Cancer Research Investment In Canada, 2010

HIGHLIGHTS

- A total of $536.1M was invested in 2010, representing on a per capita basis, nearly $16 per person in Canada. The 2010 investment dropped slightly (2%) from the 2009 level in contrast with the year-upon-year increase observed from 2005 to 2009.
- During the six-year period, there was a proportional increase in the investment in focused operating grants, meaning that more of the funding programs that directly supported research were targeted to specific cancer sites and/or areas of science.
- There is evidence to suggest that the number of principal investigators engaged in cancer research increased over the six-year period.
- The federal government continued to be the major funder of cancer research. The voluntary sector, however, accounted for a shrinking proportion of the total cancer research investment from 2005 to 2010.
- Distribution of the investment across the areas of cancer research changed dramatically. Cancer biology, which accounted for 43% of the 2005 investment, represented 32% of the 2010 investment. The investment in treatment research rose from 25% to 30% of the overall investment over the six years.
- Research in pancreatic cancer, the cancer with the poorest survival, had a significant infusion of investment ($14.7M) starting in 2009. In contrast, from 2005 to 2010, the investment in colorectal cancer research increased only marginally (8%).
- The period covered in this report coincided with the deployment of substantive cancer research investment by the province of Ontario and a major infrastructure program from Canada Foundation for Innovation.

CCRA ACRC
Canadian Cancer Research Alliance • Alliance canadienne pour la recherche sur le cancer

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.

MARCH 2013

This summary report describes the nature of the investment in cancer research in Canada for 2010, building on previous work published by the CCRA. 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.

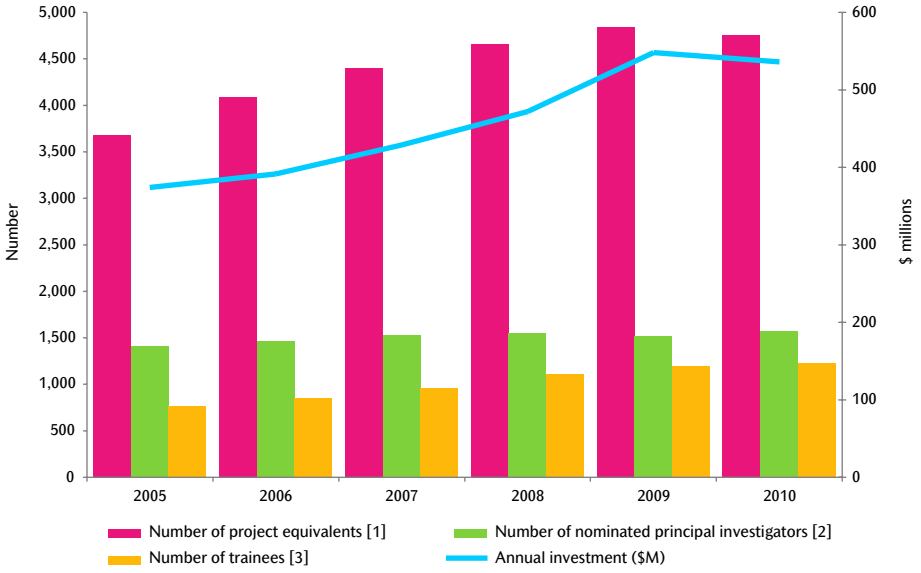
Funding information is captured from 40 organizations/programs. The New Brunswick Health Research Foundation and the Pediatric Oncology Group of Ontario joined the CCRS in 2010. The CCRS captures most of the peer-reviewed research from the governmental and voluntary sectors. It does not, however, include institution-specific funding from hospital foundations, research supported by private foundations or industry R&D. Collectively, the research investment from these sources may be equal to the peer-reviewed investment documented herein.

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.

CANADIAN PARTNERSHIP AGAINST CANCER
PARTENARIAT CANADIEN CONTRE LE CANCER

FIGURE 1

CANCER RESEARCH INVESTMENT, 2005 TO 2010



[1] Number of projects funded at some point in the calendar year and weighted by cancer relevance (i.e., projects may be weighted from 5% to 100% in terms of their cancer relevance).

