



## Income-related inequalities for injury hospitalizations in Canada: trends and policy approaches



Canadian Institute  
for Health Information  
Institut canadien  
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# Income-related inequalities for injury hospitalizations in Canada: trends and policy approaches

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# Presentation Outline

- Background
  - Project objectives
  - Indicator selection – why injury hospitalization?
- Methods
  - Analysis to assess trends in income-related inequality
  - Policy scan to identify promising interventions
- Results
  - Motor vehicle hospitalizations
  - Falls hospitalization, 65+ years

# Health Inequality Monitoring in Canada

- Health inequality is large and has policy significance
- Recognized internationally through Rio Declaration on the Social Determinants of Health, adopted in 2011
- Increasing federal, provincial and local level analysis documenting the extent of inequalities
  - E.g., CIHI 2013 Health Indicator report - 15 indicators reported by neighborhood income level by province

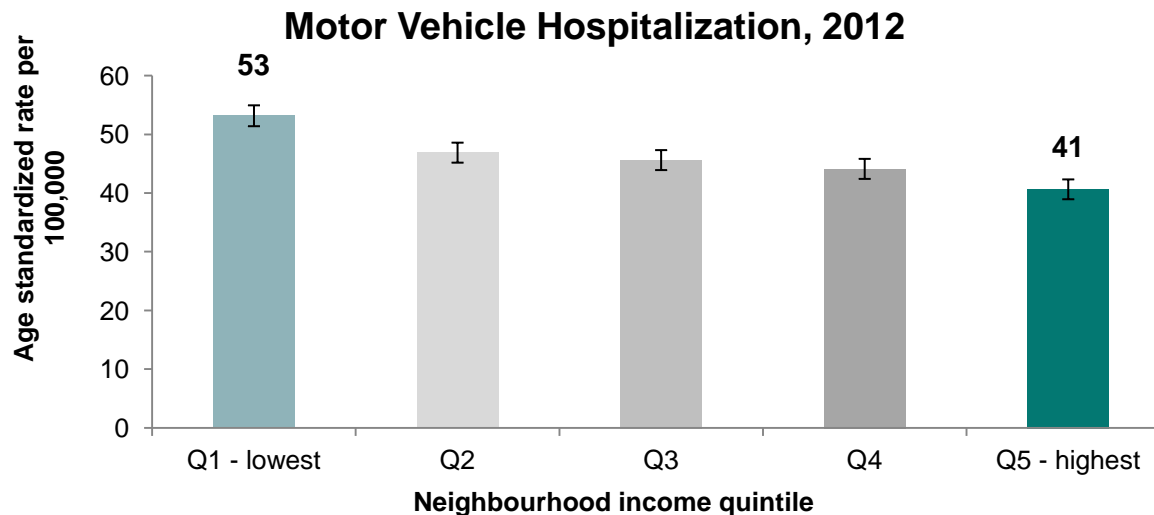
# CIHI Health Inequality Trends Project

## - Research Questions

- To what extent has health inequality changed over time in Canada and its provinces?
  - Focus on income-related inequality
- What are some promising policies and interventions/activities that can help to reduce health inequalities?

# Why include motor vehicle injury indicator?

- Available pan-Canadian data over 10+ yrs
- 16,000+ Canadians hospitalized in 2012/13
- A leading cause of premature mortality
- SES-gradient



