

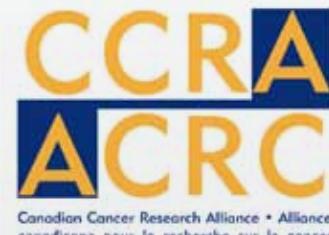
CANCER RESEARCH INVESTMENT IN CANADA, 2011

HIGHLIGHTS

- A total of \$548.3M was invested in 2011, representing on a per capita basis, nearly \$16 per person in Canada. This was the highest investment level in the seven years captured in the survey and reverses the dip seen in 2010.
- The federal government continued to be the major funder of cancer research. The provincial government sector, however, propelled the growth in investment, spurred by major investment by the Ontario government. The period, 2005 to 2011, coincided with the deployment of substantive cancer research investment by the province of Ontario and a major infrastructure program from the Canada Foundation for Innovation.
- The voluntary sector accounted for a shrinking proportion of the total cancer research investment, although the 2011 investment was the highest it had been over the seven years and several charities steadily increased their research investment since 2005.
- Investment in treatment research edged out the investment in research in cancer biology for the first time in 2011. Investment in cancer biology represented 30% of the 2011 investment, down from 43% in 2005.
- While the investment in cancer prevention research, defined narrowly in this context as prevention interventions, more than doubled from 2005 to 2011, it accounted for the same (2%) of the overall investment.
- Stagnating after a peak investment in 2009, lung cancer research represented 7% of the 2011 investment yet accounted for 14% of new cancer cases and 27% of cancer deaths. Research in pancreatic cancer, the cancer with the poorest survival rate, had a significant infusion of investment starting in 2009. In contrast, investment in colorectal cancer research increased only marginally (6%) from 2005 to 2011.

This summary report describes the nature of the investment in cancer research in Canada for 2011, 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 41 organizations/programs. Pancreatic Cancer Canada joined the CCRS and its data are presented in this report for the first time. 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



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.

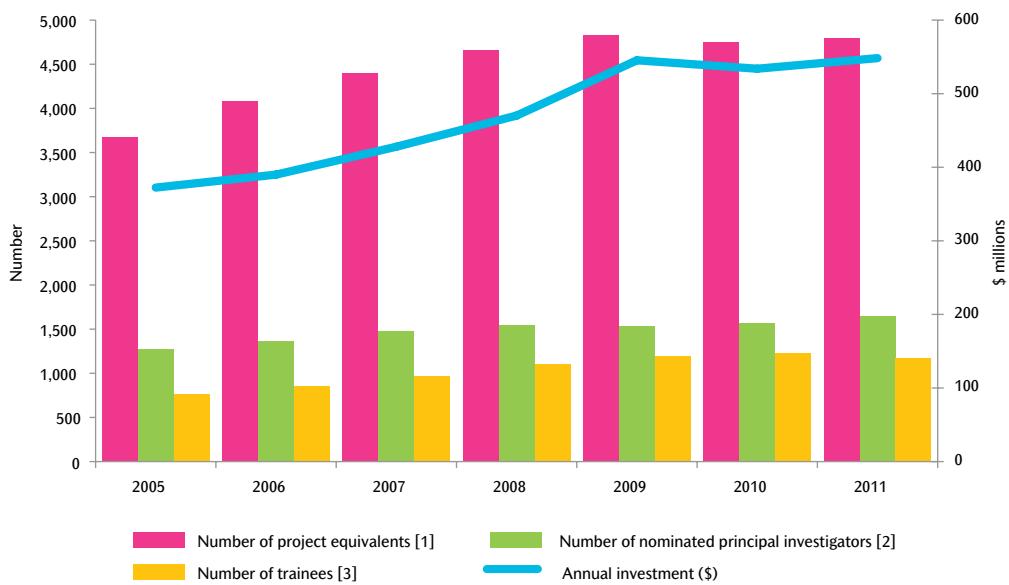
We are motivated by the belief that, through effective collaboration, Canadian cancer research funding organizations can maximize their collective impact on cancer control and accelerate discovery for the ultimate benefit of Canadians affected by cancer.