[2] Number of nominated investigators for operating grants, career awards, and equipment/infrastructure awards that were funded at some point in the calendar year. Number was weighted by the average cancer relevance of the investigators' projects.

[3] Number of trainees who received training awards for undergraduate, graduate, and postgraduate studies. Number was weighted by the average cancer relevance of the trainees' projects.

- Overall, $536.1M was invested in cancer research in 2010, down slightly from the six-year high of $548.0M in 2009 (Figure 1). Correspondingly the number of projects also dropped from 2009 to 2010.
- The percent change in investment from 2005 to 2010 was 43% (31% when adjusted for inflation).
- Operating grants remained the primary funding mechanism (Figure 2) and represented an increasing proportion of the overall investment, rising from 49% in 2005 to 54% in 2010.
- Much of this increase was attributable to the increase in operating grants that were focused in terms of cancer site and/or research area (Figure 3). Over half of the investment in operating grants in 2010 was for focused grants and this transformation was driven by the increased provincial government investment and rising proportion of focused operating grants funded by the voluntary sector.

DEFINITIONS OF FUNDING MECHANISMS

Operating grants support all the direct costs involved in conducting specific research projects including salaries for laboratory staff and research assistants, costs of supplies, samples, etc. The funding programs supporting these grants may be open (non-focused) or focused on specific cancer sites and/or research areas. **Equipment/infrastructure grants** covers the cost of new research facilities, equipment, software, databases, etc. needed for the research activities of one or more researchers. **Career awards**, also known as salary awards, provide protected time for research. **Trainee awards** support exceptional trainees during their undergraduate, graduate, or post-graduate training. **Related support grants** cover conference travel, workshops costs as well as researcher time for proposal development. For detailed definitions of funding mechanisms, please consult our 2005–2009 trends report.

FIGURE 2

DISTRIBUTION OF 2010 CANCER RESEARCH INVESTMENT BY FUNDING MECHANISM

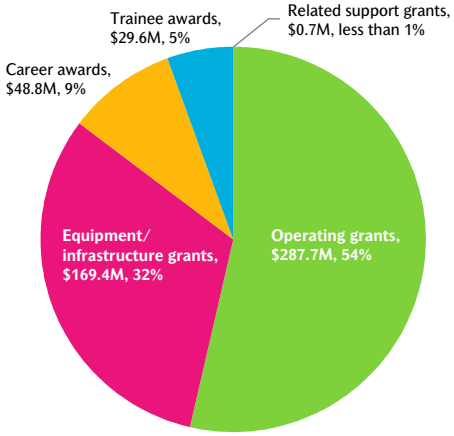
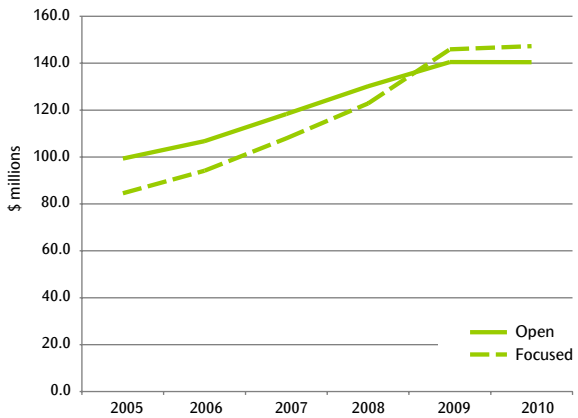


