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MEDICINE & DENTISTRY

Costs of Cervical Cancer Treatment: Estimates from Ontario, Canada

Ciara Pendrith, MSc
Amardeep Thind, MD, PhD
Greg Zaric, PhD
Sisira Sarma, PhD

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Agenda

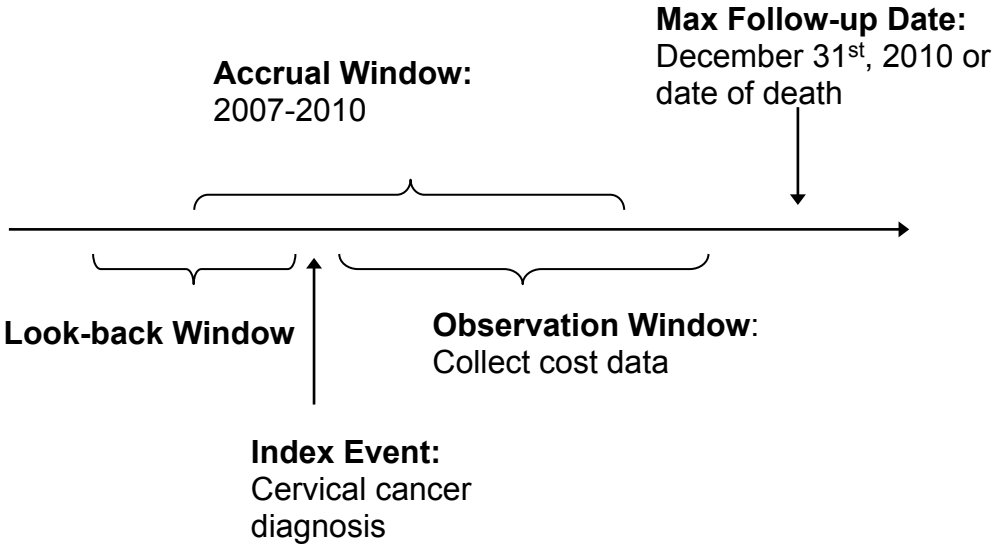
- Cervical cancer epidemiology
- Methodology
- Results
- Discussion

Background

- Cancer is leading cause of death in Canada
- Direct cost: $4 billion
- Cervical cancer is the third most common female cancer worldwide
- Second leading cause of cancer death in Canadian women 20-44

Cohort Selection

Cervical cancer cases in the Ontario Cancer Registry linked to administrative databases held at the Institute for Clinical Evaluative Sciences (ICES)



Data Sources

Database	Resources
Ontario Health Insurance Plan claims database	Physician services, diagnostic tests, lab tests
Canadian Institute for Health Information (CIHI) Discharge Abstract Database	Inpatient hospital admissions
CIHI National Ambulatory Care Reporting System	Cancer clinic visits, emergency department visits
CIHI Same Day Surgery	Same-day surgeries
CIHI Continuing Care Reporting System	Complex continuing care services
CIHI National Rehabilitation Reporting System	Hospital admissions for rehabilitation services
Home Care Database	Home care services
Ontario Drug Benefit	Prescription drugs to eligible patients
Ontario Mental Health Reporting System	Admissions for mental health stays

Analyses

Arithmetic Mean

$$\hat{\mu} = \frac{1}{n}\sum_{i=1}^{n} M_i$$

Simple Weighted Estimator

$$\hat{\mu}_{WT} = \frac{1}{n}\sum_{i=1}^{n} \frac{\Delta_i M_i}{\hat{K}(T_i)}$$

Improved Estimator

$$\hat{\mu}_{IMP} = \frac{1}{n}\sum_{i=1}^{n} \frac{\Delta_i M_i}{\hat{K}(T_i)} + \frac{1}{n}\sum_{i=1}^{n} \frac{(1-\Delta_i)\{M_i - \overline{M(C_i)}\}}{\hat{K}(T_i)}$$

$$\overline{M(C_i)} = \frac{\sum_{j=1}^{n} I(X_j \geq M_j(C_j))}{\sum_{j=1}^{n} I(X_j \geq C_i)}$$