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foundations, research supported by private foundations or industry R&D. Collectively, using various estimations, the research investment from these sources may be equal to the peer-reviewed investment documented herein.

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FIGURE 1
CANCER RESEARCH INVESTMENT, 2005 TO 2011



- Overall, \$548.3M was invested in cancer research in 2011, the highest investment level in the seven years captured in the survey (Figure 1). This 2011 investment was 47% higher (33% when adjusted for inflation) than the baseline year of 2005.
- Project equivalents peaked in 2009, but 2011 had a record number of nominated principal investigators. The highest number of trainees was in 2010.

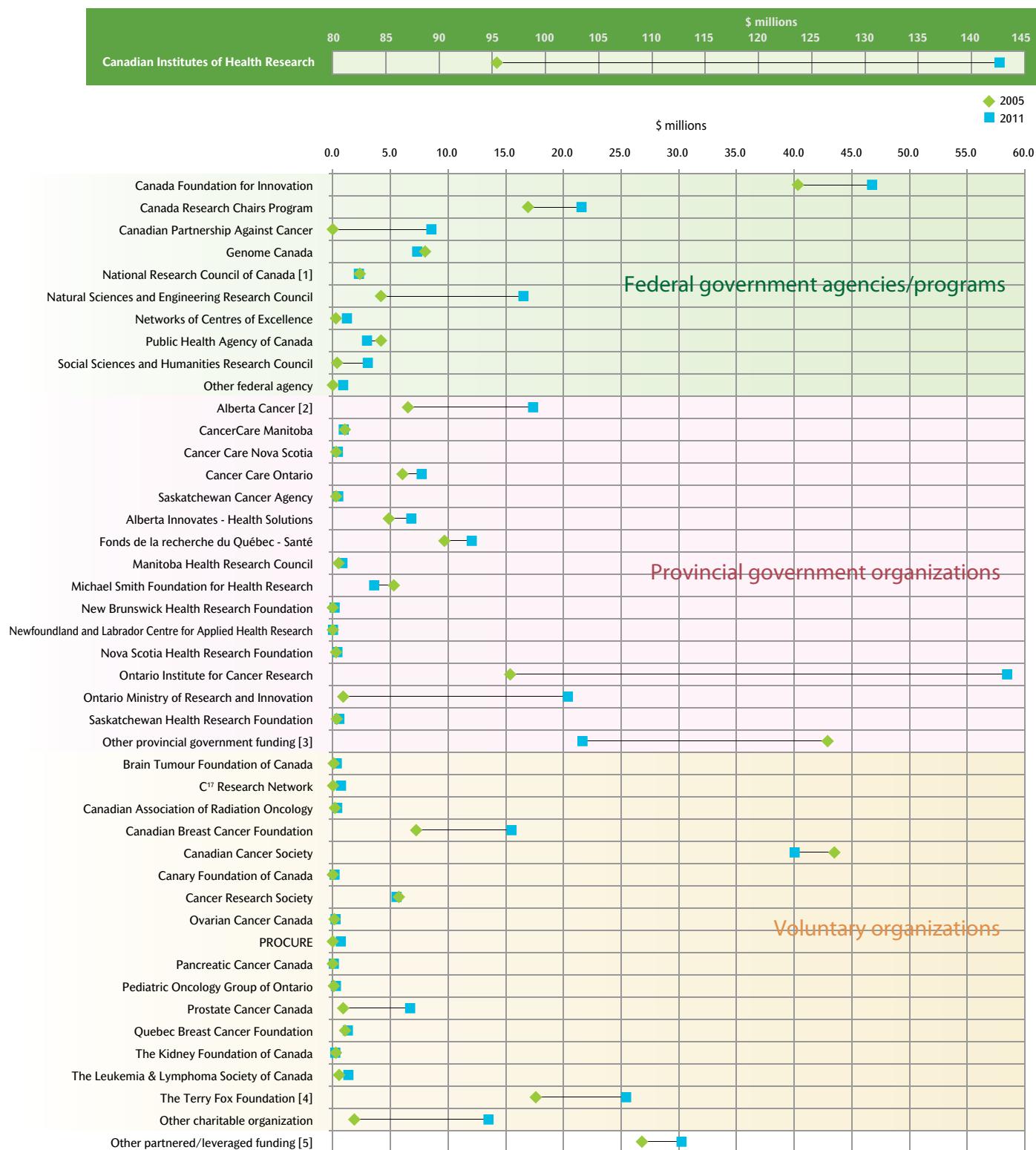
- [1] Number of projects funded at some point in the calendar year and weighted by cancer relevance (i.e., projects may be weighted from 5% to 100% in terms of their cancer relevance).
- [2] Number of nominated investigators for operating grants, career awards, and equipment/infrastructure awards that 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.

