Characterizing Trends in the Burden of Eye Cancer in Canada

Rayyan Zuberi, BHSc[1]; Tan Li, BHSc[2]; Mohammad Omer, BSc[1]; Nirav Saini, BSc[1]; Ezekiel Weis, MD, MPH, FRCSC[1,3]

[1]Cumming School of Medicine, University of Calgary, Calgary, AB, Canada

[2]University of Toronto, Toronto, ON, Canada.

[3]University of Alberta, Edmonton, AB, Canada.

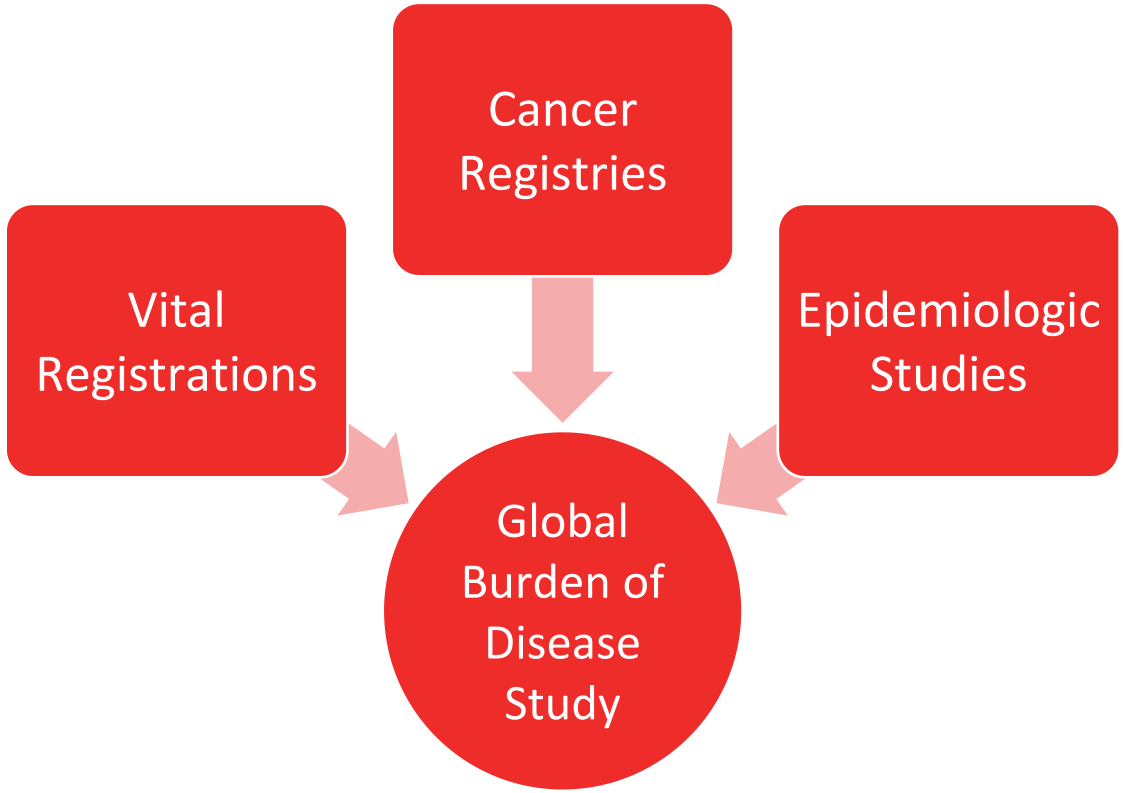
May 30th, 2025

Introduction

- Eye cancers are considered rare - thus there are critical limitations in epidemiological evidence available
- These cancers can be devastating for patients, contributing to significant disability and mortality
- There are few studies that characterize the burden of eye cancer and trends over time in the Canadian context.
- We have designed a retrospective, descriptive epidemiological study of the Canadian population to examine this.

Methods

- Data on the key epidemiologic metrics for eye cancer (ICD-10 C69.0-69.8) in Canada from **1980 to 2021** were derived from the **Global Burden of Disease Study**.
- **Joinpoint regression analysis** was performed to evaluate the average annual percentage change (AAPC) in each metric over time and statistically determine any inflection points.



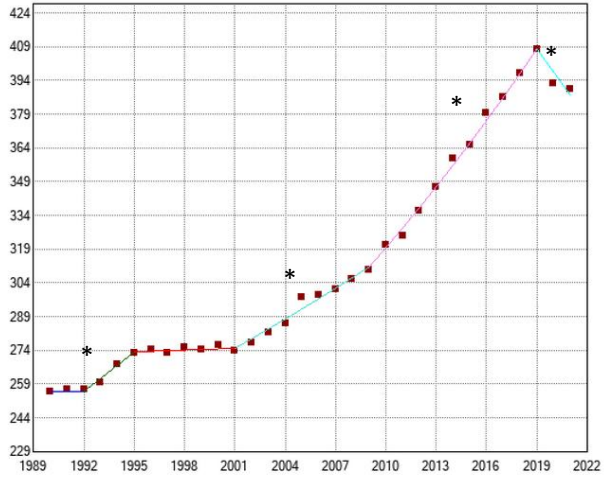
Definitions

Term	Definition
Years Lived with Disability	Representing loss of health due to disability secondary to eye cancer
Years of Life Lost	Representing total estimated number of life years lost secondary to eye cancer
Disability Adjusted Life Years	Composite of both of the above measures