# Methods

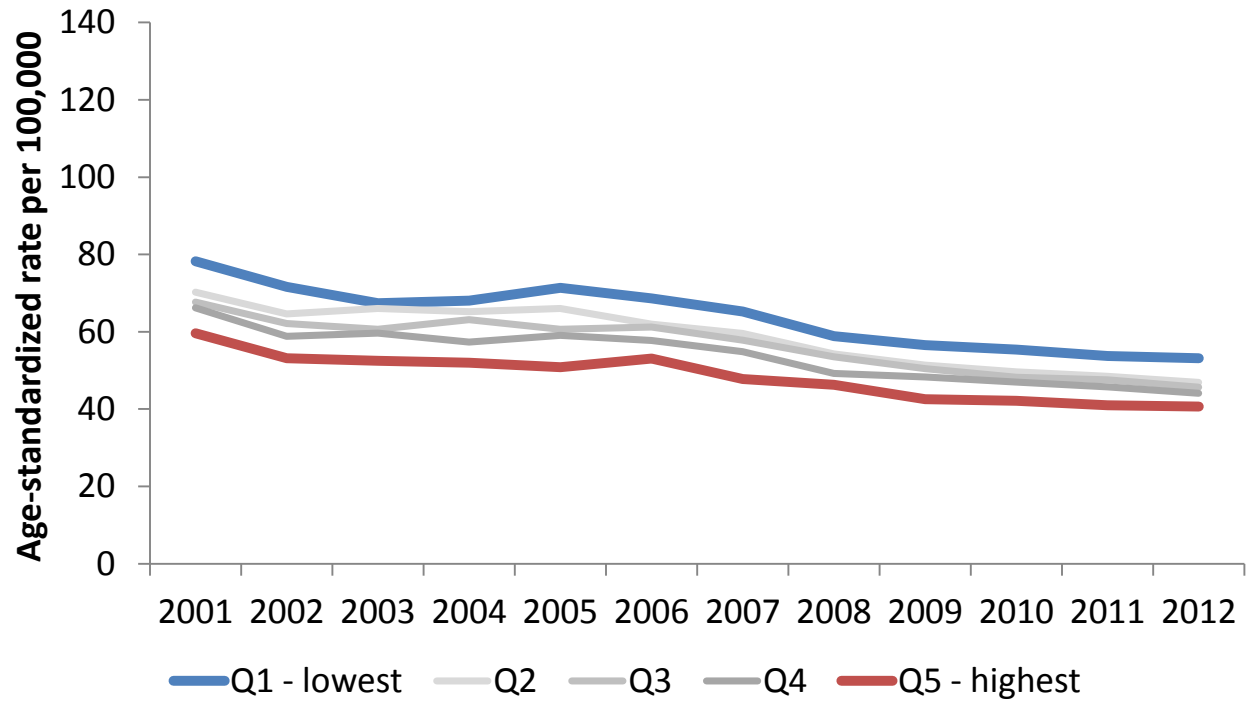
- Time period: 2001/02 to 2012/13
- Injury hospitalization rates per 100,000
  - Numerator - Hospital discharge data from CIHI data holdings (DAD and HMDB)
  - Denominator – Population counts from post-censal estimates
- Rates by area-based categorization of income
  - Neighbourhood income as defined by postal code (postal code conversion file – PCCF+)
  - Categorize census dissemination areas (DAs) into five quintiles of income level

# Health Inequality Summary Measures

- Comparing the lowest (Q1) and highest (Q5):
  - **Rate Difference (RD): Q1-Q5** – absolute measure
  - **Rate Ratio (RR): Q1/Q5** – relative measure
  
- Summarizing across the entire income distribution:
  - **Potential Rate Reduction (PRR)** – relative & absolute
  - **Concentration Index (CI)** – relative & absolute



