

INVESTMENT IN CANCER SURVIVORSHIP RESEARCH IN CANADA, 2005–2010

HIGHLIGHTS

- Investment in cancer survivorship research rose by 56% (\$10.2M to \$15.8M) from 2005 to 2010. Unlike the dip in the overall cancer research investment found from 2009 to 2010, investment in cancer survivorship research had a year-upon-year increase over the six years. The increase from 2009 to 2010 in cancer survivorship research was due to targeted investment. In fact, investment from funding programs targeting survivorship, although a fairly small proportion of the overall investment (8%), grew over six-fold from 2005 to 2010.
- The Canadian Institutes of Health Research accounted for 35% of the investment in cancer survivorship research over the six years and the Canadian Cancer Society had the second highest level of investment (19% of the total investment). Growth in national funding for cancer survivorship was also aided by the doubling of investments on the part of the Canada Foundation for Innovation and, to a lesser extent, the Social Sciences and Humanities Research Council. Regional funding also rose from 2005 to 2010 as a result of increased investments by the Canadian Breast Cancer Foundation, the Alberta Cancer Foundation, and the former Alberta Cancer Board.
- Site-specific research represented a large proportion (62%) of the investment in cancer survivorship. Over one-quarter (26%) of the six-year investment focused on breast cancer survivors.
- Investment in research focused on physiological effects grew by 89% from 2005 to 2010, with major upward shifts in the proportions of research investment on cachexia/anorexia and cognitive/neurological issues. Investment in research focused on care delivery, access, and quality more than doubled over the six years.
- The number of principal investigators engaged in cancer survivorship research appears to have increased over the six-year period.

Given the growing number of cancer survivors in Canada, there is a need for a coordinated research agenda to address survivors' long-term health care, psychosocial, and practical needs. This summary report describes the nature of the investment in cancer survivorship research in Canada for the years 2005 to 2010. It builds upon an inaugural report published on this topic in September 2011, which looked at the 2005 to 2008 period. Data come from the Canadian Cancer Research Survey (CCRS). The CCRS was designed to help inform CCRA members on how to optimize their research investment by addressing gaps, capitalizing on opportunities to partner on funding, and reducing duplication. The CCRS was the first joint activity undertaken by the CCRA.

The CCRS captures data on projects funded on the basis of peer review and often in response to publicly announced research granting competitions. Thus, intramural research conducted within hospitals, cancer centres or non-cancer agencies that have a survivorship mandate are not captured here. We do not know the magnitude of the investment that may be missing.

This report was made possible by the Canadian Partnership Against Cancer, an independent, not-for-profit organization funded to accelerate action on cancer control for all Canadians, through a financial contribution from Health Canada. The views expressed herein are those of the CCRA.



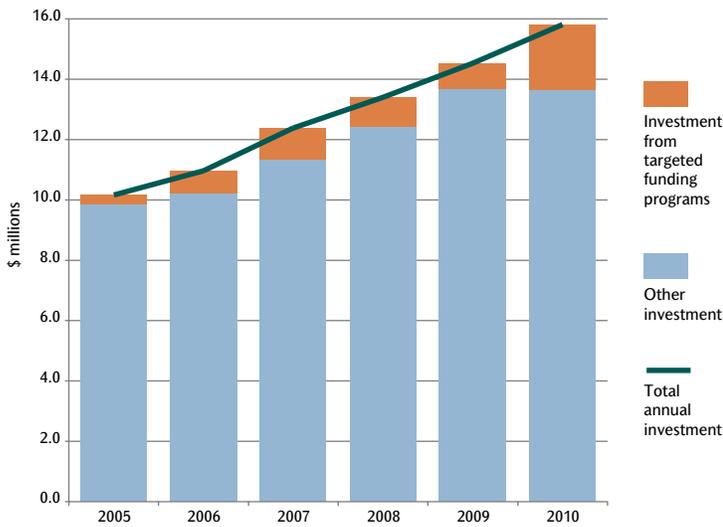
We are an alliance of organizations that collectively fund most of the cancer research conducted in Canada – research that will lead to better ways to prevent, diagnose, and treat cancer and improve survivor outcomes. Our members include federal research funding programs/agencies, provincial research agencies, provincial cancer care agencies, cancer charities, and other voluntary associations.