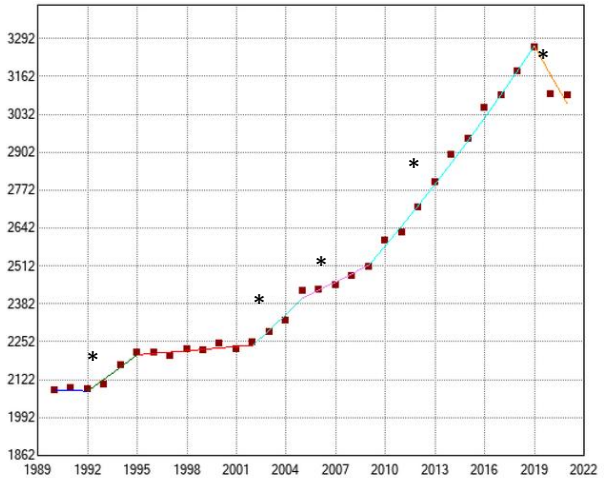
To measure the economic impact of eye cancer, we estimated the value of **1 DALY at 1-3 times GDP per capita.**

Results

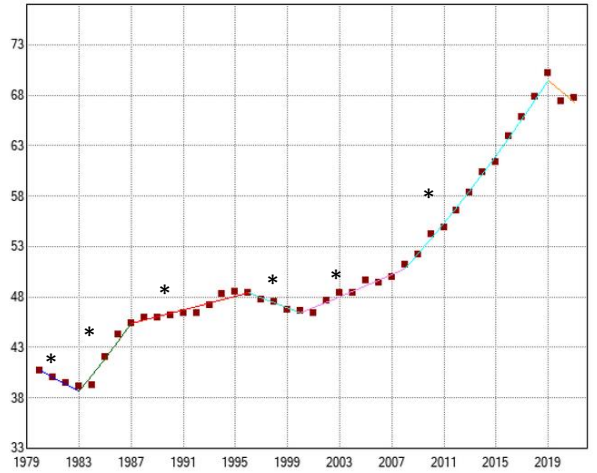
(a) Absolute Incident Cases



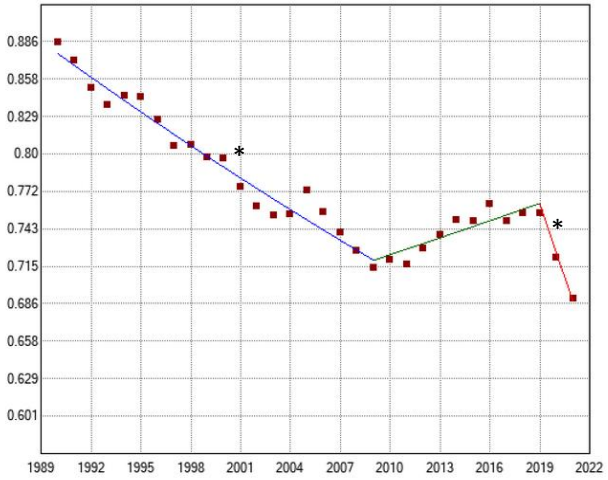
(b) Absolute Prevalent Cases



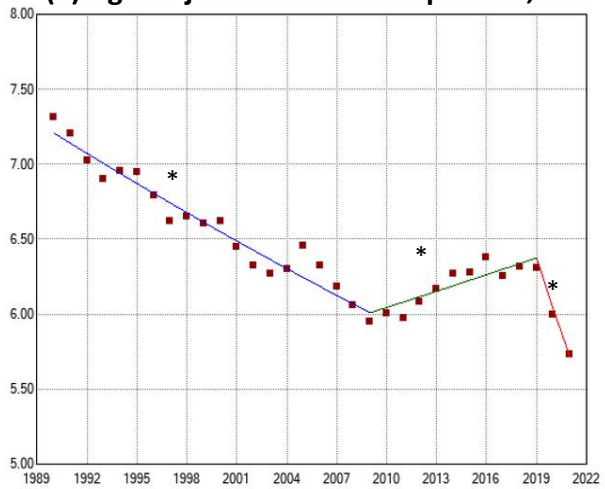
(c) Absolute Number of Deaths



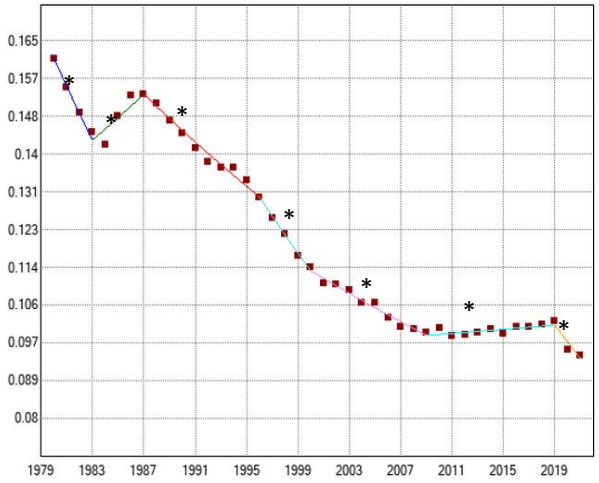
(d) Age-Adjusted Incidence per 100,000