# Motor Vehicle Hospitalization Rates by Income, Canada, 2001-2012

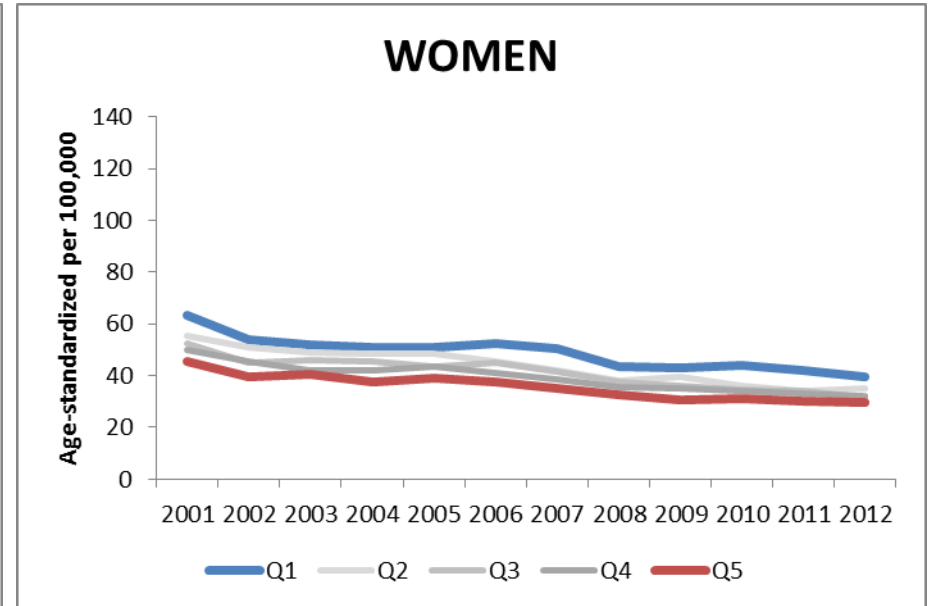
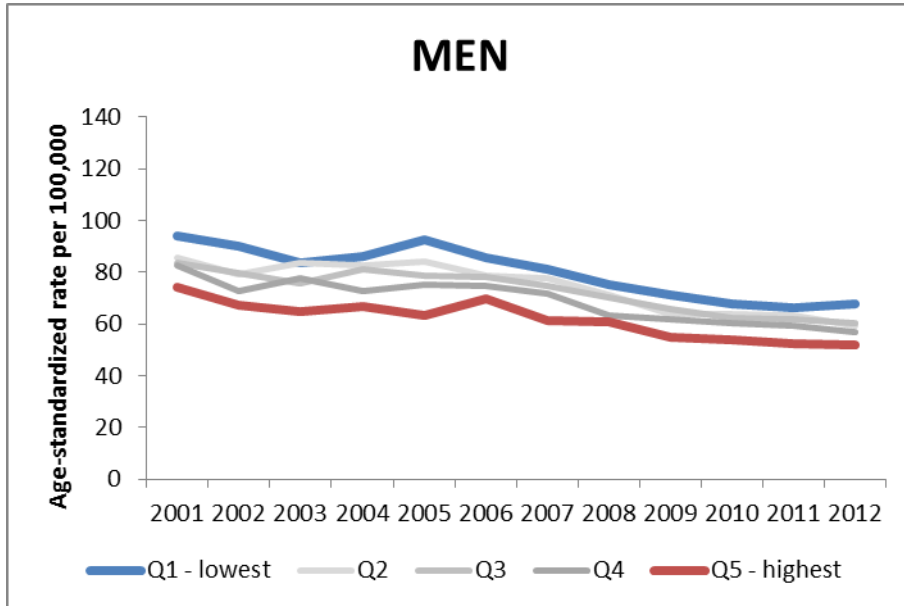


Income-related inequality **decreasing slightly over time**, and motor vehicle hospitalization rates are decreasing among all income levels

**2,444 fewer Canadians** would have been hospitalized for a motor vehicle injury if rates were at Q5 level for everyone

	2001	2012	% change
<b>Overall Age-std rate</b>	62.05	46.09	-25.73
<b>Rate Ratio</b>	1.35	1.31	-2.96
<b>Rate Difference</b>	18.49	12.54	-32.18
<b>PRR</b>	14.45%	11.84%	-18.02