We are motivated by the belief that, through effective collaboration, Canadian cancer research funding organizations can maximize their collective impact on cancer control and accelerate discovery for the ultimate benefit of Canadians affected by cancer.

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FIGURE 1

INVESTMENT IN CANCER SURVIVORSHIP RESEARCH BY FUNDING PROGRAM FOCUS, 2005 TO 2010



- Overall, investment in cancer survivorship research climbed from \$10.2M in 2005 to \$15.8M in 2010, a 56% increase (Figure 1). This growth outpaced that found for the total cancer research investment (43% increase). The investment in cancer survivorship research represented 3% of the total cancer research investment over the six-year period.
- The rise in survivorship research investment in 2010 was due to investments from targeted funding programs, primarily the Catalyst grant program on biomedical and clinical approaches to improving quality of life from the Canadian Institutes of Health Research (CIHR) that commenced in 2010 as well as ongoing funding for final programs offered through the Canadian Breast Cancer Research Alliance. The latter were funded by a mix of government and voluntary organizations.
- The investment in operating grants (direct support) rose from \$4.8M in 2005 to \$7.7M in 2010, largely due to increased investment by national funders (Figure 2). The investment in equipment/infrastructure more than doubled from 2005 to 2010 for both national and regional funders. This contrasts with the overall cancer research investment, where the largest percent growth in operating grants and equipment/infrastructure was for investments by regional funders.
- Of the CCRS participating organizations, 26 of 40 had some level of investment in cancer survivorship research in 2010 (Figure 3, next page). CIHR (shown at the top of the figure with a different range on the x-axis) remained the leading funding agency, accounting for 36% of the investment in 2010. Survivorship research, however, represented only 4% of the total cancer research investment by CIHR in 2010.
- The Canadian Cancer Society from 2005 to 2010 was the second highest funder of survivorship research, but accounted for a shrinking proportion of the investment over the time period due to increased investments by other funding organizations.

INCLUSION CRITERIA

This report included studies focused on: post-cancer treatment rehabilitation; long-term or late complications of cancer and its treatments; other physical and psychological impacts experienced by cancer survivors and their family/caregivers; social support needs of cancer survivors and their family/caregivers; economic sequelae of cancer for survivors and their family/caregivers; interventions to improve quality of life; and the delivery of care, access to care, and quality of care received by survivors after their primary cancer treatment. Model systems research relevant to cancer survivors, like the long-term effects of chemotherapy on the cognitive function in an animal model, was also included.

