

# CANCER RESEARCH INVESTMENT IN CANADA, 2006

THE CANADIAN  
CANCER RESEARCH  
ALLIANCE'S SURVEY  
OF GOVERNMENT  
AND VOLUNTARY  
SECTOR INVESTMENT  
IN CANCER RESEARCH  
IN 2006



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

CANADIAN PARTNERSHIP  
AGAINST CANCER



PARTENARIAT CANADIEN  
CONTRE LE CANCER

AUGUST 2008

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## MESSAGE FROM THE CHAIR

**Elizabeth A. Eisenhauer, MD, FRCP**, is President, Board of Directors, National Cancer Institute of Canada (NCIC), Director, Investigational New Drug Program at the NCIC Clinical Trials Group, and Senior Scientist and Professor at Queen's University in Kingston, Ontario.

Collectively, cancers continue to form the major cause of deaths, the major cause of premature deaths, and the major disease burden in our country. It is estimated that in 2008, there will be 166,400 new cases of cancer and 73,800 cancer deaths.<sup>1</sup> The prevention, control, and cure of cancers are integral to our pursuit of enhancing the health and longevity of Canadians, and progress made in cancer research is key to accomplishing this goal.

Recent capacities in genetics and bioinformatics, coupled with advances in integrative cancer biology, molecular epidemiology, and diverse advanced technologies, are expediting the process of scientific discovery, revolutionizing approaches to preventing and detecting cancers, and creating medicines and procedures to detect, treat, and cure them. Researchers are focusing on how to improve and accelerate the translation of findings from the lab to the clinic so that prevention, screening and treatment strategies can be successfully adopted and implemented.

Improving the quality of life of people living with cancer so that they can lead the healthiest lives possible, and intervening early in the relapse process are critical areas of research and have tremendous potential to affect the lives of the more than 850,000 people in Canada living with cancer.<sup>2</sup> Knowing how to provide appropriate and supportive end-of-life care for patients and

their loved ones is another important focus of research.

In this, our second report of cancer research investment, we have aimed to provide an expanded picture of research investment. Although the key findings in this report do not vary substantially from our first report, we have provided the most comprehensive picture of the ways in which cancer research is supported by government and voluntary organizations in Canada. I would like to thank the CCRA members and many other organizations that contributed information to this project. This report is truly a collaborative effort.

To date, besides our investment survey, CCRA's main activities have been to function as the Research Action Group of The Canadian Partnership against Cancer (The Partnership) and to recommend investment in two large partnered cancer research initiatives, which address some of the urgent needs within the global cancer research arena. In terms of the first project, CCRA has been involved in facilitating the creation of a 300,000-person Canadian cancer cohort, based on a confederate model that builds on five identified nodes across the country. A unique component will be an environmental study, built on emerging new technologies, to assess environmental influences on cancer and other chronic diseases. The Partnership, along with the Alberta Cancer Board, Ontario Institute



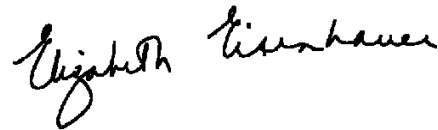
*Elizabeth  
Eisenhauer*

for Cancer Research, and CARTaGENE Quebec), will provide financial support to facilitate planning and start-up over a five-year period. The long-term goal will be to link with similar cohort studies in other countries and establish an international population health research laboratory.

In terms of translational research, CCRA worked through The Partnership to partner with the Terry Fox Research Institute (TFRI) on an initiative intended to develop a roadmap for biomarker development. TFRI was launched in 2007 with new funds raised by The Terry Fox Foundation. Using a network of four nodes in well-established cancer research centres in British Columbia, Alberta, Ontario, and Quebec, the objective is to move research discoveries into clinical practice more rapidly, leading to improvements in standard patient care. The biomarker initiative will focus on studies of the detection and therapeutic aspects of cancer control, and projects have already been identified for lymphoma and leukemia, and breast, ovarian, lung and prostate cancers.

Although many member organizations play pivotal roles in key international efforts, such as the Cancer Stem Cell and International Cancer Genomics Consortia, future international partnership opportunities may arise through CCRA's membership in the International Cancer Research Partners,<sup>3</sup> as this group expands its membership and widens its scope and direction.

Most importantly, over the upcoming months, we will work to develop a *pan-Canadian cancer research framework/strategy*. This framework will address critical gaps in cancer research and identify opportunities for partnership and collaboration among CCRA members and other key stakeholders. By working together, pooling resources, and tackling the overarching research issues that affect cancer control and care in all provinces and territories, it is our hope that CCRA will enable the scientific discoveries that will mitigate the burden of cancer in Canada.



Elizabeth A. Eisenhauer, MD, FRCP  
Chair, CCRA Board

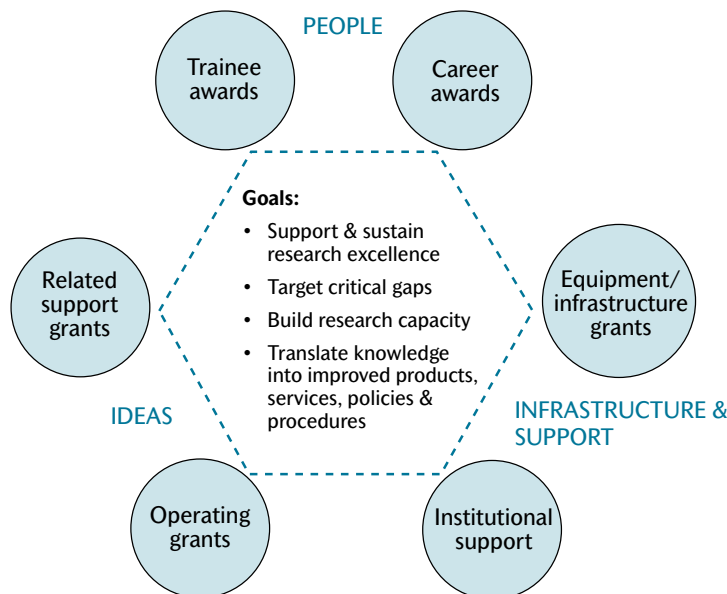
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1. Canadian Cancer Society/National Cancer Institute of Canada. *Canadian Cancer Statistics 2008*. Toronto, Canada, 2008.
  2. Ibid.
  3. For more information about the International Cancer Research Partners, see <http://www.cancer-portfolio.org/>.

# 1. WHAT'S NEW IN THIS REPORT

This report is the second in what will be a series of annual reports on cancer research investment in Canada. This report has two objectives: first, it is intended to present a more comprehensive view of governmental and voluntary sector investment in cancer research, which was made possible by an increase in the number of participating organizations – from 19 to 34 – and second, it is designed to provide a more in-depth look at the six specific funding mechanisms used

to support this research (see Figure 1.1.1). (Definitions of the funding mechanisms are provided in the adjacent sidebar.) It is hoped that this document will be useful to cancer research funders and other key stakeholders as they plan and implement cancer research strategies at the local, provincial, and national levels. This document will also serve as a valuable primer on cancer research funding by the governmental and voluntary sectors in Canada to those unfamiliar with the area.

**FIGURE 1.1.1**  
**FUNDING MECHANISMS FOR CANCER RESEARCH**



The first major chapter of this report (Chapter 3) provides an overview of the 2006 cancer research investment. Many of the core tables and figures presented in the inaugural report are presented here for the 2006 data. Chapter 4 provides detailed information on the six funding mechanisms, highlighting the common and unique features of each.

Data standardization rules were developed and applied so that information from the many and varied organizations participating in this survey could be organized into a coherent database for analysis. The reader is urged to peruse the Methodology chapter, which details the reporting conventions used in this report. Appendix A provides a list of important abbreviations.

Analyses are descriptive in nature, and, by design, the report contains many tables and figures rather than extensive narrative. As with the first report, the data represent a single year snapshot (although both 2005 and 2006 data are presented in the appendices). Alphabetical order has been used when reporting data by organization, province, and cancer site.

Although all major cancer research funders from the governmental and voluntary sectors are included in this report, we have not been able to collect information from all the many smaller voluntary organizations. Our intention for the next report is to add to the number of participating organizations and, where possible, to include information on other sources of cancer research funding, such as that from hospital foundations.

## DEFINITIONS OF FUNDING MECHANISMS

**Career awards:** Competitive awards which provide protected time for research on either a long or short-term basis to outstanding researchers who have demonstrated high levels of productivity and research accomplishments. These awards are given to only a small percentage of all researchers. (May also be called salary awards.) Research chairs and establishment grants, grants designed to facilitate the recruitment of outstanding researchers, are also included under this funding mechanism.

**Equipment/infrastructure grants:** Competitive grants which cover in part or in full the costs of construction or major remodelling of new research facilities, and/or the purchase, housing and installation of equipment, scientific collections, computer software, information databases, and communication linkages used primarily for conducting research.

**Institutional support:** Support for the general costs of conducting research which cannot be attributed to specific research projects or researchers. This includes indirect costs (overhead).

**Operating grants:** Competitive grants which support all the direct costs involved in conducting specific research projects performed by identified researchers. Operating grants typically cover salaries for laboratory staff and research assistants/ associates/trainees, costs of research equipment and supplies, and other specific research-related expenses. Multi-component projects (program projects), feasibility grants, proof-of-principle grants, regional development grants, innovation grants and knowledge translation grants are all included in this category.

**Related support grants:** Competitive grants which support travel, workshops/symposia and researcher time for proposal development/letters of intent. These grants involve small sums of money.

**Trainee awards:** Competitive awards which recognize outstanding trainees and support them during their undergraduate, graduate or post-graduate training. Trainees from Canada studying at institutions outside Canada may also be eligible for some types of trainee awards. Block training grants given to institutions that, in turn, distribute the monies to trainees through a competitive process are also included under this funding mechanism.

## 2. METHODOLOGY

A detailed methodology was provided in the inaugural report, *Cancer Research Investment in Canada, 2005: The Canadian Cancer Research Alliance's Survey of Government and Voluntary Sector Investment in Cancer Research in 2005* (available at [http://www.ccra-acrc.ca/aboutus\\_publications\\_en.htm](http://www.ccra-acrc.ca/aboutus_publications_en.htm)), and readers are encouraged to refer to that report for details on project classification. This chapter builds on that description by providing information relevant to the 2006 analysis.

### 2.1 PARTICIPATING ORGANIZATIONS

This report focuses on research projects active at some point during calendar year 2006. Organizations new to the survey, however, provided data on all funded research active from January 1, 2005 to December 31, 2005 and projects new in calendar 2006. The long-term goal of the survey is to analyze trends in cancer research investment over time, so it was necessary to ensure that data were complete for both years and all organizations.

The Canadian Cancer Society (CCS) and The Terry Fox Foundation (TFF) are listed as funders this year (they were jointly listed under the National Cancer Institute of Canada (NCIC) in last year's report). Investment shown for CCS and TFF were for projects administered by the NCIC.

Although no data were available from BC Cancer Agency for this report, it is expected to participate in the 2007 survey.

Investment shown for the Networks of Centres of Excellence (NCE) refers to distinct cancer-relevant projects funded by three centres: the Canadian Institute for Photonic Innovations (CIPI), Mathematics of Information Technology & Complex Systems (MITACS), and the Stem Cell Network (SCN). It does not include the funds provided for network management and network activities by the Canadian Institutes of Health Research (CIHR), Natural Sciences and Engineering Research Council (NSERC), and Social Sciences and Humanities Research Council (SSHRC).

Appendix B lists participating organizations, as well as specific issues relevant to the quality of the data provided and used for classification purposes. Key comparative analyses of 2005 and 2006 for participating organizations in terms of total investment, investment by codes of the Common Scientific Outline (CSO), and investment by cancer sites are provided in appendices C, D, and E, respectively, and bridge the analyses presented in this report with the first one. For some organizations, investment figures for 2005 have changed from the first report because of data corrections. The data presented herein will also be subject to change based on future data submissions or corrections.

## 2.2 PROJECT CLASSIFICATION

As with the first report, all research projects were coded in terms of type of research and cancer site (see sidebar). The CSO was the typology used for coding the type of research, and final CSO coding for each project was determined after two coders independently classified the projects and then met to discuss discrepancies and determine final agreed-upon codes. Inter-rater agreement of the blind-coded classifications of the two coders in terms of the seven CSO categories was determined to be in the “almost perfect” agreement range (observed Kappa=0.8999, 95% CI 0.8916-0.9077).

In this report, kite diagrams are used to illustrate the distribution of the CSO across its seven categories. A kite diagram is a type of area chart in which the y-axis is split into two equal parts ranging from 0 to 50%, with the 0 origin located in the middle of the graph. The kite diagram visually and succinctly demonstrates differences and similarities across multiple organizations, because it shows a distinct shape for a given distribution.

Cancer site classification was completed by one coder. In addition to the project descriptions, other sources of information, when available from participating organizations (e.g. site checklists), were used to make the site determinations. When a project was focused on a specific risk factor, like smoking, and no mention was made of cancer sites in the project description/additional information, predetermined site allocations based on expert input were used (e.g. for projects focused on smoking, the site allocations were lung 50%, esophagus 15%, larynx 15%, pharynx 15%, and all sites 5%).

### PROJECT CLASSIFICATION

All projects within the CCRA database were classified according to type of research and type of cancer. The classification was determined on the basis of the available project summary. The Common Scientific Outline (CSO), a classification system specific to cancer research, was used as the tool to classify research type. The CSO is the principal classification framework used by the International Cancer Research Partners (ICRP). The 38 CSO codes are organized into seven broad categories of scientific interest. Each project within the CCRA database was assigned a relevant CSO code. Where more than one CSO code was assigned to a given project, the project budget was distributed equally among the codes. For more information about the CSO, please refer to <http://www.cancerportfolio.org/cso.jsp>.

Projects were also classified according to cancer site using the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Version for 2007 (ICD-10). The ICD-10 is an international standard diagnostic classification used for general studies of the distribution and frequency of human disease and for health management purposes. It is also used in the national reporting of new cancer cases. Similar to the CSO coding, some projects were assigned more than one cancer site. In these cases, the project budget was allocated accordingly to each code so that it summed to 100% of the total. An electronic version of the ICD-10 is available from the World Health Organization. Please refer to <http://www.who.int/classifications/> for more information.

## 2.3 REPORTING CONVENTIONS

The term “cancer research investment” is used within this report to represent the direct funding of cancer research projects that received some form of peer review and that were administered by the organizations participating in the survey. (There is also, however, an estimate of the cancer-relevant portion of the federal government’s Indirect Costs Program in section 4.3.) For the purposes of this report, “peer review” is defined as the process of subjecting a research proposal to the scrutiny of others who are experts in the same or similar fields. These experts conduct an impartial review (i.e. they do not have any competing professional or personal interests). The formats for peer review vary among organizations and funding mechanisms, and range from formalized reviews to more ad hoc arrangements to the use of in-house expertise as is commonly used for related support grants.

All projects actively funded in calendar year 2006 are included. Given that many organizations have different grant cycles and fiscal years, the selection of calendar 2006 is intended to standardize data collection to a single 12-month period. The 2006 investment has been calculated on a pro-rated basis and assumes that the project dollars were paid out in equal monthly instalments based on project start and end dates. Although project dollars do not typically flow in that way, this method simplified and standardized the annual investment calculation.

In this report, sector breakdowns have been used to denote the sectors in which the organizations that administered the funding program belonged. This does not mean that the entire investment shown for a particular

organization came solely from that sector; partner dollars have also been included in these calculations. Likewise, unless otherwise noted, research projects were included under the organization that administered the grants and awards programs even when a given project was funded by more than one organization. For example, projects included for the Canada Foundation for Innovation (CFI), which were cost-shared 40% by CFI and 60% by partners, were assigned the total project budget even though a substantial portion of the budget for many projects came from provincial government partners.<sup>1</sup> Likewise, Genome Canada projects, which were cost-shared on a 50-50 basis, were assigned the total project budget. Genome Canada provided breakdowns for its projects by funding source and these are summarized in Table 2.3.1.

TABLE 2.3.1

### 2006 CANCER RESEARCH INVESTMENT BY FUNDING SOURCE FOR GENOME CANADA

FUNDING SOURCE	2006 Investment	
	\$	%
<b>Genome Canada</b>	\$6,729,107	49
<b>Private industry</b>	\$4,380,357	32
<b>Institutional</b>	\$1,469,434	11
<b>Provincial government</b>	\$1,117,458	8
<b>Foreign</b>	\$77,228	Less than 1
<b>TOTAL</b>	<b>\$13,773,584</b>	<b>100</b>

Multi-funded initiatives are somewhat unique in that they administer programs funded entirely by partner organizations, and the partner organizations are from both the federal government and voluntary sectors. For

this reason, they were grouped in their own category.

Analyses by province were based on the institutional affiliation of the Principal Investigator (PI) or Project Leader (PL). There is only one designated PI/PL per project. Funding by the CCS for the NCIC Clinical Trials Group (NCIC CTG) was entirely allocated to Queen's University in Ontario as data did not allow for a provincial breakdown.

Project budgets have been weighted in terms of extent to which they were focused on cancer. Budgets for projects determined to have the study of cancer as their primary focus were weighted at 100%. This included all projects funded by organizations that fund only cancer research, as well as research funded by other organizations where the research was focused on cancer. With two major exceptions, budgets for all other research projects that were not entirely focused on cancer (a determination made on the basis of

available project descriptions) were weighted at 33%. For CFI projects, which were all equipment/infrastructure grants and tended to be broader in scope, budgets were weighted from 10 to 100% so that the cancer investment would not be overstated. Among the projects considered major science investments,<sup>2</sup> two of the Structural Genomics Consortium projects were included. The budgets were weighted at 10% and accounted for \$555,987 in 2006.

