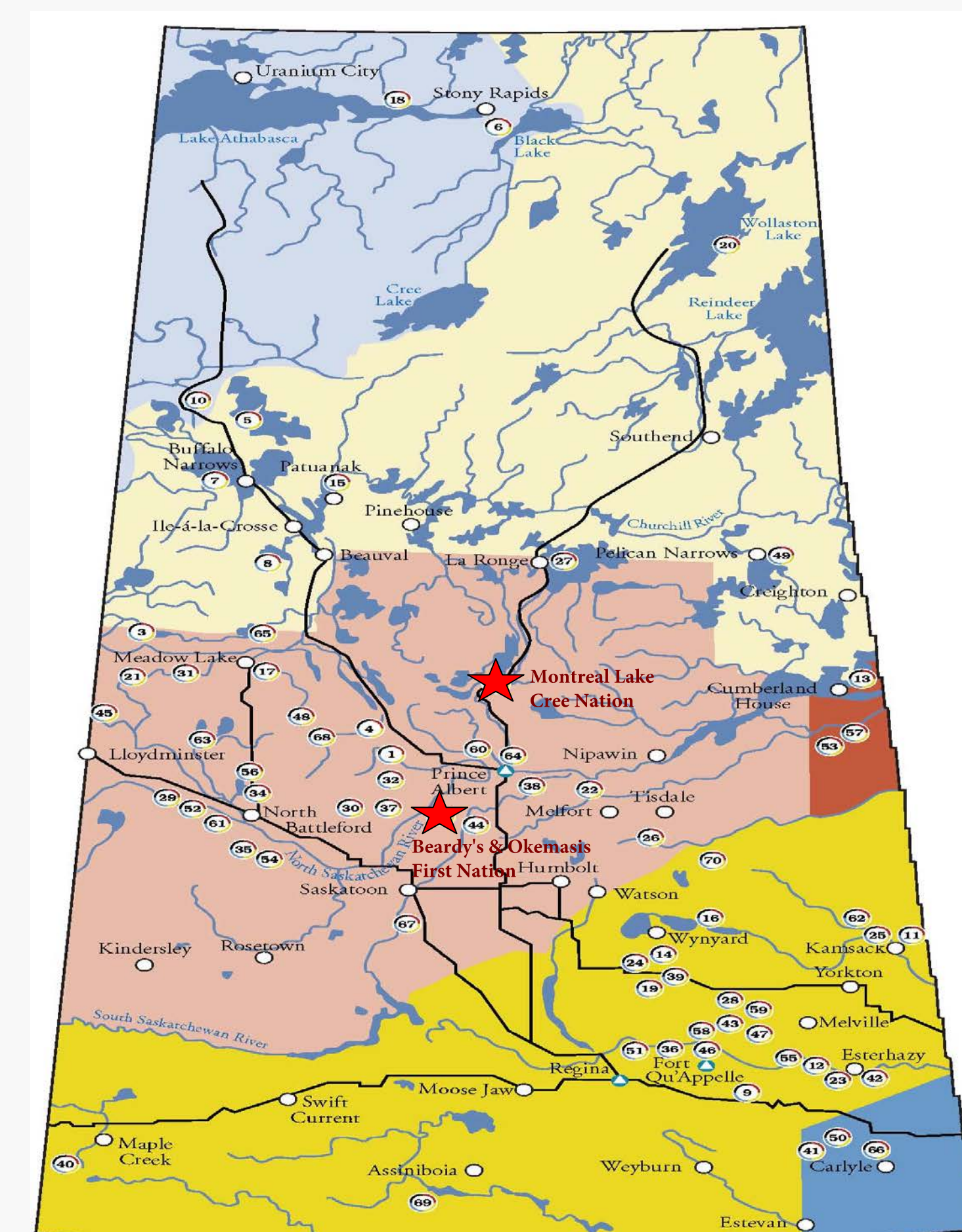
## RESEARCH OBJECTIVES

- To conduct an assessment of relationships between health determinants and respiratory outcomes.
- To develop and conduct intervention strategies aimed at addressing and redressing issues identified in the consultation process and those emerging from baseline studies.
- To reassess by means of a prospective evaluation of lung function and the effectiveness of intervention strategies.
- To assess health care utilization patterns with regard to respiratory health outcomes.

## BACKGROUND

-In 2006 the population of Aboriginals in Saskatchewan was 141,890 persons, comprised of First Nations (91,400), Metis (48,115) and Inuit (215), in total representing 15% of the population. In Saskatchewan, an estimated 52% of First Nations people live on reserves.

