



Urban Public Health Network (UPHN): Measuring Trends in Health Inequalities in Ottawa





URBAN PUBLIC HEALTH NETWORK

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Long before illnesses, health is positively and negatively impacted by everyday experiences. The social and economic factors of health-income, employment, housing, education, early child development-are largely shaped and influenced by a number of both social and economic factors. Differences in wealth sharpen and contrast society and often determine our life's direction. A failure to close the gap between the wealthy and the poor carries a high financial cost that will impact our economy now and into the future.

Health inequality is tied tightly to income and is said to be one of the top factors of global economic instability, recognized by the World Economic Forum and the CEO's of global banks.

The Urban Public Health Network (UPHN) measures health inequalities in Canada's cities and lays a foundation for regular monitoring under the project banner "Measuring Trends in Health Inequalities in Cities" (MTHIC).¹ Health inequalities were investigated in 19 cities across Canada ([Measuring Trends in Health Inequalities, 2019](#)).

These key findings include:

1. Health inequalities are widespread among Canada's largest cities.
2. Health inequalities vary considerably between cities and within them.
3. Urban health inequalities are not improving; most have persisted over the past decade and some have become worse.²

A total of 29 health indicators from 2011 to 2015 were examined including 16 on hospitalizations/day surgeries and 13 self-reported indicators (See complete list of indicators in [Appendix](#)). Health inequalities were examined based on rates (per 100,000 population in Ottawa) of these health indicators by household income quintile.³

These key findings in Ottawa include:

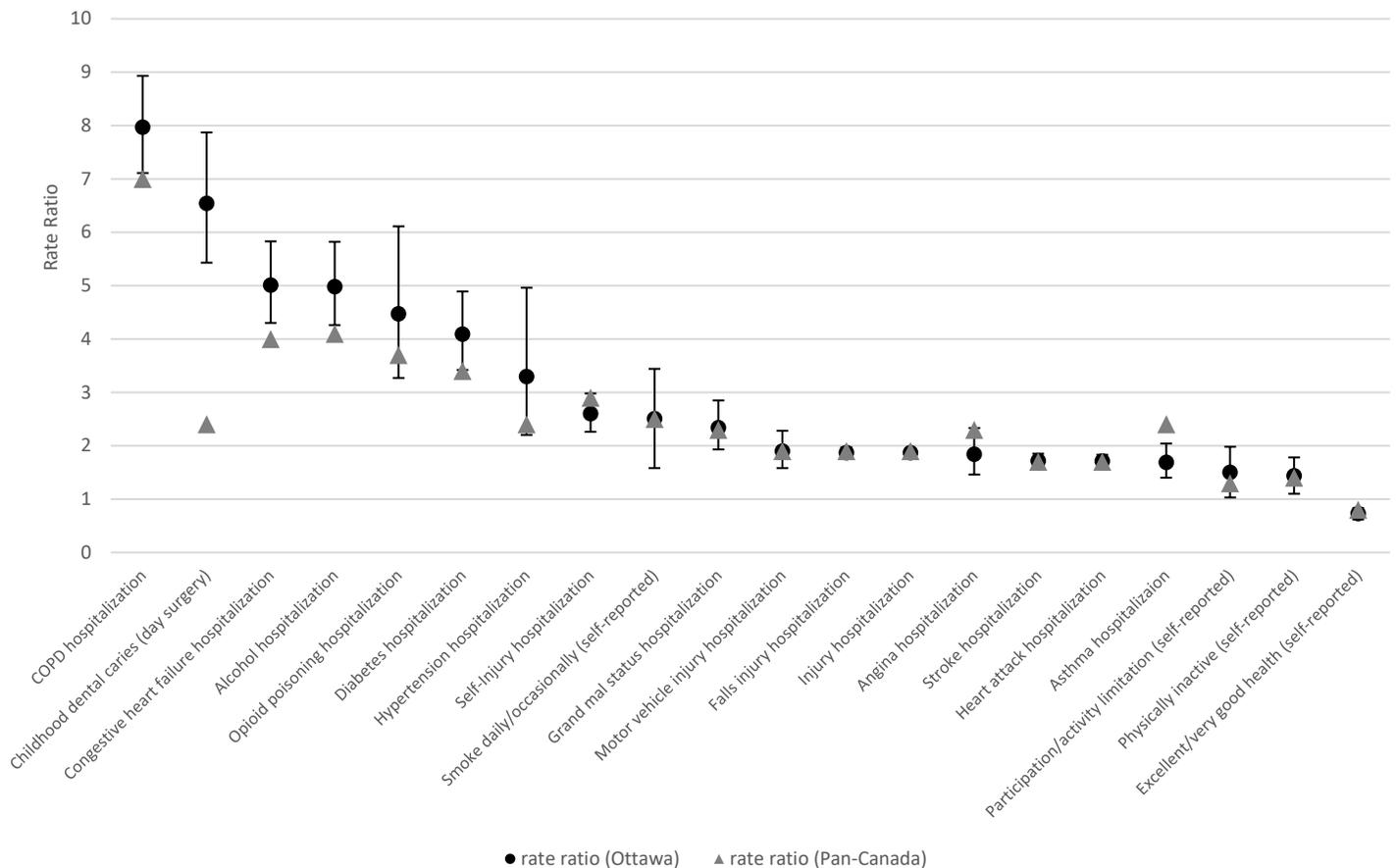
1. Health inequalities by income quintile: Households in the lowest income quintile had significantly worse health compared to the highest quintile on 20 out of the 29 health indicators. Of these 20 indicators, the highest inequalities were seen in COPD hospitalizations and day surgeries for childhood dental caries.
2. Health inequalities trend over time: A significant increase in health inequalities over time was seen in hospitalizations for COPD, congestive heart failure, all injury combined, and falls injury.