For the Canada Research Chairs Program (CRCP), the same practice of variable weightings was applied. Table 2.3.2 provides a breakdown of all projects by weighting factors.

TABLE 2.3.2

**DISTRIBUTION OF WEIGHTINGS APPLIED TO PROJECTS IN THE SURVEY DATABASE FOR 2006**

WEIGHTING	Number of Projects	%
100%	3,880	88
75%	5	Less than 1
50%	94	2
33%	323	7
25%	5	Less than 1
20%	84	2
10%	24	Less than 1
<b>TOTAL</b>	<b>4,415</b>	<b>100</b>

- 
1. CFI did not provide the details of the partner investment, and public sources of information were not available for all projects. In the database, the partner contribution was added to the CFI maximum contribution.
  2. The project end date for the Canadian Light Source (CLS), the single largest CFI investment, was in 2005 so it is not included in the 2006 investment figures shown in this report. It should be noted that both the Saskatchewan Cancer Agency (SCA) and the Saskatchewan Health Research Foundation (SHRF) contributed to CFI's related CLS Biomedical Imaging and Therapy Beamline project. Their respective investments were captured within the CFI investment and were not reflected under the investment figures shown for SCA and SHRF.

## 3. OVERVIEW OF THE 2006 INVESTMENT

In this chapter, several core tables similar to those in the first report, along with additional figures, are presented. The chapter is organized in terms of the overall investment, and the investment in terms of types of research and cancer sites.

### 3.1 INVESTMENT

The total 2006 investment in terms of peer-reviewed projects was \$390.2M (Table 3.1.1). This does not include an estimated investment of \$4.7M provided by the BC Cancer Foundation to the BC Cancer Agency for research, nor does it include an estimated \$22.7M of cancer-attributable indirect costs based on information provided by the federal government's Indirect Costs Program (see section 4.3).

Of the \$390.2M total 2006 cancer research investment, nearly two-thirds (63.1%) was from funding programs administered by the federal government, with CIHR being the single largest investor in cancer research. The investment by the Canadian Cancer Society (CCS) represented nearly 60% of the total voluntary sector investment, and 10.7% of the overall investment. In terms of the provincial health research organizations, the Ontario Institute for Cancer Research (OICR) represented more than one third (34.9%), with the Fonds de la recherche en santé du Québec (FRSQ) at 27.1%. The Alberta Cancer Board (ACB) accounted for 48.3% of the total provincial cancer agency investment, followed

by Cancer Care Ontario (CCO) at 43.7%.

Partner contributions to the multi-funded initiatives are shown in Table 3.1.2. Among organizations participating in the survey, the Canadian Breast Cancer Foundation (CBCF) and CCS were major contributors to the funding programs administered by the Canadian Breast Cancer Research Alliance (CBCRA). CIHR was a major contributor to the Canadian Tobacco Control Research Initiative (CTCRI).

Figure 3.1.1 shows the investment by funder sector. Funding mechanism by investment (\$) and distribution (%) is shown in Figure 3.1.2. The federal government sector investment was the largest regardless of funding mechanism and represented most of the investment in operating grants and equipment/infrastructure grants. The sidebar further elaborates the federal government investment, showing it in its entirety without partner dollars. Investment by the voluntary and multi-sector organizations was primarily for operating grants. A very large proportion (59.2%) of the overall investment by the provincial cancer agencies was for equipment/infrastructure grants. Investment by the provincial health research organizations represented a mix of funding mechanisms.

Overall investment in 2006 by province of the principal investigator/project leader (PI/PL) is summarized in Figure 3.1.3. Given the considerable differences in provincial populations, per capita investment was also

provided (in parentheses) to normalize the data. It should not be interpreted to mean that per capita funding should be equally distributed as there are a number of factors which impact provincial cancer research investment amounts. These include, for example, the number of active cancer

researchers, their productivity, the presence of one or more medical schools with cancer researchers on faculty, funding application rates and application success rates, the availability of provincial funding mechanisms, and the availability of appropriate equipment and infrastructure.

TABLE 3.1.1

2006 CANCER RESEARCH INVESTMENT BY PARTICIPATING ORGANIZATIONS

Sector [1]	Organization Type	Organization	Number of Projects	2006 Investment	%	2006 Investment with Initiatives Included [2]
<b>GOVERNMENT</b> \$304,207,286 78%	Federal [3] \$246,406,673 63%	Canada Foundation for Innovation [4]	210	\$80,405,822	20.61	\$80,405,822
		Canada Research Chairs Program	211	\$16,957,083	4.35	\$16,957,083
		Canadian Institutes of Health Research	1,677	\$124,488,664	31.91	\$126,460,719 *
		Genome Canada [5]	7	\$13,773,584	3.53	\$13,773,584
		National Research Council	15	\$3,280,751	0.84	\$3,280,751
		Natural Sciences and Engineering Research Council	239	\$5,199,487	1.33	\$5,199,487
		Networks of Centres of Excellence [6]	9	\$1,763,695	0.45	\$1,763,695
		Social Sciences and Humanities Research Council	35	\$537,588	0.14	\$537,588
	Provincial Cancer Agency \$19,724,855 5%	Alberta Cancer Board	178	\$9,530,181	2.44	\$9,530,181
		BC Cancer Agency [7]	0	\$0	0.00	\$0
		CancerCare Manitoba	54	\$1,151,874	0.30	\$1,151,874
		Cancer Care Nova Scotia	13	\$160,000	0.04	\$160,000
		Cancer Care Ontario	17	\$8,620,667	2.21	\$8,620,667
		Saskatchewan Cancer Agency	6	\$262,134	0.07	\$262,134
	Provincial Health Research Organization \$38,075,758 10%	Alberta Heritage Foundation for Medical Research	132	\$6,636,372	1.70	\$6,636,372
		Fonds de la recherche en santé du Québec	236	\$10,322,622	2.65	\$10,322,622
		Manitoba Health Research Council	24	\$428,680	0.11	\$428,680
		Medical Research Fund of New Brunswick	3	\$45,000	0.01	\$45,000
		Michael Smith Foundation for Health Research	165	\$6,621,855	1.70	\$6,621,855
		Nova Scotia Health Research Foundation	19	\$401,583	0.10	\$401,583
		Ontario Institute for Cancer Research	56	\$13,297,389	3.41	\$13,297,389
		Saskatchewan Health Research Foundation	18	\$322,258	0.08	\$322,258
	<b>VOLUNTARY</b> \$74,083,055 19%	Brain Tumour Foundation of Canada	9	\$160,723	0.04	\$160,723
		C17 Research Network	4	\$59,300	0.02	\$59,300
		Canadian Breast Cancer Foundation	96	\$5,084,479	1.30	\$7,556,566 *
		Canadian Cancer Society	391	\$41,603,197	10.66	\$44,730,918 *
		Ovarian Cancer Canada	2	\$79,000	0.02	\$79,000
Prostate Cancer Research Foundation of Canada		30	\$1,183,059	0.30	\$1,183,059	
Quebec Breast Cancer Foundation/Fondation du cancer du sein du Québec		3	\$1,066,667	0.27	\$1,066,667	
The Cancer Research Society		148	\$5,638,758	1.45	\$5,801,790 *	
The Kidney Foundation of Canada		5	\$151,953	0.04	\$151,953	
The Terry Fox Foundation		216	\$19,055,919	4.88	\$19,055,919	
<b>MULTI-FUNDED [8]</b> \$11,879,254 3%	Canadian Breast Cancer Research Alliance	103	\$10,043,837	2.57	\$4,144,359 R	
	Canadian Prostate Cancer Research Initiative	15	\$555,069	0.14	\$0 R	
	Canadian Tobacco Control Research Initiative	69	\$1,280,348	0.33	\$0 R	
<b>TOTAL</b>			<b>4,415</b>	<b>\$390,169,595</b>	<b>100</b>	<b>\$390,169,595</b>

[1] Refers to the sector of the organization that administered the funding program.

[2] Figures marked with an asterisk (\*) show the addition of the investment in the multi-funded initiatives to the investment made in the projects that the four organizations administered themselves. Kite diagrams presented later in this chapter are based on the figures shown in this column for all organizations except the multi-funded initiatives (R), which show the total funding dollars expressed in the “2006 Investment” column.

[3] This figure does not include the cancer-relevant estimate for the federal Indirect Costs Program (\$22,654,070), which is discussed in section 4.3.

[4] The federal government contribution to the CFI projects was \$32.2M.

[5] The federal government contribution to the Genome Canada projects was \$6.7M.

[6] The NCE figure does not include funding from CIHR, NSERC or SSHRC for network management and activities. It reflects in cancer-relevant projects supported by specific networks.

[7] BC Cancer Agency did not contribute data to the survey. According to 2006-07 figures from the BC Cancer Foundation, \$2.5M was invested in the tumour-specific research program and \$2.2M in other clinical research.

[8] See Table 3.1.2 for a detailed breakdown of partner contributions to these initiatives.

TABLE 3.1.2

**2006 CANCER RESEARCH INVESTMENT OF PARTICIPATING ORGANIZATIONS FUNDING MULTI-FUNDED INITIATIVES**

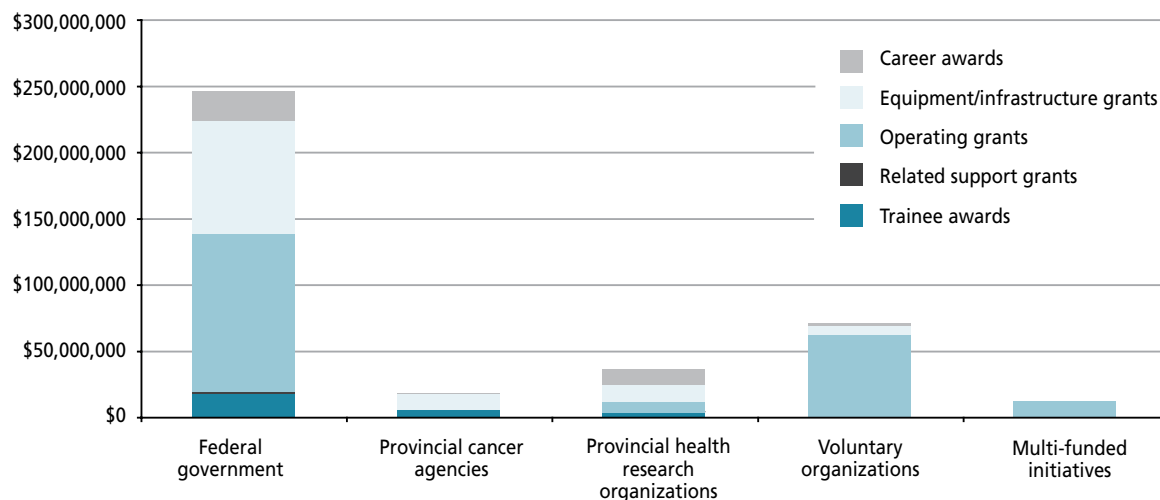
INITIATIVE	Canadian Institutes of Health Research [1]	Canadian Breast Cancer Foundation	Canadian Cancer Society	The Cancer Research Society	Other [2]	TOTAL
Canadian Breast Cancer Research Alliance	\$887,605	\$2,472,087	\$2,376,754	\$163,032	\$4,144,359	\$10,043,837
Canadian Prostate Cancer Research Initiative	\$59,800	–	\$495,269	–	–	\$555,069
Canadian Tobacco Control Research Initiative	\$1,024,650	–	\$255,698	–	–	\$1,280,348
<b>TOTAL</b>	<b>\$1,972,055</b>	<b>\$2,472,087</b>	<b>\$3,127,721</b>	<b>\$163,032</b>	<b>\$4,144,359</b>	<b>\$11,879,254</b>

[1] Within CIHR's open operating grants competition, \$4.3M was invested in breast cancer research in 2006, which was de facto attributed to CBCRA. This investment is included in the \$124,488,664 figure shown in Table 3.1.1, and not in this table. The combined CIHR investment in CBCRA for 2006 (CBCRA-administered plus CIHR-administered funding programs) was \$5,146,951.

[2] Includes Avon Canada (\$0.95M), Breast Cancer Society of Canada (\$0.11M), CURE Foundation (\$0.23M), and the Public Health Agency of Canada (PHAC) (\$2.85M).

FIGURE 3.1.1

**2006 CANCER RESEARCH INVESTMENT BY FUNDING MECHANISM FOR EACH FUNDER SECTOR (\$390.2M) [1]**



[1] Refers to the sector of the organization that administered the funding program.

### A CLOSER LOOK AT THE FEDERAL GOVERNMENT INVESTMENT IN CANCER RESEARCH

The table below provides the details of the federal government investment in cancer research in 2006 and includes an estimate of the cancer component of the Indirect Costs Program. Unlike other tables in this report, the investment figures shown do not include partner dollars.

PROGRAM/ ORGANIZATION	FUNDING MECHANISM						TOTAL
	Career awards	Equipment/ Infrastructure grants	Institutional support (indirect costs)	Operating grants	Related support grants	Trainee awards [1]	
Canada Foundation for Innovation	–	\$32,162,329	–	–	–	–	\$32,162,329
Canada Research Chairs Program	\$16,957,083	–	–	–	–	–	\$16,957,083
Canadian Institutes of Health Research [2]	\$5,048,499	\$5,587,245	–	\$97,448,823	\$409,026	\$13,259,074	\$121,752,667
Genome Canada	–	–	–	\$6,729,107	–	–	\$6,729,107
Indirect Costs Program	–	–	\$22,654,070	–	–	–	\$22,654,070
National Research Council	–	–	–	\$3,280,751	–	–	\$3,280,751
Natural Sciences and Engineering Research Council	\$0	\$193,575	–	\$2,845,778	\$0	\$1,730,743	\$4,770,096
Networks of Centres of Excellence [3]	–	–	–	\$617,740	–	\$22,500	\$640,240
Public Health Agency of Canada [4]	–	–	–	\$2,851,898	–	–	\$2,851,898
Social Sciences and Humanities Research Council	–	\$0	–	\$143,758	\$0	\$393,829	\$537,588
<b>TOTAL</b>	<b>\$22,005,581</b>	<b>\$37,943,149</b>	<b>\$22,654,070</b>	<b>\$113,917,856</b>	<b>\$409,026</b>	<b>\$15,406,146</b>	<b>\$212,335,828</b>

Cells with a dash indicated that the federal program/organization offered no funding mechanisms of that type, to be distinguished from \$0 values indicating that funding programs within that mechanism were offered, but there were no cancer projects funded in 2006.

[1] Includes Canada Graduate Scholarships, totalling \$2,947,439 (CIHR \$2,175,095, NSERC \$538,125, SSHRC \$235,219).

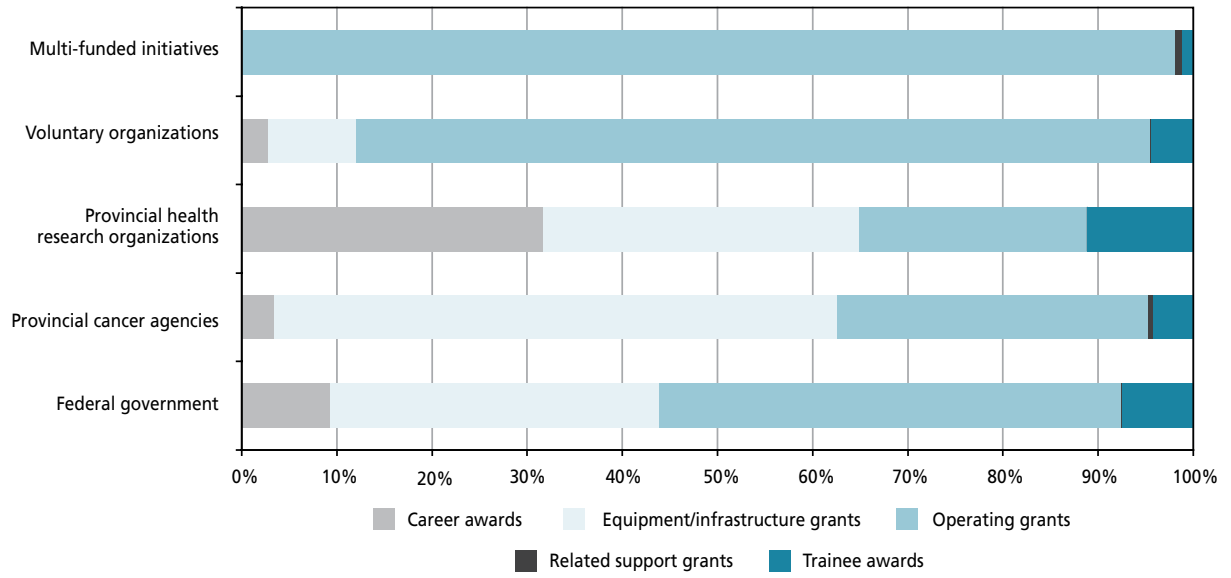
[2] Includes CIHR's contribution to the multi-funded initiatives.

[3] Does not include federal contribution to the management and related activities of the networks.

[4] Represents PHAC's contribution to CBCRA.

