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How a comparative study of city-level health inequalities can advance policy making: Recent Canadian results and their implications

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Annual Canadian Sociological Association (CSA) Conference, June 1st, 2021

Outline

- A bit of background
- Measuring trends in health inequalities in cities (MTHIC)
- Four stylized facts about urban health inequalities
- Looking locally, thinking differently

A bit of background

Toward a comparative study of cities

- A considerable amount of decision-making is made at the city-level
- Critically, it is at the city-level that programs and services are adapted and implemented to serve specific populations
- We need "high resolution" evidence that can inform these decisions
- This information needs to be routinely gathered and updated in real-time

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Urban Public Health Network (UPHN)

- Top public health doctors of the largest cities in each province
- Collectively, responsible for the population health of more than 60% of Canadians

+ Surrey + Mississauga + Laval + Longueuil + Sherbrooke + Fredericton + Vaughan

Y.T.
N.W.T.
Nun.
B.C.
Alta.
Sask.
Man.
Ont.
Que.
N.L.
N.B.
N.S.
Victoria
Vancouver
Edmonton
Calgary
Saskatoon
Regina
Winnipeg
London
Toronto
Hamilton
Ottawa-Gatineau
Montréal
Québec
Moncton
Saint John
Halifax
St. J

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What is population health?

- ““the health outcomes of a group of individuals, including the distribution of such outcomes within the group” (Kindig and Stoddart 2003)

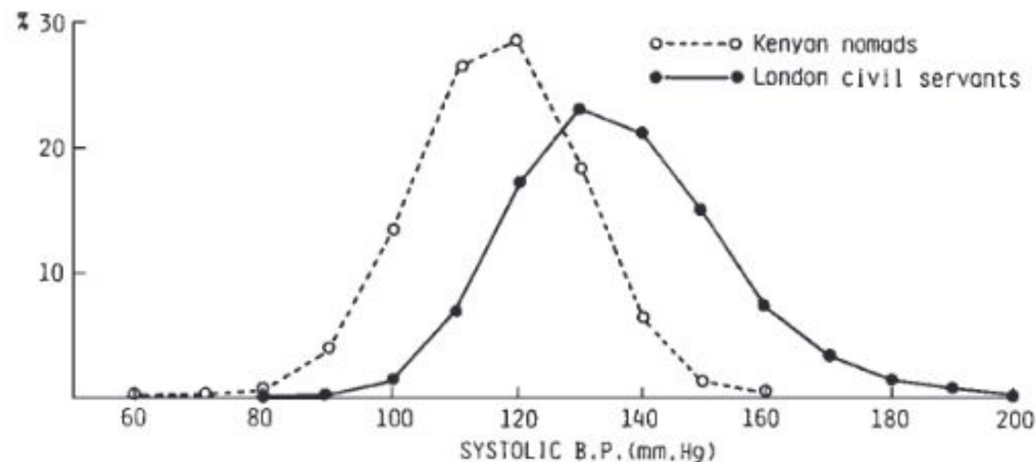

Figure 2 Distributions of systolic blood pressure in middle-aged men in two populations[2,3]

(Rose 2001)

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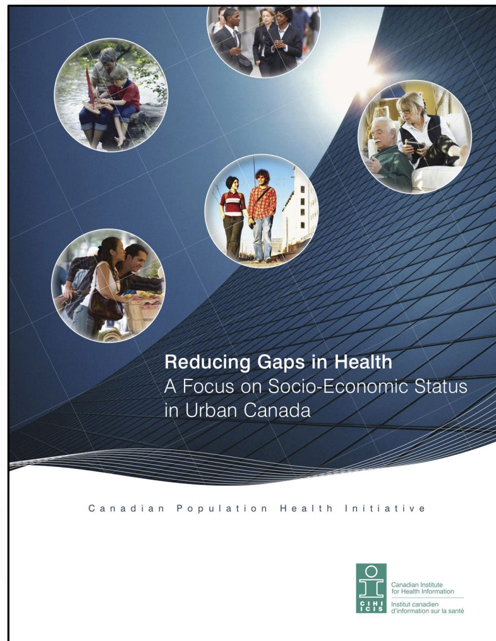
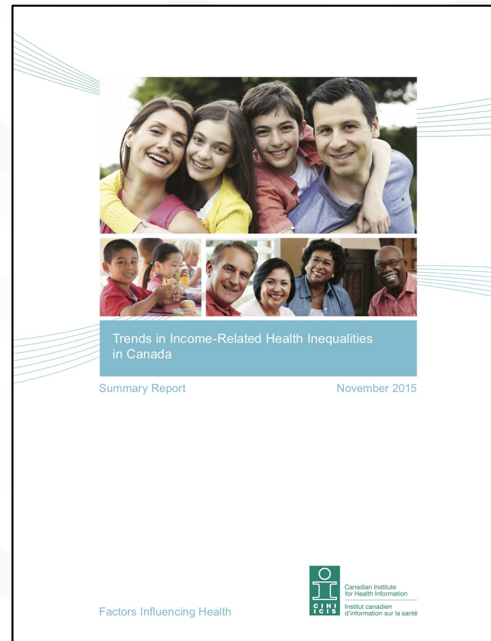
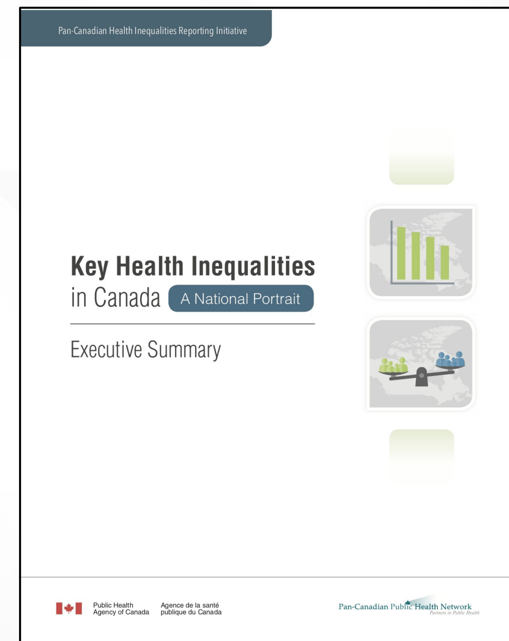
MTHIC Predecessors

