



Canadian trends in mortality inequalities, using the Canadian Census Health Environment Cohorts (CanCHEC)

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Delivering insight through data for a better Canada

Disclosure Statement

- I have no affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

Overview

- Background
- Data and methods
- Results
- Strengths and limitations
- Conclusions and Next Steps

Health Inequalities

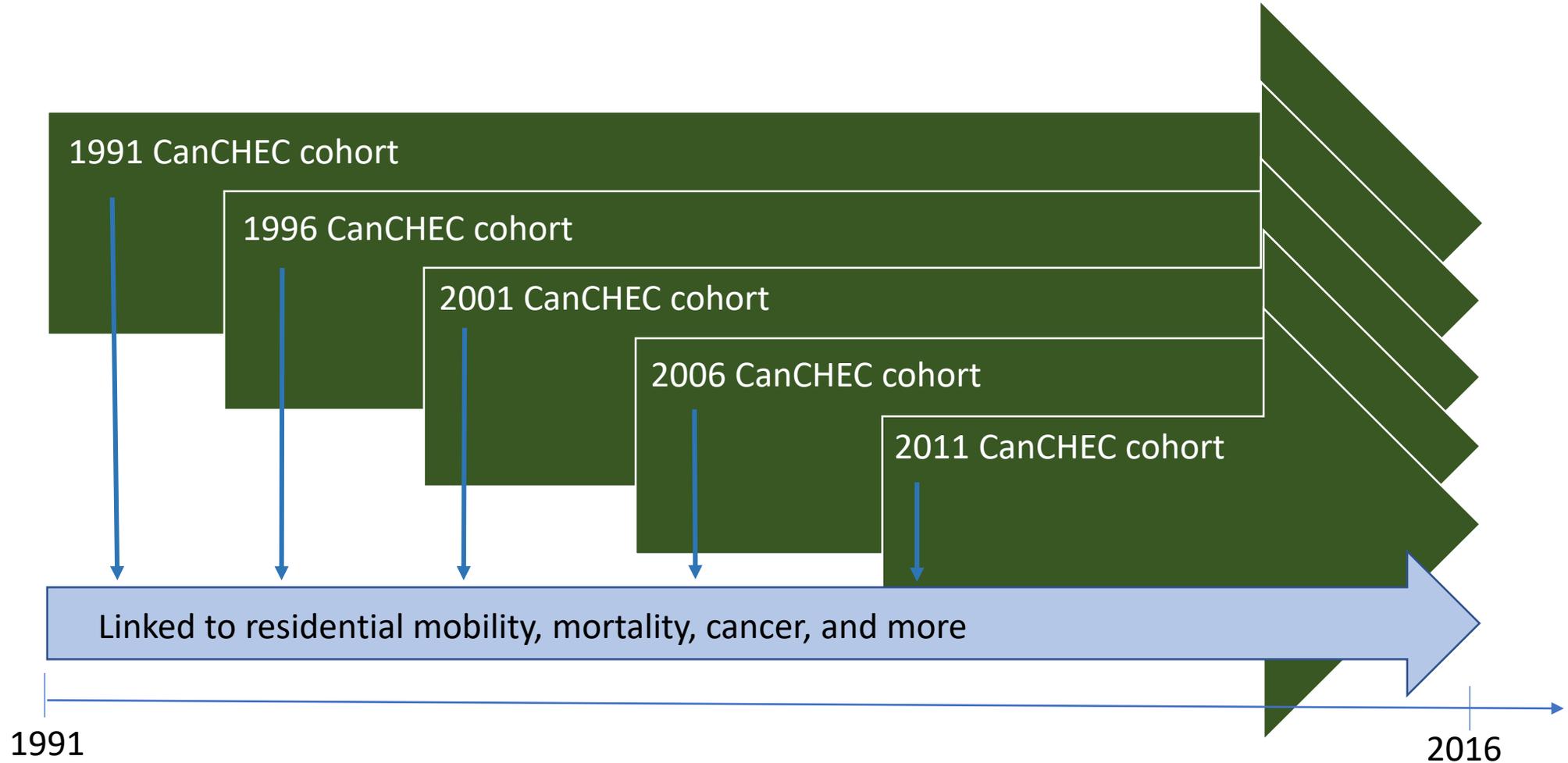
- Reducing health inequalities is a priority in Canada
 - Pan-Canadian Health Inequalities Reporting Initiative
 - Public Health Agency of Canada, Pan-Canadian Public Health Network, Statistics Canada, Canadian Institute for Health Information and the First Nations Information Governance Centre
- However, many recent studies show an increase in health inequalities within Canada and abroad (Buajitti et al 2018, Hajizadeh et al 2016, Mackenbach 2012, Rosella et al 2016)