- For 18 of the 41 organizations tracked, the 2011 investment was the highest over the seven-year period (Figure 2, next page).
- The federal government was the chief funder of cancer research, representing 46% of the overall investment in 2011, 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 \$142.6M (26%) in 2011, up from \$95.4M 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 charities and partnered/leveraged funding.
- The most dramatic upward change was found in the provincial government sector, with \$57.5M more invested in 2011 than 2005. Combined, the Ontario Institute for Cancer Research and the Ontario Ministry of Research and Innovation represented 14% of the overall 2011 cancer research investment, up from 4% in 2005.
- After a dip in investment in 2010, the cancer research investment by charities and voluntary organizations increased in 2011 to \$114.6M, the highest level in the seven-year period. The Canadian Breast Cancer Foundation, The Terry Fox Foundation, and Prostate

- Cancer Canada accounted for the largest share of this increased investment. For seven of the 16 charities tracked, the 2011 investments were more than double what they were in 2005.
- Figure 3 shows the changing pattern of the cancer research investment by area of science (Common Scientific Outline).
 - From its peak investment in 2007, the investment in biology decreased for each of the last four years. Cancer biology research represented 30% of the 2011 investment.
 - The investment in treatment research nearly doubled from 2005 to 2011 and surpassed the investment in biology for the first time in 2011. Much of the increased investment was for research focused on the discovery and development of localized and systemic treatments.
 - The investment in prevention (narrowly defined as prevention interventions) doubled, with \$6.7M more invested in 2011 than in 2005. This investment represented, however, only 2% of the total cancer research investment in 2011.
 - Research in the cancer control, survivorship and outcomes category accounted for \$1 of every \$10 invested in cancer research in 2011. While the investment level steadily increased from 2005 to 2009, it dropped in 2010 and again in 2011.

FIGURE 2

CANCER RESEARCH INVESTMENT BY PARTICIPATING ORGANIZATIONS/PROGRAMS, 2005 AND 2011



[1] The National Research Council of Canada did not report new data for 2011 due to the reorganization of NRC's programs.

[2] 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.