FIGURE 2

INVESTMENT IN CANCER SURVIVORSHIP RESEARCH BY FUNDING MECHANISM AND FUNDER REACH, 2005 TO 2010

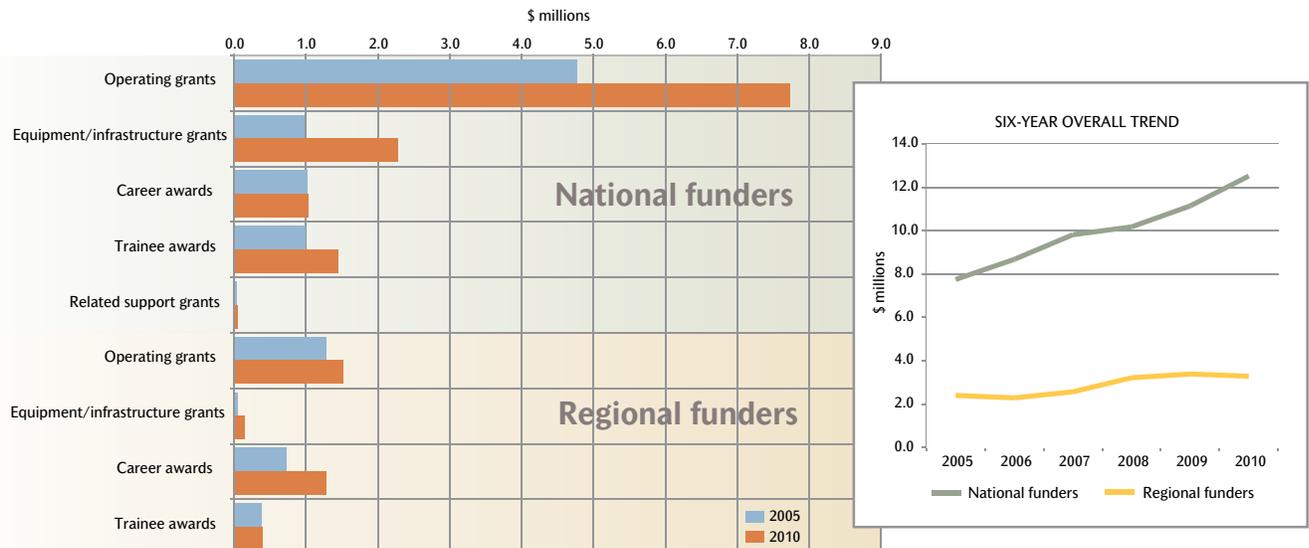
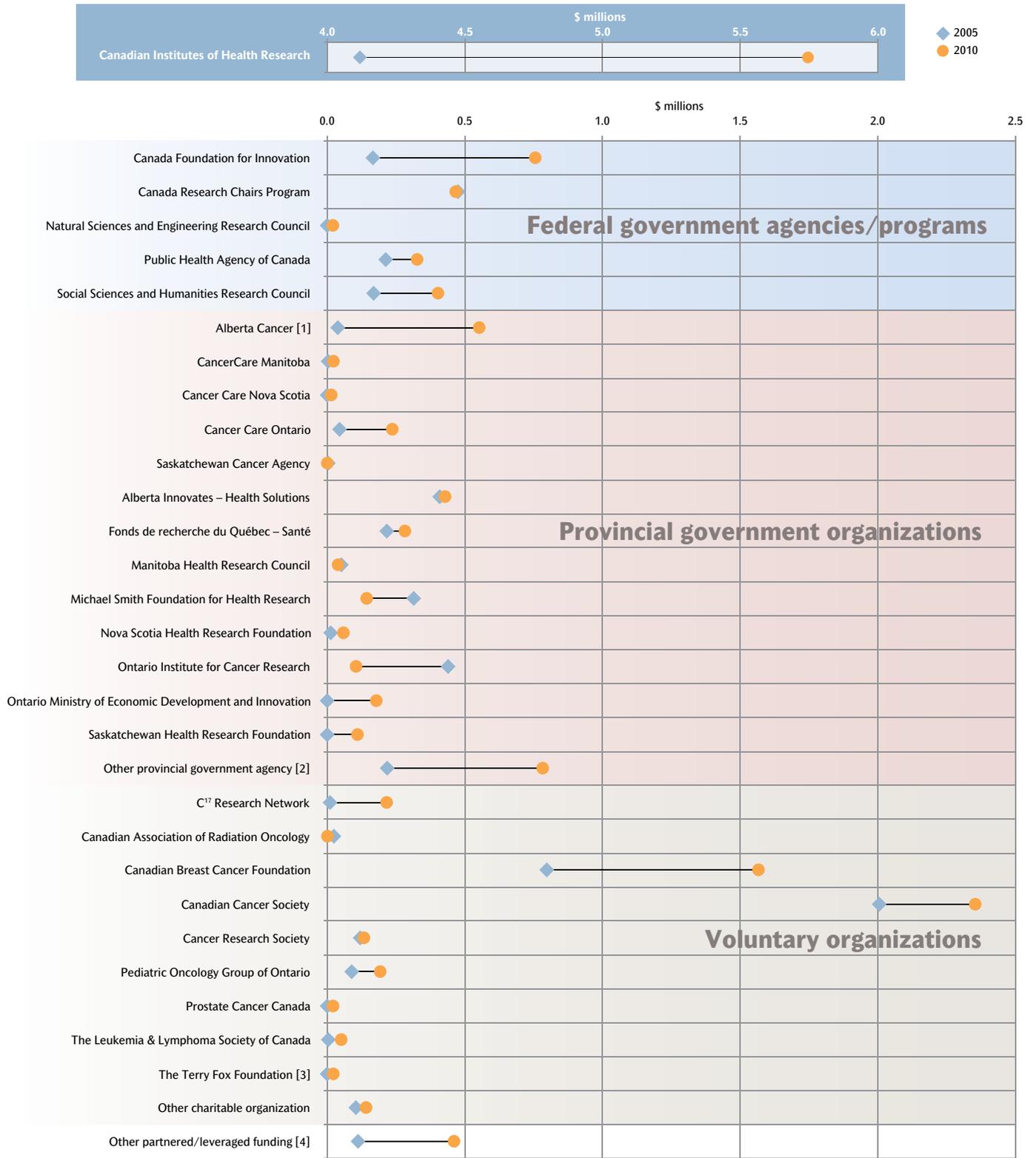


