

Disclosure Statement

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



Socioeconomic disparities in health-adjusted life expectancy in Canada

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Delivering insight through data for a better Canada

Health Expectancy

- People are living longer and longer in good health but these gains are not distributed equally across all population groups in Canada
- People with less education or lower income are disadvantaged in terms of life and health expectancy and this disadvantage has persisted or increased for some countries
- In Canada, differences in study designs and data sources make it difficult to determine if these disadvantages have increased or decreased over time
- New Statistics Canada integrated data source makes it possible to examine this question in greater detail

Objectives

- Estimate life expectancy (LE_{25}) and health adjusted life expectancy ($HALE_{25}$) for the adult population by education and income level
- Quantify whether recent disparities in LE_{25} and $HALE_{25}$ by education and income level have changed from 15 years earlier

Data Sources

- Canadian Census Health & Environment Cohort (CanCHEC)
 - Population-based linked datasets that follow long-form census respondents for different health outcomes (e.g. mortality & cancer) and annual historical postal codes
 - 1996 & 2011 CanCHEC
 - Age 25 or older on census day
- National Population Health Survey & Canadian Community Health Survey
 - Survey of residents of private households across Canada
 - 1994/1996 NPHS & 2009/2010 CCHS
 - Age 25 or older at time of survey

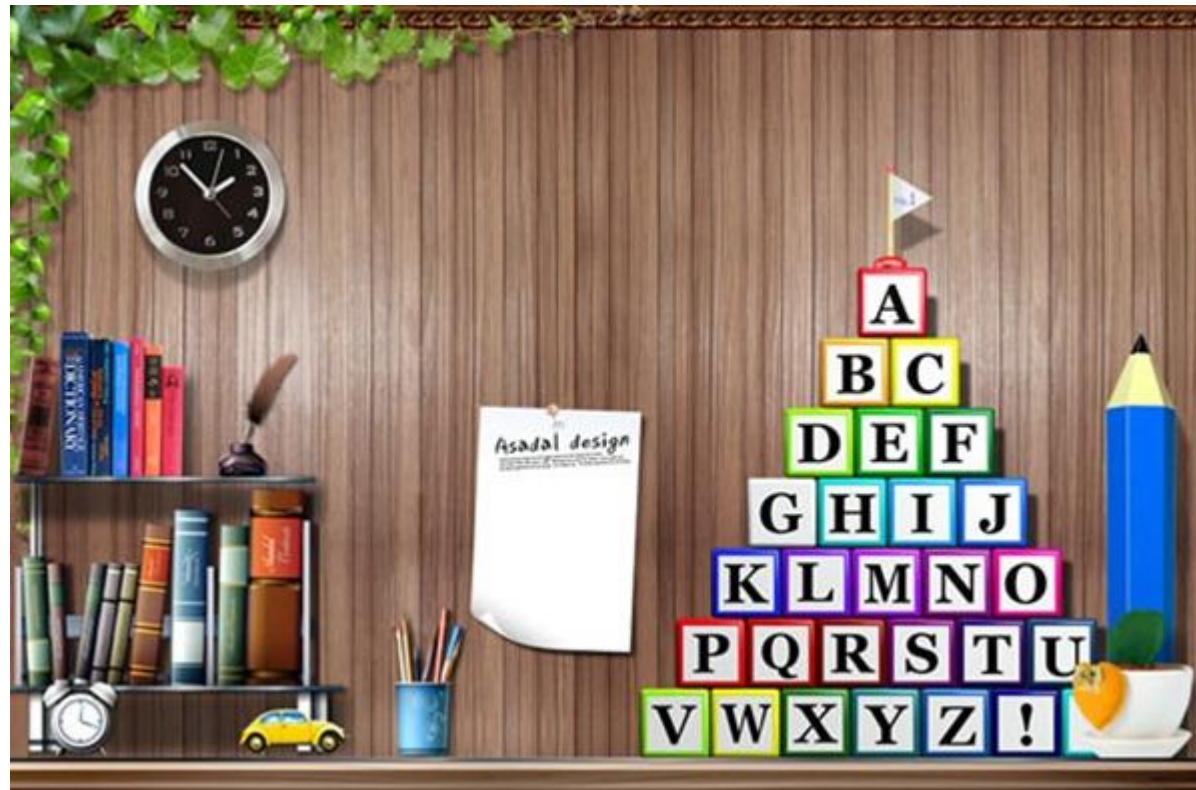
Measures

- Health Utilities Index Mark 3 (HUI3)
 - HUI3 measures eight attributes of self-reported health status (vision, hearing, speech, ambulation, dexterity, emotion, cognition, and pain).
 - Values range from -0.36 (state worse than death; death represented by 0) to 1.00 (best possible health state)
- Highest level of educational attainment
 - 4 categories: (E1) less than secondary graduation; (E2) secondary graduation; (E3) postsecondary diploma or certificate; (E4) university degree
- Household income quintiles
 - pre-tax income from all sources

Statistical analysis

- Life expectancy (LE)
 - Based on a 5-year mortality follow-up period for each CanCHEC
 - Abridged period life tables (based on 5-year age groups starting at age 25) were calculated according to the method of Chiang
 - Sampling weights were applied so LE estimates were representative of the household population
 - Bootstrap replicate weights were used to estimate variance
- Health-adjusted life expectancy (HALE)
 - Mean HUI3 scores by sex and age group (25 to 44; 45 to 54; 55 to 64; 65 to 79; 80 and older)
 - Survey weights were applied so HUI3 estimates were representative of the household population
 - Bootstrap replicate weights were used to estimate variance
 - HALE estimated using a modified version of the Sullivan method