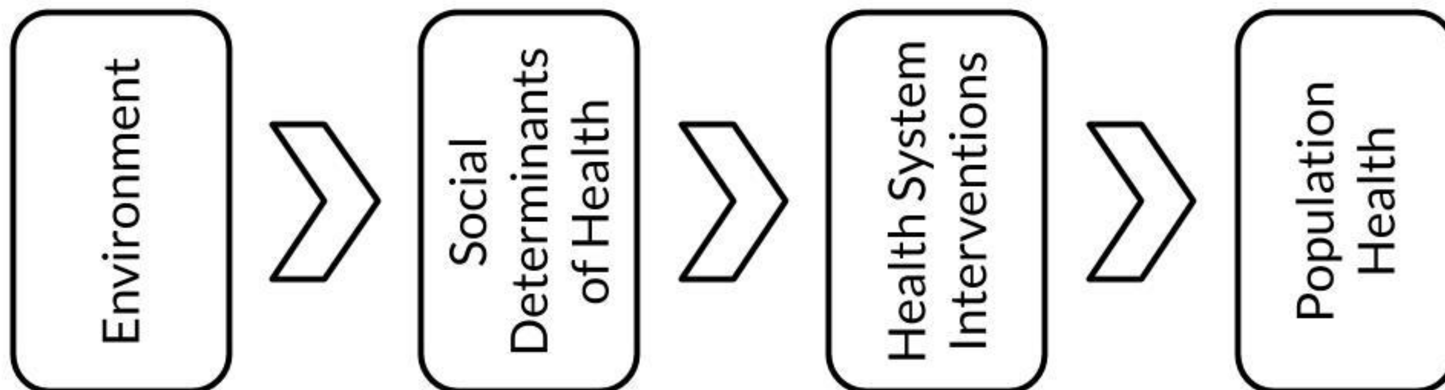






Some key data challenges

- City-level data doesn't always exist
- If it does, this doesn't mean it can be accessed
- Sometimes it can be accessed but not shared
- All too often city-level research isn't comparable



Measuring trends in health inequalities in cities (MTHIC)

Income-Related health inequalities

1. Identify low and high income neighborhoods
2. Calculate health outcomes in each group of neighbourhoods
3. Compare differences between them