FIGURE 3

INVESTMENT IN CANCER SURVIVORSHIP RESEARCH BY PARTICIPATING ORGANIZATIONS/PROGRAMS, 2005 AND 2010



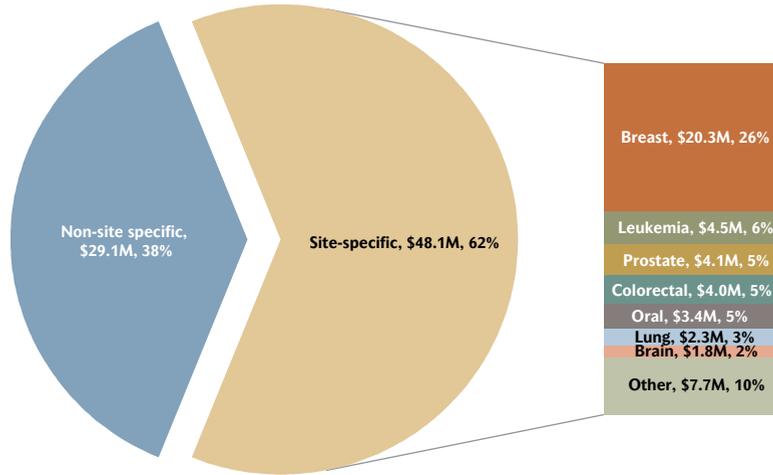
[1] Alberta Cancer represents an amalgamation of different funding sources over the 2005 to 2010 period, including Alberta Cancer Board, Alberta Cancer Foundation, and the Alberta Cancer Prevention Legacy Fund administered by Alberta Innovates – Health Solutions. For the sake of simplicity, these are grouped under provincial government organizations.

[2] Provincial funding for CFI projects for all provinces is included under 'Other provincial government agency.'

[3] Investment includes projects supported by The Terry Fox Research Institute.