FIGURE 3

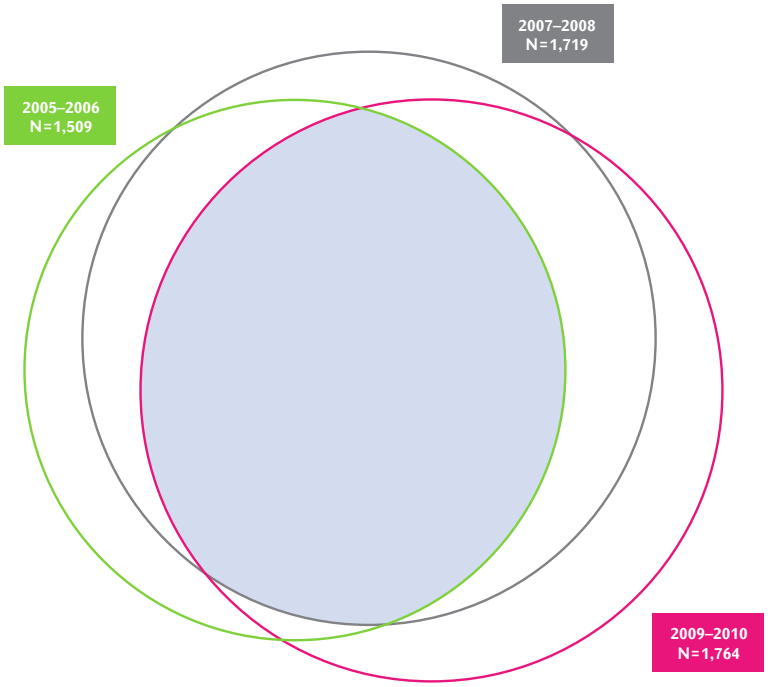
CANCER RESEARCH INVESTMENT IN OPERATING GRANTS, 2005 TO 2010



- Data suggest that the number of nominated principal investigators being funded for cancer research projects may have increased over the six-year period (Figure 4). There were 255 more principal investigators funded in the 2009–2010 period than the 2005–2006 period.
- There were 1,092 investigators (49% of total) who had research projects funded in all three two-year periods (intersection shown in light blue).

FIGURE 4

NUMBER OF NOMINATED PRINCIPAL INVESTIGATORS BY FUNDING PERIOD [1]