FIGURE 3.1.2

**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT BY FUNDING MECHANISM FOR EACH FUNDER SECTOR [1]**



[1] Refers to the sector of the organization that administered the funding program.

FIGURE 3.1.3

**2006 CANCER RESEARCH INVESTMENT BY PROVINCE OF PI/PL IN DOLLARS AND PER CAPITA INVESTMENT (\$386.4M) [1,2,3]**



- [1] Excludes \$3.7M invested in awards to trainees studying outside Canada, the estimate of the cancer-related component of the federal government's Indirect Cost program, and estimates of cancer research investment by the BC Cancer Agency.
- [2] For Ontario, the entire NCIC CTG grant (\$5.9M) was allocated to Ontario as data did not allow for a provincial breakdown.
- [3] Provincial population figures based on July 1, 2006 estimates from Statistics Canada (<http://www40.statcan.ca/l01/cst01/demo02a.htm>) were used in the per capita investment calculation. Per capita investment is shown in parentheses, and should not be interpreted to mean that per capita funding should be equally distributed because a number of factors impact provincial cancer research investment amounts.



FIGURE 3.2.2

DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT FOR FUNDING MECHANISMS BY CSO CATEGORY

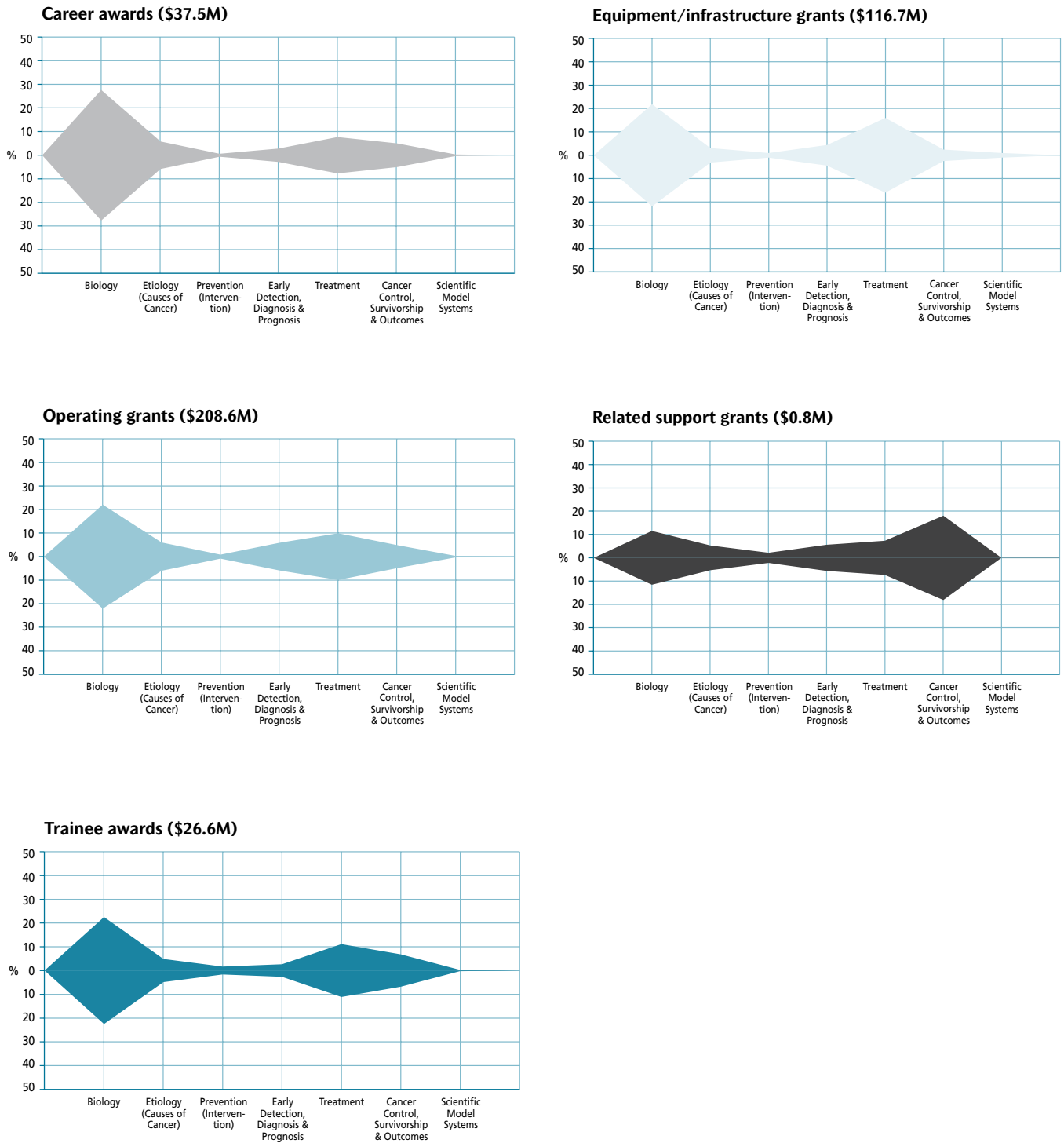
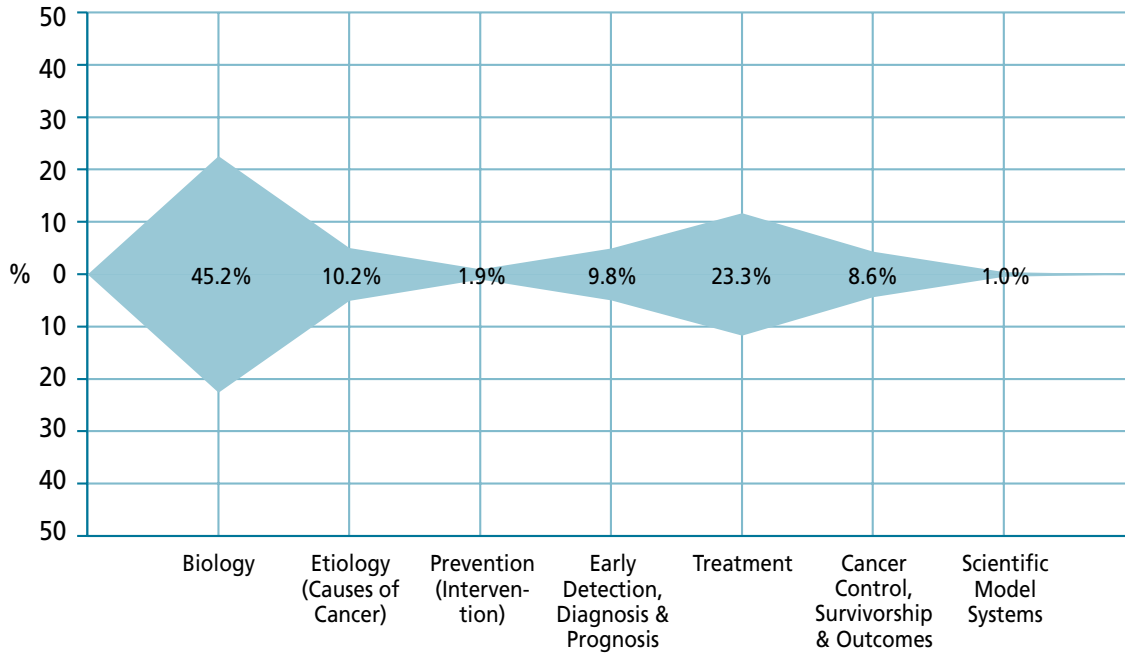


FIGURE 3.2.3

**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT BY CSO CATEGORY (\$390.2M)**



**DISTRIBUTION OF 2005 CANCER RESEARCH INVESTMENT BY CSO CATEGORY (\$381.7M)**

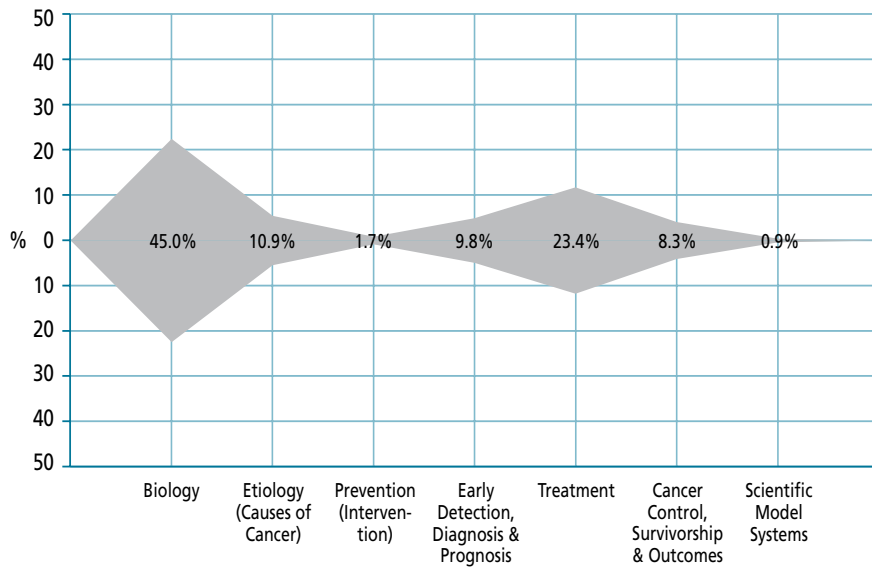
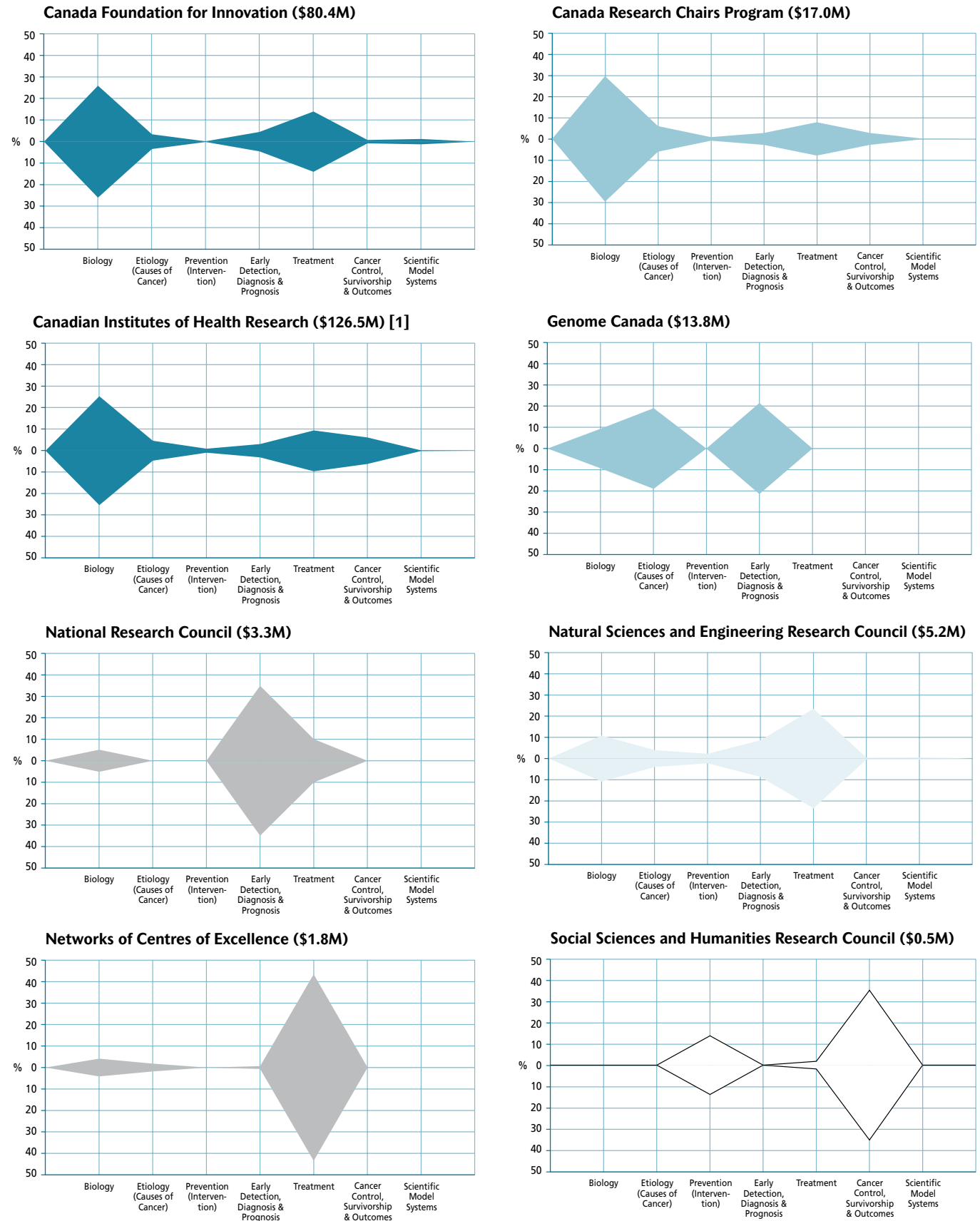
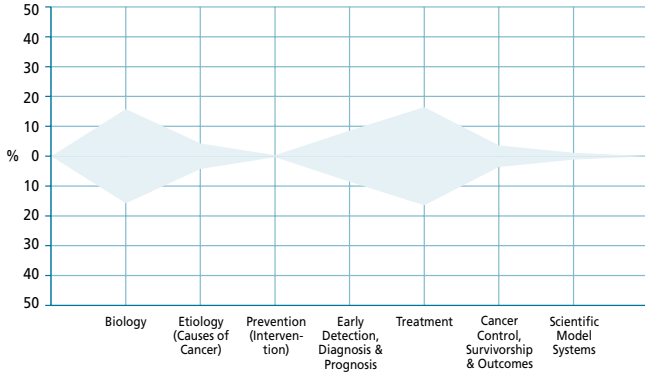


FIGURE 3.2.4

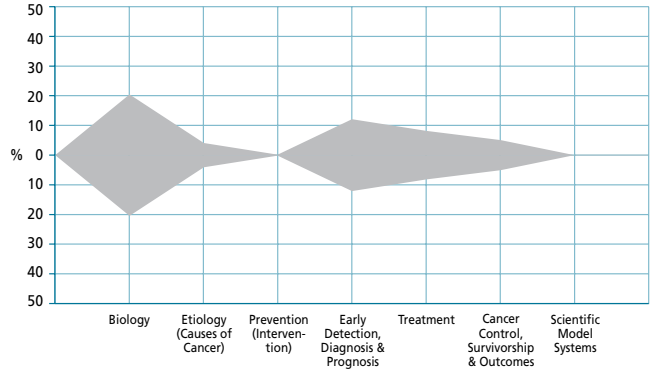
**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT FOR PARTICIPATING ORGANIZATIONS BY CSO CATEGORY**