Results - Education

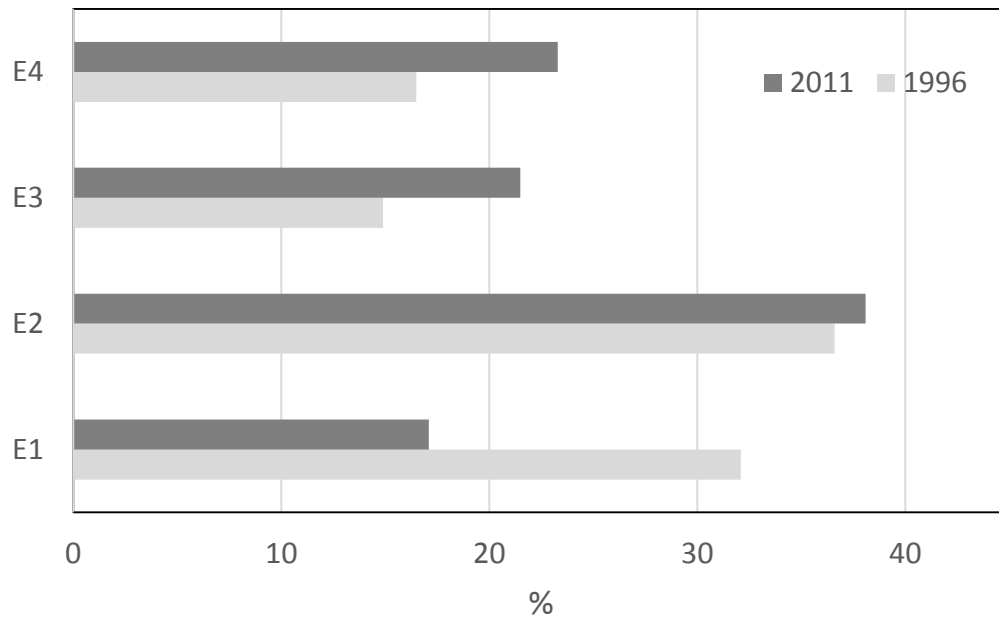


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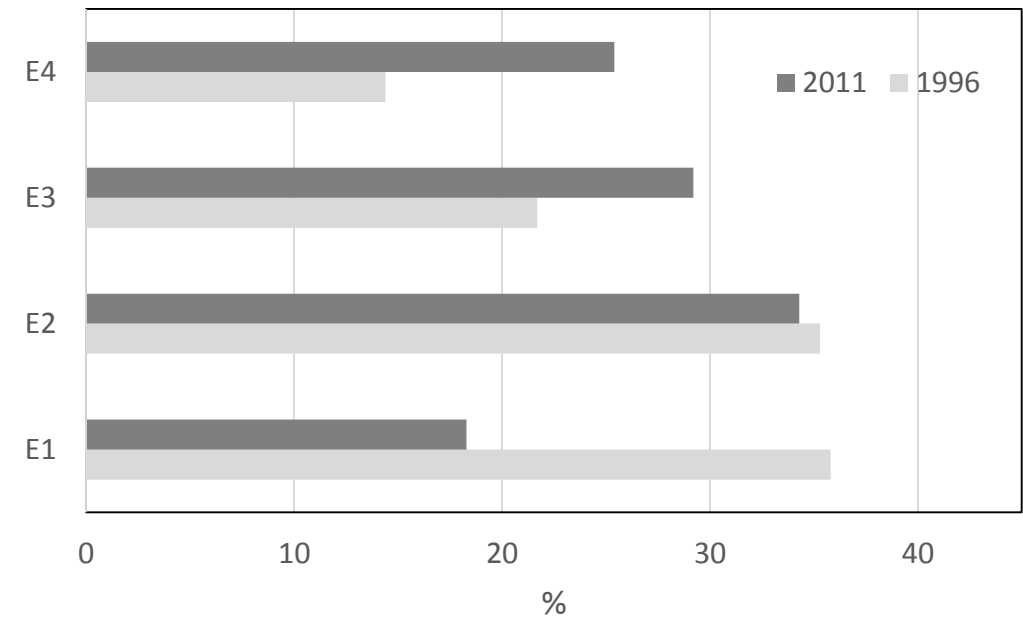


Higher proportion of adults with a postsecondary diploma or university degree (E3, E4) in 2011 compared to 1996