Health inequalities by income quintile in Ottawa

- Households in the lowest income quintile had significantly worse health compared to the highest quintile on 20 out of the 29 health indicators listed in Figure 1.

Figure 1. Rate ratios of health indicators with inequality among the lowest and highest income quintile groups in Ottawa and Pan-Canada



Data sources and notes for Figure 1:

Hospital Morbidity Database (HMDB). 2011-2015. Canadian Institute for Health Information (CIHI).

Discharge Abstract Database (DAD). 2011-2015. Canadian Institute for Health Information (CIHI).

National Ambulatory Care Reporting System (NACRS). 2011-2015. Canadian Institute for Health Information (CIHI).

Canadian Community Health Survey (CCHS). 2011-2015. Statistics Canada.

Rate refers to age-standardized rate (per 100,000): crude rate standardized for the age distribution of the reference population at the CMA (Census Metropolitan area) level

Rate Ratio (RR): age-standardized rate for income quintile 1 (lowest) divided by age-standardized rate for income quintile 5 (highest)

Data presented in Figure 1 are found in Table 1.

Figure 1 and Table 1: Not all data are shown. Only 20 indicators with significant difference between the lowest and highest income quintile groups are shown in the figure and table.

Data table for Figure 1:

Table 1. Rates and rate ratios of health indicators with inequality among the lowest and the highest income quintile groups in Ottawa and Pan-Canada