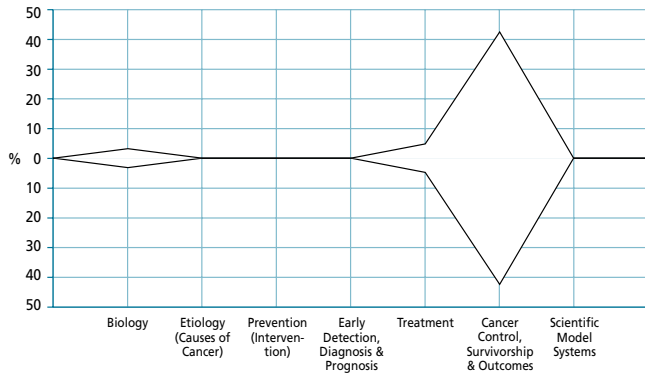
**Alberta Cancer Board (\$9.5M)**



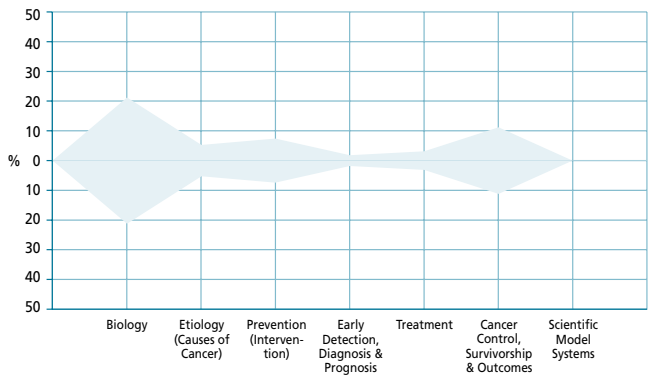
**CancerCare Manitoba (\$1.2M)**



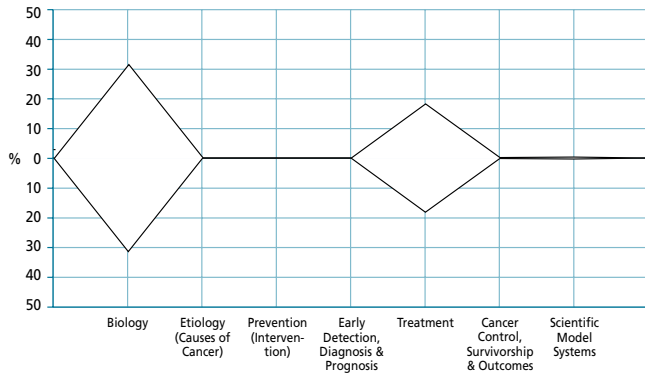
**Cancer Care Nova Scotia (\$0.2M)**



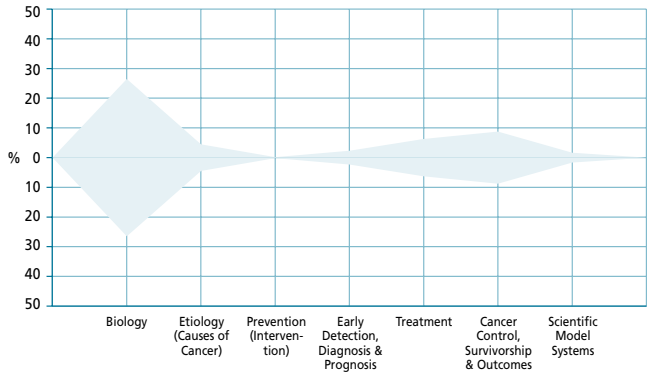
**Cancer Care Ontario (\$8.6M)**



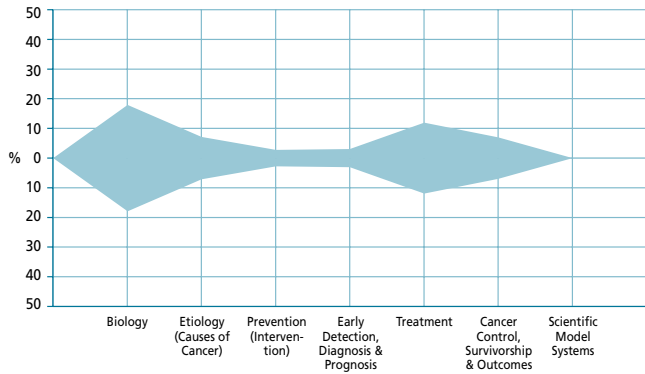
**Saskatchewan Cancer Agency (\$0.3M)**



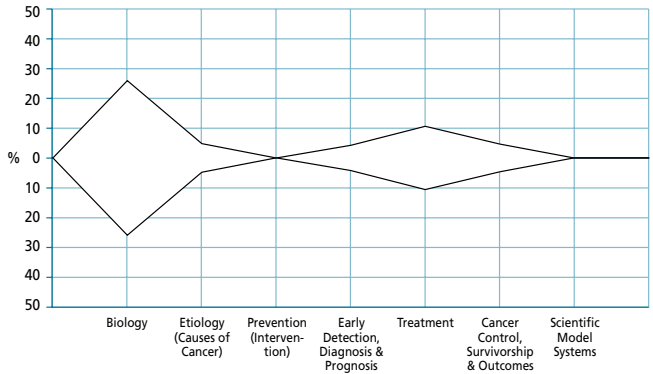
**Alberta Heritage Foundation for Medical Research (\$6.6M)**



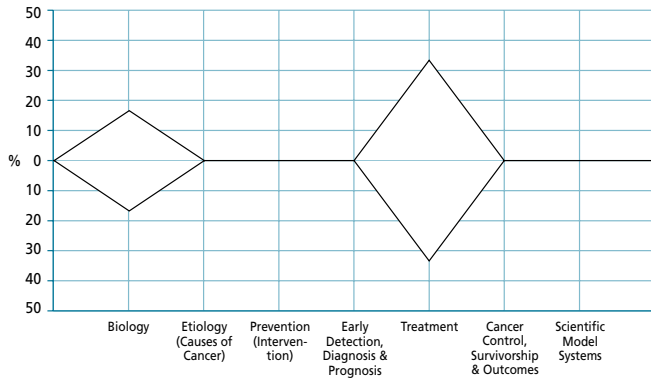
**Fonds de la recherche en santé du Québec (\$10.3M)**



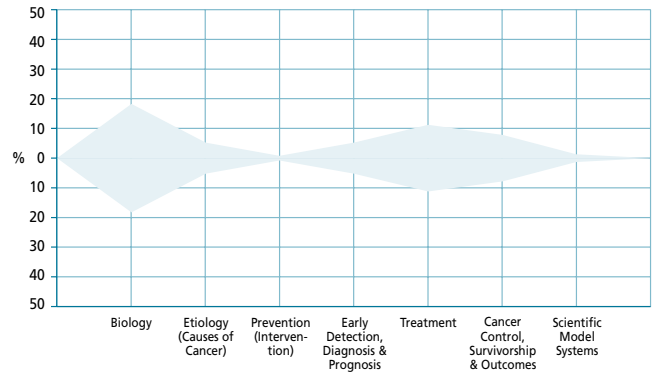
**Manitoba Health Research Council (\$0.4M)**



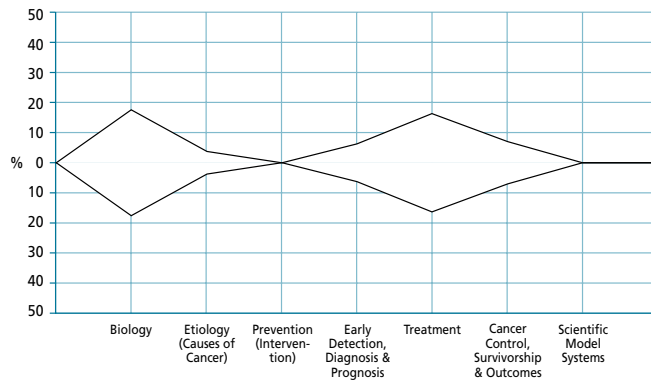
**Medical Research Fund of New Brunswick (\$0.05M)**



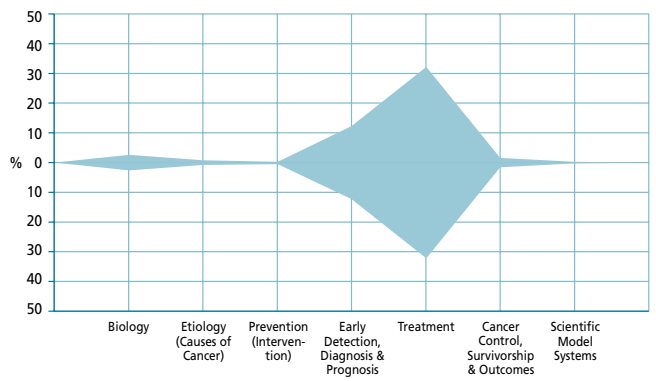
**Michael Smith Foundation for Health Research (\$6.6M)**



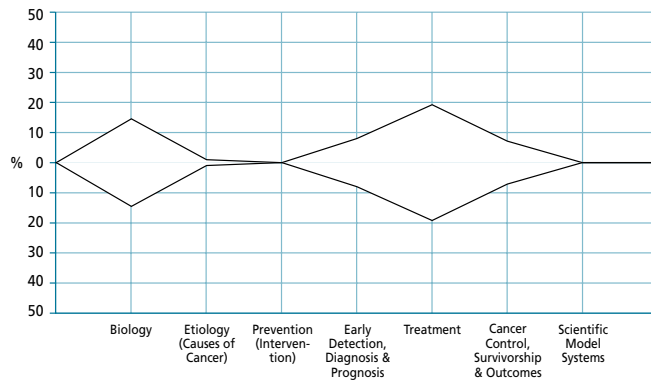
**Nova Scotia Health Research Foundation (\$0.4M)**



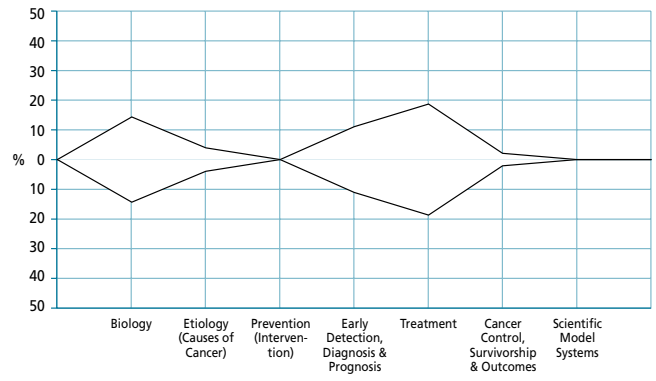
**Ontario Institute for Cancer Research (\$13.3M)**



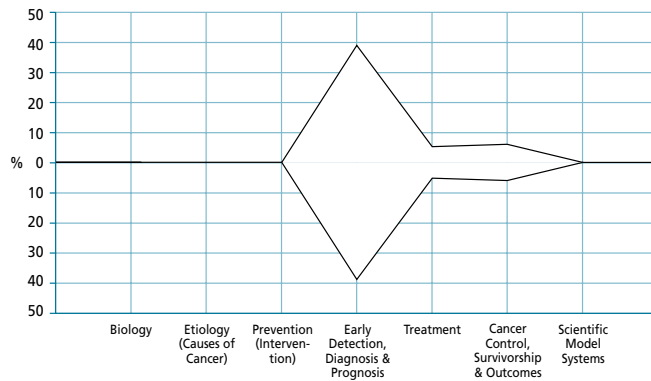
**Saskatchewan Health Research Foundation (\$0.3M)**



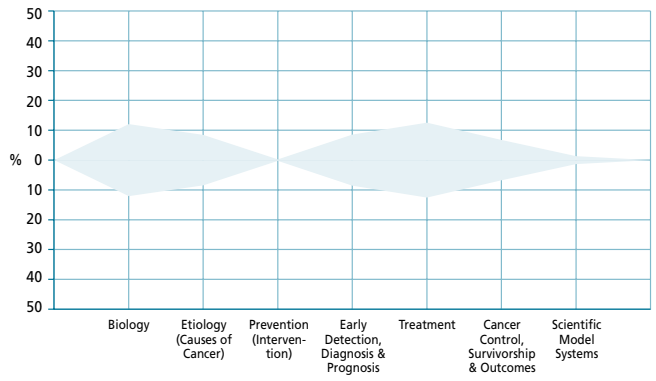
**Brain Tumour Foundation of Canada (\$0.2M)**



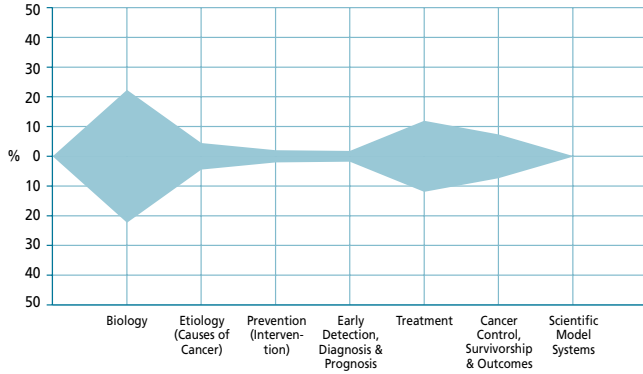
**C17 Research Network (\$0.06M)**



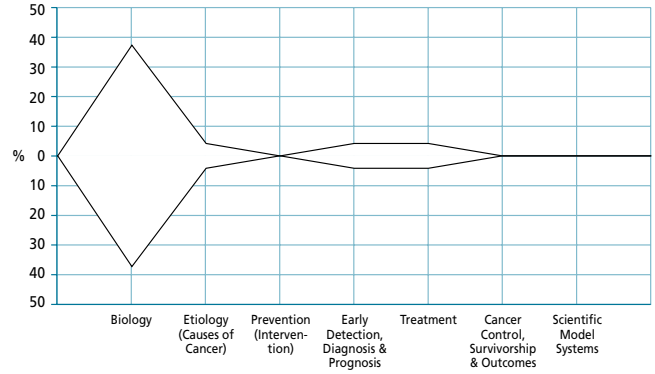
**Canadian Breast Cancer Foundation (\$7.6M) [1]**



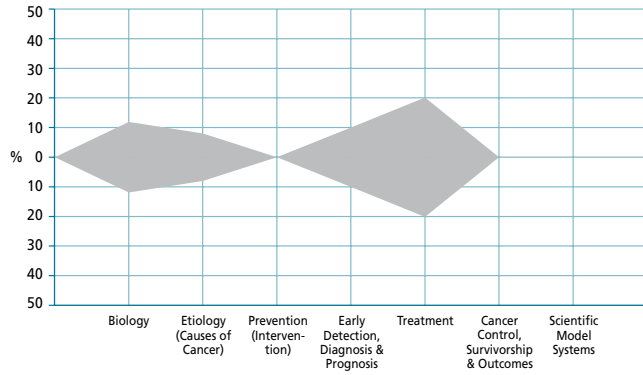
**Canadian Cancer Society (\$44.7M) [1]**



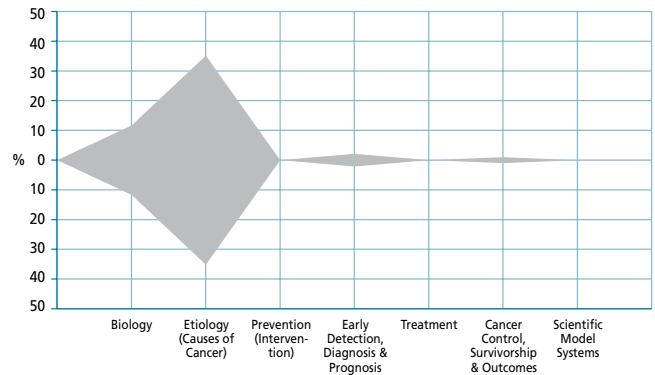
**Ovarian Cancer Canada (\$0.08M)**



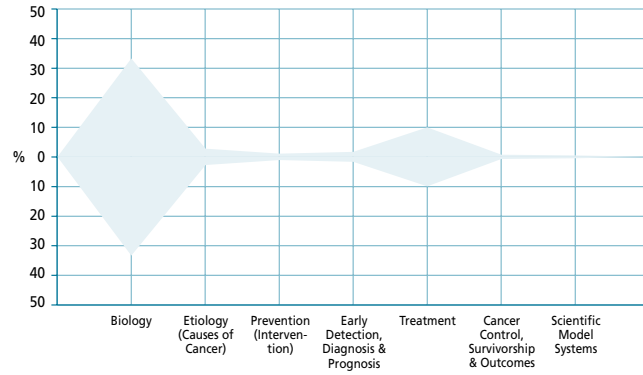
**Prostate Cancer Research Foundation of Canada (\$1.2M)**



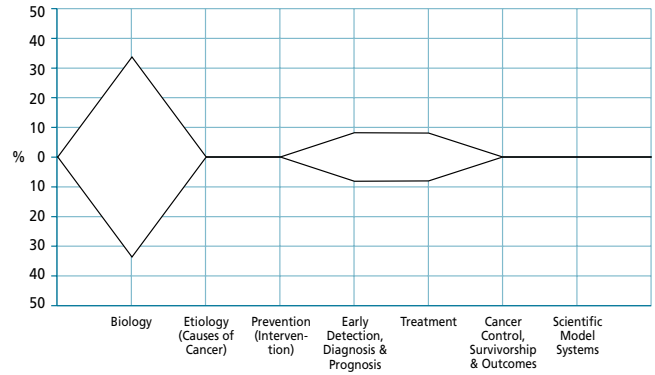
**Quebec Breast Cancer Foundation (\$1.1M)**



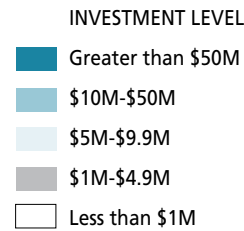
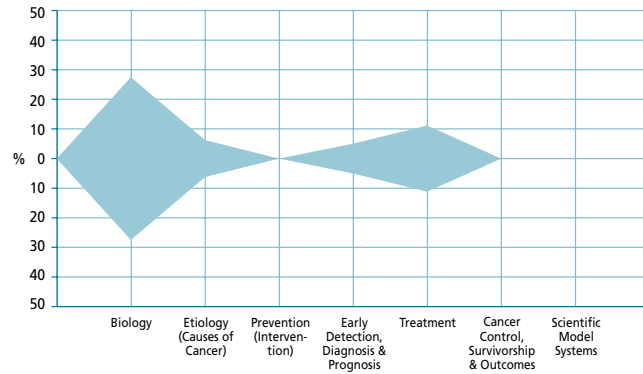
**The Cancer Research Society (\$5.8M) [1]**



**The Kidney Foundation of Canada (\$0.2M)**



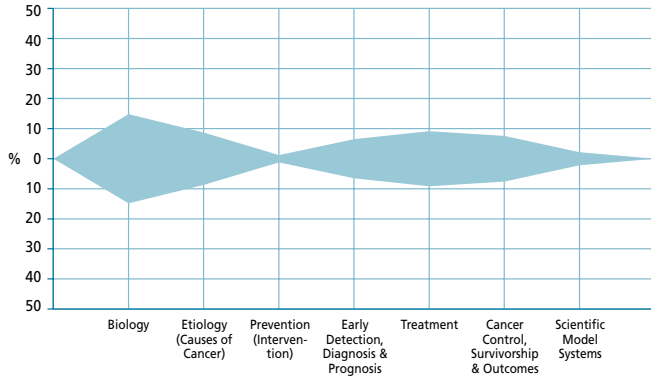
**The Terry Fox Foundation (\$19.1M)**



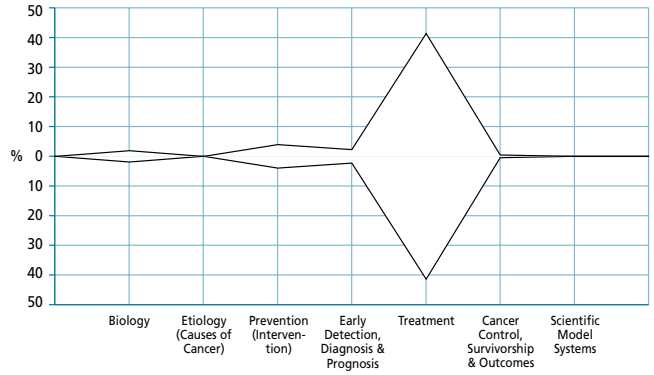
[1] Distributions shown for CIHR, CBCF, CCS, and CRS include investment in initiatives; thus total dollars shown in parentheses will be more than \$390M.