Men 25+



Women 25+



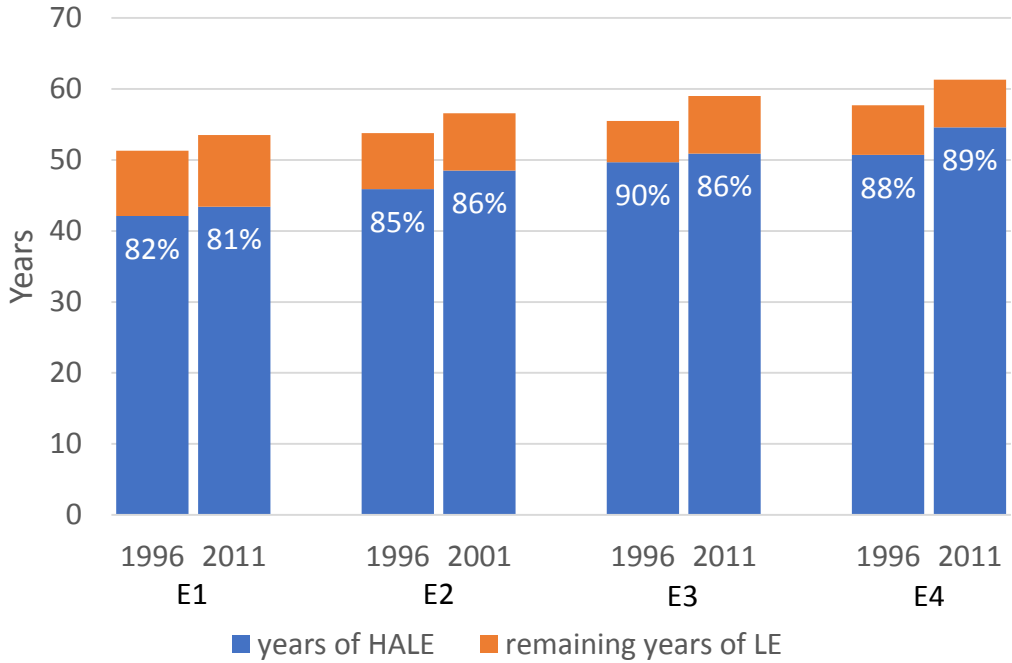
E1=less than secondary graduation; E2=secondary graduation; E3=postsecondary diploma or certificate; E4=university degree

Source: 1996 and 2011 CanCHEC



LE₂₅ and HALE₂₅ increased across all levels of education

Men aged 25

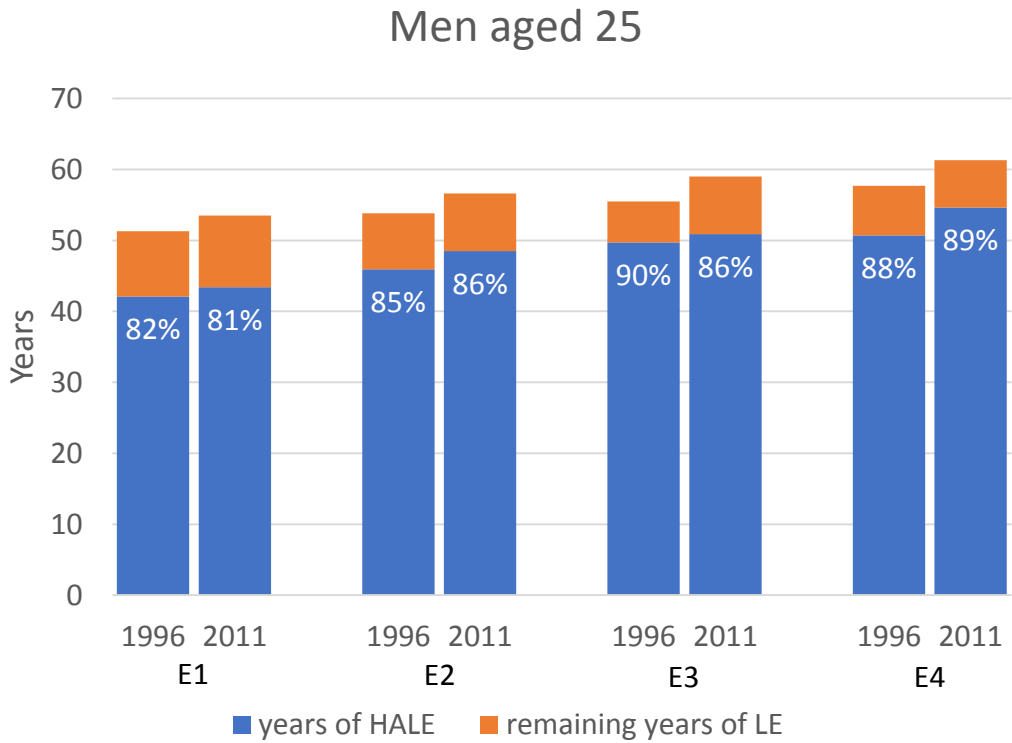


E1=less than secondary graduation; E2=secondary graduation; E3=postsecondary diploma or certificate; E4=university degree