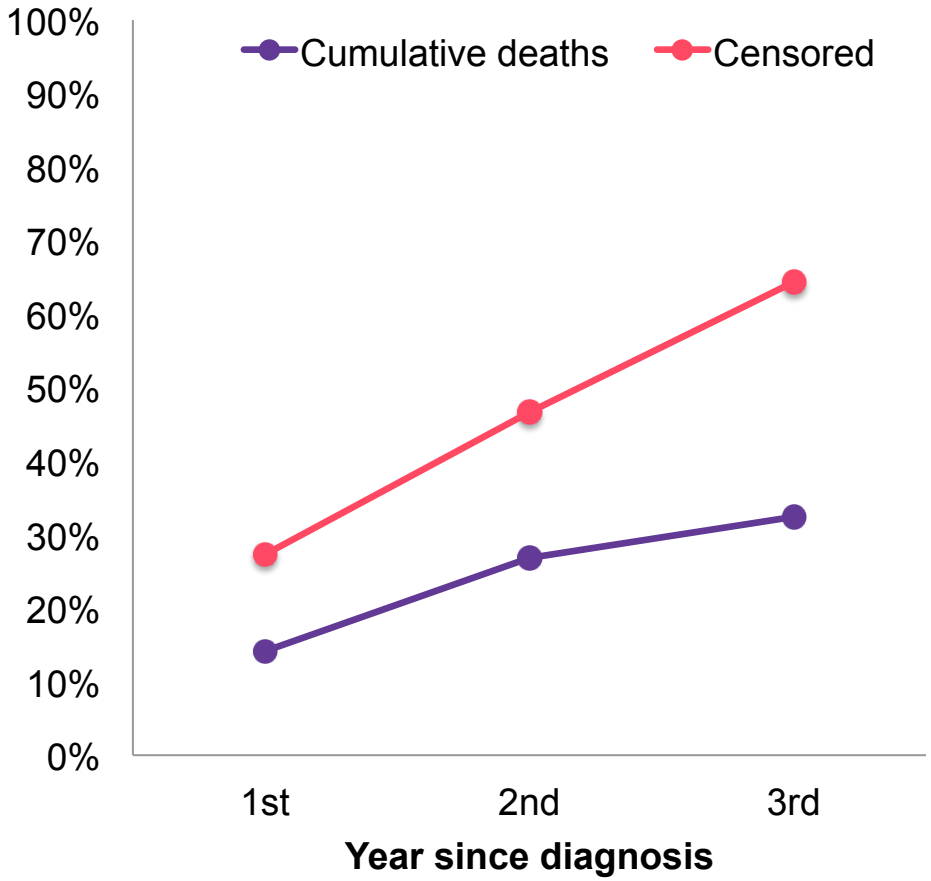
Study Cohort

N = 784

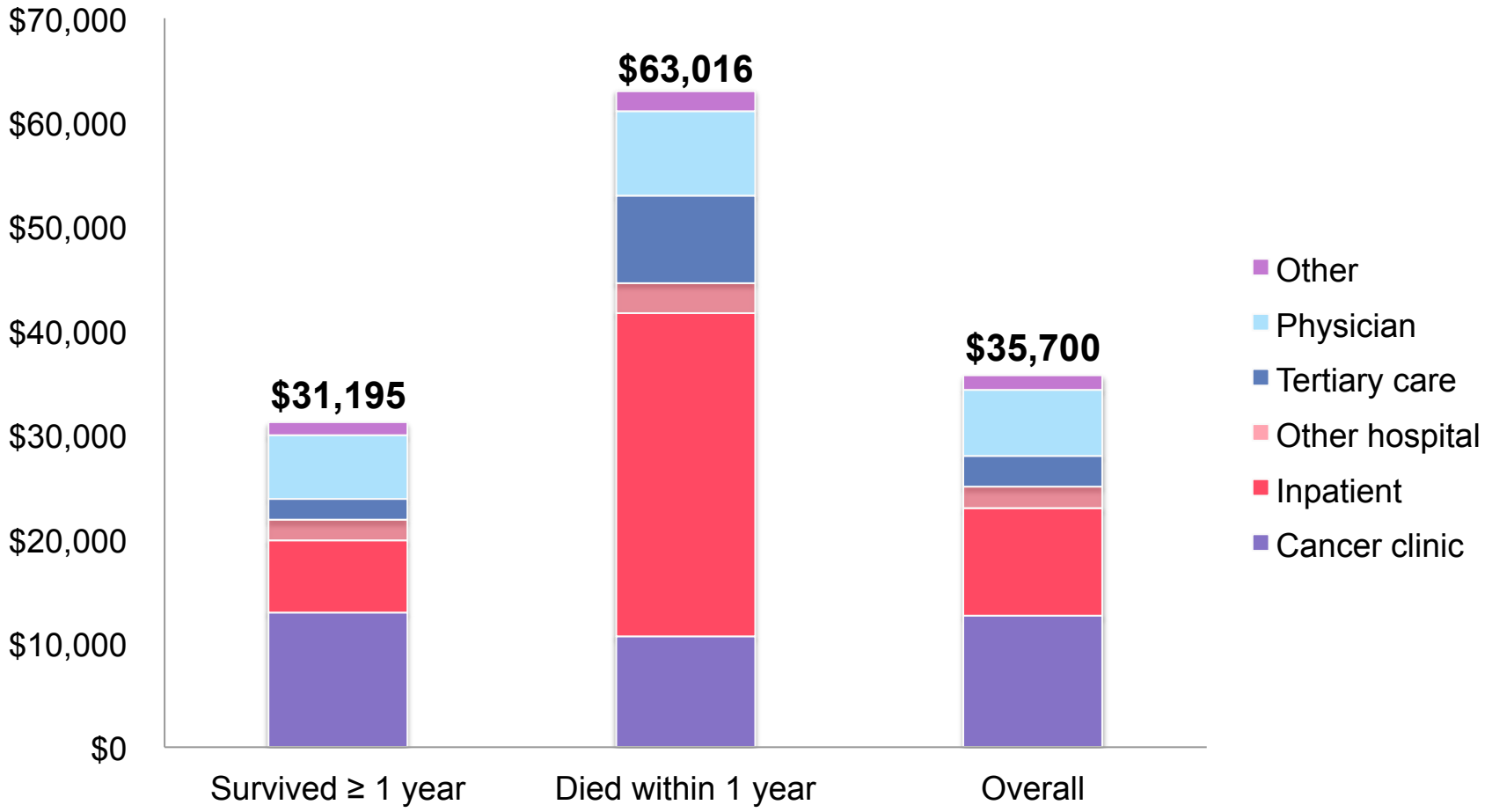
Mean age = 49.3

254 deaths in study period

- 71% caused by cervical cancer

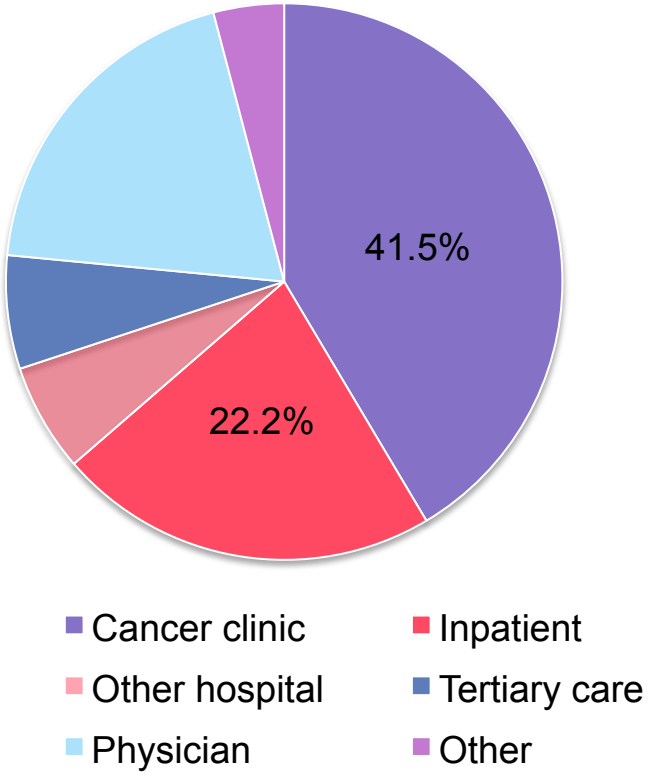