(e) Age-Adjusted Prevalence per 100,000



(f) Age-Adjusted Mortality per 100,000



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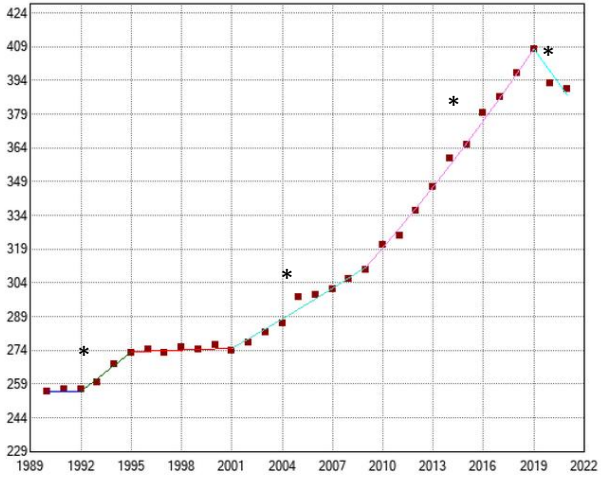

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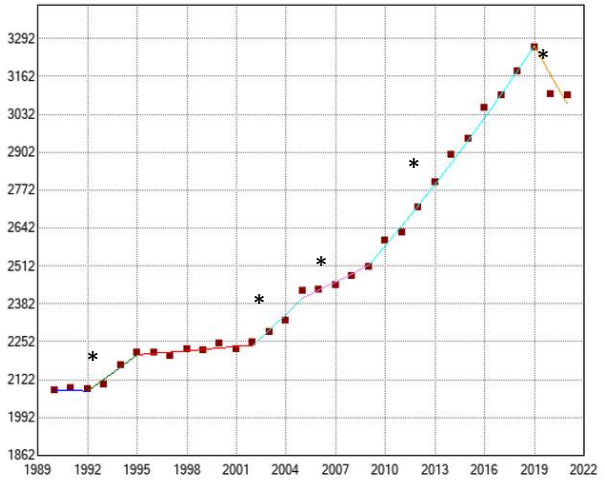

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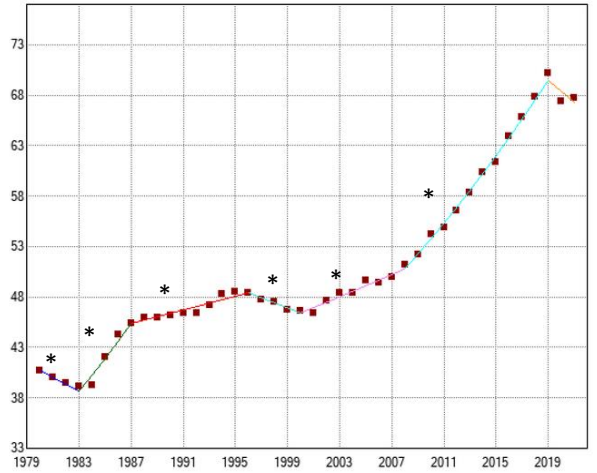

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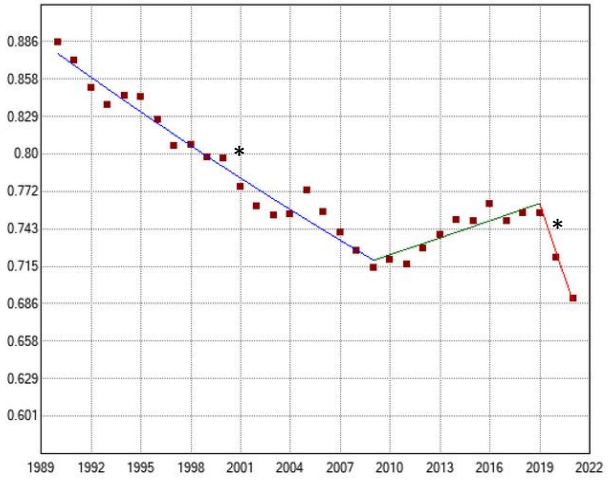