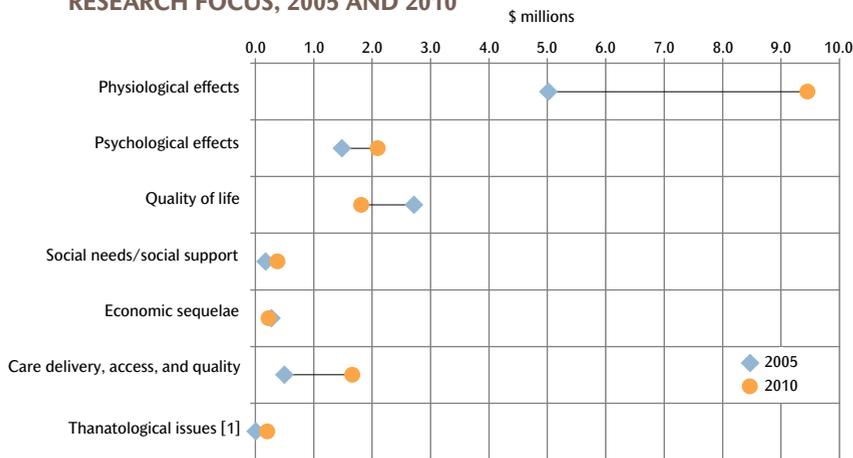
[4] Co-funding of projects supported by CCRS participating organizations by institutional, industry, and foreign sources.

FIGURE 4
DISTRIBUTION OF INVESTMENT IN CANCER SURVIVORSHIP RESEARCH BY CANCER SITE, 2005 TO 2010



- Three of every \$5 invested in cancer survivorship research from the 2005 to 2010 was site-specific (Figure 4). Over one quarter (26%) of the six-year investment focused on breast cancer survivors. Survivorship research represented 5% of the total investment in breast cancer research.
- The overwhelming proportion (95%) of investment in survivorship research over the six-year period targeted patients and not family members/caregivers.
- Research focused on physiological effects was \$4.4M higher in 2010 than in 2005 (Figure 5) and was primarily due to increased investment in research projects focused on cachexia/anorexia and, to a lesser extent, cognitive/neurological issues (Figure 6).

FIGURE 5
INVESTMENT IN CANCER SURVIVORSHIP RESEARCH BY RESEARCH FOCUS, 2005 AND 2010



[1] Thanatological issues in the context of survivorship research refers to research focused on spirituality, existential distress, and cultural associations ascribed to the disease of cancer.