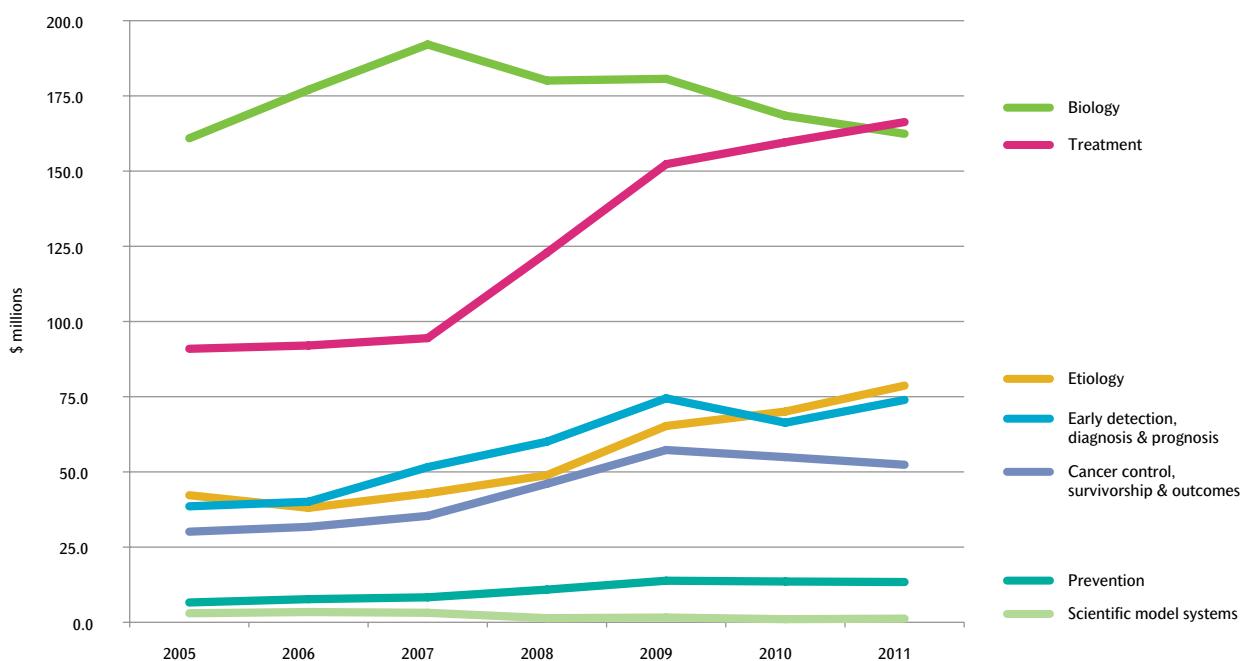
[3] Provincial funding for CFI projects for all provinces is included under 'Other provincial government funding.'

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

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

FIGURE 3

DISTRIBUTION OF CANCER RESEARCH INVESTMENT BY CSO CATEGORY [1], 2005 TO 2011



		Biology	Etiology	Prevention	Early detection, diagnosis & prognosis	Treatment	Cancer control, survivorship & outcomes	Scientific model systems
investment (%)	2005	43	11	2	10	24	8	1
	2011	30	14	2	14	30	10	less than 1%
Investment (\$M)	2005	160.9	42.2	6.6	38.6	90.9	30.1	3.0
	2011	162.4	78.7	13.4	73.9	166.3	52.4	1.2
Percent change from 2005 to 2011 investment		1	86	103	92	83	74	-60

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

- Overall, site-specific cancer research investment grew by 52% from \$185.5M in 2005 to \$282.4M in 2011. Eighteen of the 24 cancer sites tracked had higher investments in 2011 than in 2005 (Figure 4, next page).
- Breast cancer research comprised the largest proportion of site-specific cancer research investment for all seven years. The level of investment, however, dipped slightly from its peak investment in 2009 in 2010, and then again in 2011.
- There was a year-upon-year increase in investment for prostate cancer over the seven years. The \$36.3M invested in prostate cancer represented 13% of the total site-specific investment in 2011.
- The research investment in pancreatic cancer increased more than six-fold (from \$1.5M in 2005 to \$10.8M in 2011) primarily due to the investment in the pancreatic genome project and related projects initiated in 2009 by the Ontario Institute for Cancer Research.
- While investments in lung and brain cancer increased over the seven years, both dipped slightly in 2011. Lung cancer represented 7% of the site specific cancer research investment in 2011, while accounting for 14% of new cancer cases and 27% of cancer deaths (Figure 5, next page).
- Research on colorectal cancer represented 7% of the site-specific investment in 2011, down from 10% in 2005. In Canada, the number of deaths from colorectal cancer is second only to lung cancer.