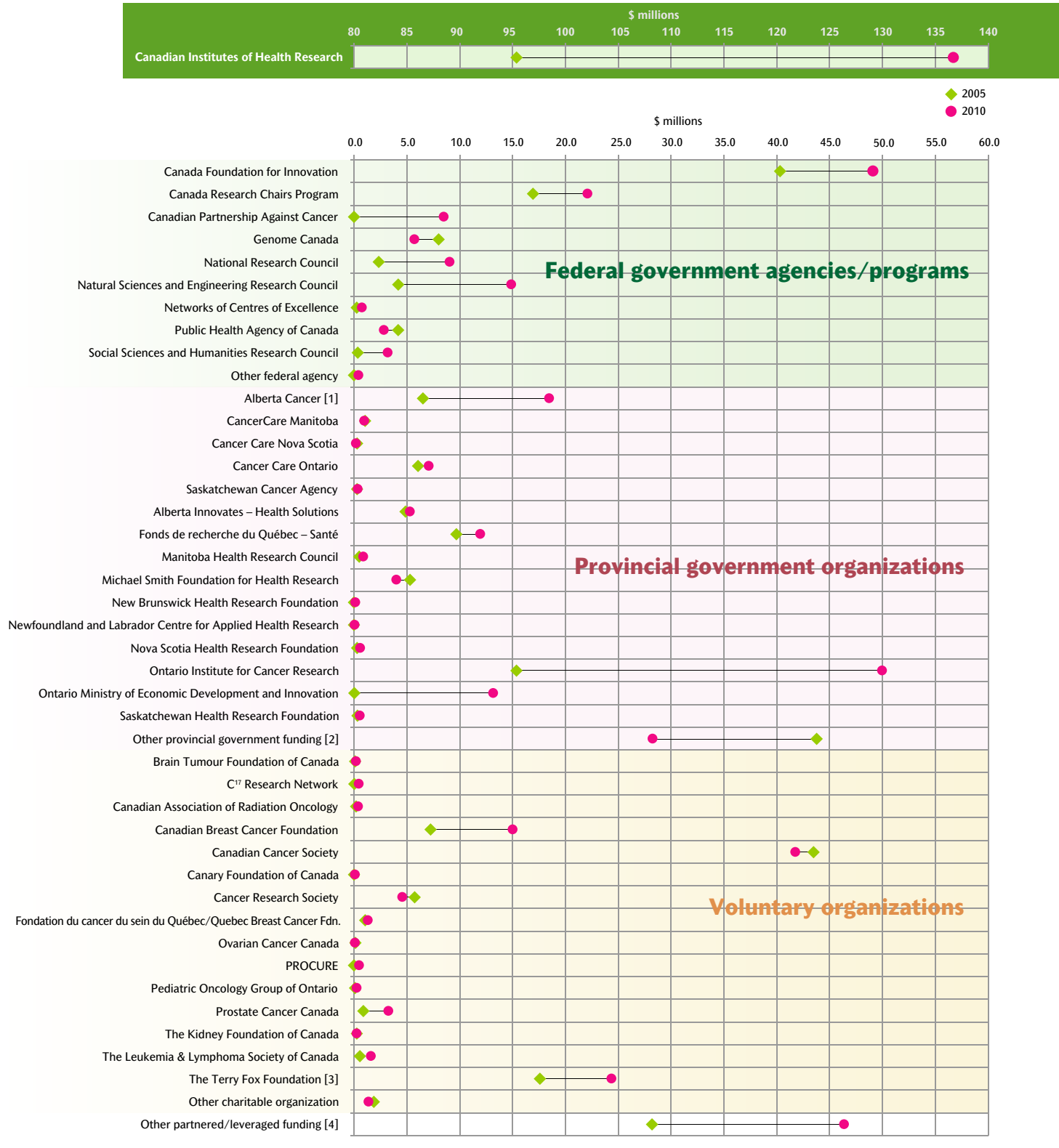


[1] Represents 2,228 nominated principal investigators who had at least one operating grant, equipment award or career award in the 2005 to 2010 period with a cancer weighting of 100%. Investigators were grouped according to the years in which they received funding.

- For 30 of the 40 organizations tracked, investment in 2010 surpassed investment in 2005. The federal government was the chief funder of cancer research (Figure 5, next page), representing 47% of the overall investment in 2010, a proportion relatively unchanged since 2005.
- The Canadian Institutes of Health Research (shown at the top of the figure with a different range on the x-axis) remained the leading funding agency and its investment totalled $136.9M in 2010 or 26% of the overall investment (up from $95.5M in 2005).
- The Canada Foundation for Innovation (CFI) program, Research Hospital Fund - Large Scale Institutional Endeavours, which started in 2008, propelled the increased investments shown for CFI and other partnered/leveraged funding.
- Combined, provincial investment in cancer research represented 26% ($141.5M) of the total research investment in 2010. The 50% increase from 2005 to 2010 was largely due to increased investments made by the governments of Ontario and, to a lesser extent, Alberta. Together, the Ontario Institute for Cancer Research and the Ontario Ministry of Economic Development and Innovation invested $47.6M more in 2010 than they did in 2005.
- In terms of the voluntary sector, several of the smaller charities had significant gains in research investment over the six-year period. The Canadian Cancer Society continued to be the top funder in the voluntary sector representing 44% of the voluntary sector investment in 2010, down, however, from 55% in 2005.

FIGURE 5

CANCER RESEARCH INVESTMENT 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, Alberta Health Services, 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.