FIGURE 6
DISTRIBUTION OF INVESTMENT IN CANCER SURVIVORSHIP RESEARCH ON PHYSIOLOGICAL EFFECTS, 2005 AND 2010

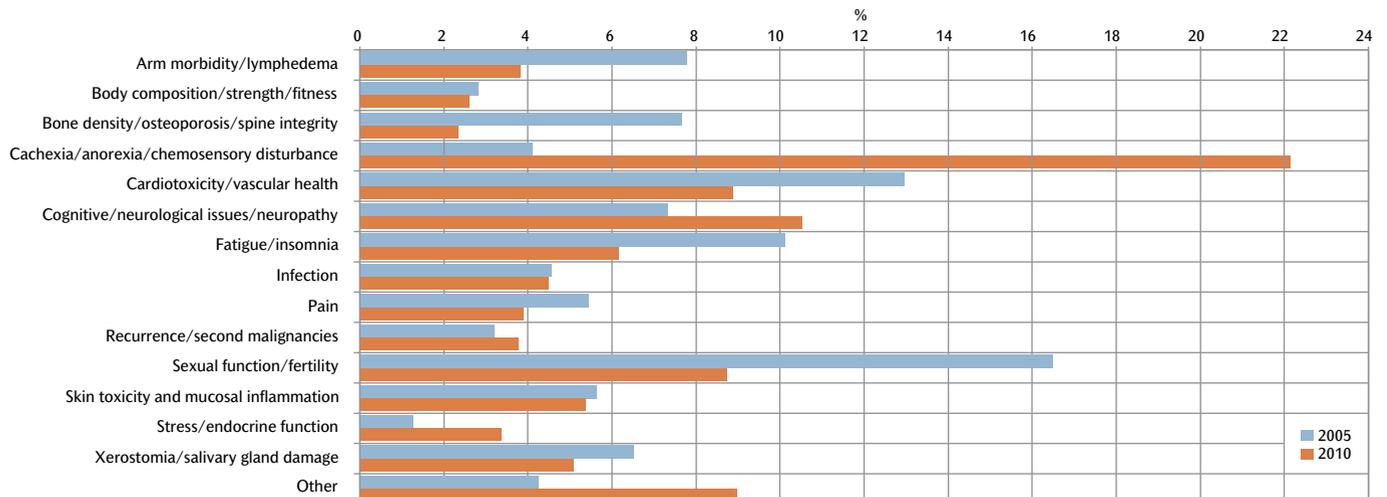
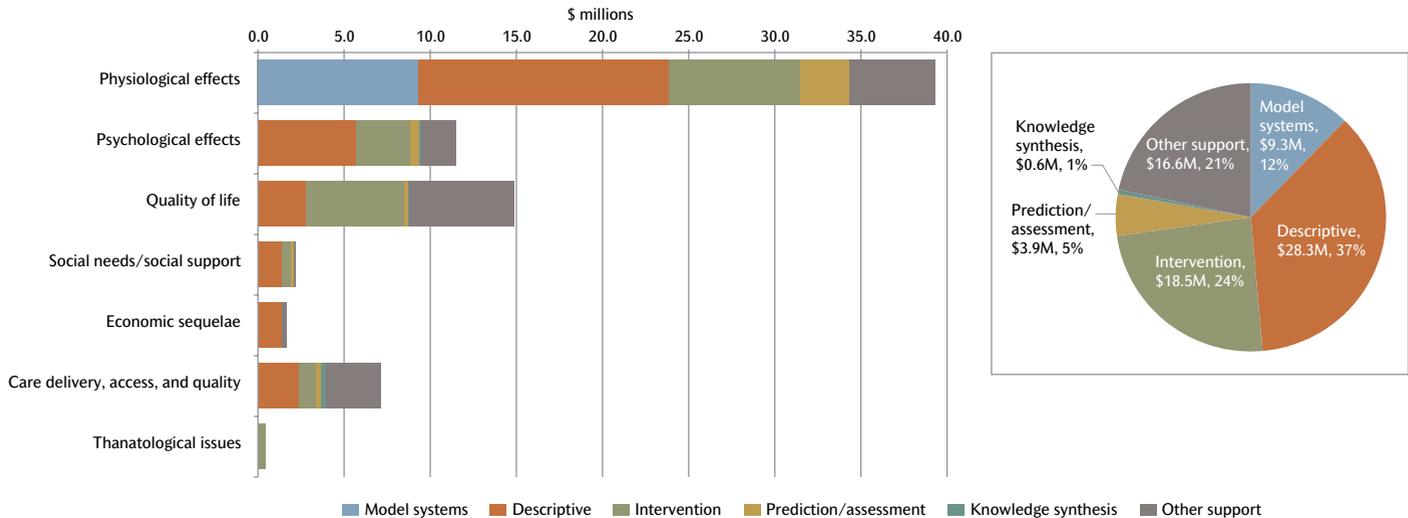


