

Changes in Mortality Rates and Causes of Death in a Population-Based Cohort of Persons Living with and Without HIV from 1996 to 2012

How have mortality rates and causes of death changed over time for both persons living with and without HIV, and how do these changes compare?

What is this study about?

In this study, we aimed to characterize and compare changes over time (from 1996 to 2012) in mortality rates and causes of death among persons living with and without HIV in British Columbia.

FACT BOX

The mortality rates and causes of death among people with HIV are changing. An over 90% reduction in the mortality rate from HIV/AIDS-related causes was observed in this study.

Why is this study important?

People living with HIV (PLHIV) are living longer in the current era of combination antiretroviral therapy, or ART, due to a decline in HIV/AIDS-related deaths. A growing body of evidence suggests that non-HIV/AIDS-related diseases are gaining relevance as important causes of morbidity and mortality.

International Classification of Diseases (ICD) codes make up the international standard for reporting and classifying diseases and health outcomes for clinical and research purposes. We used ICD version 9 and 10 codes to classify deaths into categories according to causes.

What are the key findings?

- Compared to HIV-negative individuals, we found that the causes of death among HIV-positive individuals in BC have changed dramatically over time in the period from 1996 to 2012.
- We observed an over 90% reduction in the mortality rate from HIV/AIDS-related causes when we compared rates from 1996 to those from the 2011-2012 era.
- Among PLHIV, significant declines in mortality rates were also observed for hepatic/liver diseases and drug use/overdose deaths.
- For all causes of death examined, HIV-positive individuals continue to have higher mortality rates than HIV-negative individuals, except for neurological disorders.
- Among PLHIV, there was an observable trend of increasing mortality rates from neurological disorders. This is likely a reflection of the increased longevity in this population.
- The proportion of deaths attributable to cardiovascular diseases and non-AIDS-defining cancers significantly increased over time among PLHIV.



- Non-AIDS-defining cancers are currently the leading non-HIV/AIDS-related cause of death in both HIV-positive and negative individuals.

What does this mean?

- The mortality rates and causes of death among PLHIV are changing over time.
- Ongoing monitoring of mortality trends by causes will be important and will provide the necessary data to enable PLHIV, clinicians and policymakers to optimally target efforts at the conditions influencing morbidity and mortality outcomes.

How was this study conducted?

- Information on deaths was gathered through a confidential data linkage with the BC Vital Statistics Mortality database, and deaths were classified into cause of death categories using ICD 9/10 codes.
- Crude mortality rates, age-standardized mortality rates and mortality rate ratios were calculated.
- The analysis used data from the Comparative Outcomes And Service Utilization Trends (COAST) study at the BC Centre for Excellence in HIV/AIDS (BC-CfE).

About the Comparative Outcomes And Service Utilization Trends (COAST) Study

Considering the ongoing changes and improvements in the care of individuals living with HIV, frequent monitoring of their health outcomes is important. This monitoring helps, for example, to better understand the impact of increased access to HIV treatment with antiretrovirals. COAST, funded by the Canadian Institutes of Health Research, is a large population-based retrospective study aiming to examine the health outcomes and health service use of more than 13,000 men and women living with HIV, as compared to a random sample of over half a million British Columbians. COAST, which contains linked longitudinal data from 1996 to 2013, is uniquely positioned to assess health outcomes and resource utilization because of its large size and population-based nature. It is also the first population-level study in Canada that allows a comparison between HIV-positive individuals and the general population.

Full paper available online: <https://www.ncbi.nlm.nih.gov/pubmed/28241797>

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