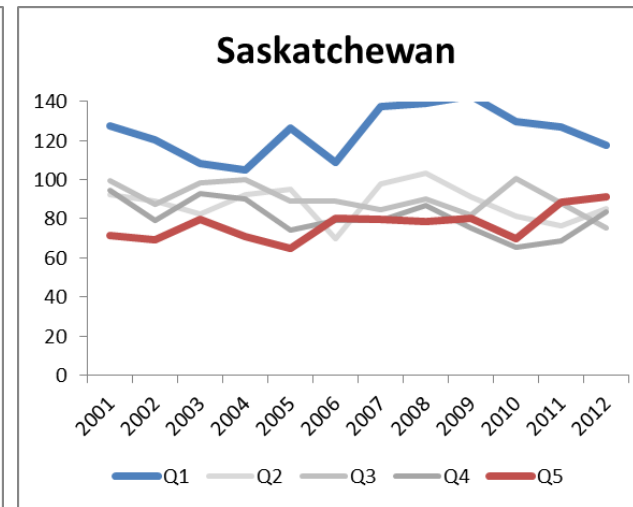
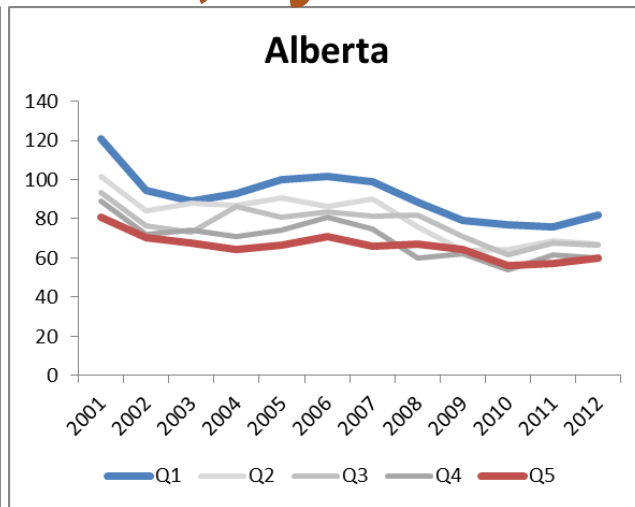
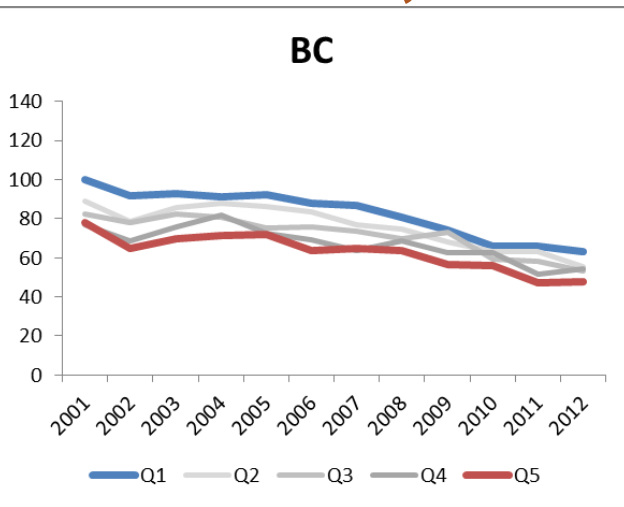
# Motor Vehicle Hospitalization Rates by Income, by Sex, Canada, 2001-2012