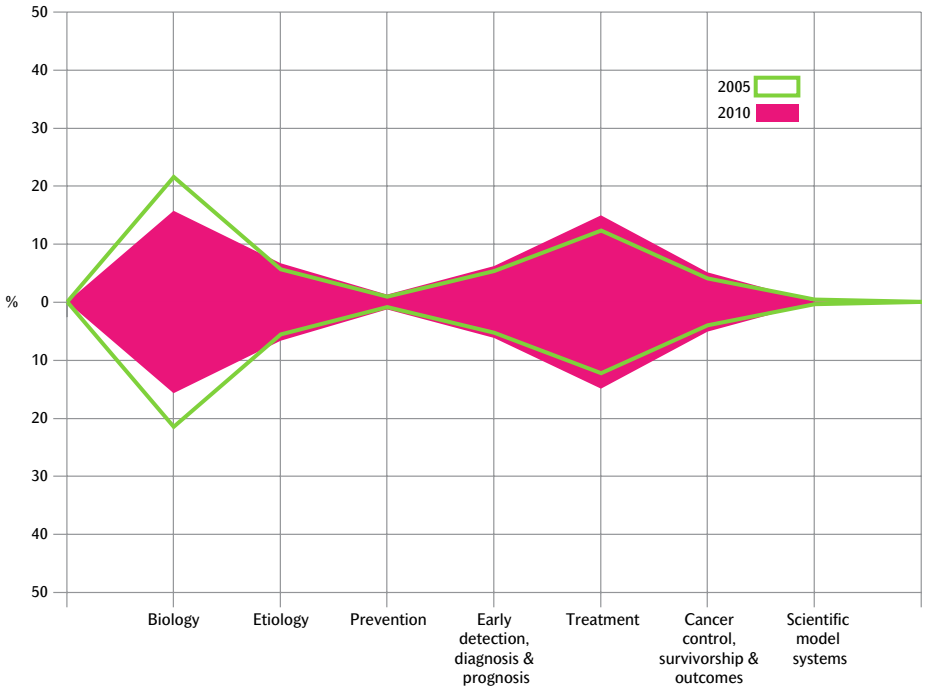
[2] Provincial funding for CFI projects for all provinces is included under 'Other provincial government funding.'

[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 6

DISTRIBUTION OF CANCER RESEARCH INVESTMENT BY CSO CATEGORY [1], 2005 AND 2010



Proportion of investment (%)	2005	43	11	2	11	25	8	1
	2010	32	13	3	12	30	10	less than 1%
Investment ($M)	2005	161.1	42.2	6.5	39.2	91.6	30.2	3.0
	2010	168.6	71.5	13.7	66.1	160.0	55.0	1.2
Percent change from 2005 to 2010 investment		5	69	110	69	75	82	-62

[1] For further information about the Common Scientific Outline (CSO), please see http://www.icrpartnership.org/CSO.cfm.

- The investment distribution in terms of areas of cancer research (Common Scientific Outline – CSO) changed over the six-year period (Figure 5).
- With the exception of scientific model systems, investment increased in all categories (see table below Figure 5). The smallest increase from 2005 to 2010 was found for cancer biology (5%) and the largest for prevention (110%), primarily defined as prevention interventions. Despite the dramatic increase, prevention research comprised only 3% of the total investment in cancer research in 2010.
- Research investment in the treatment and etiology categories peaked in 2010, at $160.0M and $71.5M, respectively. Treatment investment in 2010 was $68.4M more than in 2005.

- Overall, site-specific cancer research investment grew by 50% from $185.4M in 2005 to $277.6M in 2010. Seventeen of the 24 cancer sites tracked had higher investments in 2010 than in 2005 (Figure 7, next page).
- While research in breast and prostate cancers comprised the largest proportions of the site-specific cancer research investment in 2010 at 27% and 12%, the research investments in both cancers dipped slightly in 2010.
- Research in pancreatic cancer increased substantially (from $1.5M in 2005 to $9.4M in 2010) primarily due to the investment in the pancreatic genome project initiated in 2009 by the Ontario Institute for Cancer Research.
- Investments in research on bladder, lung, and esophageal cancers more than doubled from 2005. There was $12M more invested in lung cancer research in 2010 than in 2005.
- Investment in research on colorectal cancer, a cancer with the second highest mortality in Canada, increased only marginally from 2005 to 2010, reflecting a sizeable gap between investment level and burden of disease (Figure 8, next page).