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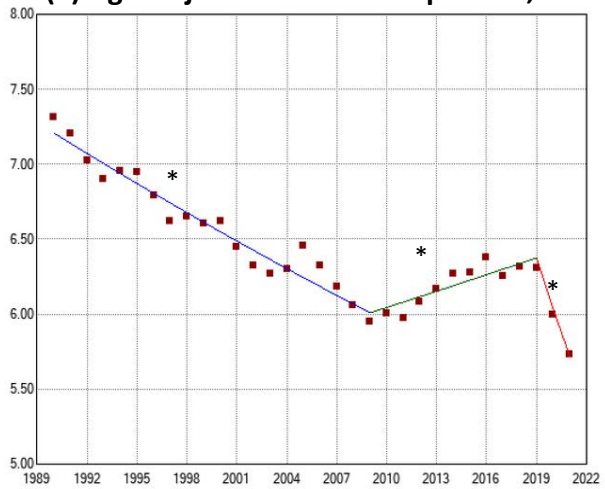

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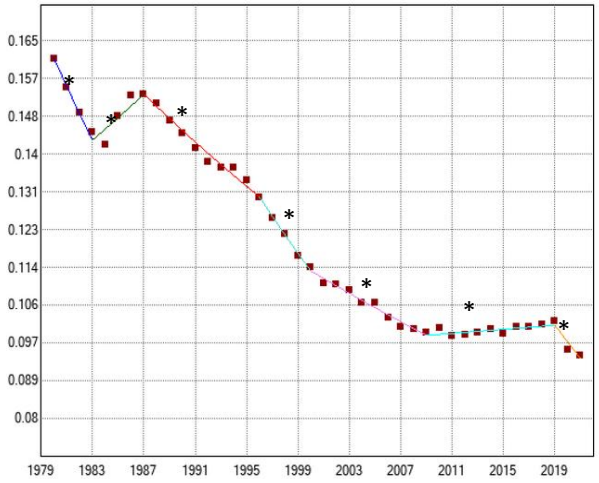

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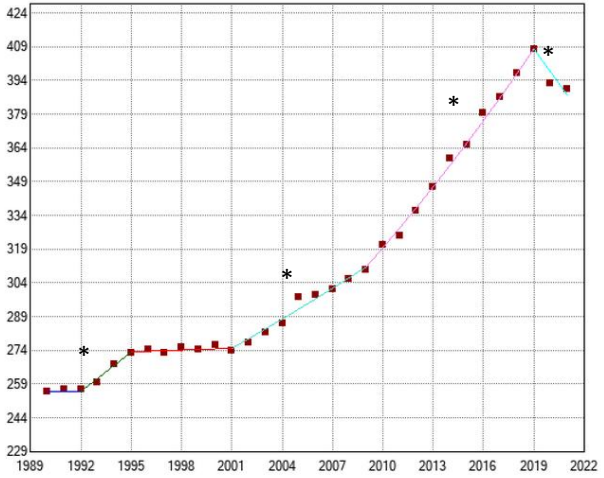

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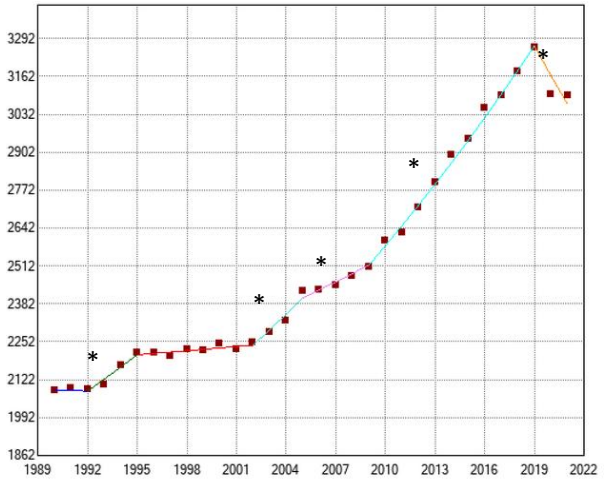

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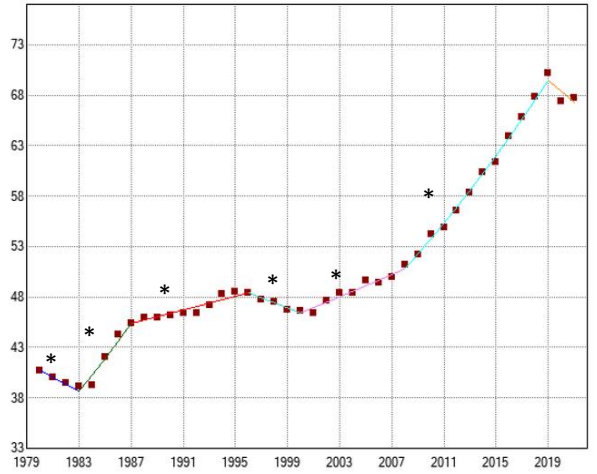

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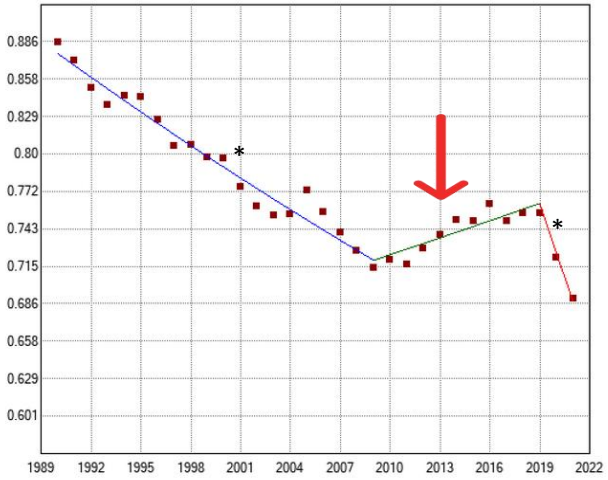

