



BC Cancer Agency

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An agency of the Provincial Health Services Authority

Phase-Specific and Long-term Medical Costs of Care for Childhood Cancer in British Columbia and Ontario

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BC Cancer Agency

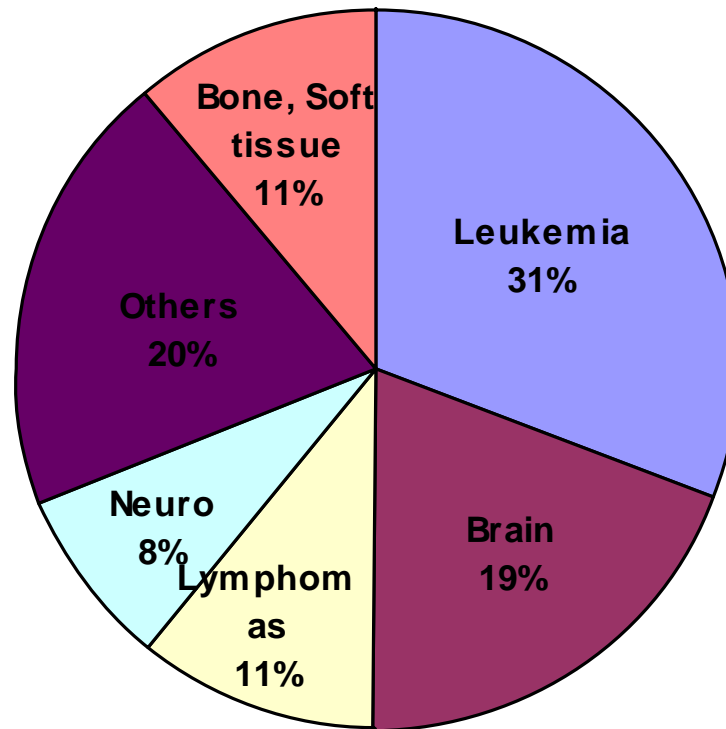
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Background

- Childhood cancer: 1% of all cancers; different diagnostic types, more intense and complex treatment regimens than adults; treatment during growth and development; dramatic increase in survival
- Increasing numbers of child cancer survivors with significant risks of late complications of disease and treatment requiring ongoing medical care
- Few studies of direct long-term medical costs of child cancer care in all phases, and impact of changing treatment, morbidity, and survival

Childhood Cancer in Canada



0-14 years

Approach to Cancer Costing

- Phase of care approach is the standard costing method for estimating direct medical costs of cancer care
- Makes use of the natural history of the disease and corresponding patterns of treatment
 - 1) initial care (treatment); 2) continuing care (follow-up survivor care); 3) end of life care
- Combines phase-specific costs with survival distributions -> estimates of long-term costs with a few years data
- The “net cost” or “attributable cost” method will determine costs directly associated with cancer care

Unique Challenges for Childhood Cancer Costing

- Children with cancer generally live a long time, long enough to experience delayed adverse effects of treatment
- Different cancer costing phases for children
 - 1) active treatment;
 - 2) active follow-up;
 - 3) survivor follow-up;
 - 4) end-of-life care.

Objective and Goals

Overall objective:

- To estimate all healthcare system costs of childhood cancer in British Columbia (BC) and Ontario (ON)

Goal:

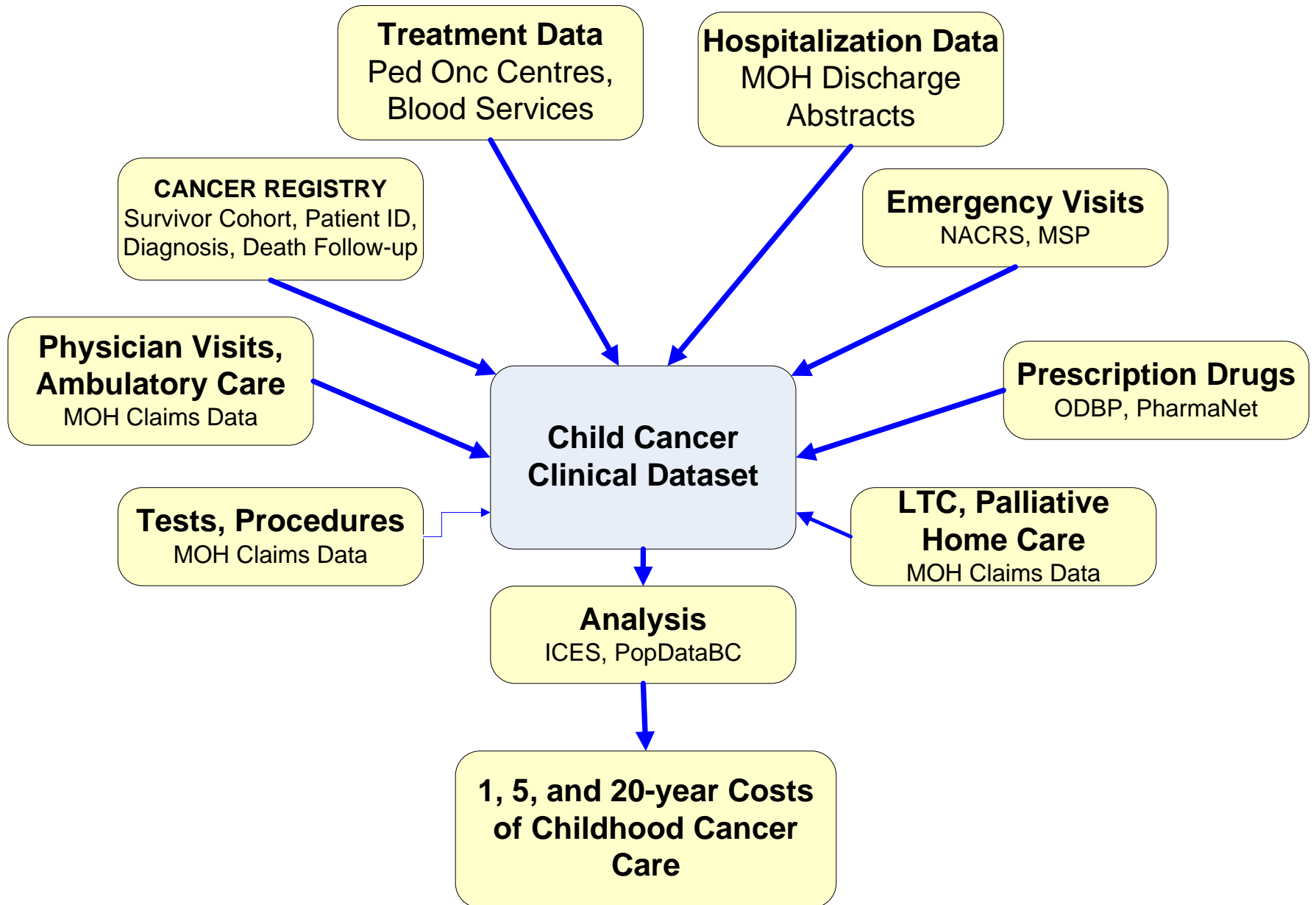
- To provide high-quality evidence to aid in decision-making for future publicly-funded treatment and long-term care of this high-risk population, and ensure that decisions regarding new drugs and treatment, and follow-up care, are evidence-based

Specific Aims

- Using registry and administrative data linked within each of BC and ON, we propose to:
- i) Estimate the costs of care overall and for four groups of childhood cancer (3 most common types: leukemia, central nervous system tumours, and lymphoma, and a fourth consisting of all other cancers), for three phases of care: a) initial care; b) continuing/survivor care; and c) terminal care.
- ii) Determine the main predictors of costs, namely sociodemographic, clinical, and health system predictors, overall and for each cancer group, and each costing phase.
- iii) Measure trends in health service utilization and costs overall and for each childhood cancer group, and relate these temporal changes to changes in treatment and increases in the frequency of late complications.
- iv) Estimate 1-year, 5-year, and 20-year costs overall and for the most common cancers using the phase-based costing approach and appropriate statistical methods.

Study Population and Design

- Retrospective cohort; case-control analysis
- Child cancer cases diagnosed 1995-2010 aged < 15 yrs in BC and ON; followed to end 2010 (n=5200)
- Identified from provincial child cancer registries with demographic, disease, and clinical data
- Linked to provincial population-based registries, clinical databases and administrative healthcare datasets of childhood cancer survivors and a corresponding comparison sample



Child Cancer Clinical Databases

- Detailed information on patient characteristics, diagnosis, treatment, death follow-up
- sex, birthdate; age, date, type of diagnosis
- diagnostic, treatment-related, other surgeries; chemotherapy drugs; radiation therapy (dates, details)

- ON – POGO (POGONIS database): 3900 cases; multiple funders
- BC – CAYACS: 1300 cases; funder CIHR (2001-2004); Canadian Cancer Society Research Institute; and CCS BC and Yukon Division (2005-2013)

Strengths of the Study

- Fits with ARCC aims to conduct comparative studies of health services across provinces
- A collaboration of health economists, pediatric oncologists, and epidemiologists
- Availability of longitudinal clinical databases for children with cancer, and standardized databases of medical care costs, in BC, ON
- Cutting-edge costing methodology

Value of the Study

- Findings will be used to determine how our healthcare dollars can be spent more efficiently
- Comparative results from two provinces will demonstrate how costs are allocated, differences in patterns and quality of care, and differences in access and delivery
- Results can be used by Ministries of Health and cancer care managers to provide adequate resources and to maximize value; by policy makers to plan for future healthcare budgets; and by researchers to conduct future cost-effectiveness analyses
- Demonstrates capacity of linked administrative datasets to meet health services policy goals; leveraging of other CCSRI research

Acknowledgements

- Investigators

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