Objective

- Most studies to date use area-based measures of socioeconomic health indicators
 - Area-based data allows for more misclassification
- Data gap exists for individual-level linked datasets

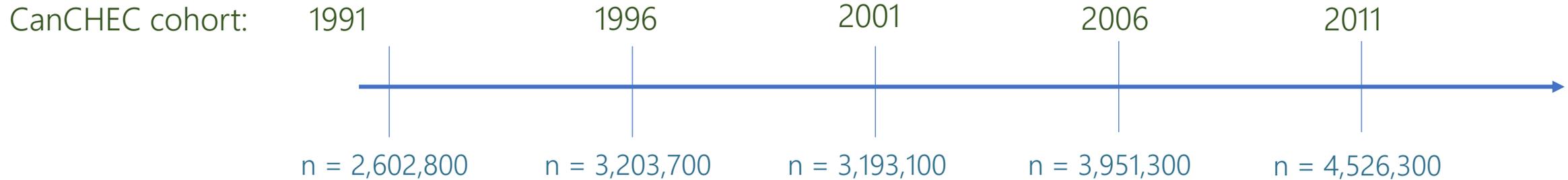
The objective of this study is to use **individual-level** socioeconomic and mortality data available from the 1991, 1996, 2001, 2006, and 2011 **CanCHECs** to analyse the **health inequalities** present in Canada and how they have changed **over time**.

Canadian
Census
Health
Environment
Cohort



Data and methods

- Age 25 +
- 5 year follow up
- Weighted estimates



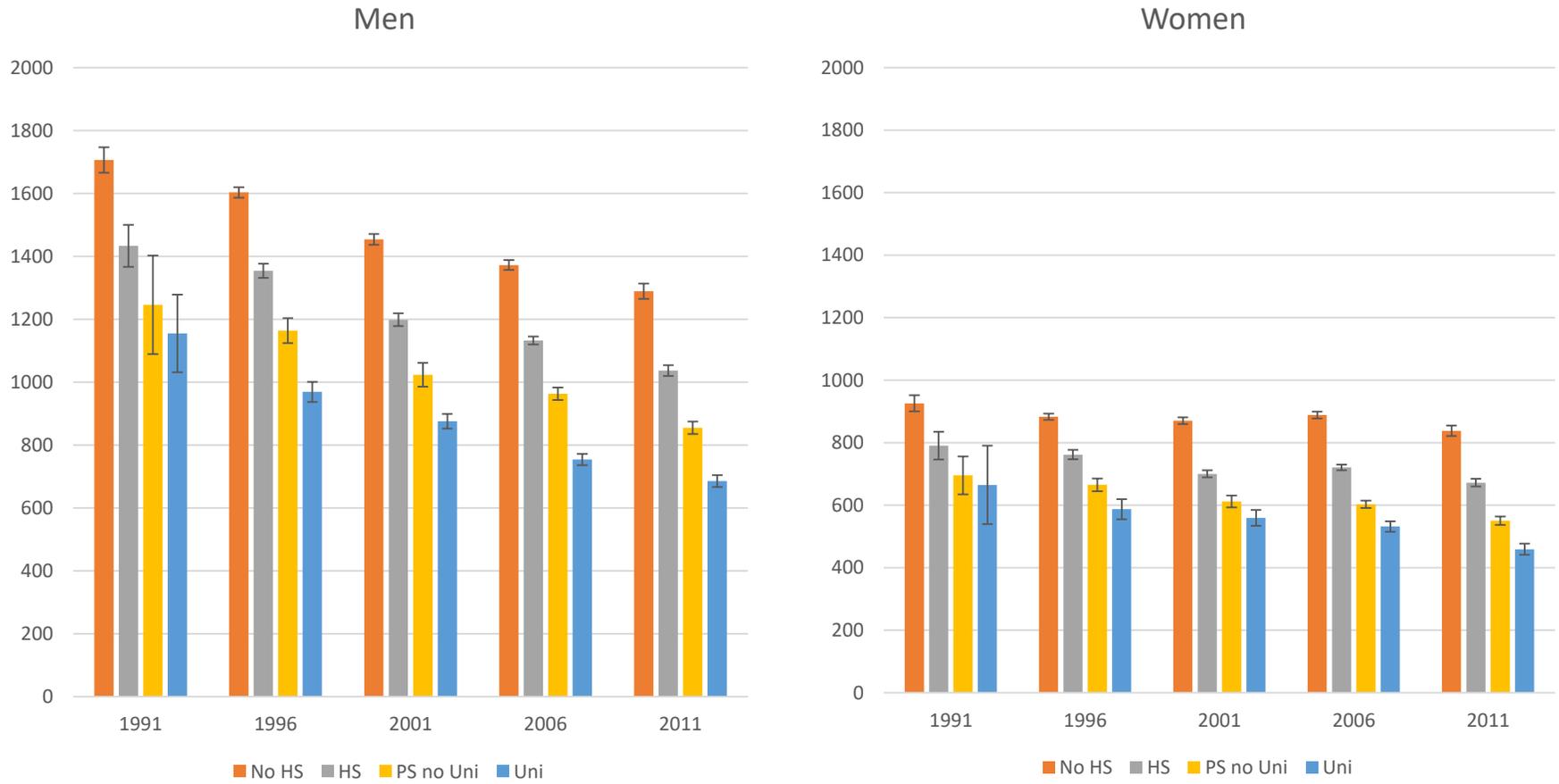
$$\text{Person Years At Risk (PYAR)} = \frac{\text{Date of Exit} - \text{Date of Census}}{365}$$