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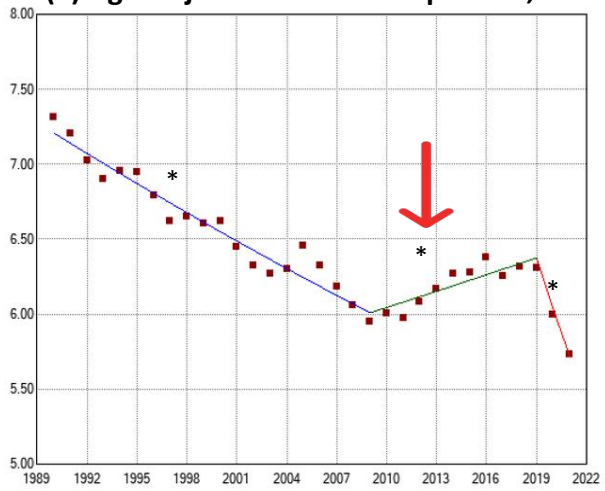

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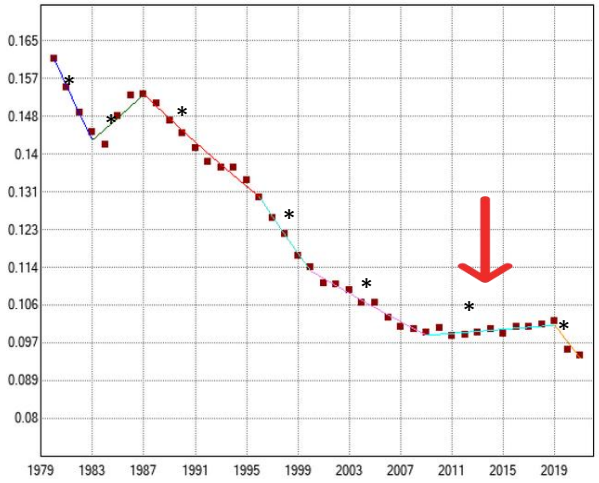
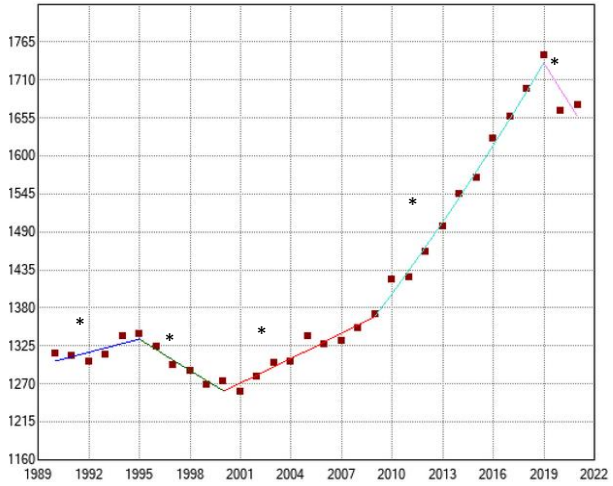
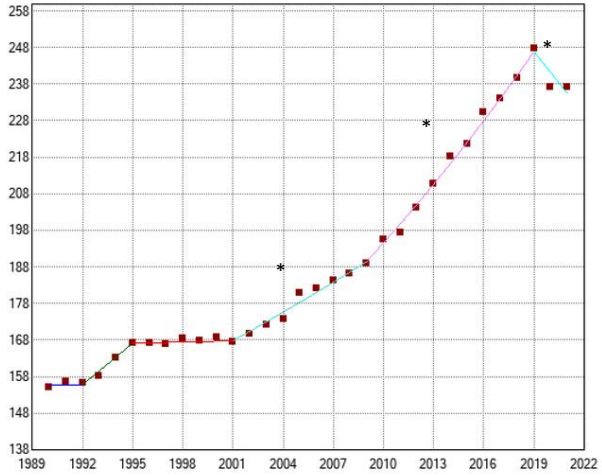


Results

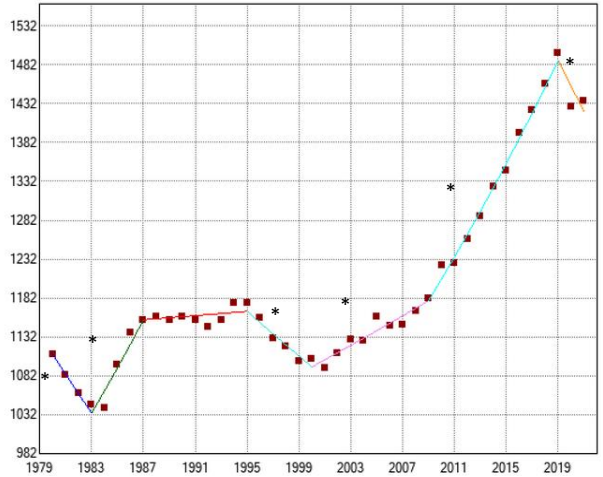
(a) Absolute Disability Adjusted Life Years (DALYs)