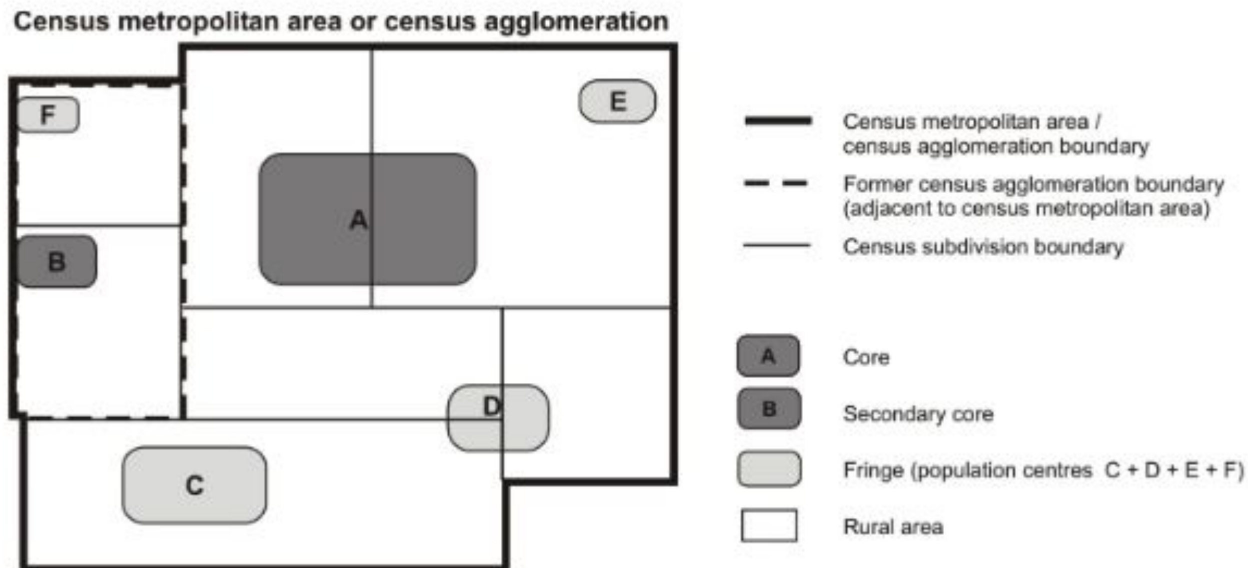
$$\textbf{Rate Ratio (RR)} = \frac{\text{Rate Among Poorest}}{\text{Rate Among Richest}} \quad (1)$$

$$\textbf{Rate Difference (RD)} = \text{Rate Among Poorest} - \text{Rate Among Richest} \quad (2)$$

PCCF+ Assigned Dissemination Area Income

- Also known as "QAIPPE"
- Saskatoon pictured at right

Drilling down to the local level



29 different health outcomes

Hospital utilization indicators (CIHI)

- Angina (ACSC)
- Asthma (ACSC)
- Congestive heart failure (ACSC)
- COPD (ACSC)
- Diabetes (ACSC)
- Epilepsy (ACSC)
- Opioid poisonings
- Conditions entirely caused by alcohol
- Heart attacks
- Stroke
- Overall injury
- Injury caused by falls
- Motor-vehicle injury
- Self-injury
- Day surgery for childhood dental caries

Self-reported indicators (UPHN)

- Alcohol binging
- Asthma
- Diabetes
- Flu shot
- Excellent or very good health
- Excellent or very good mental health
- Physically inactive
- Most days are stressful
- Participation and activity limitations
- Mood disorder
- Overweight or obesity
- At least three self-reported risk factors
- Smoker

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Key innovations

1. Taking as our unit of analysis 5-year between census intervals: 2001-2005, 2006-2010, 2011-2015
2. Adopting an indicator-by-indicator approach to analysis allowed us to report on levels of geography never before reported on
3. Development of new vetting practices to determine when data is sufficient and thus allowing other researchers to replicate

Four stylized facts about urban health inequalities

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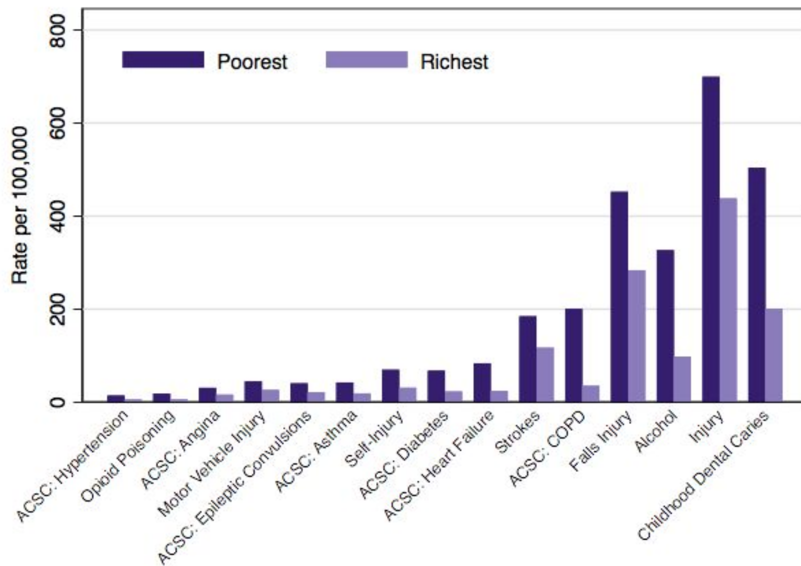
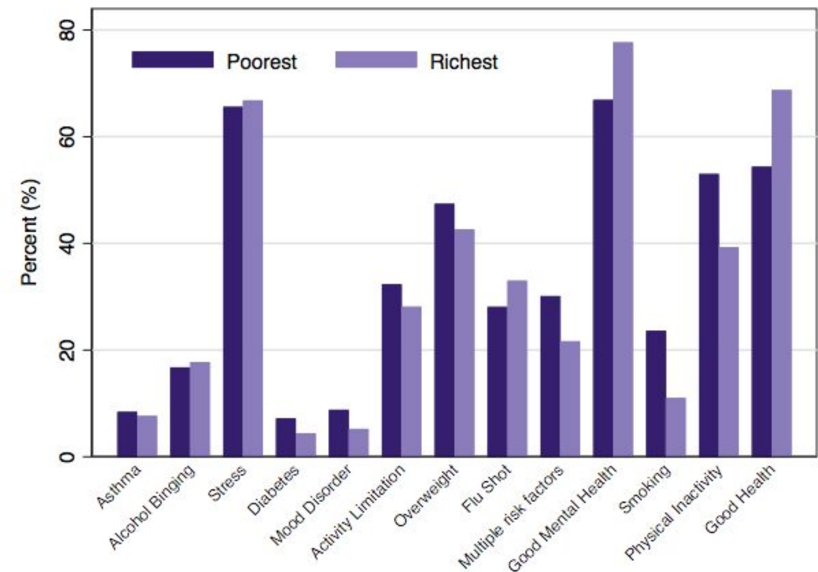
Stylized Fact 1: Income-related health inequalities are widespread in Canada's cities.