$$\text{Mortality Rate} = \frac{\# \text{ deaths}}{\# \text{ person years at risk}} \times 100,000$$

Mortality rates were age-standardized (ASMRs) to the 2011 Standard Population of Canada

Gradients of health by education for both men and women

All-cause ASMR, 1991-2011, by education group, Canada

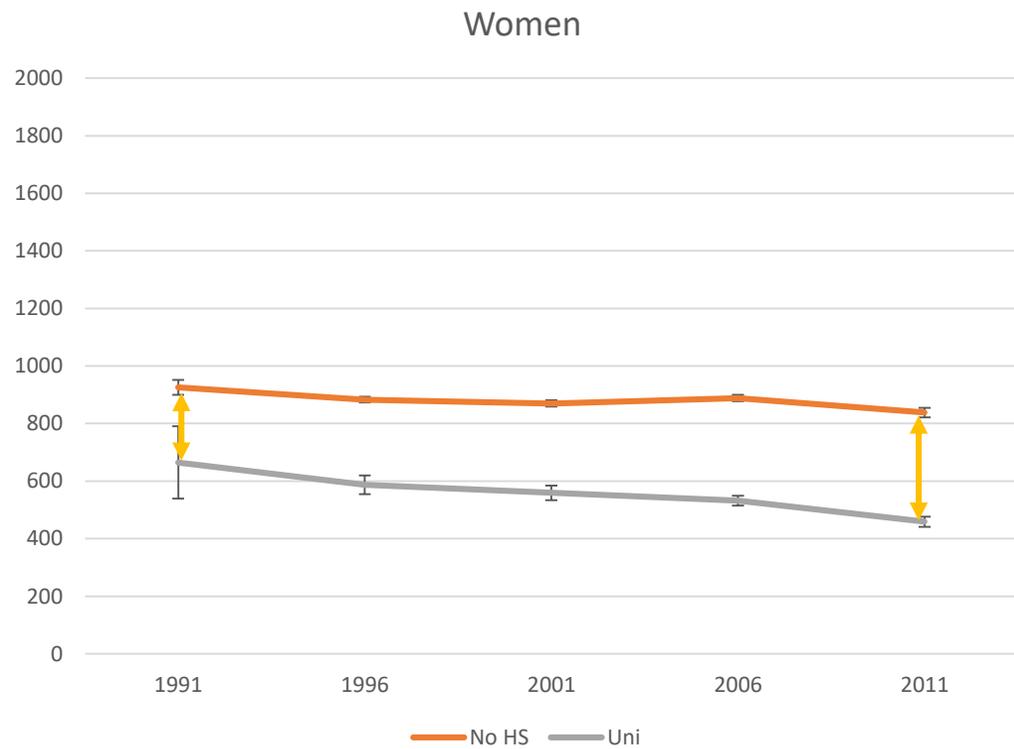
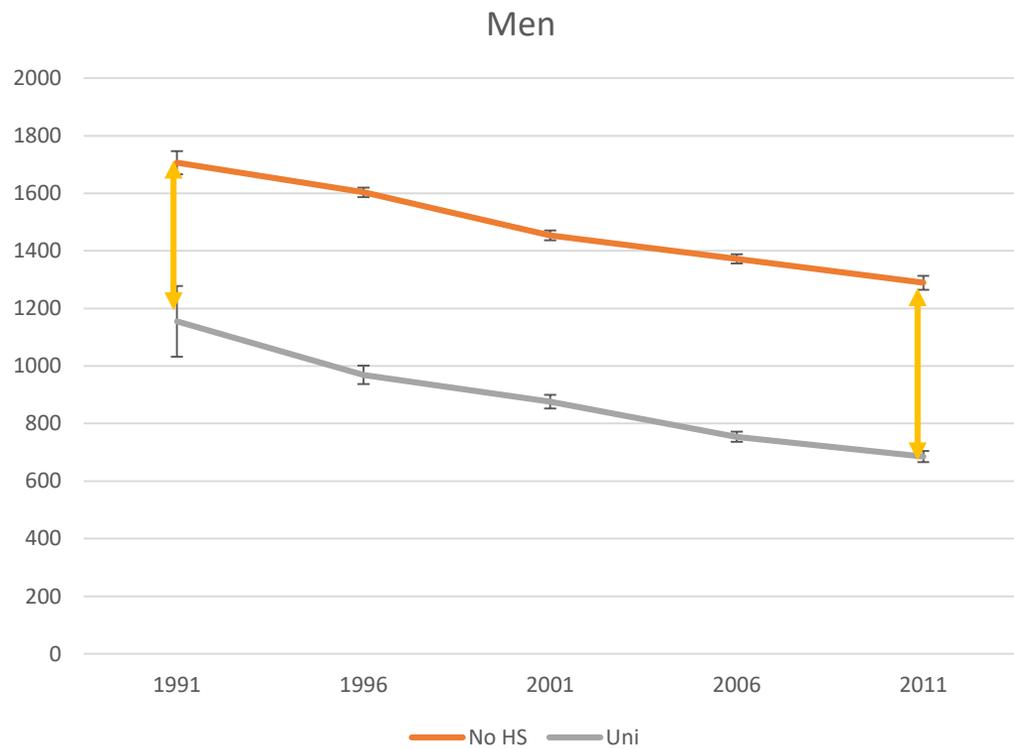


- Education groups
- Less than high school
- High school completion or trades
- Post-secondary, not university
- University