**MULTI-FUNDED INITIATIVES**

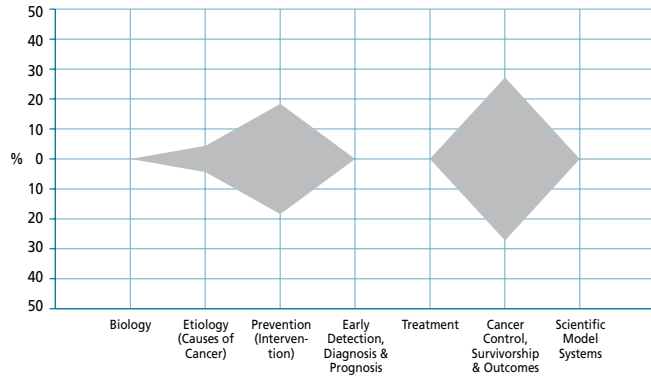
**Canadian Breast Cancer Research Alliance (\$10.0M)**



**Canadian Prostate Cancer Research Initiative (\$0.6M)**



**Canadian Tobacco Control Research Initiative (\$1.3M)**



**INVESTMENT LEVEL**

- Greater than \$50M
- \$10M-\$50M
- \$5M-\$9.9M
- \$1M-\$4.9M
- Less than \$1M

TABLE 3.2.1

## DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT BY CSO CODES

CSO Category	CSO Code [1]	2006 Investment	% Total Investment	% Category Investment
<b>1 - BIOLOGY</b> \$176,002,133 45.11%	1.1 - Normal functioning	\$65,539,400	16.80	37.24
	1.2 - Cancer initiation: alterations in chromosomes	\$9,643,673	2.47	5.48
	1.3 - Cancer initiation: oncogenes and tumour suppressor genes	\$37,973,197	9.73	21.58
	1.4 - Cancer progression and metastasis	\$25,193,521	6.46	14.31
	1.5 - Resources and infrastructure	\$37,652,343	9.65	21.39
<b>2 - ETIOLOGY (CAUSES OF CANCER)</b> \$39,686,373 10.17%	2.1 - Exogenous factors [2] in the origin and cause of cancer	\$12,457,368	3.19	31.39
	2.2 - Endogenous factors [3] in the origin and cause of cancer	\$17,778,250	4.56	44.80
	2.3 - Interactions of genes and/or genetic polymorphisms [4] with exogenous and/or endogenous factors	\$2,554,375	0.65	6.44
	2.4 - Resources and infrastructure	\$6,896,381	1.77	17.38
<b>3 - PREVENTION (INTERVENTION)</b> \$7,424,908 1.90%	3.1 - Interventions to prevent cancer: personal behaviours that affect cancer risk	\$3,669,405	0.94	49.42
	3.2 - Nutritional science in cancer prevention	\$714,555	0.18	9.62
	3.3 - Chemoprevention	\$430,234	0.11	5.79
	3.4 - Vaccines	\$324,775	0.08	4.37
	3.5 - Complementary and alternative prevention approaches	\$581,851	0.15	7.84
	3.6 - Resources and infrastructure	\$1,704,088	0.44	22.95
<b>4 - EARLY DETECTION, DIAGNOSIS &amp; PROGNOSIS</b> \$38,480,962 9.86%	4.1 - Technology development and/or marker discovery	\$15,351,090	3.93	39.89
	4.2 - Technology and/or marker evaluation with respect to fundamental parameters of method	\$7,211,275	1.85	18.74
	4.3 - Technology and/or marker testing in a clinical setting	\$3,124,625	0.80	8.12
	4.4 - Resources and infrastructure	\$12,793,971	3.28	33.25
<b>5 - TREATMENT</b> \$91,151,013 23.36%	5.1 - Localized therapies [5] – discovery and development	\$6,367,081	1.63	6.99
	5.2 - Localized therapies – clinical applications	\$3,194,049	0.82	3.50
	5.3 - Systemic therapies [6] – discovery and development	\$45,329,587	11.62	49.73
	5.4 - Systemic therapies – clinical applications	\$6,106,806	1.57	6.70
	5.5 - Combinations of localized and systemic therapies	\$860,417	0.22	0.94
	5.6 - Complementary and alternative treatment approaches	\$314,979	0.08	0.35
	5.7 - Resources and infrastructure	\$28,978,095	7.43	31.79
<b>6 - CANCER CONTROL, SURVIVORSHIP &amp; OUTCOMES</b> \$33,675,451 8.63%	6.1 - Patient care and survivorship issues	\$10,122,058	2.59	30.06
	6.2 - Surveillance	\$1,727,521	0.44	5.13
	6.3 - Behaviour	\$4,083,912	1.05	12.13
	6.4 - Cost analyses and health care delivery	\$4,499,730	1.15	13.36
	6.5 - Education and communication	\$2,443,579	0.63	7.26
	6.6 - End-of-life care	\$3,554,510	0.91	10.56
	6.7 - Ethics and confidentiality in cancer research	\$499,967	0.13	1.48
	6.8 - Complementary and alternative approaches for supportive care of patients and survivors	\$672,161	0.17	2.00
	6.9 - Resources and infrastructure	\$6,072,013	1.56	18.03
<b>7 - SCIENTIFIC MODEL SYSTEMS</b> \$3,748,755 less than 1%	7.1 - Development and characterization of model systems [7]	\$3,201,877	0.82	85.41
	7.2 - Application of model systems	\$0	0.00	0.00
	7.3 - Resources and infrastructure	\$546,879	0.14	14.59

[1] For a full description of the CSO codes, please refer to <http://www.cancerportfolio.org/cso.jsp>.

[2] Exogenous (originating outside) factors: Lifestyle and environmental factors, and infectious agents, like viruses and bacteria, that are involved in the origins and causes of cancer.

[3] Endogenous (originating within) factors: Internal factors, such as free radicals and genetic factors, that are involved in the origins and causes of cancer.

[4] Polymorphisms: Mutations or common variations in a person's DNA.

[5] Localized treatments: Treatments that are administered locally, such as radiotherapy and surgery.

[6] Systemic treatments: Treatments that are administered throughout the body, such as drugs.

[7] Model systems: Specially developed animals, cell cultures, and computer stimulations that are used to study cancer processes.

### 3.3 CANCER SITES

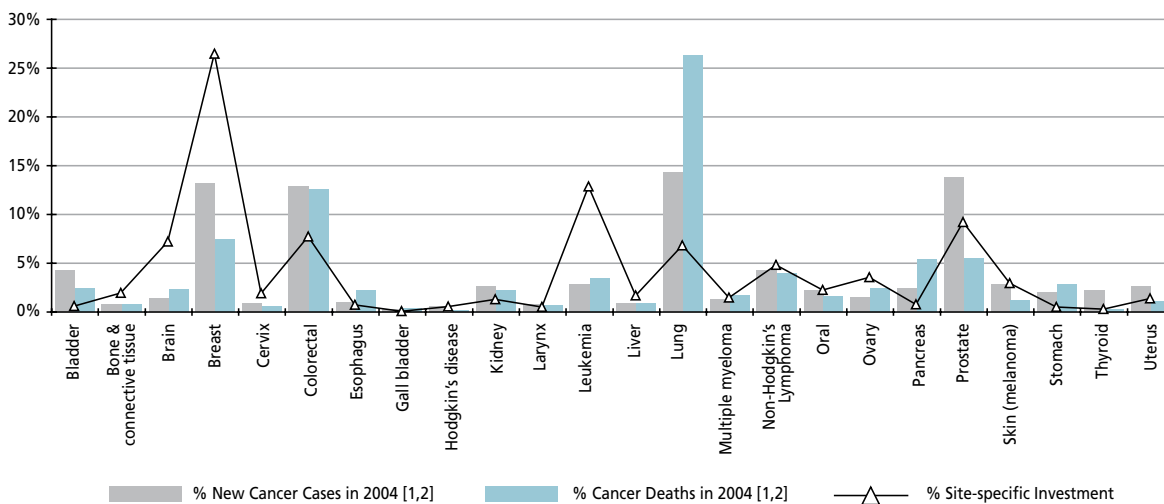
A detailed breakdown of the 2006 investment by cancer site is provided in Table 3.3.1. Over half (53.0%) of the investment was not site specific or applicable to all cancers. Breast cancer, leukemia and prostate cancer had the greatest share of the site-specific investment. The federal government investment accounted for most of the individual site-specific investments (Table 3.3.2). The voluntary sector, however, accounted for the largest proportion of the investments in bladder (49.4%), kidney (54.4%), liver (46.6%), and pancreas cancers (52.5%).

Investment in lung and colorectal cancers was significantly lower than the disease burden for these cancers as indicated by new

cancer cases and cancer deaths (Figure 3.3.1). (For more information about the relationship of research investment to cancer burden in Canada, see the article by P.E. Branton, Does Canadian research investment related to cancer burden? *Lancet Oncol*, 9(2), 82-3, 2008.)

“The high level of investment in breast-cancer research is not surprising, because, in response to a large public outcry, large amounts of new, targeted research funds have been provided from the Canadian government and from a continually growing number of voluntary and corporate organisations. Some of this commitment has, since 1993, been strategically invested in an umbrella group called the Canadian Breast Cancer Research Alliance, which has helped to increase research capacity, leading to greater requests for breast-cancer funding in nontargeted grants competitions. Consistent with this major investment is the considerable improvement in breast-cancer survival over the past 20 years.” (Branton, 2008: 83).

**FIGURE 3.3.1**  
**DISTRIBUTION OF 2006 SITE-SPECIFIC CANCER RESEARCH INVESTMENT (\$183.5M) BY NEW CANCER CASES IN 2004 AND CANCER DEATHS IN 2004**



[1] Source: Canadian Cancer Society/National Cancer Institute of Canada. *Canadian Cancer Statistics 2008*. Toronto, Canada, 2008.  
 [2] Distributions of new cancer cases and cancer deaths were based on actual data for 2004, the latest year for which data are available.

TABLE 3.3.1

## 2006 CANCER RESEARCH INVESTMENT BY CANCER SITE AND FUNDER SECTOR [1]

CANCER SITE	GOVERNMENT						VOLUNTARY		MULTI-FUNDED		TOTAL	
	Federal		Provincial Cancer Agency		Provincial Health Research Organization							
	2006 Investment	%	2006 Investment	%	2006 Investment	%	2006 Investment	%	2006 Investment	%	2006 Investment	%
Bladder	\$318,288	0.13	\$5,659	0.03	\$152,831	0.40	\$475,063	0.64	\$0	0.00	\$951,841	0.24
Bone & connective tissue	\$2,380,669	0.97	\$62,000	0.31	\$450,770	1.18	\$520,973	0.70	\$0	0.00	\$3,414,412	0.88
Brain	\$8,616,778	3.50	\$584,596	2.96	\$1,092,079	2.87	\$2,801,425	3.78	\$0	0.00	\$13,094,878	3.36
Breast	\$23,114,753	9.38	\$2,326,784	11.80	\$2,051,454	5.39	\$11,159,581	15.06	\$9,746,777	82.05	\$48,399,348	12.40
Cervix	\$2,106,748	0.85	\$85,635	0.43	\$218,109	0.57	\$975,888	1.32	\$0	0.00	\$3,386,380	0.87
Colorectal	\$9,616,191	3.90	\$355,582	1.80	\$1,140,973	3.00	\$2,892,688	3.90	\$15,500	0.13	\$14,020,934	3.59
Esophagus	\$655,242	0.27	\$1,925	0.01	\$9,946	0.03	\$363,848	0.49	\$186,360	1.57	\$1,217,321	0.31
Gall bladder	\$10,751	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$10,751	0.00
Hodgkin's disease	\$402,338	0.16	\$1,667	0.01	\$284,331	0.75	\$223,917	0.30	\$0	0.00	\$912,252	0.23
Kidney	\$880,553	0.36	\$61,048	0.31	\$88,219	0.23	\$1,228,450	1.66	\$0	0.00	\$2,258,269	0.58
Larynx	\$532,517	0.22	\$0	0.00	\$17,593	0.05	\$60,532	0.08	\$186,360	1.57	\$797,002	0.20
Leukemia	\$14,494,579	5.88	\$250,433	1.27	\$3,311,824	8.70	\$5,440,671	7.34	\$0	0.00	\$23,497,508	6.02
Liver	\$1,297,649	0.53	\$72,332	0.37	\$208,095	0.55	\$1,378,569	1.86	\$0	0.00	\$2,956,645	0.76
Lung	\$8,700,220	3.53	\$331,669	1.68	\$1,302,996	3.42	\$1,381,446	1.86	\$654,985	5.51	\$12,371,316	3.17
Multiple myeloma	\$1,132,601	0.46	\$235,262	1.19	\$478,136	1.26	\$680,210	0.92	\$0	0.00	\$2,526,208	0.65
Non-Hodgkin's lymphoma	\$4,160,617	1.69	\$141,321	0.72	\$883,553	2.32	\$3,484,842	4.70	\$0	0.00	\$8,670,333	2.22
Oral	\$1,971,599	0.80	\$221,312	1.12	\$621,068	1.63	\$962,717	1.30	\$186,360	1.57	\$3,963,057	1.02
Ovary	\$2,864,215	1.16	\$83,789	0.42	\$792,283	2.08	\$2,486,884	3.36	\$132,219	1.11	\$6,359,389	1.63
Pancreas	\$493,509	0.20	\$6,738	0.03	\$104,684	0.27	\$668,271	0.90	\$0	0.00	\$1,273,201	0.33
Prostate	\$8,041,472	3.26	\$551,117	2.79	\$1,714,378	4.50	\$5,916,301	7.99	\$555,069	4.67	\$16,778,337	4.30
Skin (melanoma)	\$2,234,114	0.91	\$23,138	0.12	\$703,660	1.85	\$2,310,916	3.12	\$0	0.00	\$5,271,827	1.35
Stomach	\$424,117	0.17	\$1,883	0.01	\$266,568	0.70	\$113,963	0.15	\$0	0.00	\$806,531	0.21
Thyroid	\$310,423	0.13	\$0	0.00	\$39,274	0.10	\$55,501	0.07	\$0	0.00	\$405,198	0.10
Uterus	\$1,062,559	0.43	\$88,917	0.45	\$326,617	0.86	\$905,816	1.22	\$0	0.00	\$2,383,909	0.61
Other sites	\$4,327,185	1.76	\$200,876	1.02	\$498,817	1.31	\$2,782,416	3.76	\$0	0.00	\$7,809,295	2.00
Non-specific/All sites	\$146,256,988	59.36	\$14,031,175	71.13	\$21,317,500	55.99	\$24,812,168	33.49	\$215,623	1.82	\$206,633,453	52.96
<b>TOTAL</b>	<b>\$246,406,673</b>	<b>100</b>	<b>\$19,724,855</b>	<b>100</b>	<b>\$38,075,758</b>	<b>100</b>	<b>\$74,083,055</b>	<b>100</b>	<b>\$11,879,254</b>	<b>100</b>	<b>\$390,169,595</b>	<b>100</b>

[1] Refers to the sector of the organization that administered the funding program.

TABLE 3.3.2

**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT FOR EACH CANCER SITE BY FUNDER SECTOR [1]**

CANCER SITE	GOVERNMENT			VOLUNTARY	MULTI-FUNDED	TOTAL
	Federal	Provincial Cancer Agency	Provincial Health Research Organization			
Bladder	33.44	0.59	16.06	49.91	0.00	100
Bone & connective tissue	69.72	1.82	13.20	15.26	0.00	100
Brain	65.80	4.47	8.34	21.39	0.00	100
Breast	47.76	4.81	4.24	23.06	20.14	100
Cervix	62.21	2.53	6.44	28.82	0.00	100
Colorectal	68.58	2.54	8.14	20.63	0.11	100
Esophagus	53.82	0.16	0.82	29.89	15.31	100
Gall bladder	100.00	0.00	0.00	0.00	0.00	100
Hodgkin's disease	44.10	0.18	31.17	24.55	0.00	100
Kidney	38.99	2.70	3.91	54.40	0.00	100
Larynx	66.82	0.00	2.21	7.59	23.38	100
Leukemia	61.69	1.07	14.09	23.15	0.00	100
Liver	43.89	2.45	7.04	46.62	0.00	100
Lung	70.33	2.68	10.53	11.17	5.29	100
Multiple myeloma	44.83	9.31	18.93	26.93	0.00	100
Non-Hodgkin's lymphoma	47.99	1.63	10.19	40.19	0.00	100
Oral	49.75	5.58	15.67	24.30	4.70	100
Ovary	45.04	1.32	12.46	39.10	2.08	100
Pancreas	38.76	0.53	8.22	52.49	0.00	100
Prostate	47.93	3.28	10.22	35.26	3.31	100
Skin (melanoma)	42.38	0.44	13.35	43.83	0.00	100
Stomach	52.59	0.23	33.05	14.13	0.00	100
Thyroid	76.61	0.00	9.69	13.70	0.00	100
Uterus	44.57	3.73	13.70	38.00	0.00	100

[1] Refers to the sector of the organization that administered the funding program.