	Hospitalizations						Self-Reported		
	COPD*	Heart Failure*	Diabetes*	Epilepsy*	Alcohol	Self-Injury	Stress	Mental Health	Overall Health
Victoria	↓	↓	↑	↑	↑	↑			
Vancouver	↓	↓	↑	↑	↑	↑	↓	↓	↓
Calgary	↑	↑		↑	↑	↓		↑	↑
Edmonton	↑	↑	↑	↑	↑	↑			
Saskatoon	↑		↑	↑	↑	↑			
Regina	↑	↑	↑	↑	↑	↑			
Winnipeg	↑	↑	↓	↓		↓		↓	
London	↑	↑	↑	↑	↓	↑			
Hamilton	↑	↑	↑	↑	↓	↑			
Toronto	↓	↑	↓	↓	↓	↓			↓
Ottawa-Gatineau	↑		↓	↓	↓	↑			↑
Montréal	↑		↓	↓	↓	↓	↑	↑	
Sherbrooke	↑				↑	↑		↑	↑
Québec	↑	↓	↓	↓	↑	↑		↑	↑
Fredericton	↑	↑	↑		↑	↑			
Saint John	↑	↑	↑	↑		↑			
Moncton	↑	↑	↑	↑	↓	↑		↓	↓
Halifax	↑	↓	↓		↑	↑			
St. John's	↑	↑	↑	↑	↑	↑	↓	↑	

	Lower than	Similar	Greater than
Overall rate	↓		↑
Inequalities (RD & RR)			

*Conditions where appropriate ambulatory care prevents or reduces the need for admission to hospital, per 100,000 population younger than age 75.

Stylized Fact 2: Income-related health inequalities vary considerably between cities and among indicators of health

No single city outperforms or underperforms all others; different cities exhibit different patterns in health inequalities