Source: CanCHEC (1991, 1996, 2001, 2006, 2011), Statistics Canada

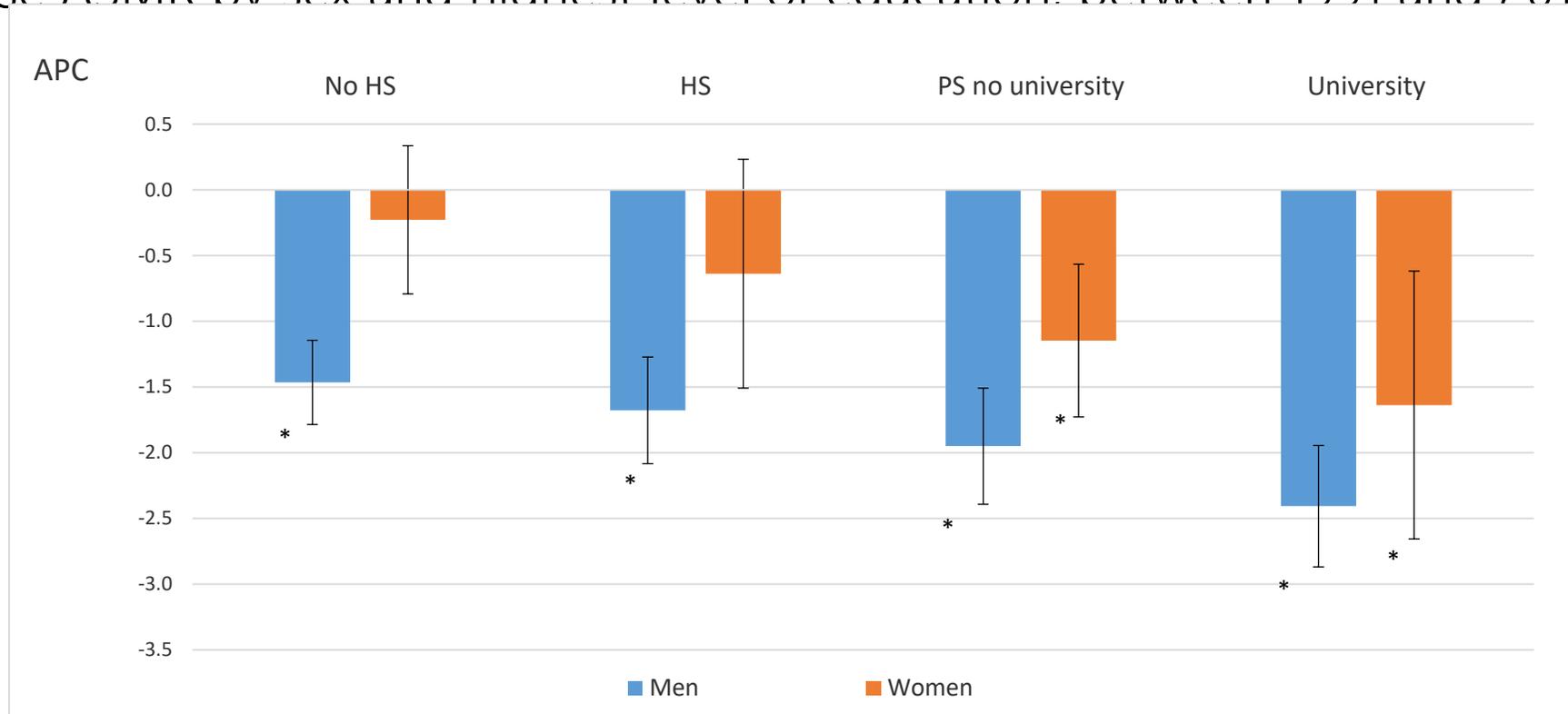
Mortality gap between highest and lowest educated has grown between 1991 and 2011

All-cause ASMR for population without a high school diploma and with a university degree, 1991 to 2011



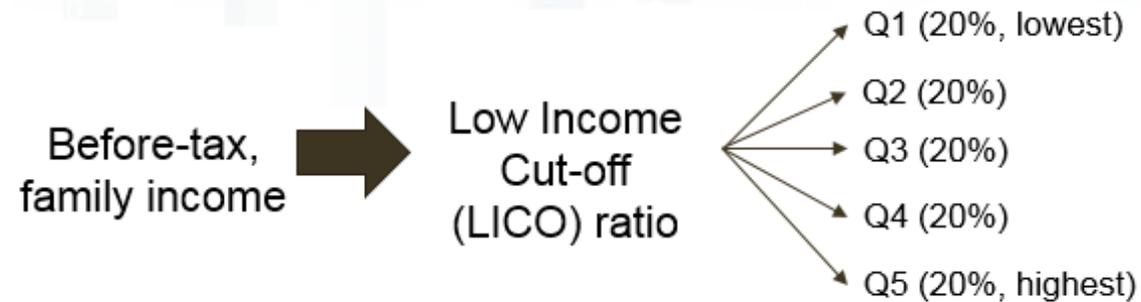
Average percent change significantly different from zero for most groups

APC in all-cause ASMR by sex and highest level of education, between 1991 and 2011