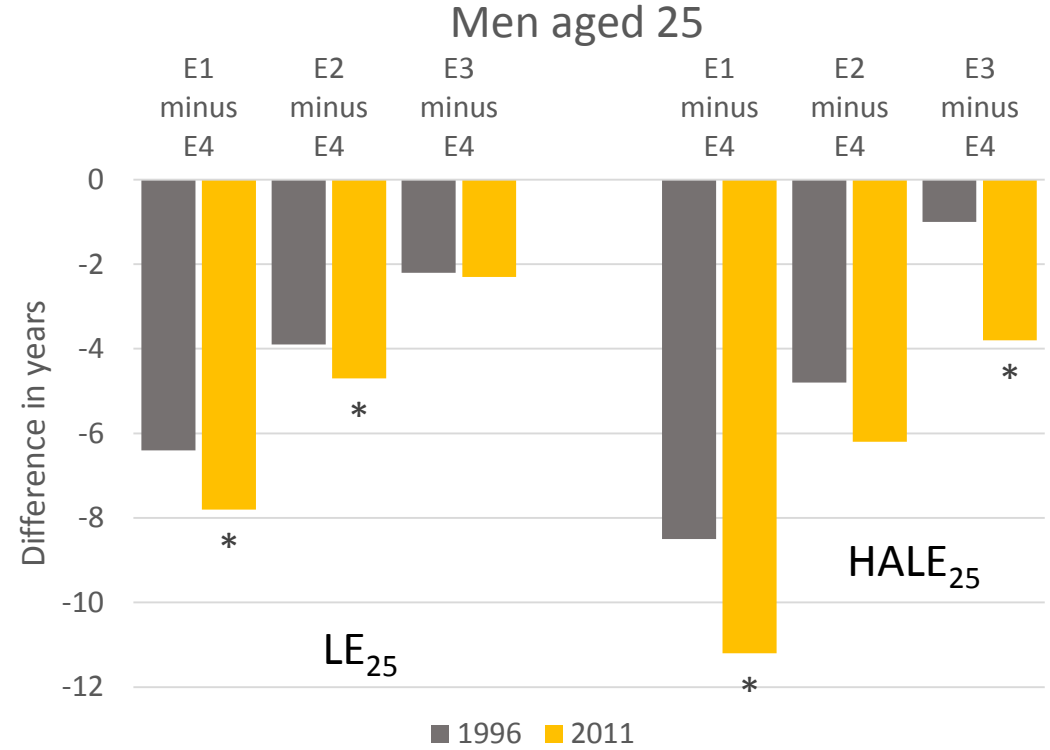
Source: 1996 and 2011 CanCHEC, 1994/1996 NPHS, 2009/2010 CCHS



LE₂₅ and HALE₂₅ increased across all levels of education



Disparities between E1 and E4 widened



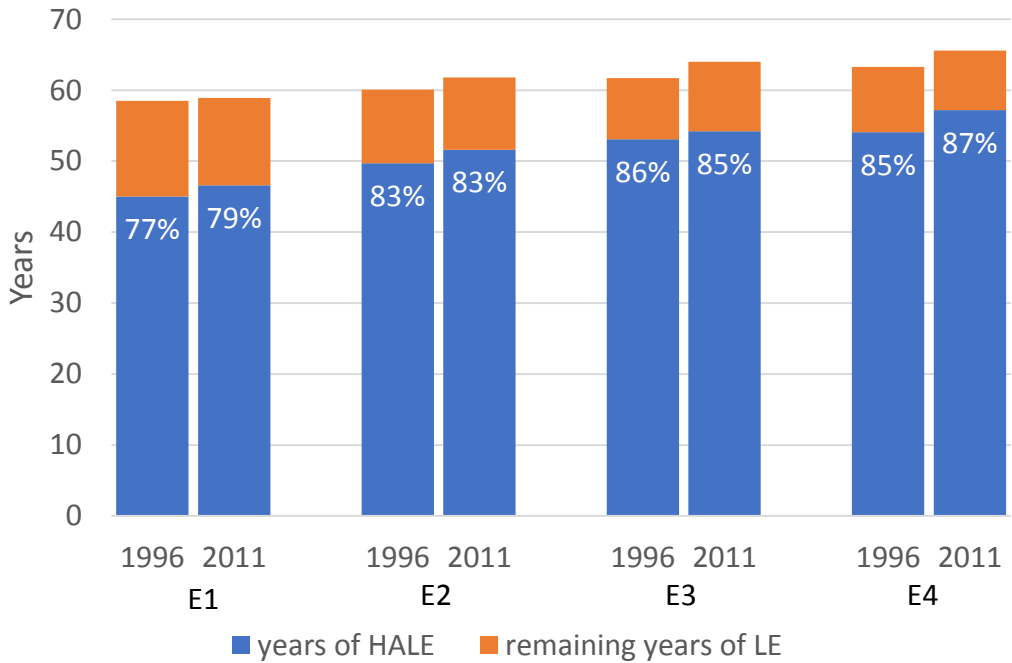
E1=less than secondary graduation; E2=secondary graduation; E3=postsecondary diploma or certificate; E4=university degree