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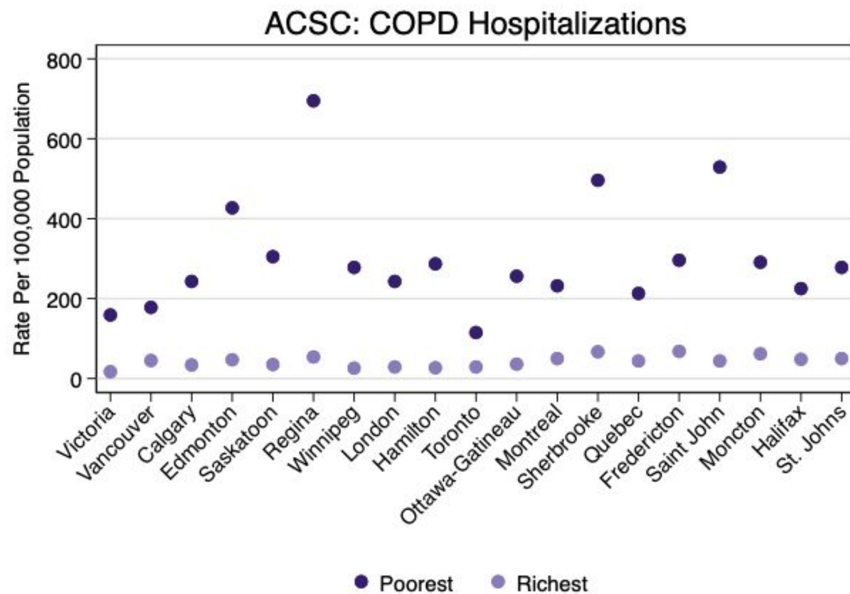
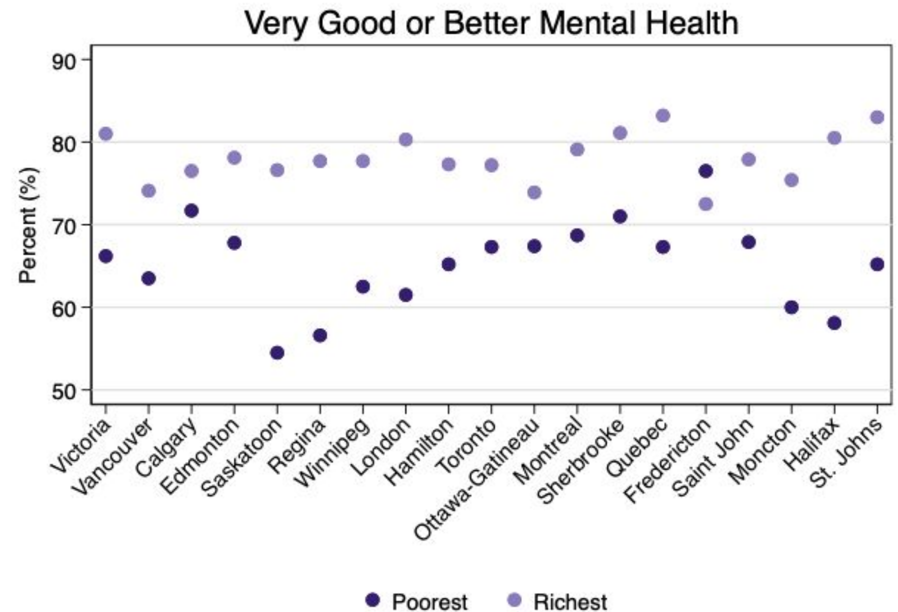
Stylized Fact 3: Differences in income-related health inequalities are being driven primarily by health outcomes of the poorest neighbourhoods.





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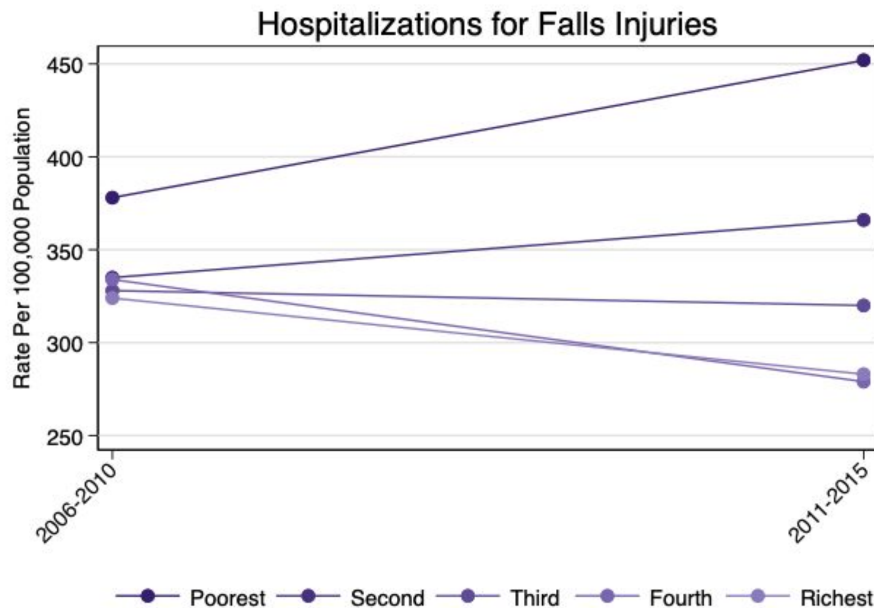
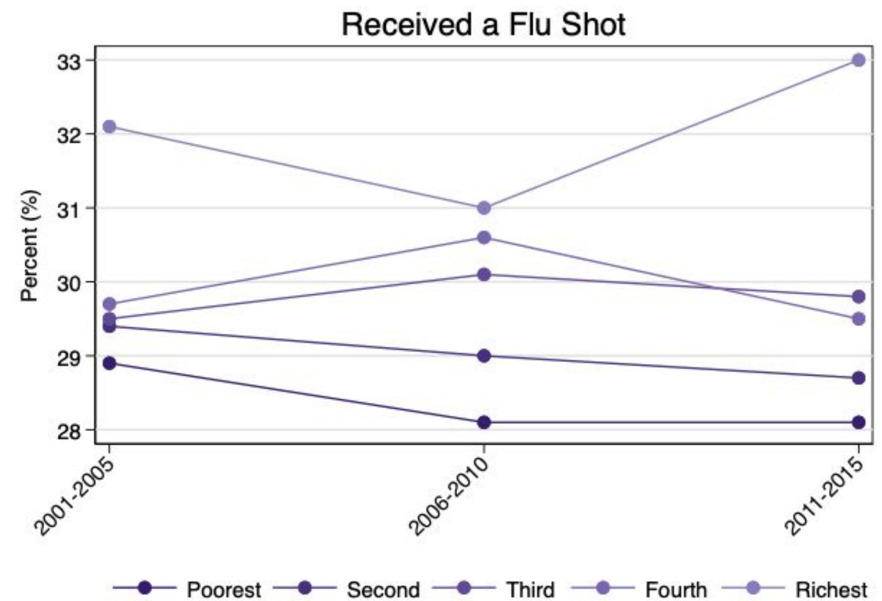
Stylized Fact 4: Urban income-related health inequalities are generally not improving