FIGURE 4

CANCER RESEARCH INVESTMENT BY CANCER SITES, 2005 AND 2011

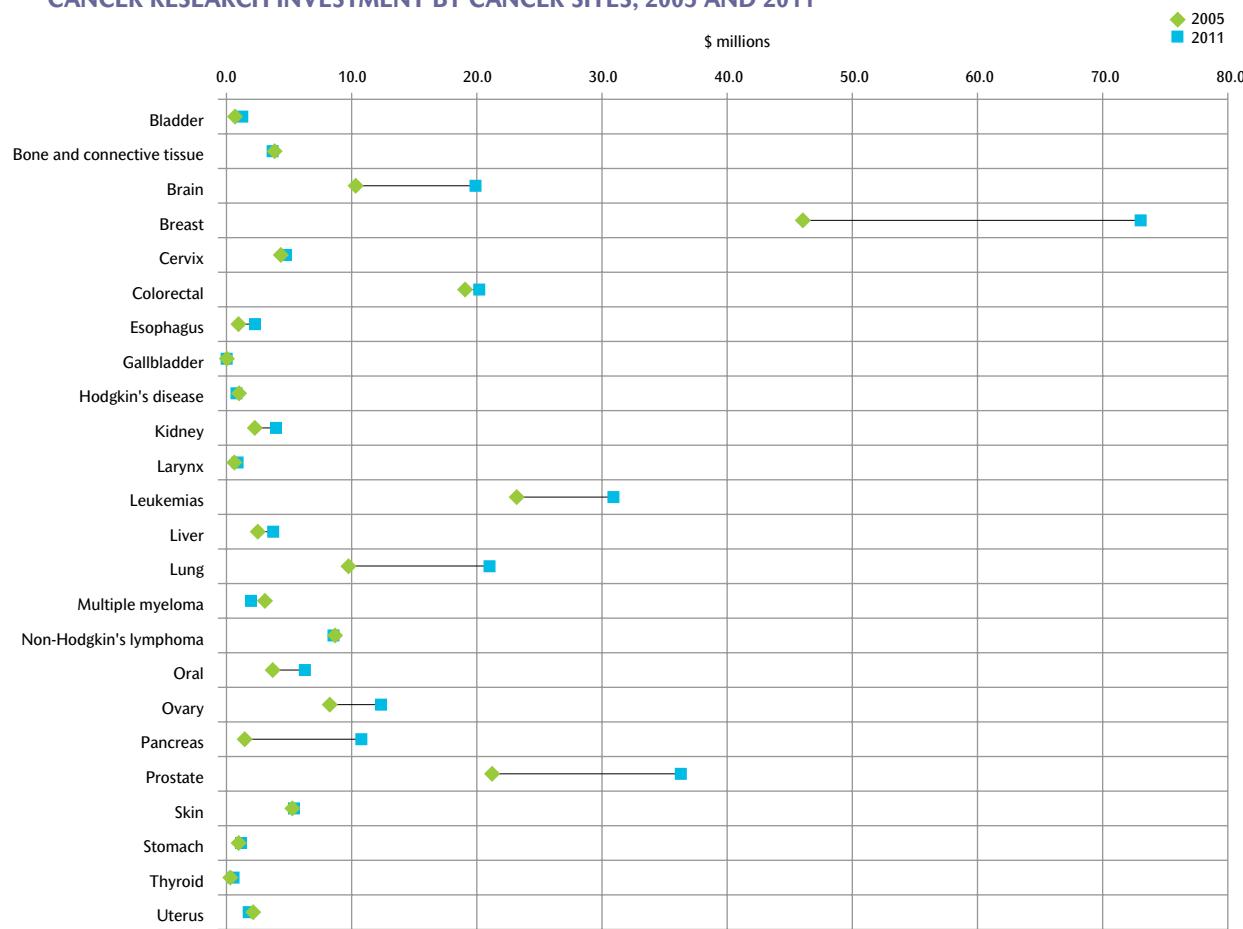
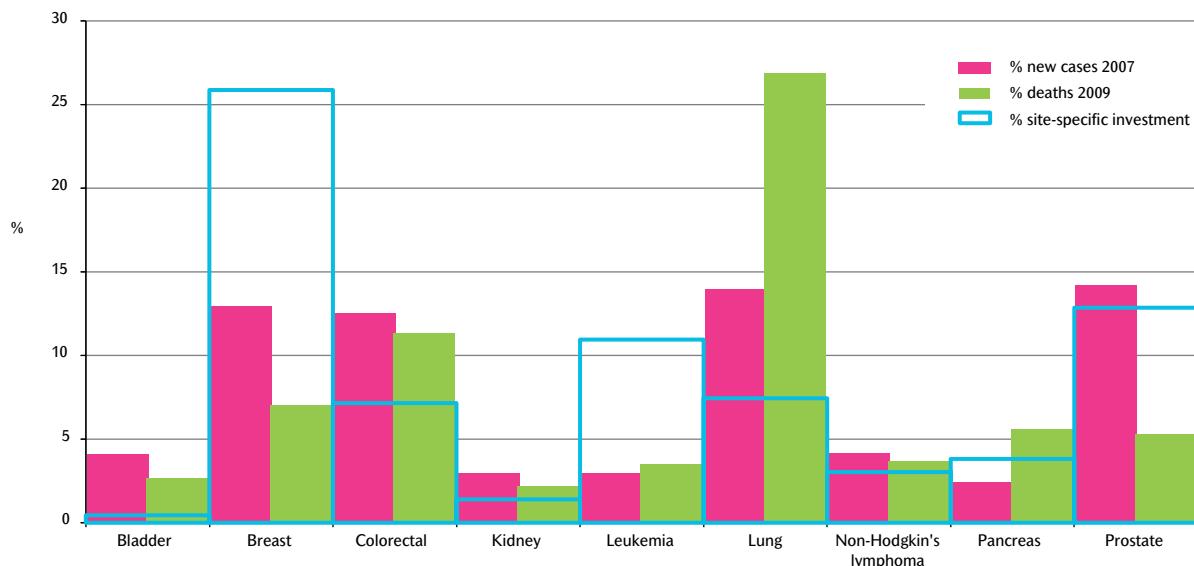