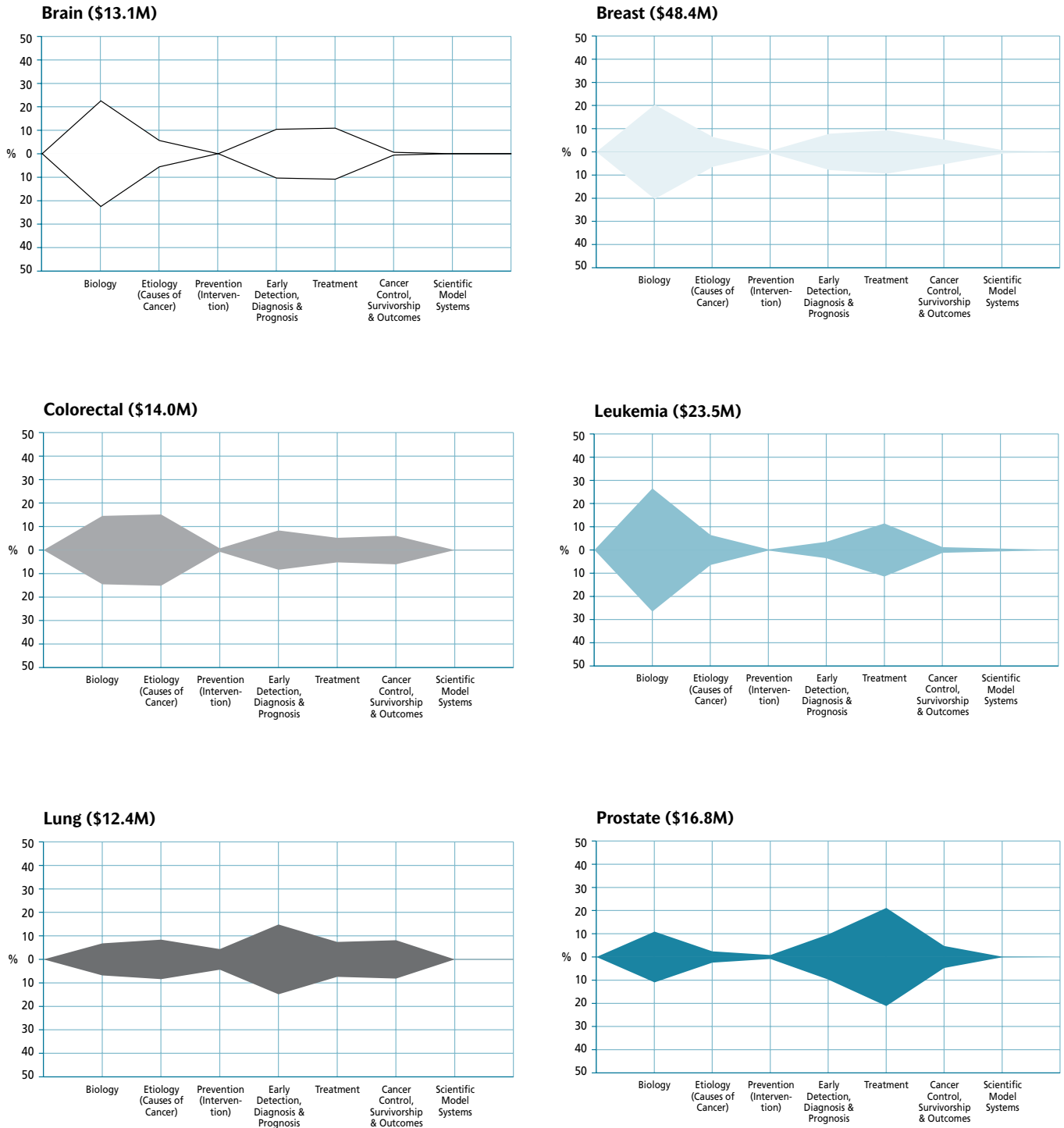
### 3.4 CANCER SITES AND TYPES OF RESEARCH

Kite diagrams showing the distribution of the CSO for research investments in six cancer sites are provided in Figure 3.4.1. These diagrams reveal different emphases in terms of the CSO categories. The investment distributions for brain and breast cancer are similar, although proportionate investment in cancer control, survivorship and outcomes is much greater for breast cancer (10.1% for breast, 1.2% for brain). For colorectal, the proportions

of investment in cancer biology and etiology are nearly identical at 29.1% and 30.3%, respectively. The distribution for leukemia is very similar to the CSO distribution for the entire investment, with the dominant cancer biology peak (53.0%). Lung cancer research investment is distributed across CSO categories with a slight peak in the early detection, diagnosis and prognosis category (29.7%), and very low investment in cancer biology (13.7%). Two-fifths (42.5%) of the investment in prostate cancer research is in the treatment category.

FIGURE 3.4.1

DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT FOR SELECTED CANCER SITES BY CSO CATEGORY



## 4. A CLOSER LOOK AT THE FUNDING MECHANISMS

This chapter provides an in-depth look at the cancer research investment in terms of the six funding mechanisms and is the first of its kind to be undertaken and published in Canada. Although it does not provide a complete picture of the non-governmental sector given the absence of a number of smaller cancer research funding organizations, it provides the most comprehensive picture of federal investment in cancer research available to date.

Each section in the chapter looks at a specific funding mechanism, and the sections are ordered alphabetically.

### 4.1 CAREER AWARDS

In 2006, \$37.5M of the cancer research investment was for career awards (Table 4.1.1). The CIHR investment in career awards was \$5.8M, and the combined investment of the provincial health research organizations in Alberta, British Columbia, Manitoba, Quebec, and Saskatchewan, was \$12M. The combined provincial investment (ACB plus Alberta Heritage Foundation for Medical Research (AHFMR)) accounted for 64.1% of the career award investment in Alberta, the highest proportion of all provinces. CCS was the only voluntary organization that provided career awards in 2006. Canada Research Chairs (CRCs) represented nearly half of the total investment for this funding mechanism (45.2%).

The federal government established the Canada Research Chairs Program (CRCP) in 2000. The program's mandate is to strengthen research and development capacity in Canadian universities by attracting and retaining qualified candidates through the creation of 2,000 research chairs across the country by 2008.<sup>1</sup> Canadian universities nominate the chairs and administer their funds (each eligible degree-granting institution receives an allocation of chairs). There are two types of chair: Tier 1 chairs, tenable for seven years and renewable, are "for outstanding researchers acknowledged by their peers as world leaders in their fields." For each Tier 1 chair, the university receives \$200,000 annually for each seven year term. Tier 2 chairs, tenable for five years and renewable once, are "for exceptional emerging researchers, acknowledged by their peers as having the potential to lead in their field." For each Tier 2 chair, the university receives \$100,000 annually for each five year term. Chairs are also eligible for infrastructure support from the CFI to help acquire state-of-the-art equipment essential to their work.

In 2006, there were 211 cancer-relevant chairs (i.e. chairs engaged in cancer research) out of a total of 1,832 chairs (11.6%) or, more comparably, out of a total of 1,005 chairs with research disciplines similar to the cancer-relevant chairs (21.1%).<sup>2</sup> The number of cancer-relevant Tier 1 CRCs was nearly the same as Tier 2, and the investment was double

which is consistent with the funding scheme (Table 4.1.2). The majority (81.5%) of cancer CRCs were granted through CIHR (Table 4.1.3).

Recipients of CRCs are also eligible for infrastructure support from CFI, and 80.6% of cancer-relevant CRCs had a corresponding CFI grant (77.3% of other discipline-relevant CRCs received a CFI grant). The mean total CFI grant amounts received by Tier 1 cancer-relevant CRCs when compared with their non-cancer, discipline-relevant CRCs counterparts, however, was found to be significantly higher (Table 4.1.4), suggesting that senior researchers working in the cancer field may require more costly equipment/support than researchers from similar disciplines. No differences were found in CFI grant amounts for the cancer/non-cancer Tier 2 chairs.

In terms of cancer site, 41.8% of the 2006 CRC investment was site-specific (Figure 4.1.2). Breast cancer (\$1.8M), leukemia (\$1.3M), and colorectal cancer (\$0.8M) were among those cancers with the highest investments. Please refer to Figure 3.2.4 for the CSO distribution of the CRC investment.

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1. For more information about the CRCP, please refer to <http://www.chairs.gc.ca/>.
  2. Cancer-relevant CRCs, chairs who were engaged in cancer research as either a major focus or part of a broader research program, were compared with all CRCs who had similar discipline codes (i.e. 41 of 137 discipline codes). Disciplines codes are predetermined research disciplines identified by universities in the chair application form.

TABLE 4.1.1

### 2006 CANCER RESEARCH INVESTMENT IN CAREER AWARDS BY PARTICIPATING ORGANIZATIONS AND PROVINCE OF PI/PL

Sector [1]	Organization Type	Organization	Alta.	B.C.	Man.	N.B.	N.L.	N.S.	Ont.	P.E.I.	Que.	Sask.	TOTAL	
<b>GOVERNMENT</b> \$35,504,139 95%	Federal \$22,791,683 61%	Canada Research Chairs Program	\$1,946,667	\$970,000	\$755,000	\$40,000	\$0	\$310,000	\$7,198,250	\$20,833	\$5,556,333	\$160,000	\$16,957,083	
		Canadian Institutes of Health Research	\$562,525	\$663,233	\$62,568	\$0	\$240,000	\$0	\$2,344,113	\$0	\$1,780,059	\$182,102	\$5,834,600	
	Provincial cancer agency \$675,553 2%	Alberta Cancer Board	\$535,553	-	-	-	-	-	-	-	-	-	-	\$535,553
		CancerCare Manitoba	-	-	\$40,000	-	-	-	-	-	-	-	-	\$40,000
		Cancer Care Nova Scotia	-	-	-	-	-	-	\$100,000	-	-	-	-	\$100,000
	Provincial health research organization \$12,036,903 32%	Alberta Heritage Foundation for Medical Research	\$5,436,146	-	-	-	-	-	-	-	-	-	-	\$5,436,146
		Fonds de la recherche en santé du Québec	-	-	-	-	-	-	-	-	-	\$3,168,170	-	\$3,168,170
		Manitoba Health Research Council	-	-	\$130,589	-	-	-	-	-	-	-	-	\$130,589
		Michael Smith Foundation for Health Research	-	\$3,189,688	-	-	-	-	-	-	-	-	-	\$3,189,688
		Saskatchewan Health Research Foundation	-	-	-	-	-	-	-	-	-	-	\$112,310	\$112,310
<b>VOLUNTARY</b> \$2,003,396 5%		Canadian Cancer Society	\$0	\$274,804	\$129,089	\$0	\$0	\$73,799	\$841,503	\$0	\$684,201	\$0	\$2,003,396	
<b>TOTAL</b>			<b>\$8,480,892</b>	<b>\$5,097,725</b>	<b>\$1,117,245</b>	<b>\$40,000</b>	<b>\$240,000</b>	<b>\$483,799</b>	<b>\$10,383,866</b>	<b>\$20,833</b>	<b>\$11,188,763</b>	<b>\$454,412</b>	<b>\$37,507,534</b>	

Cells with a dash indicate provinces outside the jurisdiction of the provincial funders.

[1] Refers to the sector of the organization that administered the funding program.

TABLE 4.1.2

### 2006 CANCER RESEARCH INVESTMENT IN CAREER AWARDS BY AWARD TYPE AND NUMBER OF PROJECTS

TYPE OF AWARD	2006 Investment		Number of Projects	Number of Projects Weighted at 100%
	\$	%		
Career/salary	\$18,718,461	50	339	306
Establishment	\$987,565	3	37	33
Tier 1 CRC	\$11,574,000	31	100	40
Tier 2 CRC	\$5,383,083	14	111	43
Other chair	\$844,425	2	7	5
<b>TOTAL</b>	<b>\$37,507,534</b>	<b>100</b>	<b>594</b>	<b>427</b>

TABLE 4.1.3

**NUMBER OF CANADA RESEARCH CHAIRS ENGAGED IN CANCER RESEARCH BY TIER AND COUNCIL**

Council	Tier		TOTAL
	1	2	
CIHR	84	88	172
NSERC	15	22	37
SSHRC	1	1	2
<b>TOTAL</b>	<b>100</b>	<b>111</b>	<b>211</b>

TABLE 4.1.4

**MEAN CFI INFRASTRUCTURE GRANTS [1] FOR CANCER/NON-CANCER CHAIRS OF SIMILAR DISCIPLINES BY TIER**

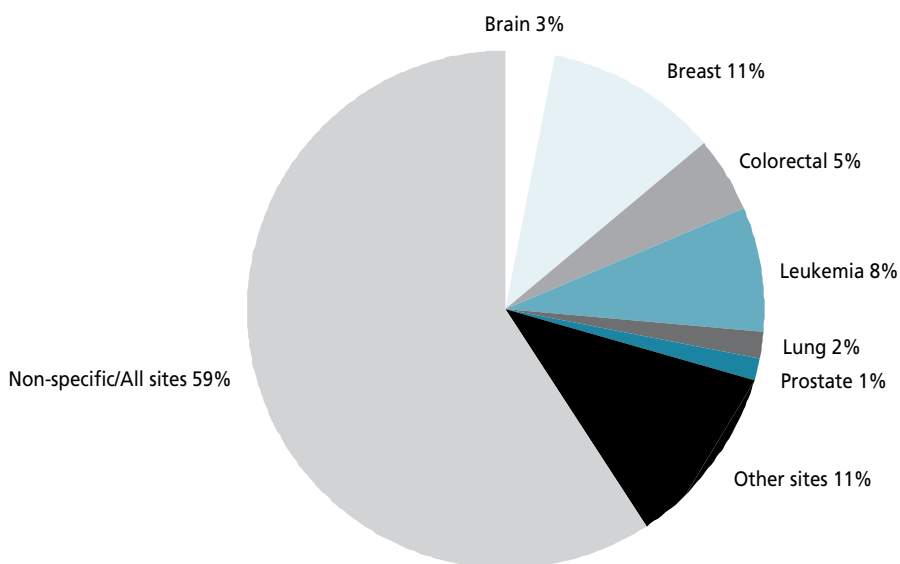
Tier	Cancer Focus	Number of Chairs with CFI Infrastructure Grant	Mean Total CFI Amount [2]
1	No	276	\$172,924
	Yes	83	\$208,735
2	No	337	\$148,205
	Yes	87	\$153,491

[1] Includes only the maximum CFI contribution (partner investment not included).

[2] For Tier 1 chairs, the mean total CFI amount for cancer chairs was statistically significantly higher than for the non-cancer chairs (p < 0.05). This was not the case for the Tier 2 chairs.

FIGURE 4.1.1

**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT IN CANADA RESEARCH CHAIRS BY CANCER SITES (\$17.0M)**



## 4.2 EQUIPMENT/INFRASTRUCTURE GRANTS

The cancer research investment for equipment/infrastructure grants was \$116.7M in 2006 (Table 4.2.1). The provincial cancer agencies in Ontario and Quebec, and five of the provincial health research organizations, all have invested in equipment/infrastructure grants in 2006. Equipment/infrastructure grants are not typically major components of the research funding programs operated by voluntary organizations. Tumour banks and, in the case of the CCS, support to the clinical trials group at Queen's University and the Centre for Behavioural Research and Program Evaluation (CBRPE) at the University of Waterloo formed the voluntary sector contributions to this funding mechanism.

CFI had the single largest investment at \$80.4M (this includes both the federal government funding at \$32.2M and partner investment estimated at \$48.2M, the latter of which in most cases includes a provincial government partner). CFI, an independent corporation created by the federal government

in 1997, funds up to 40% of research infrastructure costs (the remainder is provided by funding partners from the public, private, and voluntary sectors) for projects carried out by Canadian universities, colleges, research hospitals, and non-profit research institutions. Research infrastructure consists of the state-of-the-art equipment, buildings, laboratories, and databases required to conduct research.<sup>3</sup>

For CFI, nearly two-thirds (65.1%) of its cancer-relevant investment was in the New Initiatives/Leading Edge Funds and its precursor program, the Innovation Fund (Table 4.2.2). Proportionately very little of the CFI investment was site-specific (Figure 4.2.1). For the CSO distribution of the CFI investment, refer to Table 3.2.4.

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3. For more information, see <http://www.innovation.ca>.

### References:

Canadian Institutes of Health Information. (2007). *CIHR Funding Pressures resulting from High Impact Health Infrastructure Investments*. Ottawa: CIHR. Cat. No. MR21-88/2007E-PDF. Available at <http://www.cihr-irsc.gc.ca/e/34845.html>.