FIGURE 7

CANCER RESEARCH INVESTMENT BY CANCER SITES, 2005 AND 2010

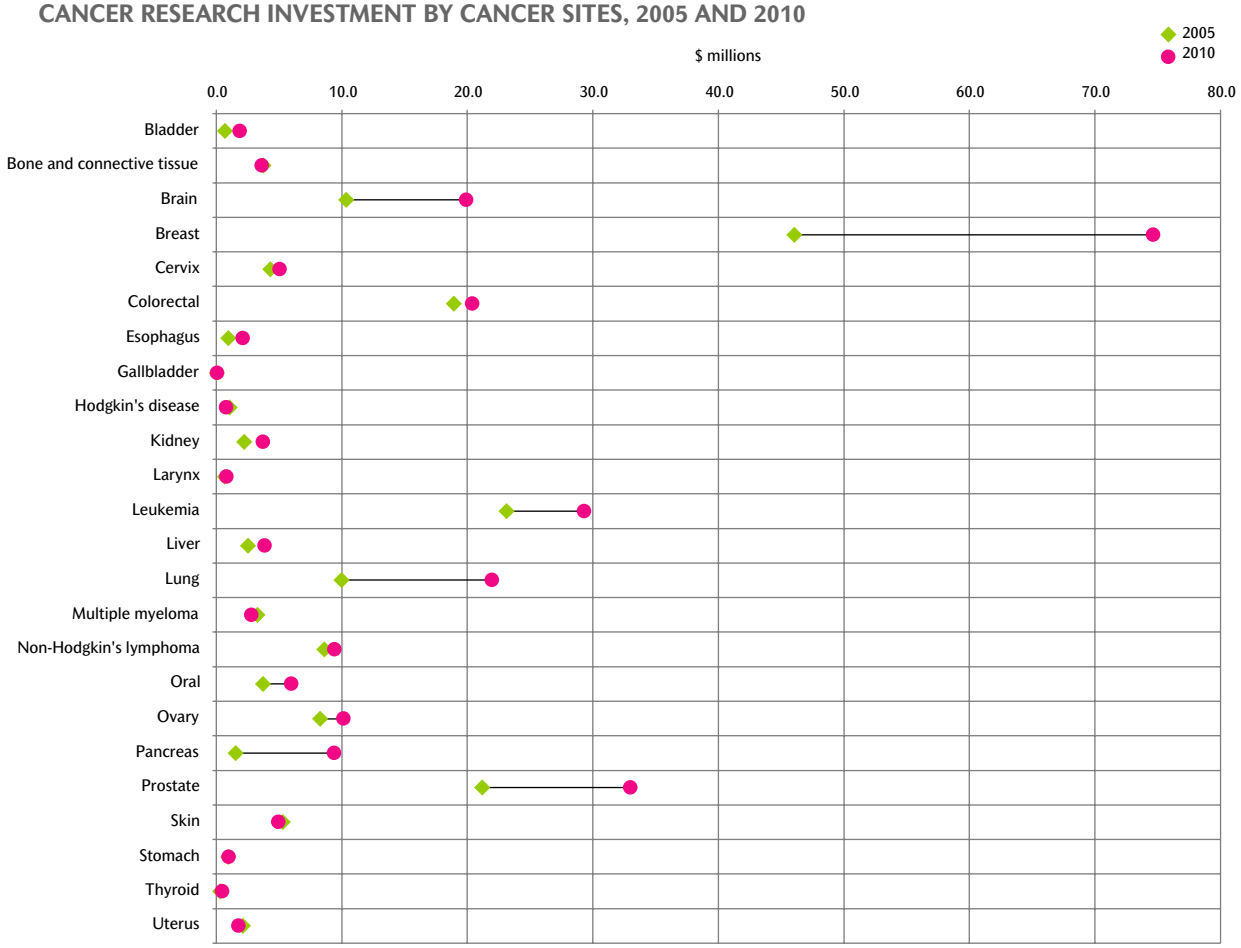
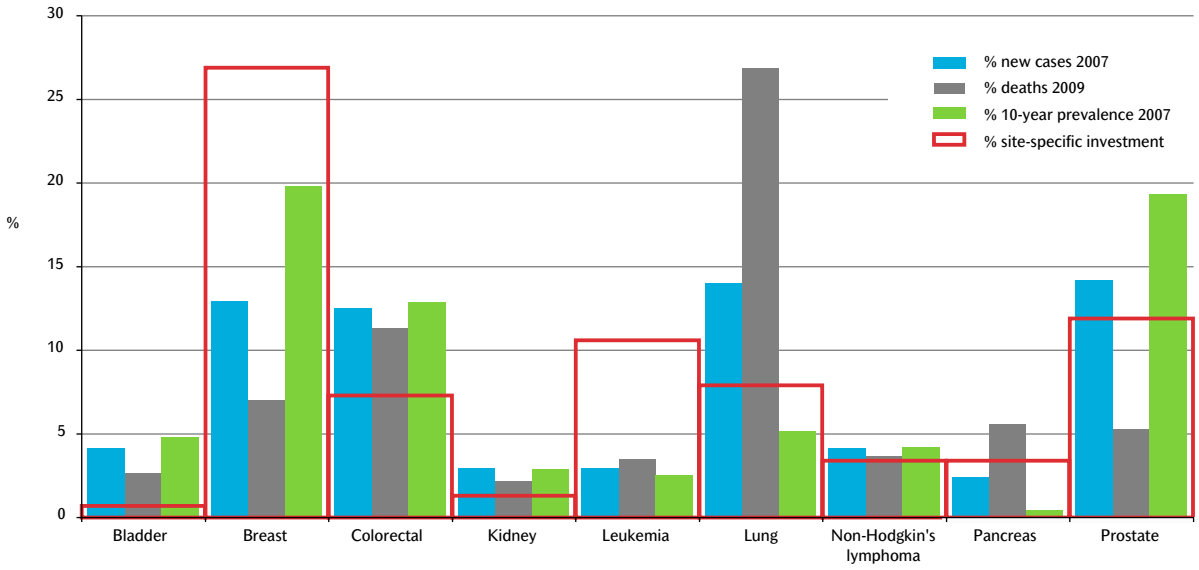