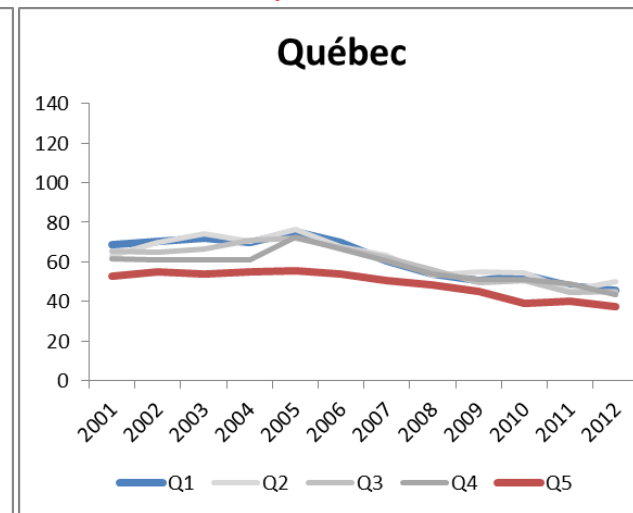
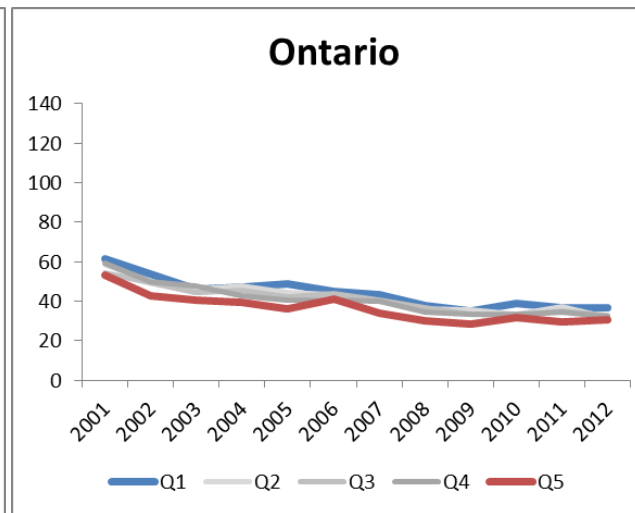
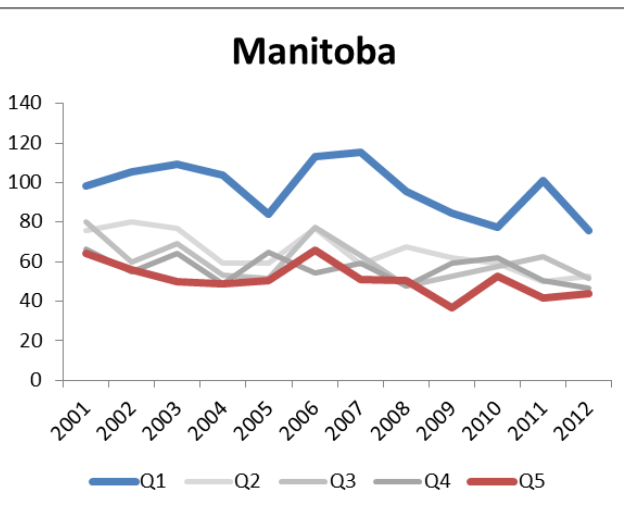
	2002	2012	% change
Overall Age-std rate	77.62	59.11	-23.85
Rate Ratio	1.35	1.3	-3.70
Rate Difference	23.15	15.61	-32.57
PRR	13.69%	12.31%	-10.04

	2002	2012	% change
Overall Age-std rate	46.86	33.55	-28.40
Rate Ratio	1.36	1.33	-2.21
Rate Difference	14.23	9.89	-30.50
PRR	15.55%	11.24%	-27.72