Indicator	Rate (Ottawa)	Rate of Lowest income quintile (Ottawa)	Rate of Highest income quintile (Ottawa)	Rate Ratio Ottawa (95% CI)	Rate Ratio (Pan-Canada)
COPD hospitalization	71.4	241.9	30.4	8.0 (7.1,8.9)	7.0
Day surgery for childhood dental caries	522.3	1156.5	177.0	6.5 (5.4, 7.9)	2.4
Congestive heart failure hospitalization	38.7	97.2	19.4	5.0 (4.3, 5.8)	4.0
Alcohol hospitalization	95.1	262.4	52.7	5.0 (4.3, 5.8)	4.1
Opioid poisoning hospitalization	8.9	22.4	5.0	4.5 (3.3, 6.1)	3.7
Diabetes hospitalization	29.8	66.2	16.2	4.1 (3.4, 4.9)	3.4
Hypertension hospitalization	5.3	11.3	3.4	3.3 (2.2, 5.0)	2.4
Self-injury hospitalization	44.6	96.6	37.2	2.6 (2.3, 3.0)	2.9
Smoke daily/occasionally (self-reported)	15.4	25.2	10.0	2.5 (1.6, 3.4)	2.5
Grand mal status hospitalization	21.0	37.4	16.0	2.3 (1.9, 2.9)	2.3
Motor vehicle injury hospitalization	23.1	37.7	19.9	1.9 (1.6, 2.3)	1.9
Falls injury hospitalization	269.7	441.8	236.7	1.9 (1.8, 2.0)	1.9
Injury hospitalization	405.3	660.5	354.1	1.9 (1.8, 2.0)	1.9
Angina hospitalization	14.7	23.4	12.7	1.8 (1.5, 2.3)	2.3
Stroke hospitalization	107.1	155.6	90.6	1.7 (1.6, 1.9)	1.7
Heart attack hospitalization	172.9	244.9	142.9	1.7 (1.6, 1.8)	1.7
Asthma hospitalization	23.6	34.2	20.3	1.7 (1.4, 2.0)	2.4
Participation/activity limitation (self-reported)	30.8	34.2	22.7	1.5 (1.0, 2.0)	1.3
Physically inactive (self-reported)	38.9	46.8	32.6	1.4 (1.1, 1.8)	1.4
Excellent/very good health (self-reported)	64.8	52.0	71.6	0.7 (0.6, 0.8)	0.8

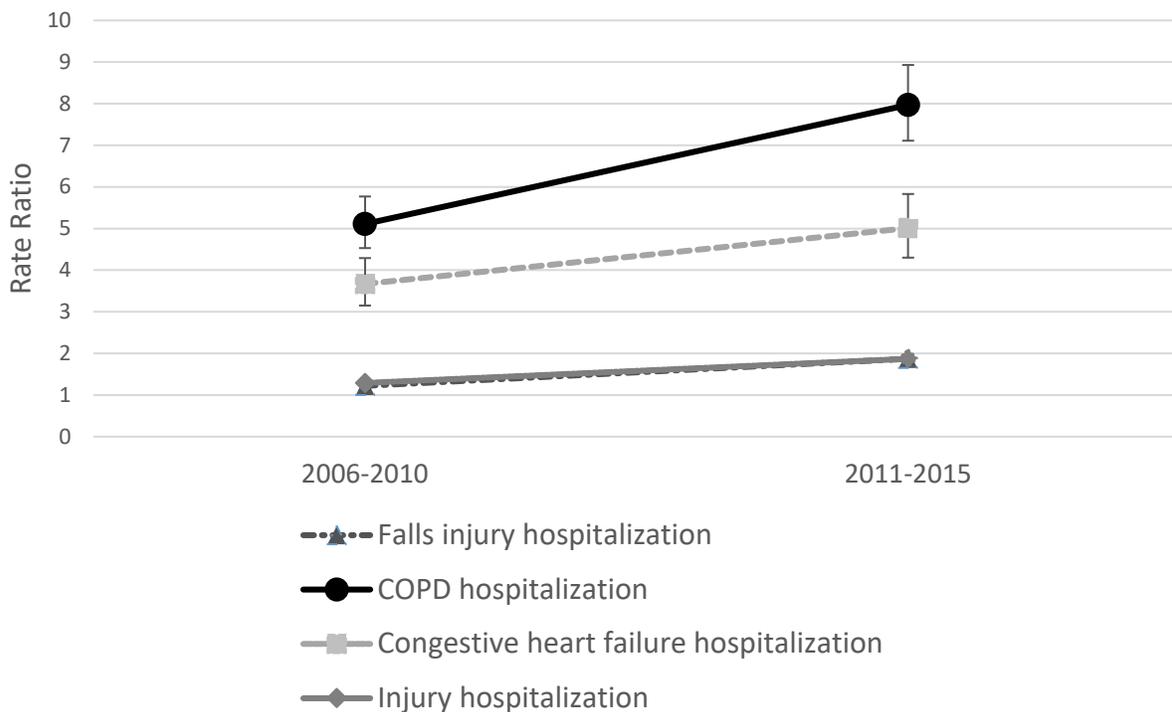
Of these 20 indicators, the highest inequalities were seen in COPD hospitalizations and day surgeries for childhood dental caries:

- The most disadvantaged households (lowest income) had 8 times more COPD hospitalizations compared to the most advantaged (highest income): 242 per 100,000 versus 30 per 100,000.
- Rate of day surgeries for childhood dental caries was significantly higher among the lowest income quintile (1156 per 100,000) compared to the highest income quintile (177 per 100,000).
- No significant differences between the lowest and highest income quintiles were seen for rates of the self-reported health indicators: diabetes, overweight/obesity, asthma, alcohol binging, mood disorder, most days at least a bit stressful, received flu shot, excellent/very good mental health, and having 3 or more of these self-reported risk factors.

Health inequalities over time in Ottawa

- A significant increase in health inequalities over time was seen in hospitalizations for COPD, congestive heart failure, all injury combined, and falls injury (Figure 2).
- Over time, the largest increase in health inequality was seen for COPD hospitalization from 2006-2010 to 2011-2015 (Figure 2).
- No changes in health inequalities were seen among other health indicators over time (from 2006-2010 to 2011-2015).

Figure 2. Trend of health indicators with increased inequality in Ottawa from 2006-2010 to 2011-2015



Data sources and notes for Figure 2:

Hospital Morbidity Database (HMDB). 2006-2015. Canadian Institute for Health Information (CIHI).

Discharge Abstract Database (DAD). 2006-2015. Canadian Institute for Health Information (CIHI).

National Ambulatory Care Reporting System (NACRS). 2006-2015. Canadian Institute for Health Information (CIHI).

Years Pooled (2006-2010, 2011-2015): indicates the years of data pooled together to calculate the results

Data table for Figure 2:

Table 2. Health indicators with increasing trends in income inequality in Ottawa from 2006-2010 to 2011-2015

Indicator	Rate Ratio 2006-2010	95% Confidence Interval (CI)	Rate Ratio 2011-2015	95% Confidence Interval (CI)
COPD hospitalization	5.1	4.5, 5.8	8.0	7.1, 8.9
Congestive heart failure hospitalization	3.7	3.2, 4.3	5.0	4.3, 5.8
Injury hospitalization	1.3	1.2, 1.4	1.9	1.8, 2.0
Falls injury hospitalization	1.2	1.1, 1.3	1.9	1.8, 2.0



References

1. Urban Public Health Network (2018). Measuring trends in health inequalities in cities.
2. Urban Public Health Network (2019). Measuring trends in health inequalities in cities: Key findings from phase 1.
3. Glossary of Essential Health Equity Terms (2015). The National Collaborating Centre for Determinants of Health (NCCDH).

Appendix

Complete list of all 29 health indicators:

Hospitalizations/Day Surgeries	Self-reported
Childhood dental caries (aged 1 to 5 years)	Asthma
Falls injury	Diabetes
Opioid poisoning	Mood disorder
Alcohol	Excellent/Very good health
Angina	Excellent/Very good mental health
Asthma	Most days stressful
Chronic Obstructive Pulmonary Disease (COPD)	Overweight/Obesity
Congestive heart failure	Participation/Activity limitation
Diabetes	Physically inactive
Grand mal status	Received flu shot
Hypertension	Smoke daily/occasionally
Heart attack	Alcohol binging
Stroke	3 or more risk factors
Injury (all combined)	
Motor vehicle	
Self-injury	