FIGURE 8

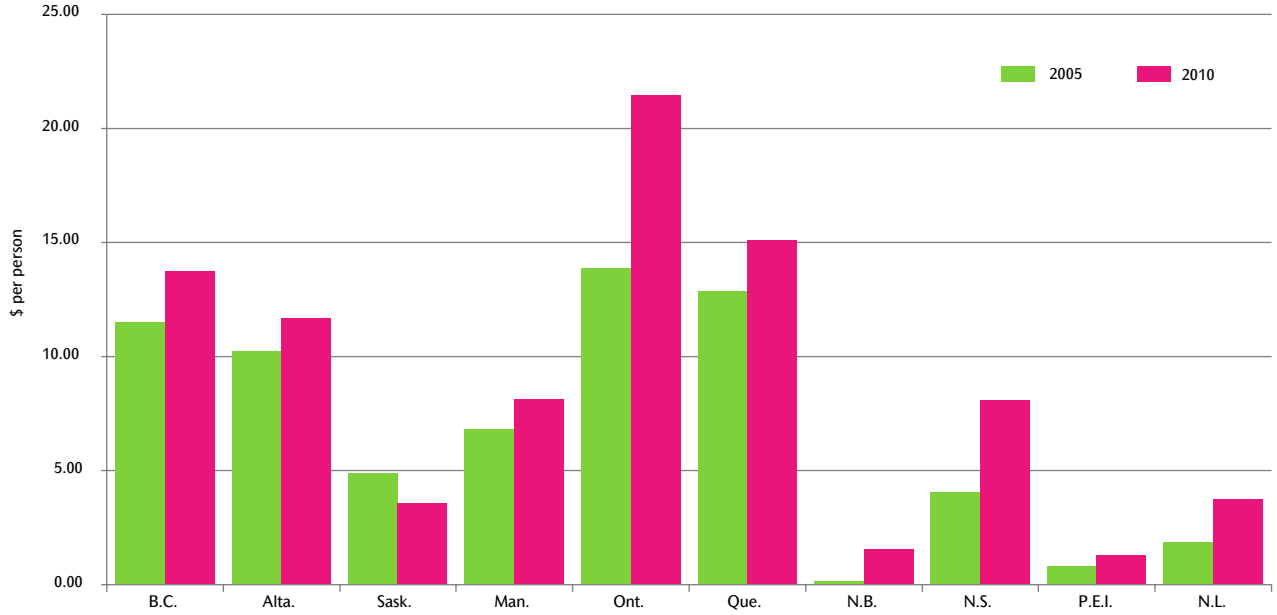
DISTRIBUTION OF 2010 SITE-SPECIFIC CANCER RESEARCH INVESTMENT ($277.6M) BY NEW CANCER CASES IN 2007, CANCER DEATHS IN 2009 AND 10-YEAR PREVALENCE, SELECTED CANCER SITES [1]



[1] Represents the nine sites with the combined highest proportions of new cancer cases and deaths. For a graph with the full 24 cancer sites, please see our website.