# MV Hospitalization Rates by Income, Canada, 2001-2012, by Sex



**Rate Difference Range:**  
26-63 per 100,000



**Rate Difference Range:**  
25-60 per 100,000

**Rate Difference Range:**  
4-13 per 100,000

**Rate Difference Range:**  
5-20 per 100,000

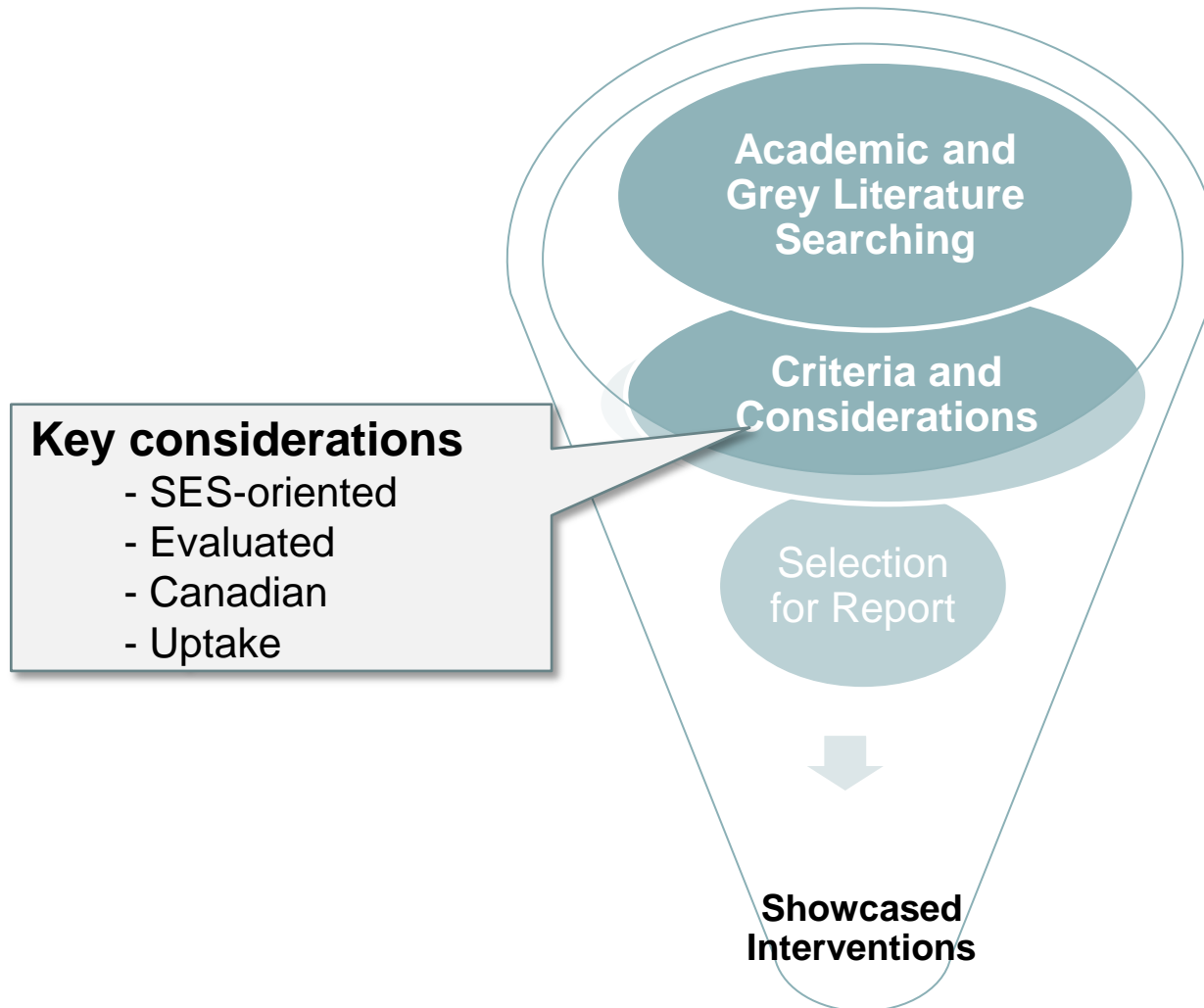
# Motor Vehicle Injury Risk Factors

- **Impaired Driving** – alcohol, drugs, fatigue, distraction
- **Speed & Aggressive Driving**
- **Occupant Protection** – seatbelt use, obstacles on road, lighting, signage
- **Environmental Factors** – road infrastructure, weather, wildlife

# Policy and Interventions to reduce Motor Vehicle Injuries – history

- 1971 – Seat belts required in vehicles
- 1976 – Ontario passed law requiring seat belt use
- 1985 – Tougher penalties for impaired driving
- 1990 – Required daytime lights on all vehicles
- 1991 – Seat belt legislation in all provinces
- 1994-2005 – Graduated licensing
- 2008 – Tougher penalties for drug and alcohol impaired driving
- 2010 – Handheld device use banned many provinces
- **2011 - Canada's Road Safety Strategy, 2015**
  - **50+ evaluated interventions for reducing traffic accidents**

# Policy Methods – Intervention Scanning



## Health Inequality Initiative: Reduce Residential Speed Limits to 30 km/hr

- Inequality may be higher for pedestrian injuries than for other motor vehicle injuries
- Speed reductions to 30 km/hr reduce injuries
  - 40% decrease in pedestrian and cyclist injuries in London, England (Grant et al. 2008); pedestrian survival increases from 30% to 90% (Bureau de prévention des accidents, 2008)
  - Other health benefits – increased walkability, exercise
- Currently 50 km/hr across most of Canada
- Reductions tend to occur due to citizen demands and community action, which are higher in wealthier neighborhoods (Grant, 2011)

# General Considerations for Addressing Health Inequality

- Comprehensive “package” to address health inequality
- Universal and targeted approaches
- Need to address multiple risk factors
- Inter-sectoral action
  - Health in all Policies
- Ongoing policy development, modification and “retirement”
  - Health Equity Impact Assessment



## Acknowledgements

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THANK YOU