Source: 1996 and 2011 CanCHEC, 1994/1996 NPHS, 2009/2010 CCHS



LE₂₅ and HALE₂₅ increased across most levels of education

Women aged 25



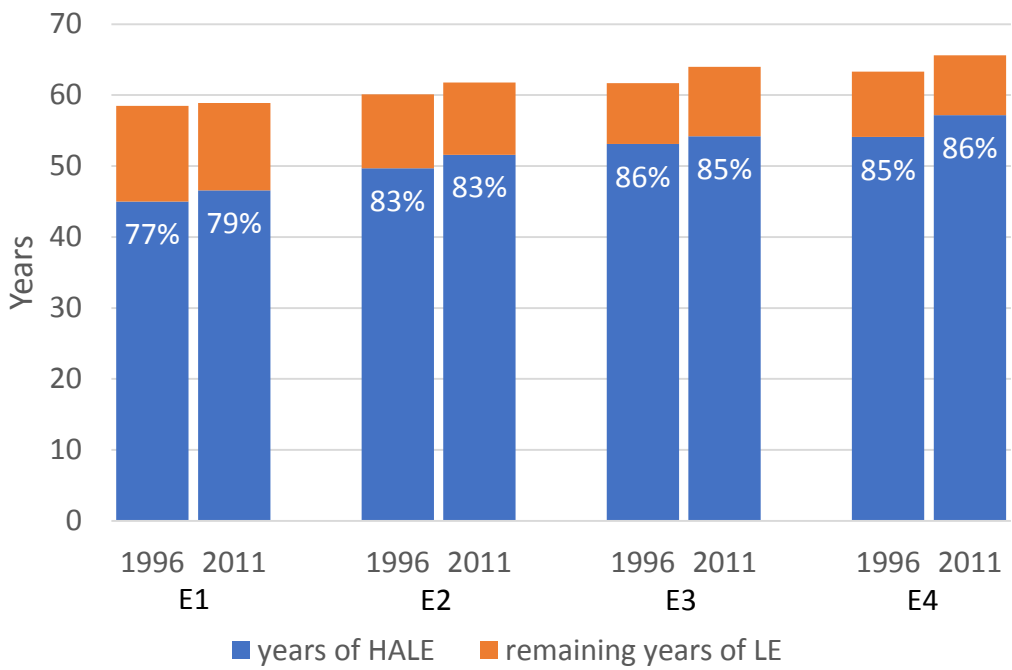
E1=less than secondary graduation; E2=secondary graduation; E3=postsecondary diploma or certificate; E4=university degree

Source: 1996 and 2011 CanCHEC, 1994/1996 NPHS, 2009/2010 CCHS



LE₂₅ and HALE₂₅ increased across most levels of education

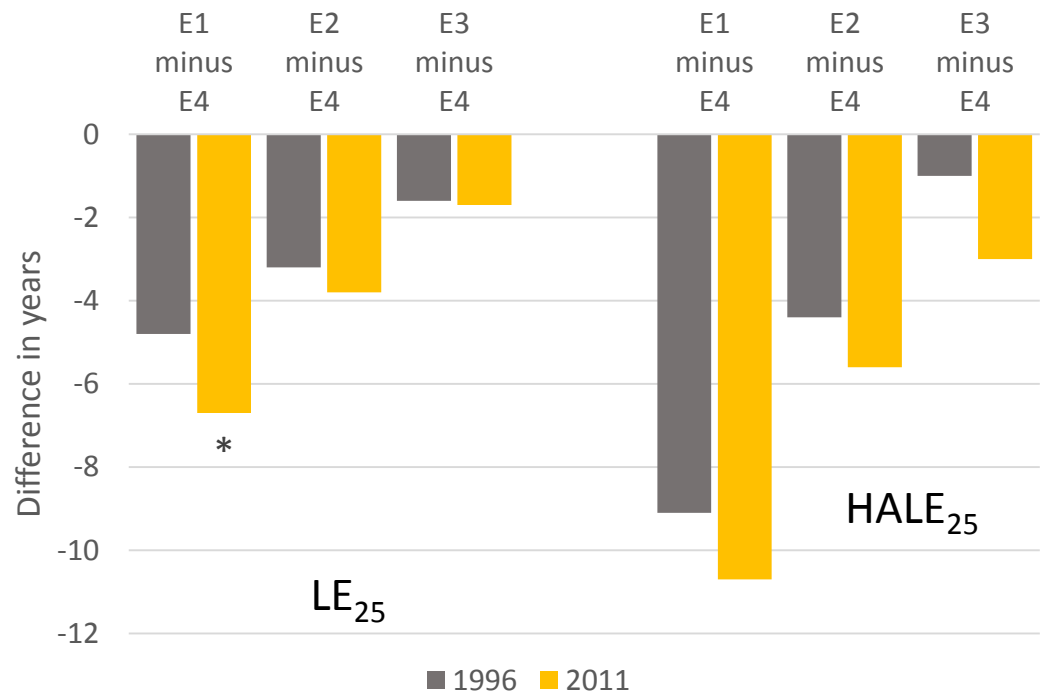
Women aged 25



E1=less than secondary graduation; E2=secondary graduation; E3=postsecondary diploma or certificate; E4=university degree