1-year costs by vital status

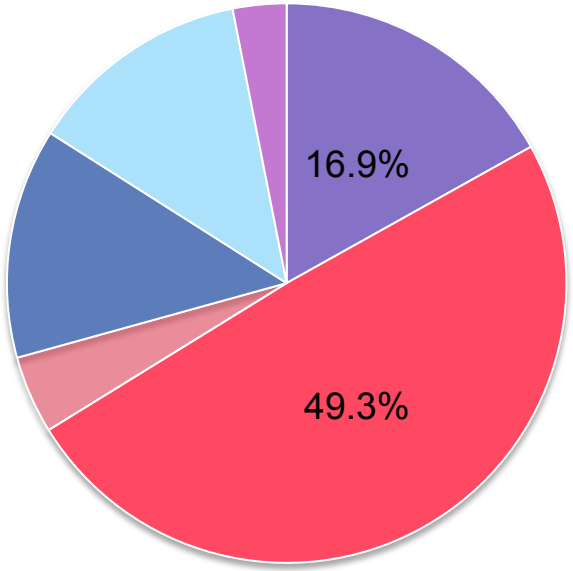


Breakdown of 1-year costs

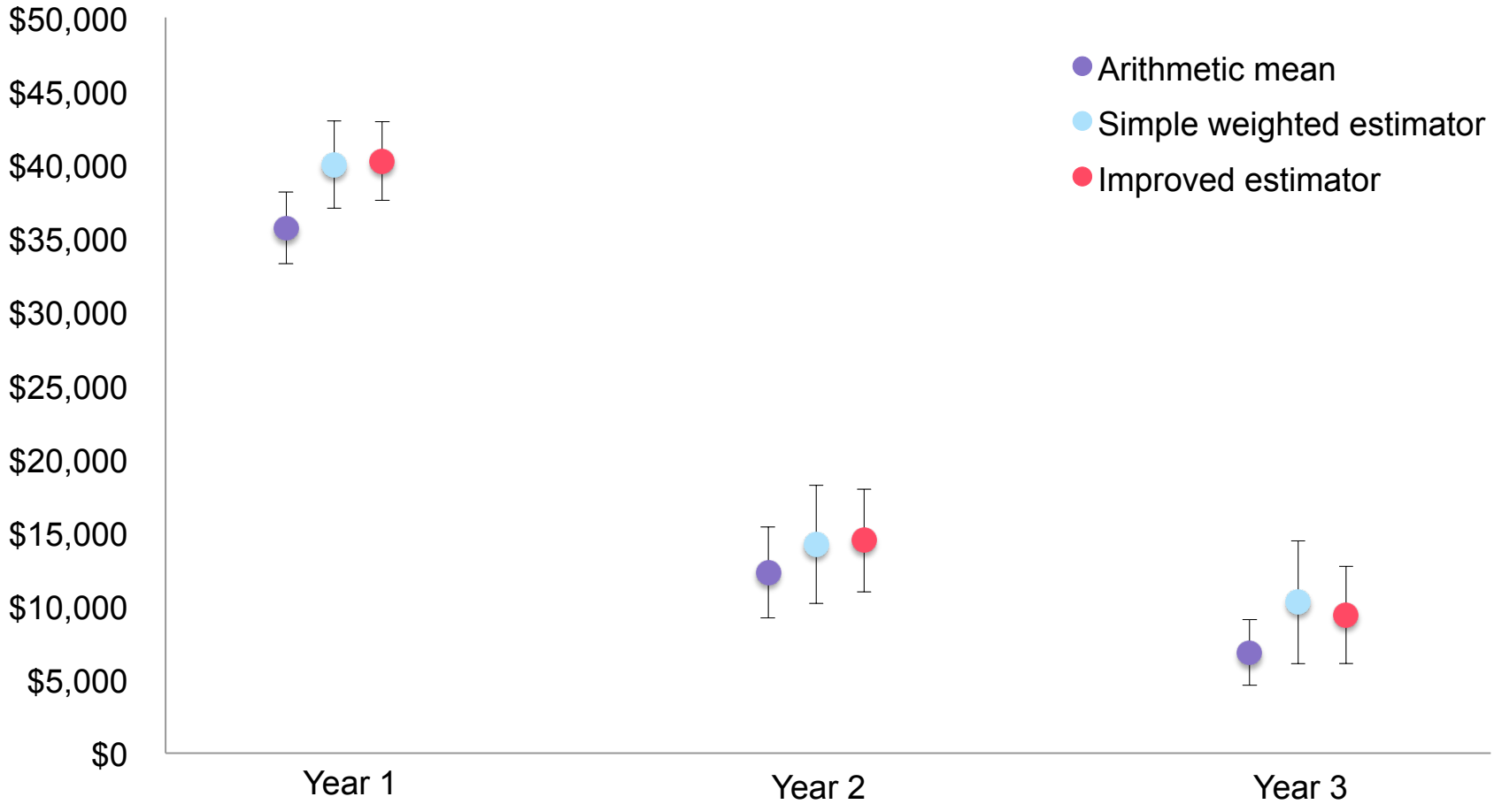
Survived ≥ 1 year



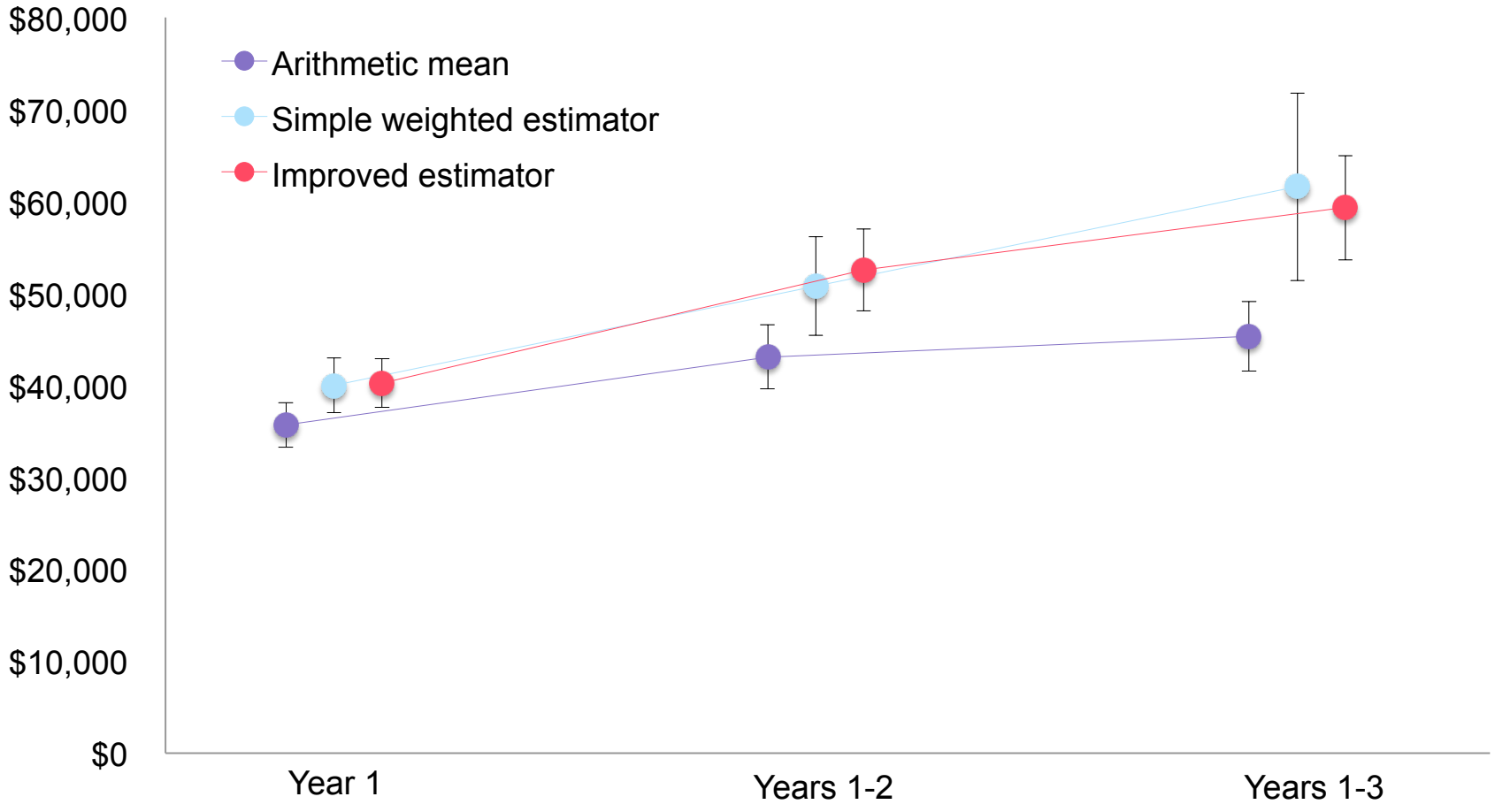
Died within 1 year



Mean annual costs



Mean cumulative costs



Limitations

- No staging data
- Unable to compare costs across treatments
- Overall healthcare costs vs. incremental cancer costs

Conclusions

- Greatest cost accumulation in first year after diagnosis
- Patients that died had much higher costs
- Cancer clinic and hospital admissions were two largest drivers of cost

Acknowledgements

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