FIGURE 9

PER CAPITA CANCER RESEARCH INVESTMENT BY PROVINCE OF NOMINATED PRINCIPAL INVESTIGATOR, 2005 AND 2010 [1]

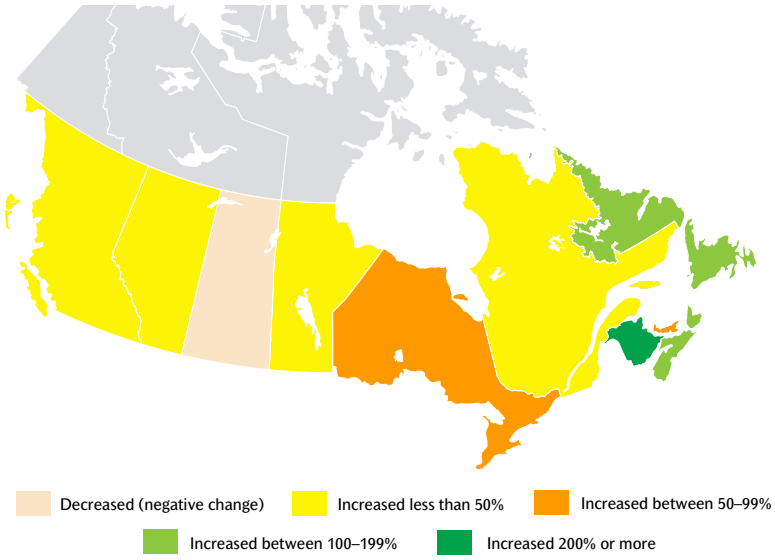


		B.C.	Alta.	Sask.	Man.	Ont.	Que.	N.B.	N.S.	P.E.I.	N.L.
Investment (%)	2005	48.3	33.9	4.9	8.0	173.9	97.4	0.1	3.8	0.1	0.9
	2010	62.2	43.5	3.7	10.1	283.6	119.2	1.2	7.7	0.2	1.9
Per capita investment ($M)	2005	11.51	10.22	4.58	6.82	13.88	12.85	0.16	4.03	0.81	1.84
	2010	13.73	11.69	3.58	8.14	21.45	15.08	1.55	8.09	1.27	3.76
Percent change in per capita investment from 2005 to 2010		19	14	-27	19	55	17	840	101	56	104

[1] Excluded trainee awards for trainees studying outside Canada.

FIGURE 10

PERCENT CHANGE IN PER CAPITA CANCER RESEARCH INVESTMENT FROM 2005 TO 2010



- Province is based on the institutional affiliation of the nominated principal investigator.
- Cancer research investment from all sources rose from 2005 to 2010 for all provinces but Saskatchewan (Figure 9).
- For Ontario, the cancer research investment in 2010 was $109.7M more than in 2005, reflecting substantial research investment by the provincial government and its partners.
- Increases in per capita investments from 2005 to 2010 were highest for the eastern provinces, most notably New Brunswick (Figure 10). Despite this progress, the per capita investment in New Brunswick was $1.55 in 2010, the second lowest in the country.

Our Members

Alberta Cancer Foundation

Alberta Innovates – Health Solutions

Brain Tumour Foundation of Canada

BC Cancer Agency

C[17] 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 2005–2009 trends report at http://www.ccra-acrc.ca/index.php/publications-en. A series of detailed tables and a slide deck based on the results of the 2010 analysis are also available at that link on our website. For additional copies of this publication, please contact us at info@ccra-acrc.ca.

ACKNOWLEDGEMENTS

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