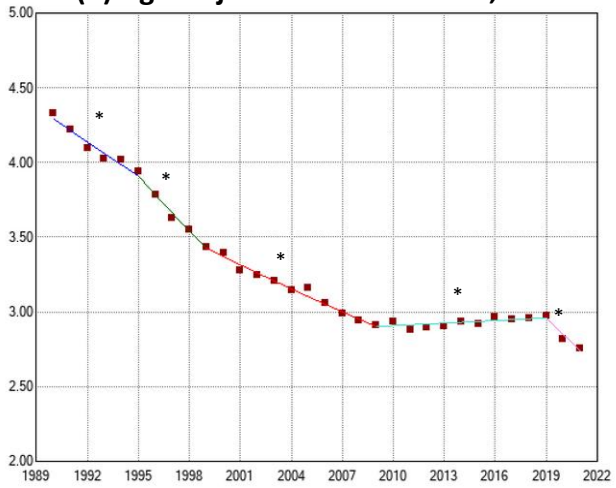
(b) Absolute Years Lived with Disability (YLDs)



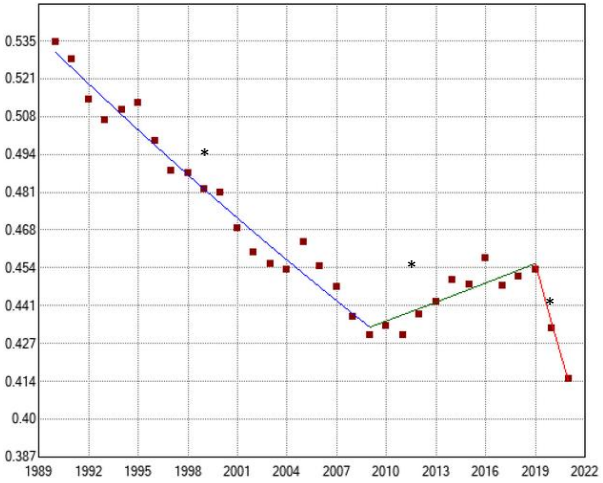
(c) Absolute Years of Life Lost (YLLs)



(d) Age-Adjusted DALYs Per 100,000



(e) Age-Adjusted YLDs Per 100,000



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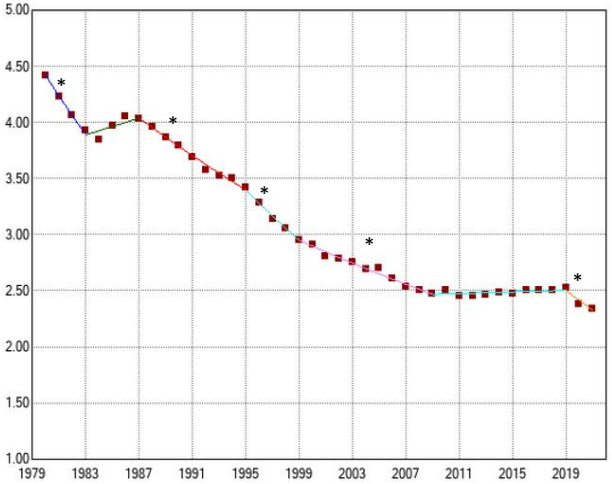

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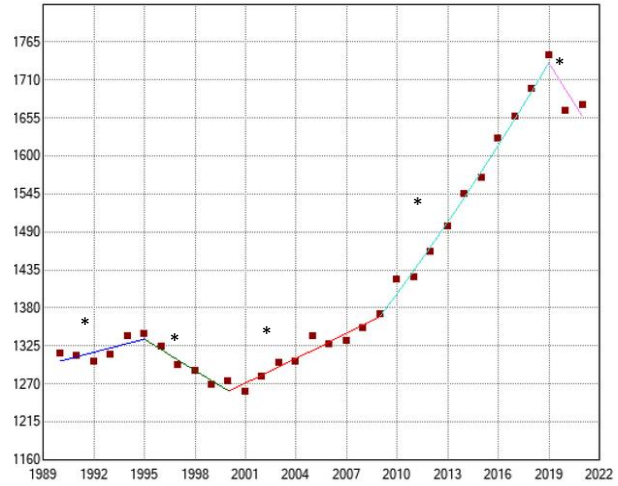