LE₂₅ disparity widened between E1 and E4

Women aged 25



Source: 1996 and 2011 CanCHEC, 1994/1996 NPHS, 2009/2010 CCHS

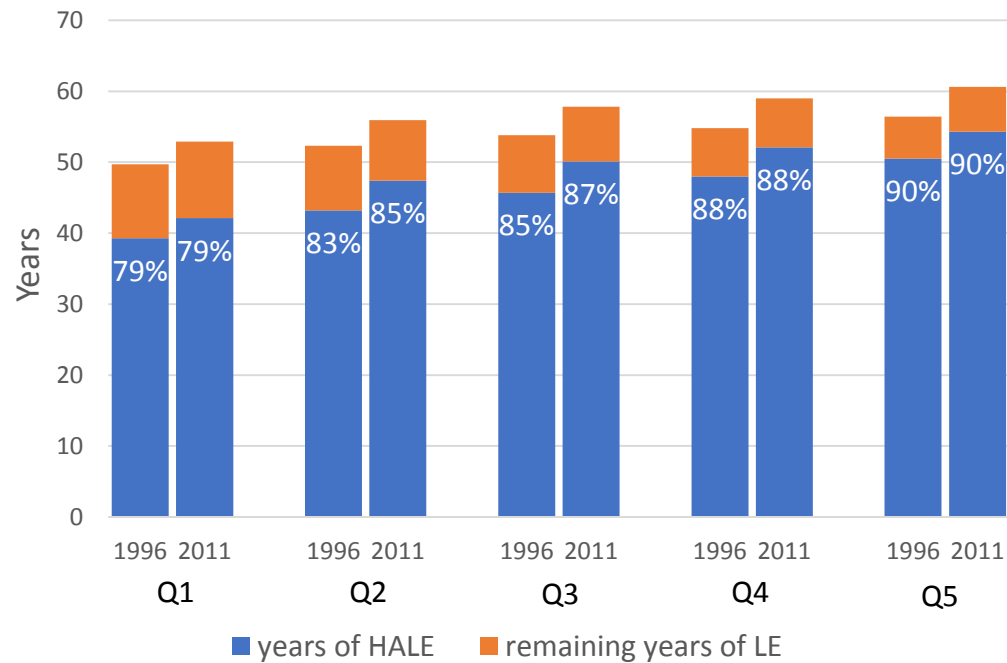
Results - Income





LE₂₅ and HALE₂₅ increased across all levels of income

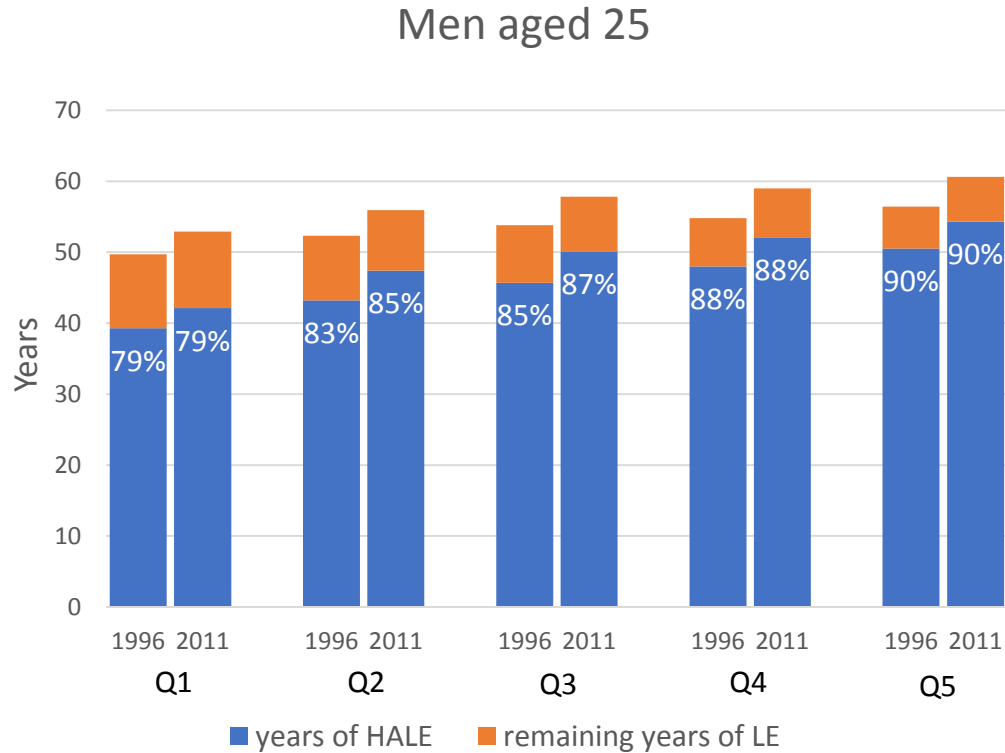
Men aged 25



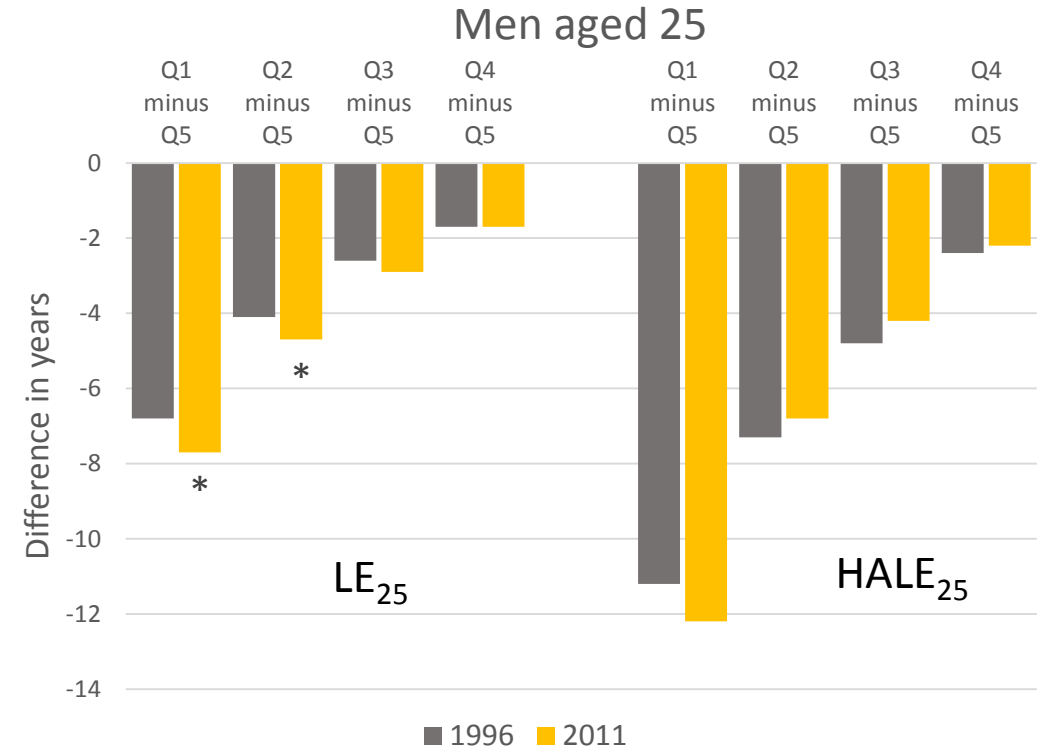
Source: 1996 and 2011 CanCHEC, 1994/1996 NPHS, 2009/2010 CCHS