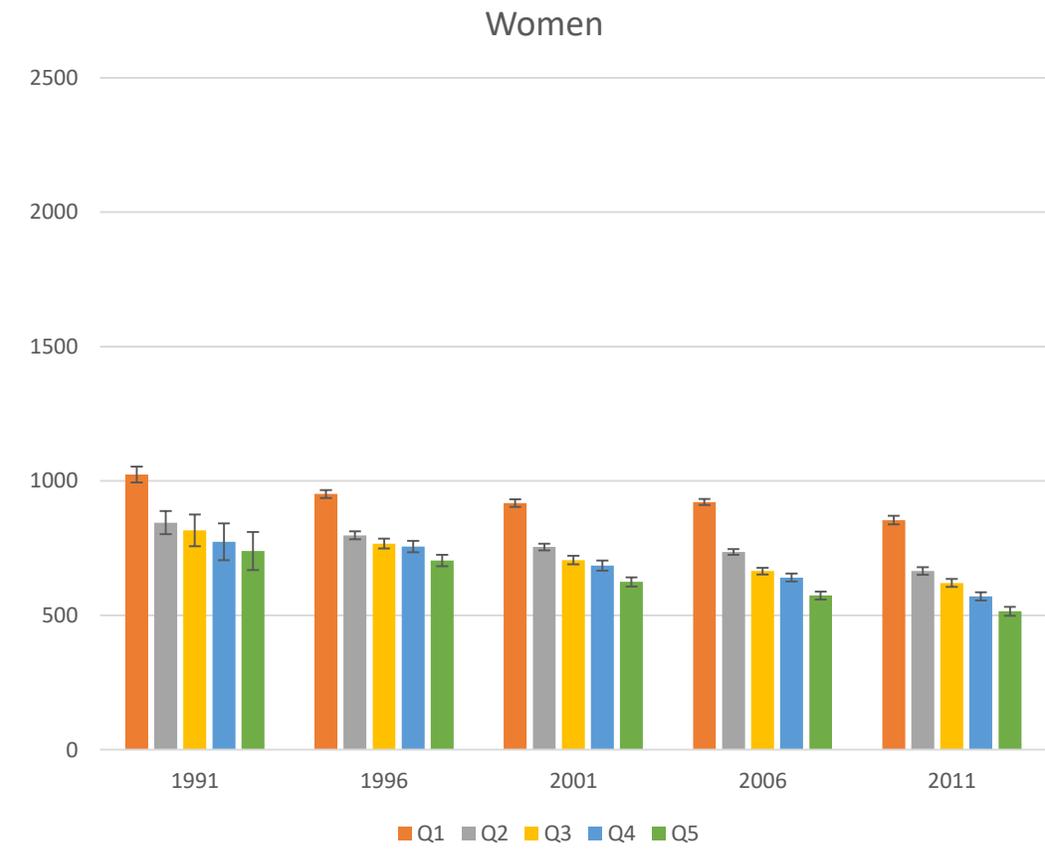
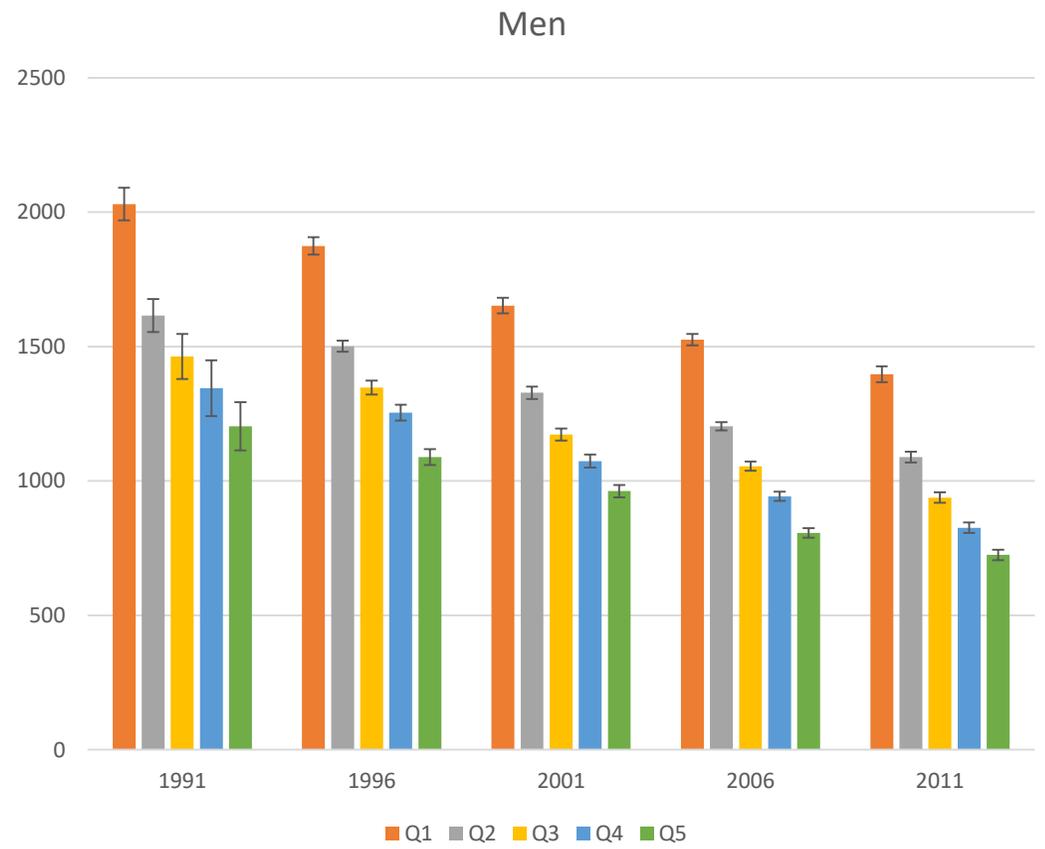
Income quintiles created from LICO ratio