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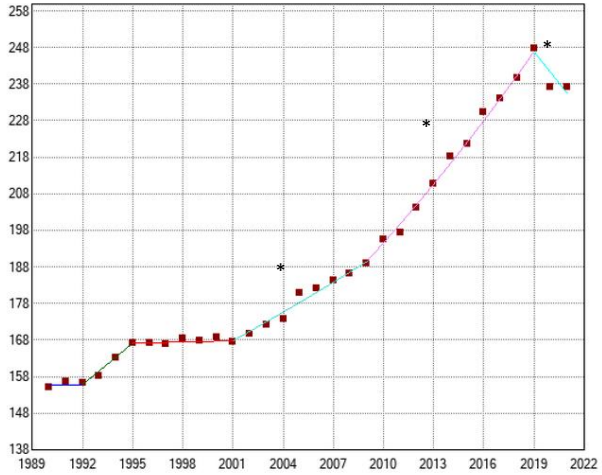

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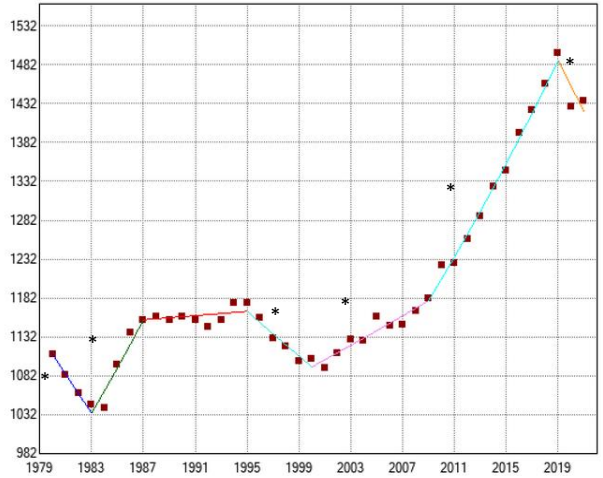

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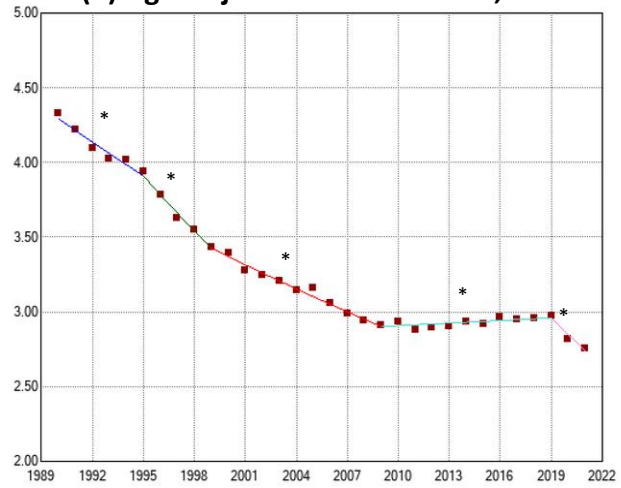

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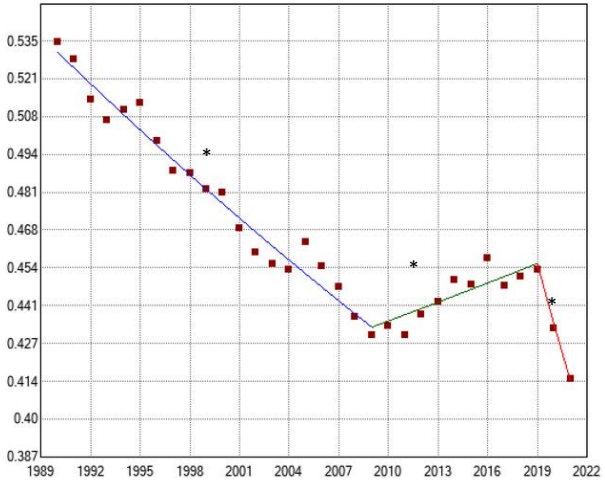

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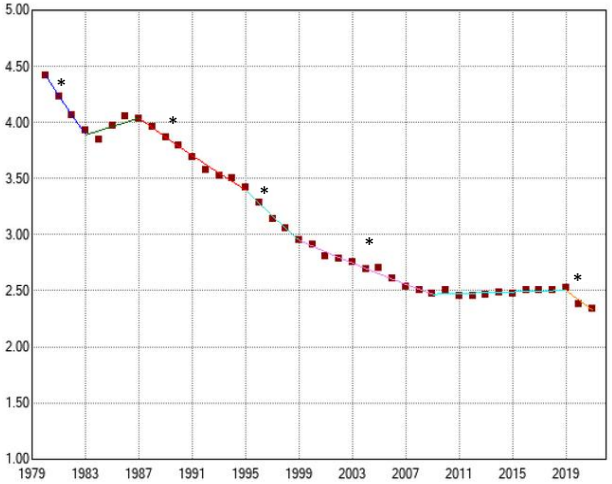