LE₂₅ and HALE₂₅ increased across all levels of income



LE₂₅ disparities widened between Q1, Q2 and Q5

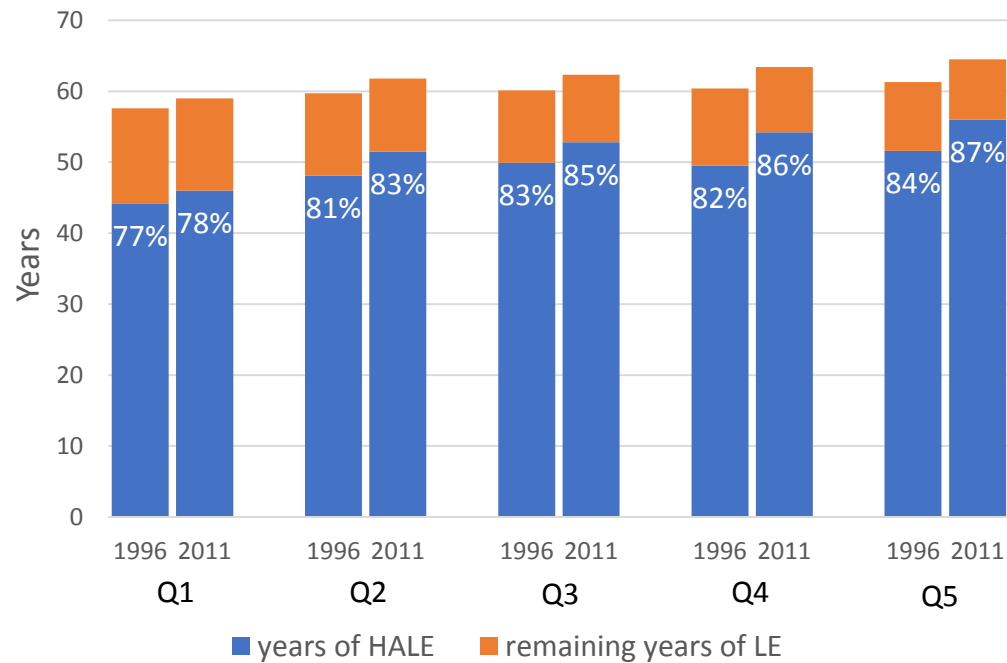


Source: 1996 and 2011 CanCHEC, 1994/1996 NPHS, 2009/2010 CCHS



LE₂₅ and HALE₂₅ increased across all levels of income

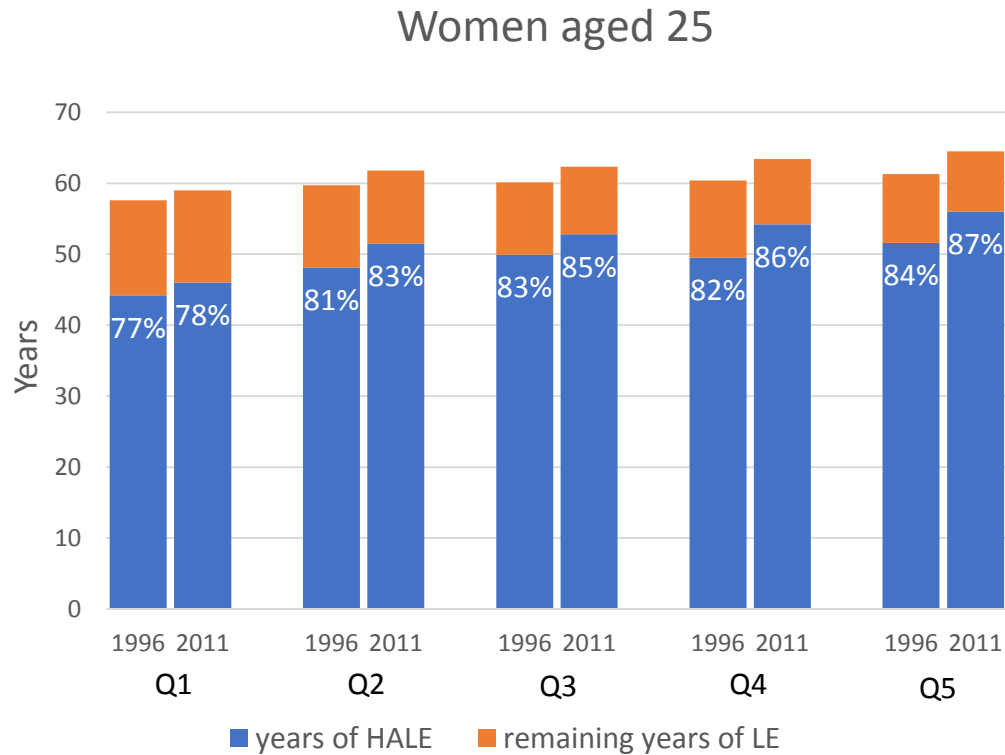
Women aged 25



Source: 1996 and 2011 CanCHEC, 1994/1996 NPHS, 2009/2010 CCHS



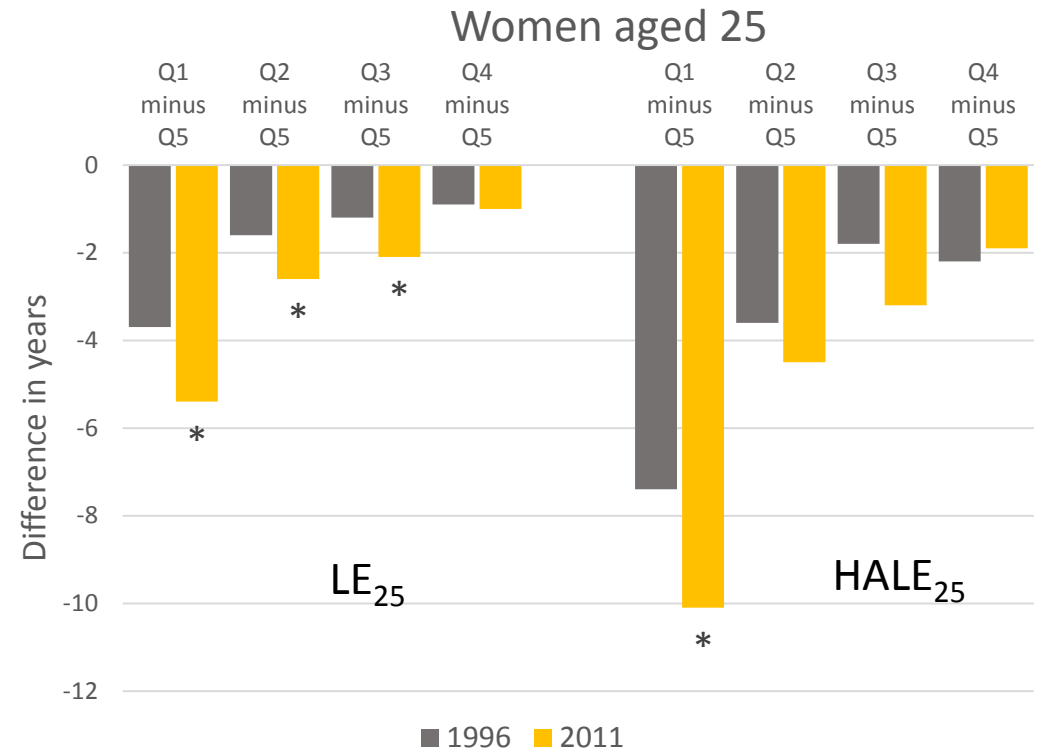
LE₂₅ and HALE₂₅ increased across all levels of income



Source: 1996 and 2011 CanCHEC, 1994/1996 NPHS, 2009/2010 CCHS

100

LE₂₅ disparities widened between Q1-Q3 and Q5 HALE₂₅ disparities widened between Q1 and Q5



Summary of key results



	Education- Men	Education- Women	Income- Men	Income- Women
Change in longevity	ALL	E2-E4	ALL	ALL
LE ₂₅ increased between 1996 & 2011	ALL	E2-E4	ALL	ALL
HALE ₂₅ increased between 1996 & 2011	E1, E2, E4	E2, E4	ALL	ALL
Change in disparities				
Significant widening of LE ₂₅ disparities	E1, E2	E1	Q1, Q2	Q1-Q3
Significant widening of HALE ₂₅ disparities,	E1, E3			Q1

E1=less than secondary graduation; E2=secondary graduation; E3=postsecondary diploma or certificate; E4=university degree

Considerations

Strengths

- Nationally representative cohorts using consistent methodology
- Individual level data
- Examination of two important social determinants of the health at same time

Limitations

- Limited to household population
- Changes in census definitions & methodology
- Income & education measured only at cohort inception
- Changes in homogeneity of categories (e.g. lowest education category)

Concluding remarks

- Disparities in LE_{25} and $HALE_{25}$ currently exist in Canada
- LE_{25} and $HALE_{25}$ have increased for most education and income levels
- Disparities appear to be wider than they were 15 years ago, but not necessarily to the same extent for both sexes
- Census based integrated datasets can be used to identify trends in longevity by different population groups
- Results can help inform policy development and planning intended to advance health equity

Thank you

For more information on this study

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