FIGURE 5

DISTRIBUTION OF 2011 SITE-SPECIFIC CANCER RESEARCH INVESTMENT (\$282.4M) BY NEW CANCER CASES IN 2007 AND CANCER DEATHS IN 2009, SELECTED CANCER SITES [1]



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

CCRA MEMBERS

Alberta Cancer Foundation	Genome Canada
Alberta Innovates – Health Solutions	The Kidney Foundation of Canada
Brain Tumour Foundation of Canada	Leukemia & Lymphoma Society of Canada
BC Cancer Agency	Manitoba Health Research Council
C ¹⁷ Research Network	Michael Smith Foundation for Health Research
Canadian Association of Provincial Cancer Agencies	National Research Council of Canada
Canadian Association of Radiation Oncology	New Brunswick Cancer Network
Canadian Breast Cancer Foundation	Nova Scotia Health Research Foundation
Canadian Cancer Society	Ontario Institute for Cancer Research
Canadian Institutes of Health Research	Ovarian Cancer Canada
Canadian Partnership Against Cancer	PROCURE
CancerCare Manitoba	Prostate Cancer Canada
Cancer Care Nova Scotia	Public Health Agency of Canada
Cancer Care Ontario	Quebec Breast Cancer Foundation
Cancer Research Society	Saskatchewan Cancer Agency
Fonds de recherche du Québec – Santé	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/investment-reports-annual>. A series of detailed tables and a slide deck based on the results of the 2011 analysis are 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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