FIGURE 7

INVESTMENT IN CANCER SURVIVORSHIP RESEARCH BY RESEARCH FOCUS AND RESEARCH TYPE, 2005 TO 2010



TYPES OF RESEARCH

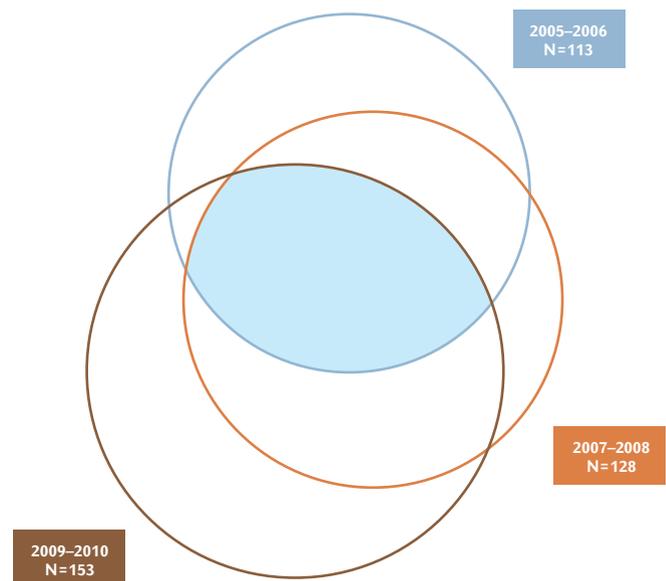
Model systems: research conducted in animals, human, cells, or other test systems or theoretical models. **Descriptive:** studies that observe/describe human behaviour, interaction or systems, prospectively or retrospectively. **Intervention:** research on pharmaceutical, surgical, psychotherapeutic, supportive, informational interventions/programs designed to mitigate physiological and psychological symptoms and improve quality of life. **Prediction/assessment:** studies focused on systematic assessment/measurement of psychological and physiological symptoms like neurological and cardiovascular issues, arm morbidity, etc. **Knowledge synthesis:** projects that summarize the existing body of knowledge through specific methods of research identification and appraisal. **Other support:** projects that support the conduct of research, such as capacity building grants, support for research networks and workshops, equipment and infrastructure grants.

- The investment in descriptive research comprised over one-third (37%) of the total cancer survivorship research investment from 2005 to 2010 (Figure 7). About half (51%) of the investment in descriptive research was focused on physiological effects; another 20% on psychological effects. Overall, 72% of the \$18.5M investment in intervention research was for projects focused on physiological effects and quality of life. Investment in other support (primarily focused on capacity building) represented 21% of the 2005 to 2010 investment and was a major part of the investment in research on quality of life and physiological effects. Model systems research was found only for research focused on physiological effects.

- In total, 223 nominated principal investigators (excludes trainees) received funding for cancer survivorship research projects over the six-year period. The number of principal investigators being funded for cancer survivorship research projects appears to have increased over time (Figure 8). There were 40 more principal investigators funded in the 2009–2010 period than the 2005–2006 period. The intersection of three circles (shown in blue) represents 49 investigators who were funded for all three periods.

FIGURE 8

NUMBER OF NOMINATED PRINCIPAL INVESTIGATORS [1] BY FUNDING PERIOD [2], 2005 TO 2010



[1] Represents 223 nominated principal investigators (excludes trainees) who had at least one funded grant/award during the 2005 to 2010 period.
 [2] Funding years were clustered into two year periods. Investigators with funding at any point in a two-year period were included in the relevant cluster.

OUR MEMBERS

Alberta Cancer Foundation

Alberta Innovates – Health Solutions

Brain Tumour Foundation of Canada

BC Cancer Agency

C¹⁷ Research Network

Canadian Association of Provincial Cancer Agencies

Canadian Association of Radiation Oncology

Canadian Breast Cancer Foundation

Canadian Cancer Society

Canadian Institutes of Health Research

Canadian Partnership Against Cancer

CancerCare Manitoba

Cancer Care Nova Scotia

Cancer Care Ontario

Cancer Research Society

Fonds de recherche du Québec – Santé

Genome Canada

The Kidney Foundation of Canada

Leukemia & Lymphoma Society of Canada

Manitoba Health Research Council

Michael Smith Foundation for Health Research

National Research Council

Natural Sciences and Engineering Research
Council of Canada

New Brunswick Cancer Network

Nova Scotia Health Research Foundation

Ontario Institute for Cancer Research

Ovarian Cancer Canada

PROCURE

Prostate Cancer Canada

Public Health Agency of Canada

Quebec Breast Cancer Foundation

Saskatchewan Cancer Agency

The Terry Fox Foundation

For details on the methodology used for this report, please consult our initial report on this topic at <http://www.ccra-acrc.ca/index.php/publications-en>. A slide deck based on the results of the 2005–2010 analyses is also available at that link on our website. For additional copies of this publication, please contact us at info@ccra-acrc.ca.

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