- Before-tax, economic family income from self reported and tax-file administrative data
- Low income cut-off (LICO) used to create ratio
- Sample split into income ratio quintiles



Gradients of health by income for both men and women

All-cause ASMR, 1991-2011, by income quintile, Canada

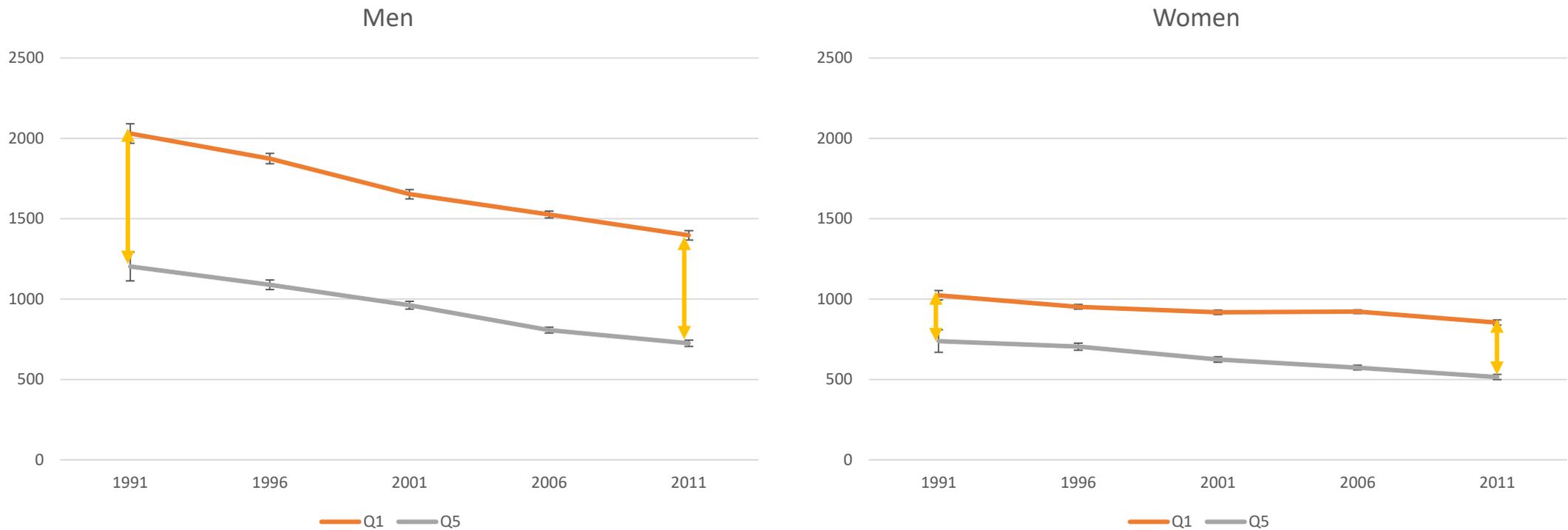


Source: CanCHEC (1991, 1996, 2001, 2006, 2011), Statistics Canada



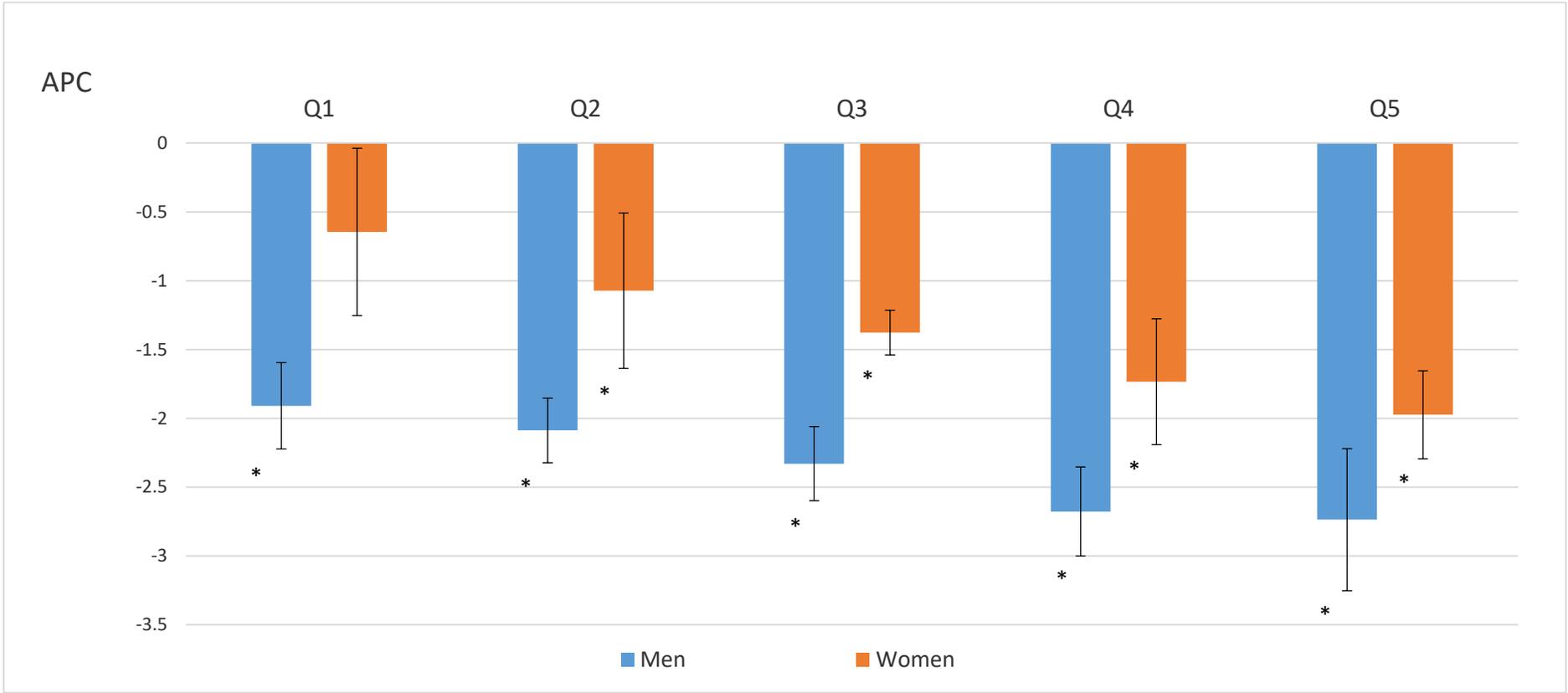
Mortality gap between high and low income has narrowed for men, grown for women

All-cause ASMR for population in highest and lowest income quintiles, 1991 to 2011



Average percent change significantly different from zero for most groups

APC in all-cause ASMR by sex and income group, between 1991 and 2011



Strengths and limitations

- Strengths
 - Individual-level linked data set: less misclassification
 - Quality and quantity of data
 - Harmonization of concepts through CanCHECs (definitions, categories)
 - Consistency of variables tracked over time
 - Long time period available, ongoing

- Limitations
 - Rely on external data consistency (census questions, vital statistics coding)
 - Some population exclusions
 - Non tax filers
 - Under the age of 25
 - Institutional residents at cohort inception

Conclusions

- Mortality has decreased for Canadians in all socioeconomic groups between 1991 and 2011
- Gap between men and women has shrunk over time
- Gap between university education and those without high school has grown
- Gap between high income and low income has
 - Increased for women
 - Decreased for men

Access to CanCHEC data available through [Research Data Centres](http://statcan.gc.ca/eng/rdc/) (statcan.gc.ca/eng/rdc/)

- 1991, 1996, 2001, and 2006 available
- 2011 to come in Spring

THANK YOU!

For more information
please visit, www.statcan.gc.ca

Or contact Mike Tjepkema (Michael.Tjepkema@canada.ca)



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