CAN A NURSING-CENTRIC PRIMARY HEALTH CARE SYSTEM DELIVER ON HEALTH OUTCOMES IN RURAL AND REMOTE COMMUNITIES?

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BACKGROUND

- Since the 1960s: nurses with expanded scope of practice, along with community-based staff delivering primary healthcare in First Nation communities (nursing station);
- First Nation reserves in British Columbia (BC). Most communities do not have access to a Family Physician coming on reserve;
- Turn over of family physicians leads to discontinuity in care, which can be mitigated by a community-based team with relationship to the patient.

THE ON-RESERVE MODELS OF CARE

Health care facility types and characteristics in First Nation reserve communities

Nursing station	On-reserve health services, funded to ensure local access to screening, prevention, emergency care and treatment services on a 24/7 basis. Primary care delivered by nurses with an expanded scope of practice.
Health centre	On-reserve health services funded: Emergency, screening and prevention available 5 days/week. There is no or limited funding to ensure off-hours coverage.
Health station	On-reserve health services funded: Part-time, often non-resident screening and prevention services only.
No facility	No on-reserve facility: access to care is through a provincial point of care located close to the community.

OBJECTIVE

- To assess whether the nursing/community-centric model of care is working, or whether we need to push for physician services in order to address health inequities.

METHODS

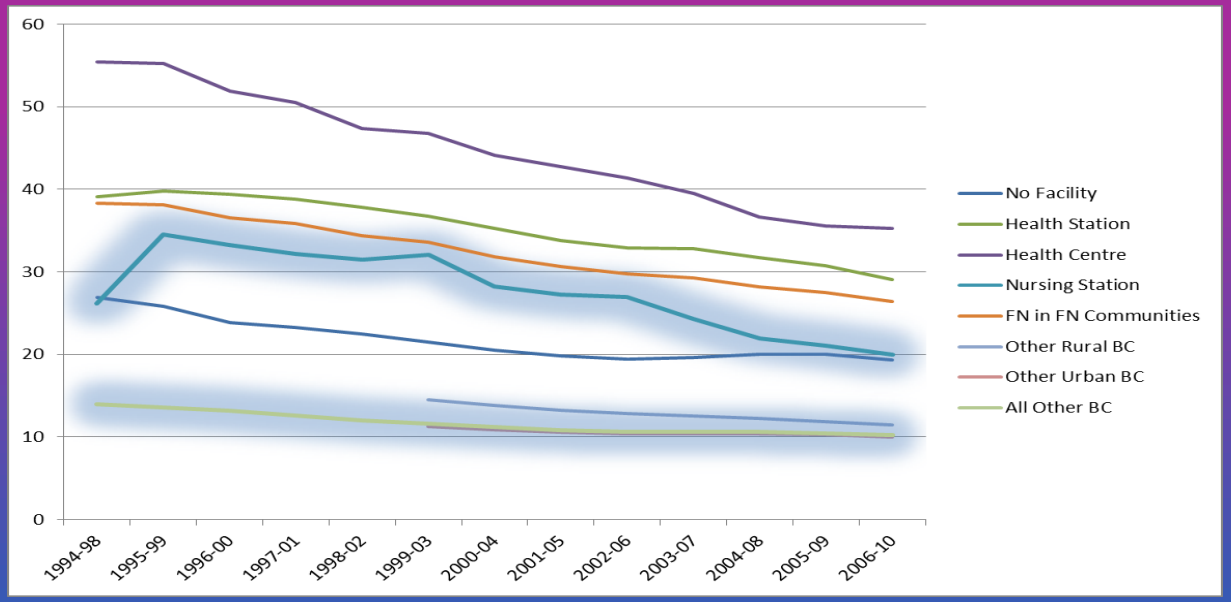
- Administrative health data: billing, discharge abstracts, deaths; data file containing postal codes (6-digit)
- Relationship between rates of hospitalization for ambulatory care sensitive conditions (ACSC) and premature mortality within each model--to identify trends in primary health care needs in rural and remote communities.
- GEE modeling, and five year rolling samples to attenuate the impact of small sample size.