TABLE 4.2.1

**2006 CANCER RESEARCH INVESTMENT IN EQUIPMENT/INFRASTRUCTURE GRANTS BY PARTICIPATING ORGANIZATIONS AND PROVINCE OF PI/PL**

Sector [1]	Organization Type	Organization	Alta.	B.C.	Man.	N.B.	N.L.	N.S.	Ont. [2]	P.E.I.	Que.	Sask.	TOTAL	
<b>GOVERNMENT</b> \$109,800,960 94%	Federal \$85,437,643 73%	Canada Foundation for Innovation [3]	\$3,893,303	\$4,379,665	\$314,303	\$18,767	\$19,161	\$367,653	\$47,611,333	\$93,449	\$22,385,392	\$1,322,797	\$80,405,822	
		Canadian Institutes of Health Research	\$377,614	\$1,167,295	\$627,480	\$0	\$0	\$197,052	\$993,298	\$0	\$1,475,507	\$0	\$4,838,245	
		Natural Sciences and Engineering Research Council	\$17,265	\$16,395	\$0	\$0	\$0	\$0	\$55,136	\$0	\$104,779	\$0	\$193,575	
	Provincial Cancer Agency \$11,682,895 10%	Alberta Cancer Board	\$3,127,228	–	–	–	–	–	–	–	–	–	–	\$3,127,228
		Cancer Care Ontario	–	–	–	–	–	–	–	\$8,555,667	–	–	–	\$8,555,667
	Provincial Health Research Organization \$12,680,422 11%	Alberta Heritage Foundation for Medical Research	\$138,235	–	–	–	–	–	–	–	–	–	–	\$138,235
		Fonds de la recherche en santé du Québec	–	–	–	–	–	–	–	–	–	\$4,773,368	–	\$4,773,368
		Michael Smith Foundation for Health Research	–	\$1,992,866	–	–	–	–	–	–	–	–	–	\$1,992,866
		Ontario Institute for Cancer Research	–	–	–	–	–	–	–	\$5,747,370	–	–	–	\$5,747,370
		Saskatchewan Health Research Foundation	–	–	–	–	–	–	–	–	–	–	\$28,583	\$28,583
<b>VOLUNTARY</b> \$6,927,146 6%		Brain Tumour Foundation of Canada	\$0	\$0	\$0	\$0	\$0	\$0	\$50,000	\$0	\$0	\$0	\$50,000	
		Canadian Breast Cancer Foundation	\$834,146	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$834,146	
		Canadian Cancer Society	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,016,333	\$0	\$0	\$0	\$6,016,333
		Ovarian Cancer Canada	\$0	\$26,667	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$26,667
<b>TOTAL</b>			<b>\$8,387,790</b>	<b>\$7,582,887</b>	<b>\$941,783</b>	<b>\$18,767</b>	<b>\$19,161</b>	<b>\$564,705</b>	<b>\$69,029,136</b>	<b>\$93,449</b>	<b>\$28,739,047</b>	<b>\$1,351,380</b>	<b>\$116,728,105</b>	

Cells with a dash indicate provinces outside the jurisdiction of the provincial funders.

[1] Refers to the sector of the organization that administered the funding program.

[2] The entire NCIC CTG grant funded by the CCS was allocated to Ontario. This figure also includes a small portion of the funding received by CBRPE.

[3] CFI total included both the federal and partner investments.

TABLE 4.2.2

2006 CANCER RESEARCH INVESTMENT BY FUNDING PROGRAM AND NUMBER OF PROJECTS FOR CFI

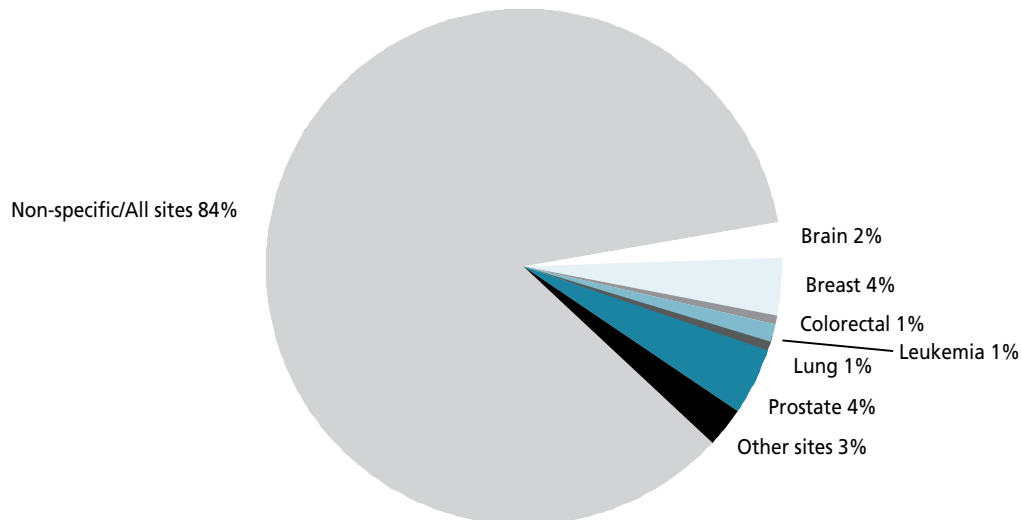
CFI Funding Program	2006 Investment		Number of Projects [1]	Number of Projects Weighted at 100% [2]	Weighting Range
	\$	%			
Career Award	\$25,312	Less than 1	2	0	20-75
Exceptional Opportunities (rapid response program)	\$526,715	Less than 1	1	0	10
Leaders Opportunity Fund – Funding for infrastructure associated with a CRC [new]/CRC Infrastructure Fund [old]	\$7,948,192	10	86	38	10-100
Leaders Opportunity Fund – Funding for research infrastructure alone [new]/New Opportunities Fund [old]	\$5,987,198	7	63	35	10-100
New Initiatives Fund [new]/Leading Edge Fund [new]/Innovation Fund [old]	\$52,332,970	65	53	20	10-100
Research Hospital Fund	\$13,585,435	17	5	3	10-100
<b>TOTAL</b>	<b>\$80,405,822</b>	<b>100</b>	<b>210</b>	<b>96</b>	<b>10-100</b>

[1] For 49 of these projects, the CFI investment was at least \$1M, what CIHR refers to as “high impact” health infrastructure investment (CIHR, 2007). Note that the CIHR definition excludes projects under the “Research Hospital Fund.”

[2] 16 of these projects would be considered “high impact” health infrastructure investment according to CIHR (2007).

FIGURE 4.2.1

DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT FOR CFI AWARDS BY CANCER SITES (\$80.4M)



### 4.3 INSTITUTIONAL SUPPORT

Universities provide the necessary institutional support to carry out research, which includes assuming the general (or indirect) costs associated with operating and maintaining facilities and resources, managing the research process, and ensuring regulation and safety compliance (Association of Universities and Colleges of Canada, 2006). Private sector research funders and some provincial governments also reimburse indirect costs. In this section, we have attempted to estimate the cancer component of a federal government program, the Indirect Costs Program (ICP), designed to provide institutional support.

The federal government introduced the ICP in 2001. This program provides a portion of the “indirect”<sup>4</sup> costs of administering and managing research activities associated with federal grants. Funds are provided to authorized universities and colleges within Canada whose researchers received research funding from at least one of the three federal granting agencies (CIHR, NSERC, and SSHRC) in at least one of the three most recent fiscal years for which data are available. Grants are awarded for only one year (institutions must re-apply each year to continue receiving funds). The value of the indirect costs awarded is calculated as a percentage of the institution’s total research funding from the three federal granting agencies using a formula that provides proportionately more to smaller institutions.<sup>5</sup>

An estimate of the “cancer” component of indirect costs for the federal program was calculated in the following way:

- (1) All projects within the survey database for CIHR, NSERC, and SSHRC were identified.
- (2) The funding programs for each federal granting agency were included, excluded or weighted according to the ICP guidelines, and host organizations that were not universities were mapped to affiliated universities.
- (3) The ratio of the Indirect Costs payment to the three-year averaged payment as supplied by the ICP was applied to the averaged 2005 and 2006 investment figures from the survey database for each project. (Note: This is different than the funding formula calculation used by the ICP.)

For example, the pro-rated investment calculated within the survey database for a CIHR operating grant received by an investigator at the University of Manitoba was \$28,480 in 2005 and \$85,440 in 2006 (two-year average of \$59,960). From data supplied by the ICP, we know that the averaged three-year payments (years 2004-05 to 2006-07) received by University of Manitoba from all applicable CIHR, NSERC, and SSHRC grants was \$34,525,468, and the institution received \$8,117,530 in indirect costs (23.51% of the averaged payments) from the ICP. Applying this ratio to the survey data, the indirect cost figure assigned as cancer relevant was calculated as \$13,391 for this project.

The total estimate for the ICP in 2006 was \$22.7M. Ontario and Quebec received the largest amounts of this sum at \$8.8M and \$7.1M, respectively (Figure 4.3.1).

The major limitation of this estimate is that we do not know if these dollars are channelled back to support cancer researchers in proportion to the value of the cancer research grants. Nonetheless, we have shown this investment by CSO categories and cancer sites. In terms of the CSO categories, more than half (52.4%) of the indirect costs estimate was in the biology category, with the treatment investment a distinct second (18.5%) (Figure 4.3.2). In terms of cancer sites, nearly half of the investment (49.3%) was for non-specific/all cancer sites (Figure 4.3.3). In terms of site-specific investment, breast cancer and leukemia had the highest levels of investment of all cancer sites.

4. Indirect costs of research are those that cannot be traced directly to specific research projects. Examples of indirect costs are operating costs for custodial and security services in areas occupied by research activity, renovation and maintenance costs for research facilities like libraries and laboratories, improved information resources like databases, and information technology. For a full list, see [http://www.indirectcosts.gc.ca/using/costs\\_e.asp](http://www.indirectcosts.gc.ca/using/costs_e.asp).
5. For more details, please refer to the ICP website at [http://www.indirectcosts.gc.ca/home\\_e.asp](http://www.indirectcosts.gc.ca/home_e.asp).

**References:**

Association of Universities and Colleges of Canada. (2006). *Investing in University Research: Building a strong foundation for Canada's economic future*. Ottawa: AUCC. Brief and statement presented by Claire Morris, president and CEO of the Association of Universities and Colleges of Canada, to the House of the Commons Standing Committee on Finance. ([http://www.aucc.ca/\\_pdf/english/reports/2006/pre\\_budget\\_09\\_14\\_e.pdf](http://www.aucc.ca/_pdf/english/reports/2006/pre_budget_09_14_e.pdf))

FIGURE 4.3.1

**DISTRIBUTION OF CANCER-RELATED INDIRECT COSTS ESTIMATED FOR 2006 BY PROVINCE OF PI/PL (\$22.7M)**

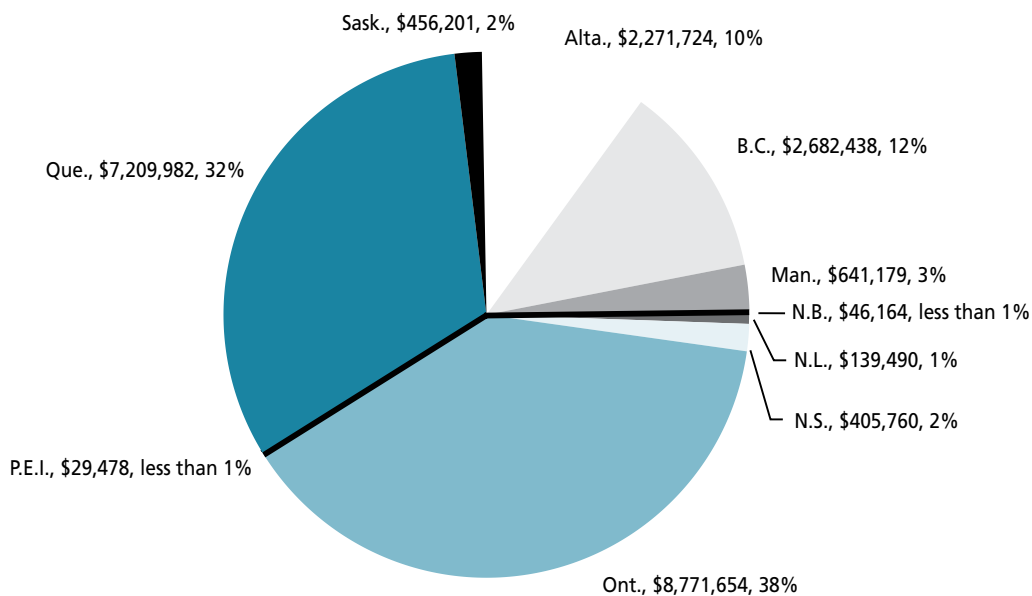


FIGURE 4.3.2

**DISTRIBUTION OF CANCER-RELATED INDIRECT COSTS ESTIMATED FOR 2006 BY CSO CATEGORY (\$22.7M)**

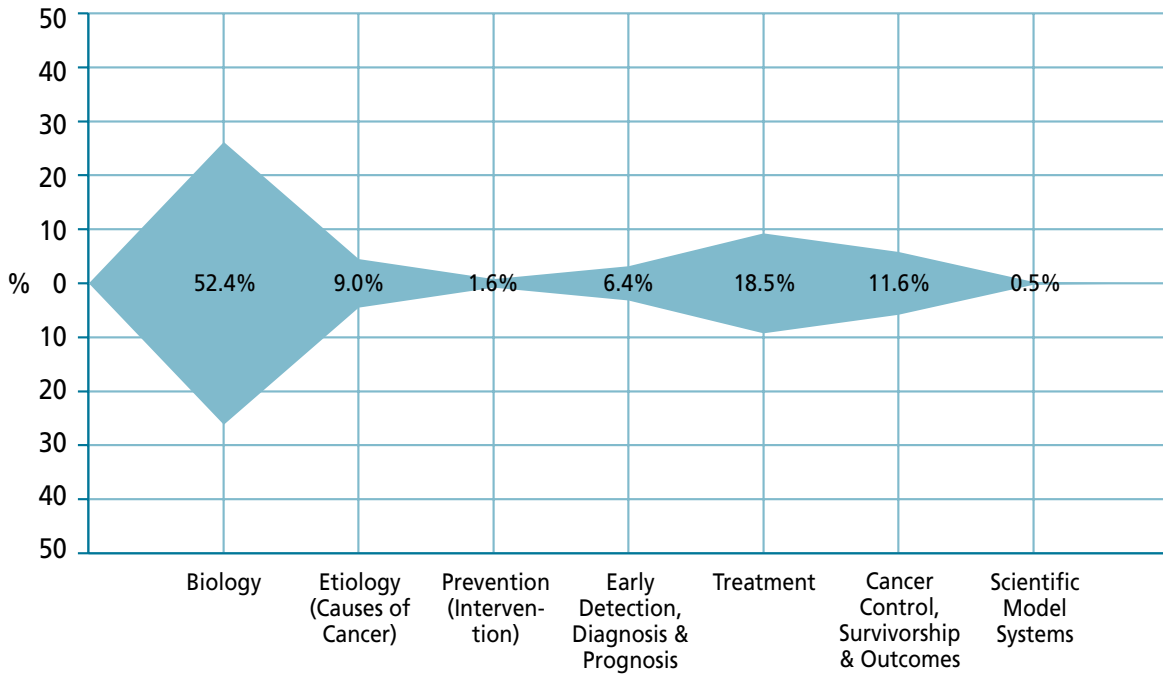
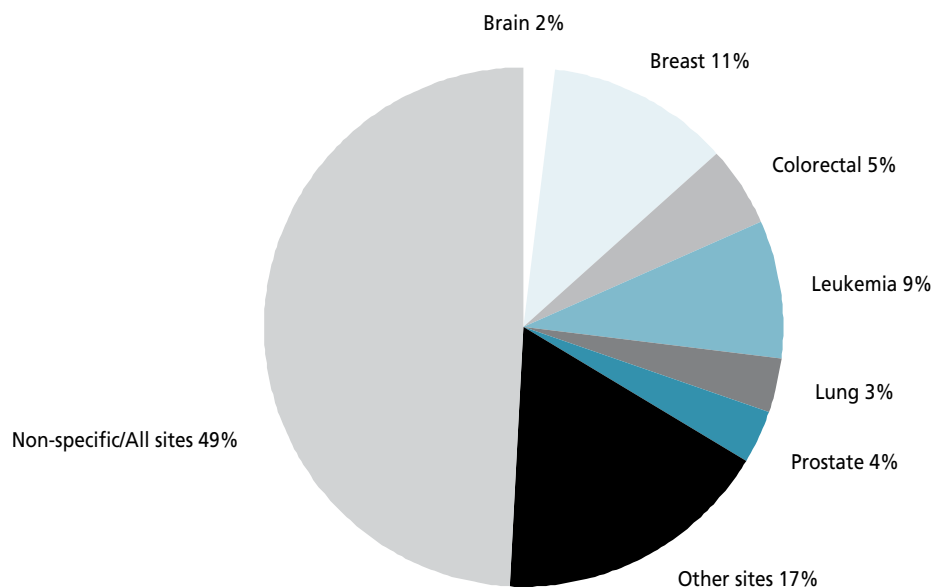


FIGURE 4.3.3

**DISTRIBUTION OF CANCER-RELATED INDIRECT COSTS ESTIMATED FOR 2006 BY CANCER SITES (\$22.7M)**



#### 4.4 OPERATING GRANTS

In 2006, the total investment in operating grants was \$208.6M. Investment by CIHR comprised nearly half (46.7%) of this investment (Table 4.4.1). The CCS accounted for 53.6% of the voluntary sector investment in operating grants, and 15.9% of the overall investment. The TFF investment accounted for 27.3% of the voluntary sector investment. Although OICR is a somewhat anomalous organization under the provincial health research organization grouping in that it has a cancer- only mandate, its investment formed 82.9% of the total investment in operating grants within this group. Investment by the ACB, at \$5.3M, accounted for 81.4% of investments in operating grants made by provincial cancer agencies.