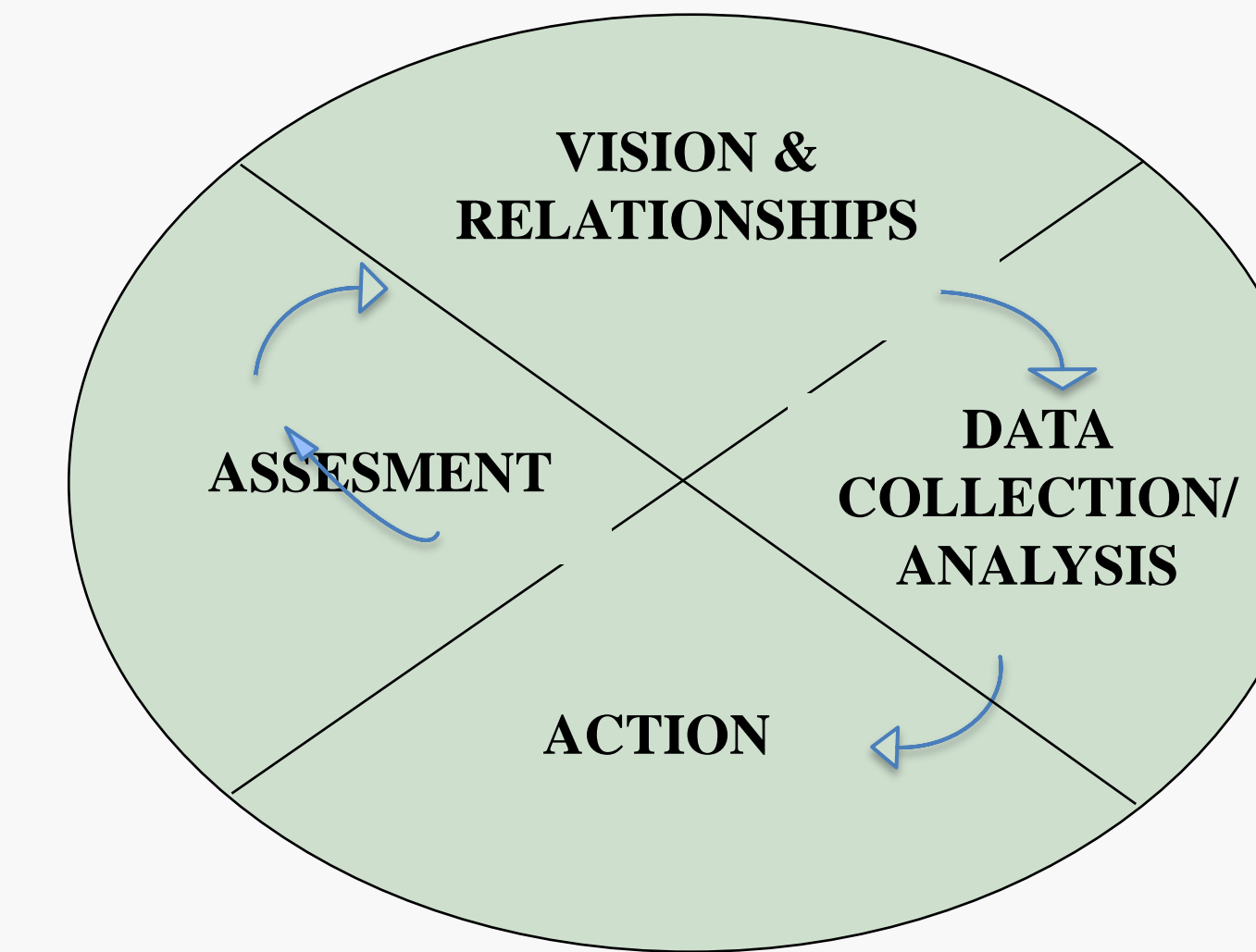
- Smoking rates are high among on-reserve First Nations adults (58.8% vs. 24.2% among all Canadians) and contribute to both excess mortality and adverse respiratory outcomes.
- Among children, exposure to environmental tobacco smoke, respiratory infections related to overcrowding are associated with poor respiratory health.
- Poor housing conditions (dampness and mold) contribute to bronchitis and asthma.
- Sleep apnea may be more common in Aboriginal people, related to craniofacial structures, obesity and socioeconomic status.
- Sleep apnea is a risk factor for heart disease and stroke.
- Obesity is associated with reduction in pulmonary function, and with sleep apnea.