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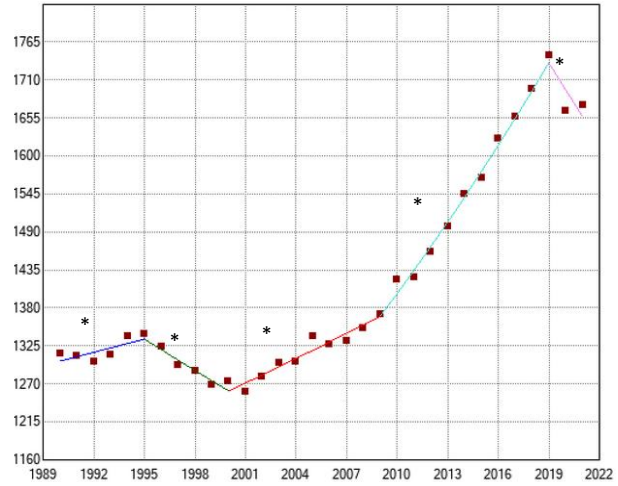

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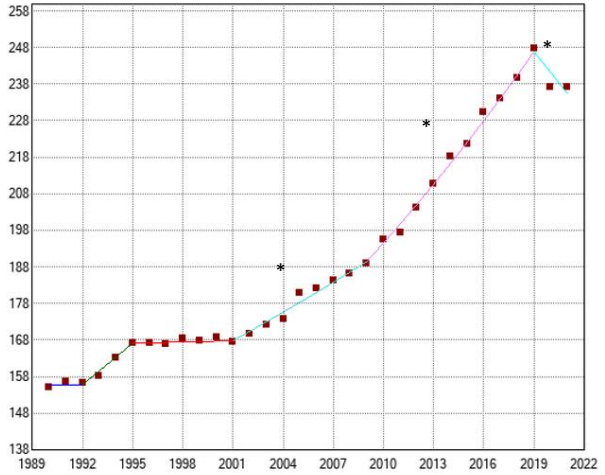

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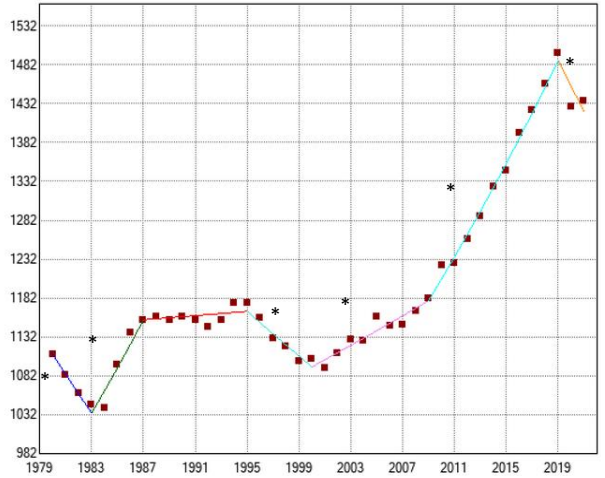
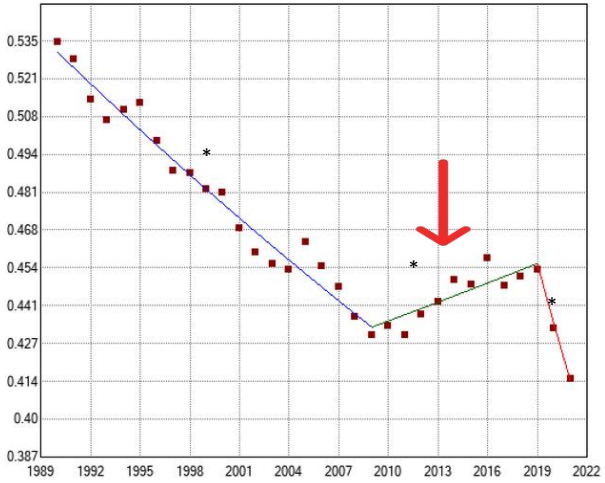


(d) Age-Adjusted DALYs Per 100,000

(e) Age-Adjusted YLDs Per 100,000



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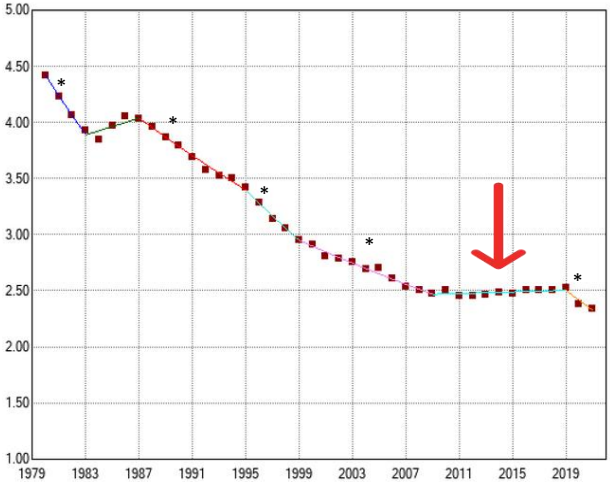

Conclusions

As Canada's population has grown and gotten older, it has observed a **growing absolute burden of eye cancer across all measures under study.**

Per capita, Canada has seen an overall improvement in the burden of this disease. However, the results suggest that **since 2009, there may be a growing burden of eye cancer, in opposition to the prevailing trend.**

The average annual economic burden of eye cancer in Canada from 1990-2021 was 77-221 million USD.