Ambulatory Care Sensitive Conditions

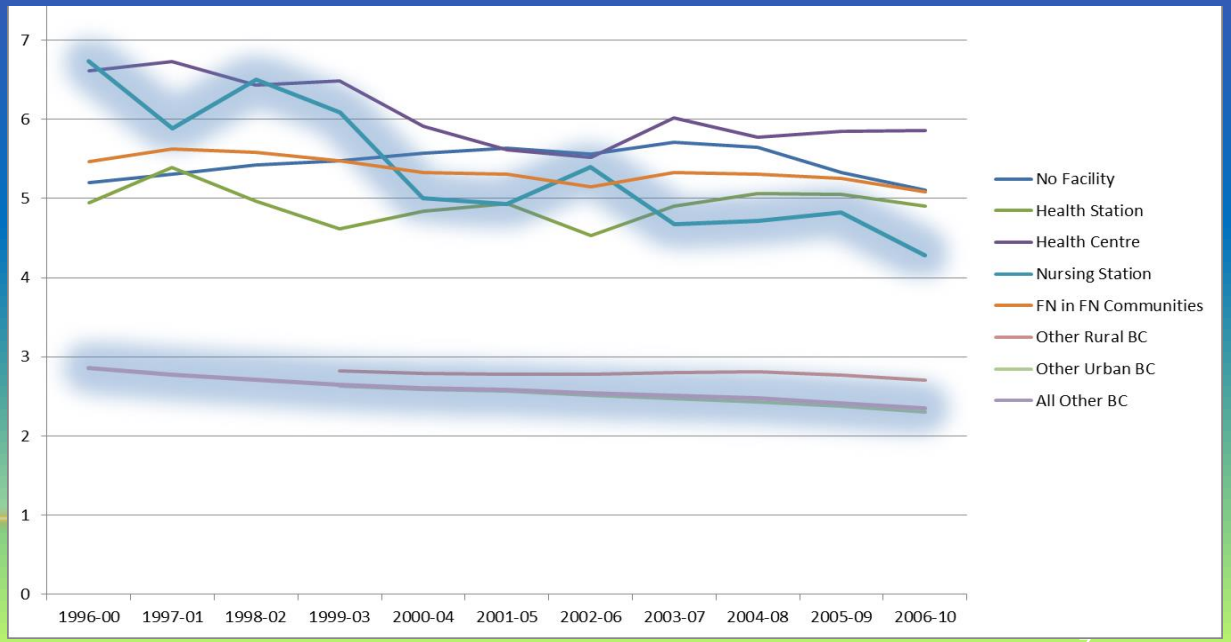
Chronic Conditions	•Asthma	•Hypertension
	•Angina	•Chronic Obstructive Pulmonary Disease (COPD)
	•Heart Failure and pulmonary edema	•Pneumonia (only when a secondary diagnosis of COPD is present)
	•Grand mal status and other epileptic convulsions	•Acute Bronchitis (only when a secondary diagnosis of COPD is present)
	•Diabetes with complications	•Iron deficiency anemia; Other deficiency anemia
Vaccine Preventable Conditions	•Diptheria	•Mumps
	•Hemophilus Influenza type B	•Pertussis
	•Hepatitis A	•Pneumococcal
	•Hepatitis B	•Poliomyelitis
	•Influenza	•Tuberculosis
	•Measles	•Rubella
	•Meningococcal disease (meningitis)	•Tetanus
Acute Conditions	•Dental Conditions	•Gastroenteritis
	•Cellulitis	•Severe ENT Infections
	•Pelvic Inflammatory Disease	
Mental health	•Mood disorders	•Schizophrenia

RESULTS

Adjusted ACSC rates



Adjusted PMR rates



RESULTS

Correlations between directly adjusted rates of ACSC hospitalization episodes and premature mortality, 1993-2010, by community/facility type

	No facility/ Health station	Health centre	Nursing station	Other rural BC	Other urban BC	All BC
All ACSC conditions		0.64*	0.90**		0.89*	0.99*
Chronic conditions Asthma, Angina, Heart Failure and pulmonary edema, Convulsion & Epilepsy, Diabetes with complications, Hypertension, COPD, Pneumonia, Bronchitis and Anemia			0.93**		0.93**	0.99**
Vaccine preventable conditions Diptheria, Hemophilus, Influenza type B, Hepatitis A, Hepatitis B, Influenza, Measles, Meningoococcal disease (meningitis), Mumps, Pertussis, Pneumococcal, Poliomyelitis, Pulmonary/ other, Tuberculosis, Rubella, Tetanus		0.69*	0.75*		0.73*	0.96**
Acute conditions Dental Conditions, Cellulitis, Pelvic Inflammatory Disease, Gastroenteritis & Dehydration, Severe Ear, Nose and Throat (ENT) infections		0.66*	0.73*	0.84*		0.95**
Mental health conditions Schizophrenia, Mood Disorders		0.63*	0.75*			0.93**

*$p < 0.05$; **$p < 0.001$; Blank cells = results were not statistically significant.*

In communities with nursing stations, hospitalization rates for all ACSC conditions and chronic ACSC conditions decline along with the premature mortality rate, similar to in urban BC, suggesting that care needs are being met by primary health care services in these communities. This is not the case for communities with a health centre, health station, or no facility.

RESULTS

- The strength of association is noticeable for all ACSC conditions and chronic conditions: communities served by nursing stations can sufficiently lower premature mortality rate from ACSC and are comparable to urban centres.
- Limitations: unable to describe models of care in more depth, ecological study

IMPLICATIONS

- The nursing station model of care could be a protective factor against premature mortality.
- Registered nurses have an expanded scope of practice; community-based staff deliver prevention and primary care to meet the primary health care needs of BC First Nations.
- These findings are important for the design and delivery of primary health care services in rural and remote communities.