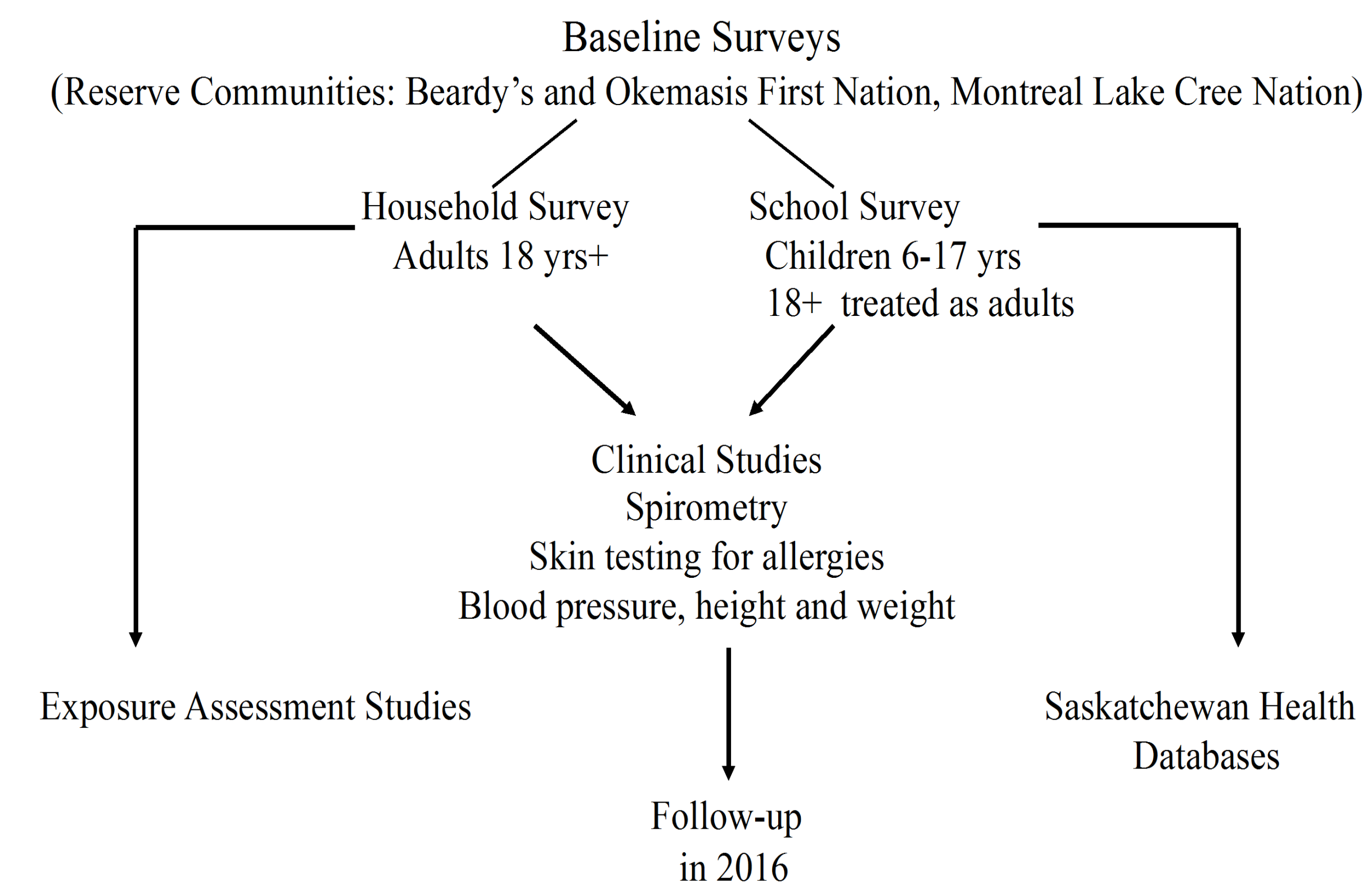
Participating First Nations Reserves and Treaty Boundaries in Saskatchewan