Looking locally, thinking differently

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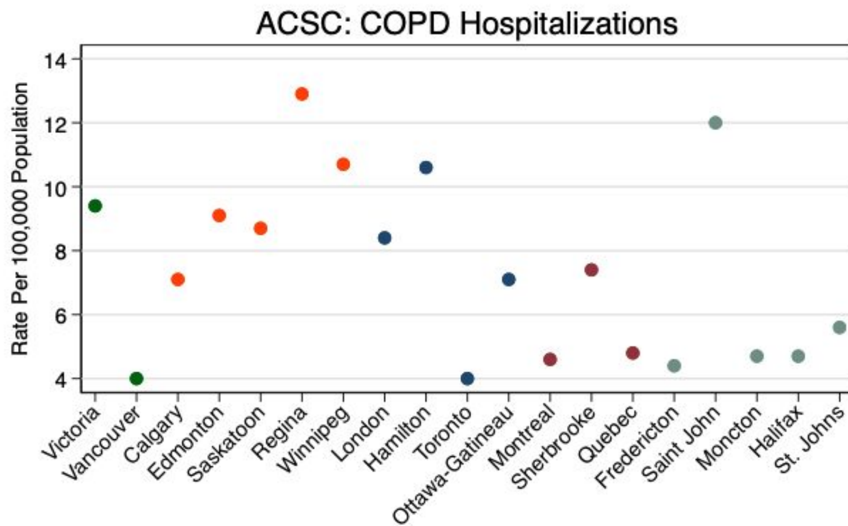
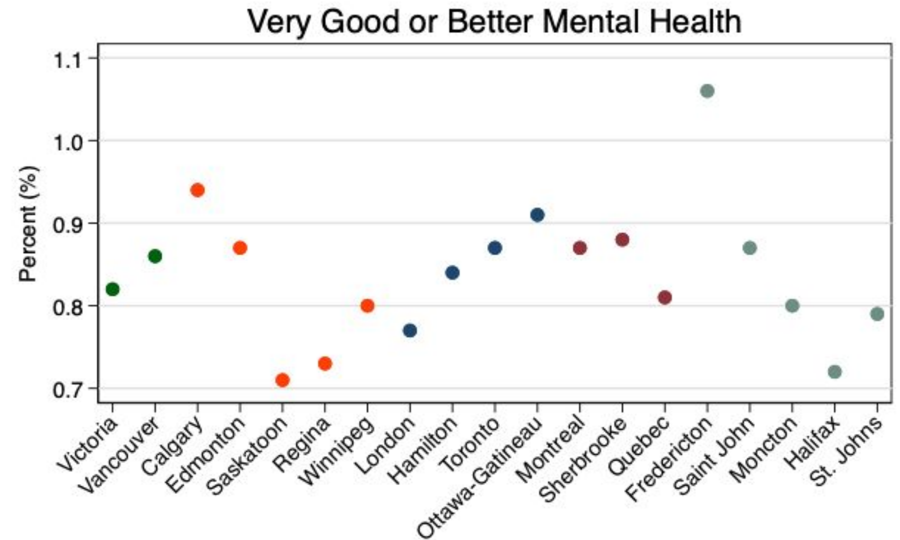
Can be as much variation within as between provinces





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Leading us to think differently about governance and implementation

- Policies and guidelines are often decided at higher levels but are implemented at local level
- For example, tax and fiscal policy are set at higher levels
- Also, levels that we have data for.
- Are we only looking for our keys under the lamplight?

Descriptive or not, important implications

1. Either higher-levels are failing to tailor their programming to ensure equitable access to health and well-being for all citizens
2. Or, local level decision makers and service providers are having an important impact on our lives (and we're not studying them)
3. Probably a bit of both...