## STUDY DESIGN AND METHODOLOGY

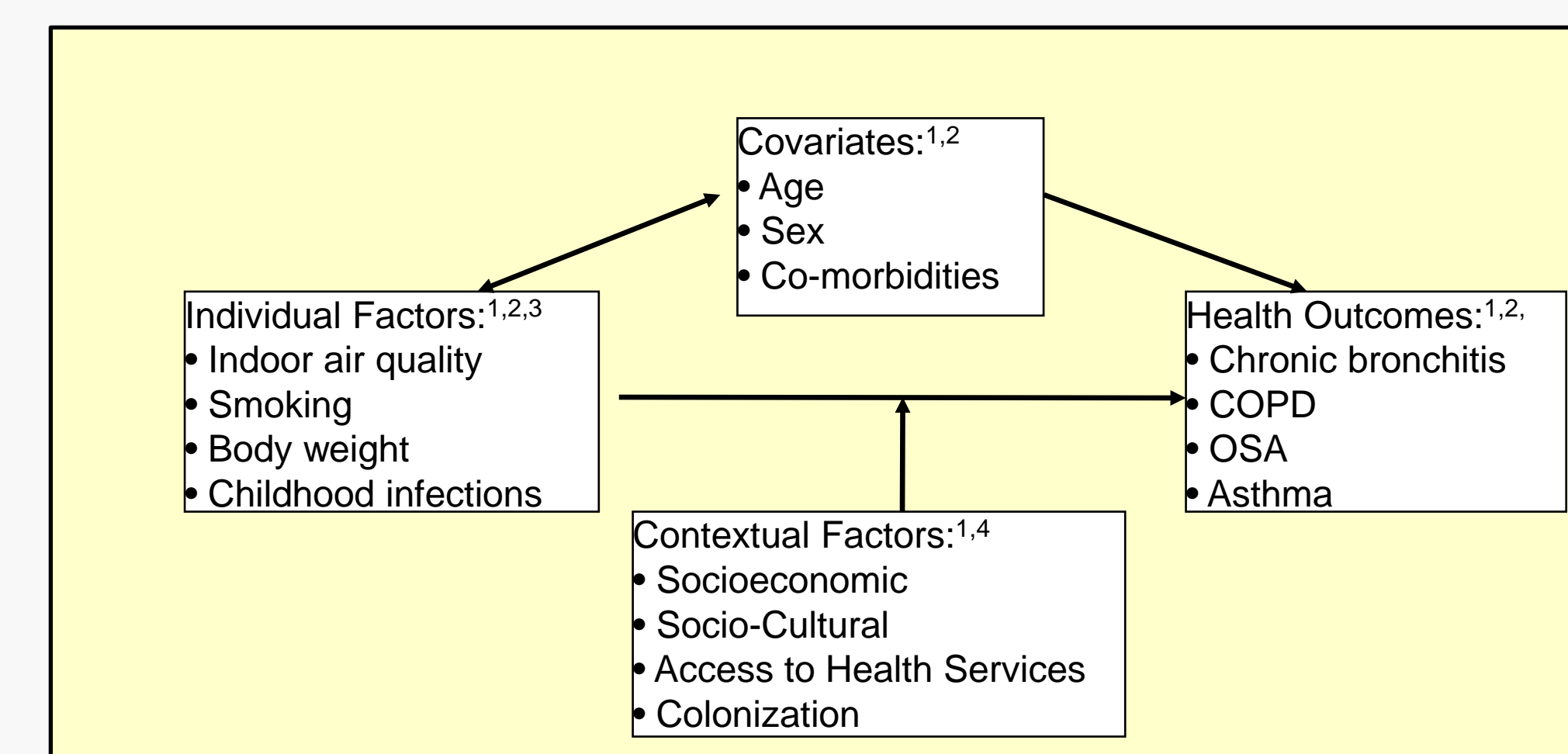
### 4- Phase Concept of the First Nations Regional Health Survey



### Prospective Cohort Design



### Population Health Framework of Health Canada



Legend of Assessment Methods: 1. Survey questionnaire; 2 Clinical assessment; 3. Environmental assessments; 4. Health care utilization records.

(Diagram courtesy of Dr. Will Pickett)

### Table. Logic Model for intervention strategies, addressing/redressing and evaluation

Issue (Identified problems)	Assess (Baseline)	Address (Community level)	Redress (Policy level)	Reassess (Outcome measures)
1) Housing (dampness, mold, endotoxin) - Environ tobacco smoke - Wood/oil heating	-Environmental measures. -Asthma in children	-House keeping -Managing asthma -"Outdoor living room" -(not smoking)	-Household mold remediation -Housing policy	-reduction in wheezing in children -reduction in smoking in houses with children
2) Smoking	-Symptoms -COPD -Lung function	"Breath of Fresh Air Campaign" -Management of COPD	-Support for culturally appropriate smoking cessation	-reduction in smoking in graduating grade 12 -improvement in lung function
3) Infections - Over crowding	Bronchitis	-Immunization -Flu vaccine -Prompt treatment	-Housing policy (crowding)	-reduction in flu cases and respiratory infections
4) Body Weight	Sleep Apnea	-Identify cases -Community sports -Combined initiative with diabetes programs	-Access to healthy/nutritive food -equipment	-all cases of sleep apnea treated -reduction in average Weight

## BASELINE SURVEY – DATA COLLECTION

**Adult Cohort** - Began 30/05/12

**May 5 – August 31 2012:**

- 734 adult (18 years and older) community residents participated.
- Expected to finish by August 31, 2013

**Child Cohort** - Began 06/03/13. An estimated 774 (6 – 17 years) children will be tested at their schools.

- Expected to finish by June 15, 2013.

**Environmental Home Assessment** - Data collection in 2013-2014.

## SIGNIFICANCE

As Saskatchewan includes a large number of First Nations people living in rural reserves, the information from this project will assist in addressing and redressing many of the issues involved and in planning for health service delivery. Identification of factors that promote health and prevent respiratory disease in First Nations populations will guide strategies to improve disease outcomes, including public education programs and health services programs. The findings from this study will empower First Nations communities to effect changes in their communities, as well as assisting in determining provincial and national policies and priorities.

## ACKNOWLEDGMENTS

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