Engaging diverse stakeholders by meeting people where they are

- People live, work, and play in their local communities; they intuitively grasp the substantive importance of related numbers
- CIHI found that when they started working at the CSD level, they had something to talk about with indigenous communities
- I'm my own work, I am far more regularly asked to comment on city-level outcomes than provincial or national
- Consider the choice of Canada's New Official Poverty Measure

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Thank you

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What is public health?

- A field of medical practice that treats population health.
- In contrast to classic medical approaches, its patients are groups people rather than individuals:

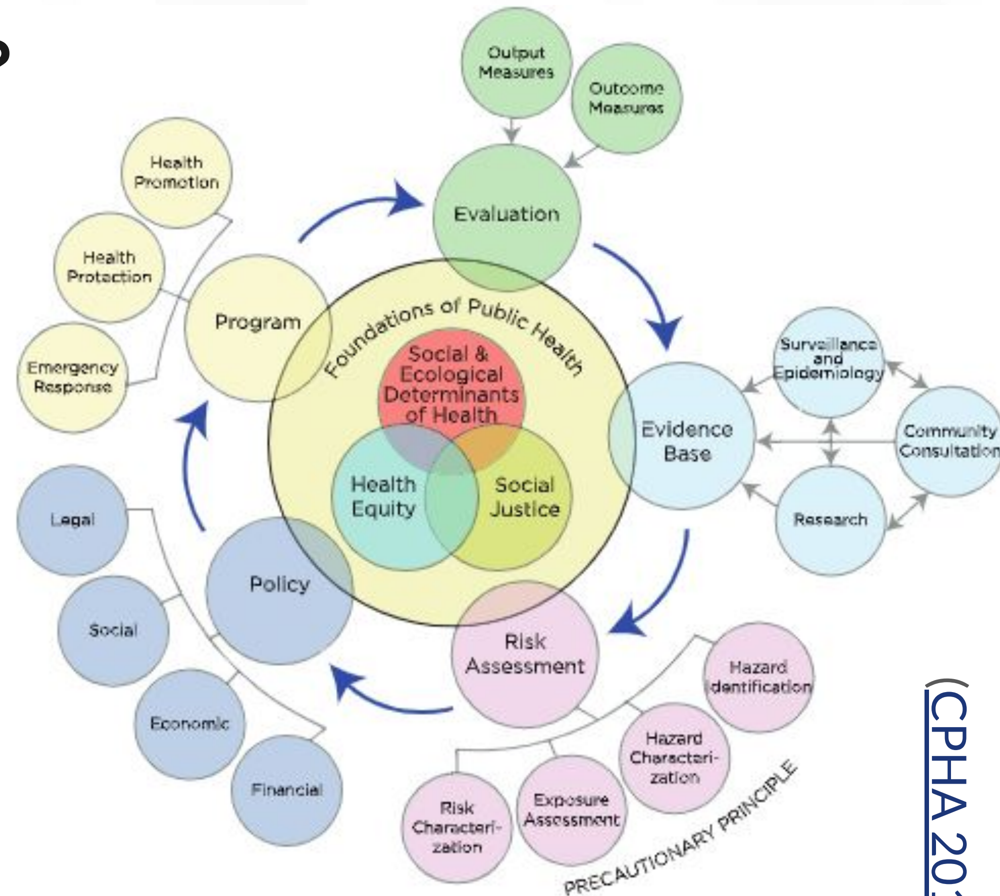

Figure 1: A conceptual framework for public health

(CPHA 2017)

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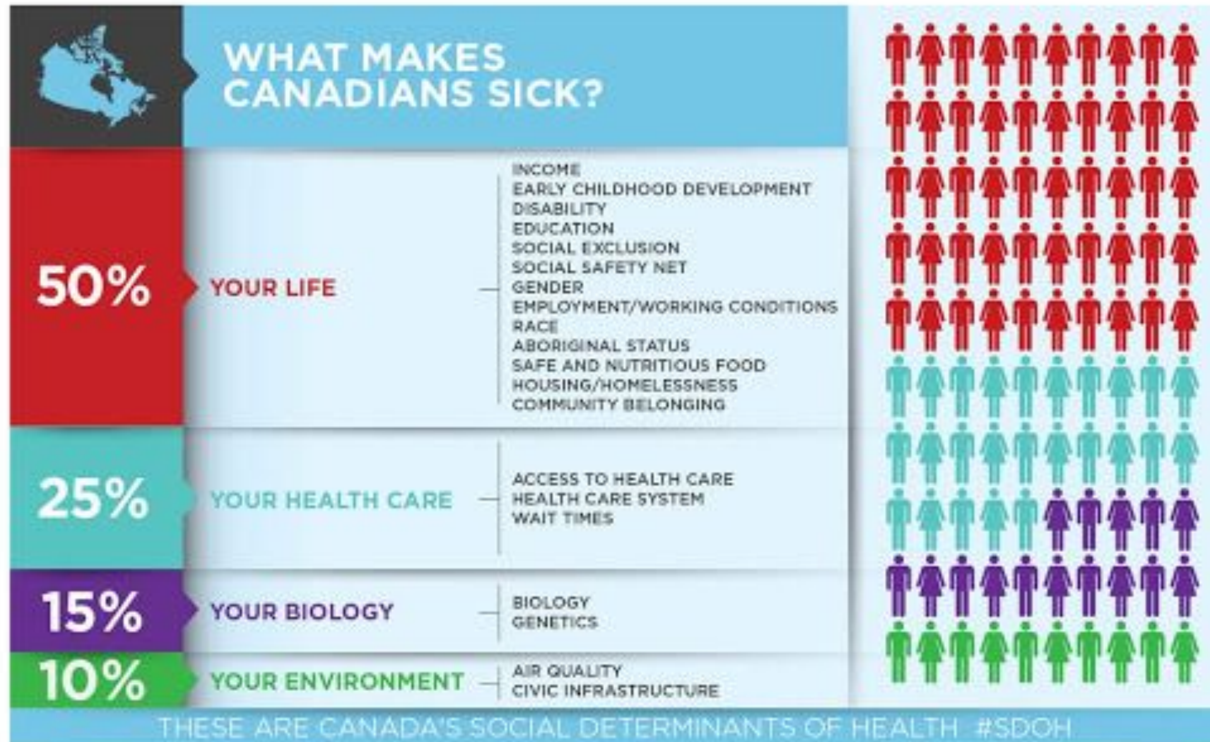
Why do we care about health inequalities?



Project Objectives

1. Work with leading Canadian health data to present a national portrait of urban health inequalities in the 23 UPHN member cities.
2. To help UPHN member cities use these resources and further monitor health inequalities using their own local data sources.

Statistics Canada

Canadian Institute for Health Information

Better data. Better decisions. Healthier Canadians.

URBAN PUBLIC HEALTH NETWORK

RÉSEAU POUR LA SANTÉ PUBLIQUE URBAIN

Promoting evidence based decision making and policy learning

- "A cyclic relation between evaluation, evidence, action, and further evaluation" (Rychetnik et al. 2004)
- Oftentimes, the most important comparators are intraprovincial

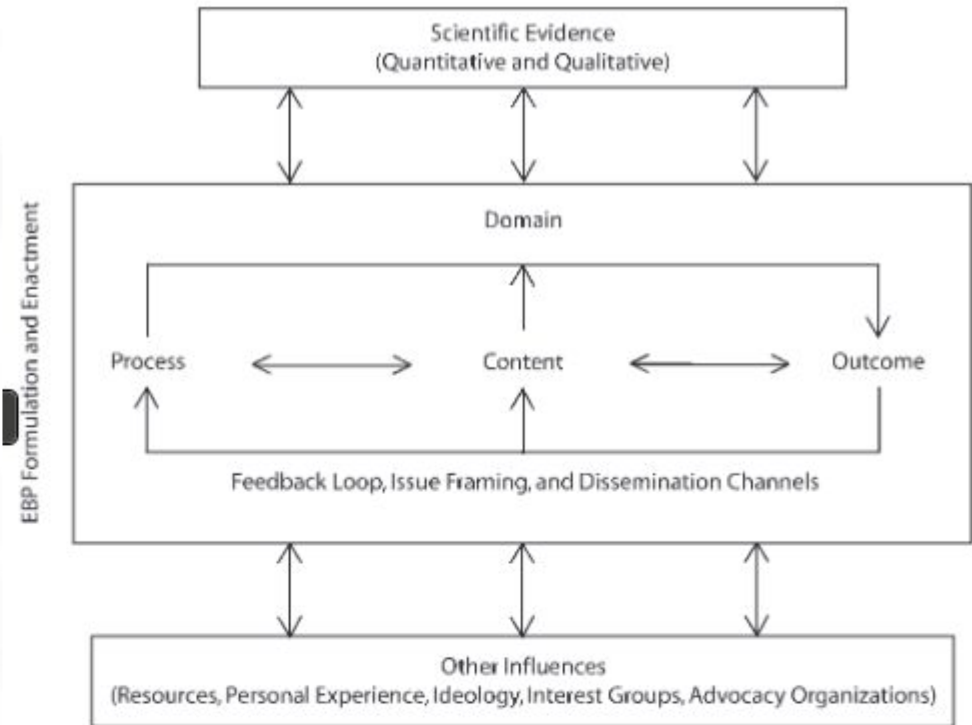


FIGURE 1—The interplay of factors influencing evidence-based public health policy.

(Brownson et al. 2009)

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Next steps

- Extend to additional data and health outcomes
- Articulate causal determinants; identify policy drivers
- Tell city-level comparative story
- Invest in routinization of collection and reporting