The operating grant investment was further divided into 4 groups (Figure 4.4.1), according to the site specificity and research area specificity of the funding programs. Examples of funding programs for each group are as follows:

- **Group 1** – non-site specific/open to all research areas (e.g. Manitoba Health Research Council's Operating Grant, CC Research Grant, The Cancer Research Society Research Grant)
- **Group 2** – non-site specific/focused on one more specific research areas (e.g. FRSQ Population Health Research Grant, OICR Therapeutic Clinical Trial Companion Study, TFF New Frontiers Program Project Grant)
- **Group 3** – site-specific/open to all research areas (e.g. ACB New Investigator Awards in Breast Cancer Research, CBCF Research Grant, Prostate Cancer Research Foundation of Canada Research Grant)
- **Group 4** – site-specific/focused on one or more specific research areas (e.g. CBCRA Translation Acceleration Grant Program for Breast Cancer, CIHR Pilot Project Grant – Colorectal Cancer Screening, CTCRI Policy Research Grant)

The details of the operating grant investment in terms of the typology are provided in Table 4.4.2 for each organization.

Figure 4.4.2 compares the investment made in specific cancer sites by whether the funding program was site specific (groups 1 and 2 versus groups 3 and 4). Forty percent (40.3%) of the breast cancer research investment was site-specific. One dollar of every five dollars invested in prostate cancer research came from site-specific funding programs. Very little of the lung, colorectal and brain cancer research investment came from site-specific funding programs. The total \$17.2M in leukemia research was funded entirely through non-site specific funding programs.

The distributions of the operating grant investment by CSO categories funded through programs open to all research areas (Figure 4.4.3, groups 1 and 3) and funded by programs focused on specific research areas (Figure 4.4.4, groups 2 and 4) show dramatic differences in terms of the categories for cancer biology, early

detection, diagnosis and prognosis, treatment, and, to a lesser extent, cancer control, survivorship and outcomes, and suggest that focused programs likely fulfill an important role in addressing particular research areas.

Figure 4.4.5 focuses on the breast cancer investment, by way of example, and provides a kite diagram for each group within the typology. The distribution of the breast cancer investment for group 1 shows a dominant

peak in cancer biology (58.7%). For group 2, the dominant peak was in three categories: early detection, diagnosis and prognosis (32.5%), biology (31.7%), and treatment (26.3%). The site-specific funding program investments (groups 3 and 4) showed similar profiles, although cancer control, survivorship and outcomes, and scientific model systems were somewhat different.

**FIGURE 4.4.1**  
**TYPOLOGY OF OPERATING GRANTS**

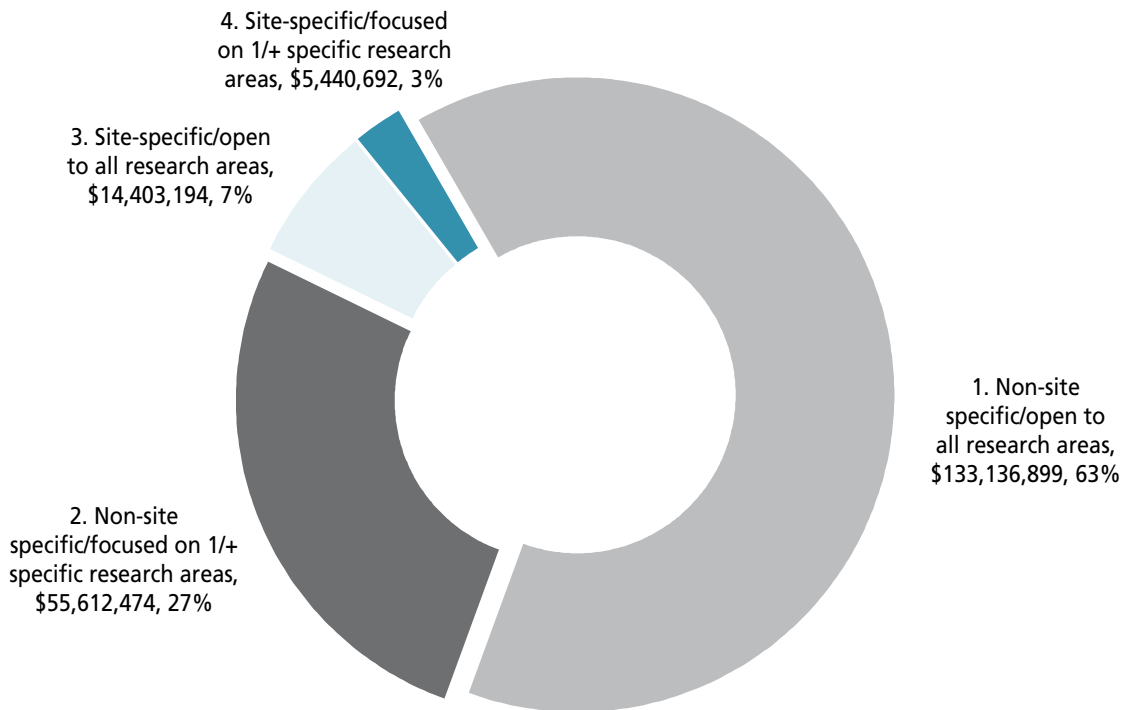


TABLE 4.4.1

## 2006 CANCER RESEARCH INVESTMENT IN OPERATING GRANTS BY PARTICIPATING ORGANIZATIONS AND PROVINCE OF PI/PL

Sector [1]	Organization Type	Organization	Alta.	B.C.	Man.	N.B.	N.L.	N.S.	Ont.	P.E.I.	Que.	Sask.	TOTAL		
<b>GOVERNMENT</b> \$135,139,093 64%	Federal \$119,606,287 57%	Canadian Institutes of Health Research [2]	\$8,970,063	\$12,181,580	\$2,534,328	\$118,160	\$315,631	\$1,416,477	\$38,413,823	\$64,651	\$31,491,334	\$1,908,283	\$97,414,330		
		Genome Canada [3]	\$0	\$4,907,496	\$0	\$0	\$0	\$0	\$8,276,695	\$0	\$589,393	\$0	\$13,773,584		
		National Research Council	\$0	\$0	\$673,737	\$0	\$0	\$0	\$1,225,813	\$0	\$1,381,202	\$0	\$3,280,751		
		Natural Sciences and Engineering Research Council	\$389,990	\$308,254	\$103,224	\$0	\$21,000	\$175,223	\$1,431,129	\$20,000	\$689,591	\$136,760	\$3,275,169		
		Networks of Centres of Excellence	\$0	\$97,185	\$0	\$0	\$0	\$0	\$1,596,595	\$0	\$24,915	\$0	\$1,718,695		
		Social Sciences and Humanities Research Council	\$14,237	\$0	\$0	\$0	\$0	\$34,099	\$67,402	\$0	\$28,021	\$0	\$143,758		
	Provincial Cancer Agency \$6,424,040 3%	Alberta Cancer Board	\$5,299,533	-	-	-	-	-	-	-	-	-	-	\$5,299,533	
		CancerCare Manitoba	-	-	\$862,374	-	-	-	-	-	-	-	-	\$862,374	
		Saskatchewan Cancer Agency	-	-	-	-	-	-	-	-	-	\$262,134	-	\$262,134	
	Provincial Health Research Organization \$9,108,766 4%	Alberta Heritage Foundation for Medical Research	\$259,528	-	-	-	-	-	-	-	-	-	-	\$259,528	
		Fonds de la recherche en santé du Québec	-	-	-	-	-	-	-	-	\$743,213	-	-	\$743,213	
		Manitoba Health Research Council	-	-	\$102,926	-	-	-	-	-	-	-	-	\$102,926	
		Medical Research Fund of New Brunswick	-	-	-	\$45,000	-	-	-	-	-	-	-	\$45,000	
		Michael Smith Foundation for Health Research	-	\$108,012	-	-	-	-	-	-	-	-	-	\$108,012	
		Nova Scotia Health Research Foundation	-	-	-	-	-	\$286,203	-	-	-	-	-	\$286,203	
		Ontario Institute for Cancer Research	-	-	-	-	-	-	\$7,550,019	-	-	-	-	\$7,550,019	
		Saskatchewan Health Research Foundation	-	-	-	-	-	-	-	-	-	-	\$13,865	\$13,865	
	<b>VOLUNTARY</b> \$61,796,448 30%		Brain Tumour Foundation of Canada	\$0	\$6,914	\$0	\$0	\$0	\$16,667	\$57,976	\$0	\$29,167	\$0	\$110,723	
			C17 Research Network	\$0	\$18,300	\$0	\$0	\$0	\$0	\$34,750	\$0	\$6,250	\$0	\$59,300	
			Canadian Breast Cancer Foundation [2]	\$630,706	\$359,092	\$154,463	\$24,850	\$80,983	\$276,330	\$2,132,813	\$0	\$0	\$0	\$3,659,237	
			Canadian Cancer Society [2]	\$1,932,632	\$3,464,931	\$697,382	\$0	\$0	\$796,503	\$19,089,345	\$34,000	\$6,906,717	\$188,013	\$33,109,522	
			Ovarian Cancer Canada	\$0	\$0	\$0	\$0	\$0	\$0	\$52,333	\$0	\$0	\$0	\$0	\$52,333
			Prostate Cancer Research Foundation of Canada	\$0	\$217,500	\$55,500	\$0	\$0	\$45,000	\$553,755	\$0	\$311,304	\$0	\$0	\$1,183,059
			Quebec Breast Cancer Foundation/Fondation du cancer du sein du Québec	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,066,667	\$0	\$0	\$1,066,667
			The Cancer Research Society [2]	\$176,667	\$643,583	\$0	\$0	\$0	\$60,000	\$1,293,608	\$0	\$3,274,900	\$40,000	\$0	\$5,488,758
			The Kidney Foundation of Canada	\$0	\$0	\$0	\$0	\$0	\$0	\$75,000	\$0	\$49,453	\$0	\$0	\$124,453
			The Terry Fox Foundation	\$519,607	\$4,112,169	\$154,002	\$0	\$0	\$377,176	\$9,921,891	\$0	\$1,857,551	\$0	\$0	\$16,942,396
<b>MULTI-FUNDED</b> \$11,657,717 6%				Canadian Breast Cancer Research Alliance	\$455,570	\$1,687,269	\$80,935	\$0	\$20,931	\$99,571	\$5,560,560	\$0	\$2,128,133	\$10,868	\$10,043,837
	Canadian Prostate Cancer Research Initiative	\$4,167		\$29,124	\$0	\$0	\$0	\$25,000	\$365,511	\$0	\$31,267	\$0	\$455,069		
	Canadian Tobacco Control Research Initiative	\$63,177		\$88,888	\$0	\$0	\$0	\$0	\$517,949	\$0	\$478,540	\$10,258	\$1,158,812		
<b>TOTAL</b>			<b>\$18,715,875</b>	<b>\$28,230,298</b>	<b>\$5,418,869</b>	<b>\$188,010</b>	<b>\$438,545</b>	<b>\$3,608,248</b>	<b>\$98,216,968</b>	<b>\$118,651</b>	<b>\$51,087,615</b>	<b>\$2,570,180</b>	<b>\$208,593,258</b>		

Cells with a dash indicate provinces outside the jurisdiction of the provincial funders.

[1] Refers to the sector of the organization that administered the funding program.

[2] Figures do not include contributions to multi-funded initiatives. For this information, please refer to Tables 3.1.1 and 3.1.2.

[3] The federal government contribution to the Genome Canada projects was \$6.7M.

TABLE 4.4.2

**2006 CANCER RESEARCH INVESTMENT IN OPERATING GRANTS BY PARTICIPATING ORGANIZATIONS AND OPERATING GRANTS TYPOLOGY**

Organization Type	Organization	NON-SITE SPECIFIC		SITE SPECIFIC		TOTAL
		Open to all research areas	Focused on 1/+ research areas	Open to all research areas	Focused on 1/+ research areas	
Federal Government	Canadian Institutes of Health Research	\$83,442,040	\$13,483,308	\$136,070	\$352,912	\$97,414,330
	Genome Canada	\$5,412,660	\$8,360,924	–	–	\$13,773,584
	National Research Council	–	\$3,280,751	–	–	\$3,280,751
	Natural Sciences and Engineering Research Council	\$3,114,900	\$160,269	–	–	\$3,275,169
	Networks of Centres of Excellence	–	\$1,718,695	–	–	\$1,718,695
	Social Sciences and Humanities Research Council	\$137,229	\$6,529	–	–	\$143,758
Provincial Cancer Agency	Alberta Cancer Board	\$4,068,599	\$129,503	\$437,591	\$663,840	\$5,299,533
	CancerCare Manitoba	\$862,374	–	–	–	\$862,374
	Saskatchewan Cancer Agency	\$262,134	–	–	–	\$262,134
Provincial Health Research Organization	Alberta Heritage Foundation for Medical Research	\$259,528	–	–	–	\$259,528
	Fonds de la recherche en santé du Québec	–	\$743,213	–	–	\$743,213
	Manitoba Health Research Council	\$102,926	–	–	–	\$102,926
	Medical Research Fund of New Brunswick	\$45,000	–	–	–	\$45,000
	Michael Smith Foundation for Health Research	–	\$108,012	–	–	\$108,012
	Nova Scotia Health Research Foundation	\$279,536	\$6,667	–	–	\$286,203
	Ontario Institute for Cancer Research	–	\$7,550,019	–	–	\$7,550,019
Saskatchewan Health Research Foundation	\$13,865	–	–	–	\$13,865	
Voluntary	Brain Tumour Foundation of Canada	–	–	\$110,723	–	\$110,723
	C17 Research Network	\$59,300	–	–	–	\$59,300
	Canadian Breast Cancer Foundation	–	–	\$3,561,117	\$98,120	\$3,659,237
	Canadian Cancer Society	\$30,093,050	\$2,617,189	\$399,283	–	\$33,109,522
	Ovarian Cancer Canada	–	–	\$52,333	–	\$52,333
	Prostate Cancer Research Foundation of Canada	–	–	\$1,183,059	–	\$1,183,059
	Quebec Breast Cancer Foundation/Fondation du cancer du sein du Québec	–	–	\$1,066,667	–	\$1,066,667
	The Cancer Research Society	\$4,983,758	\$505,000	–	–	\$5,488,758
	The Kidney Foundation of Canada	–	–	\$124,453	–	\$124,453
The Terry Fox Foundation	–	\$16,942,396	–	–	\$16,942,396	
Multi-funded	Canadian Breast Cancer Research Alliance	–	–	\$6,251,736	\$3,792,101	\$10,043,837
	Canadian Prostate Cancer Research Initiative	–	–	\$145,853	\$309,216	\$455,069
	Canadian Tobacco Control Research Initiative	–	–	\$934,309	\$224,503	\$1,158,812
<b>TOTAL</b>		<b>\$133,136,899</b>	<b>\$55,612,474</b>	<b>\$14,403,194</b>	<b>\$5,440,692</b>	<b>\$208,593,258</b>

Cells with a dash indicate that the organization offered no funding programs within that typology category, to be distinguished from \$0 values, which that indicate that funding programs exist within that typology category, but there were no cancer projects funded in 2006.

FIGURE 4.4.2

**DISTRIBUTION OF 2006 INVESTMENT IN OPERATING GRANTS FOR SELECTED CANCER SITES BY SITE SPECIFICITY OF THE FUNDING PROGRAM**

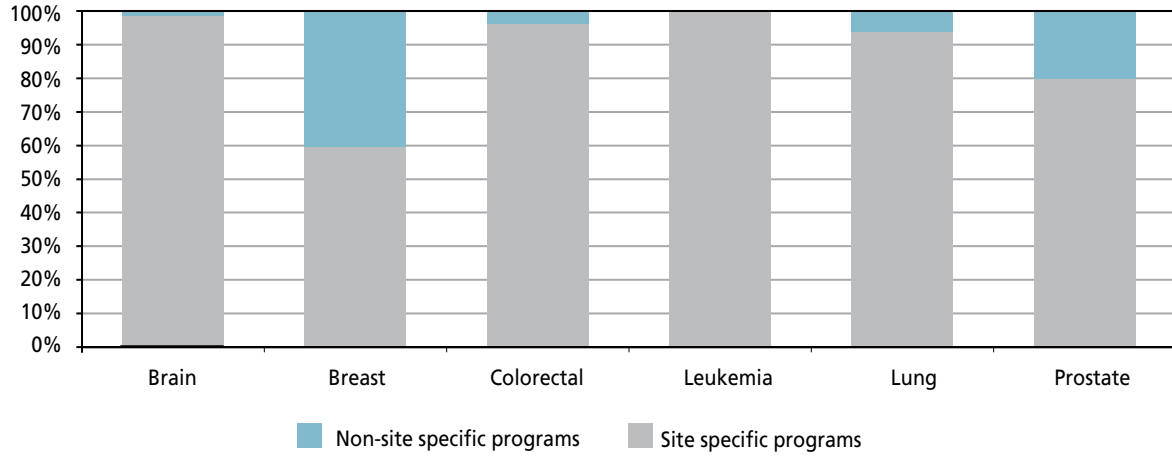


FIGURE 4.4.3

**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT IN OPERATING GRANT PROGRAMS THAT ARE OPEN TO ALL RESEARCH AREAS BY CSO CATEGORY (\$147.5M)**

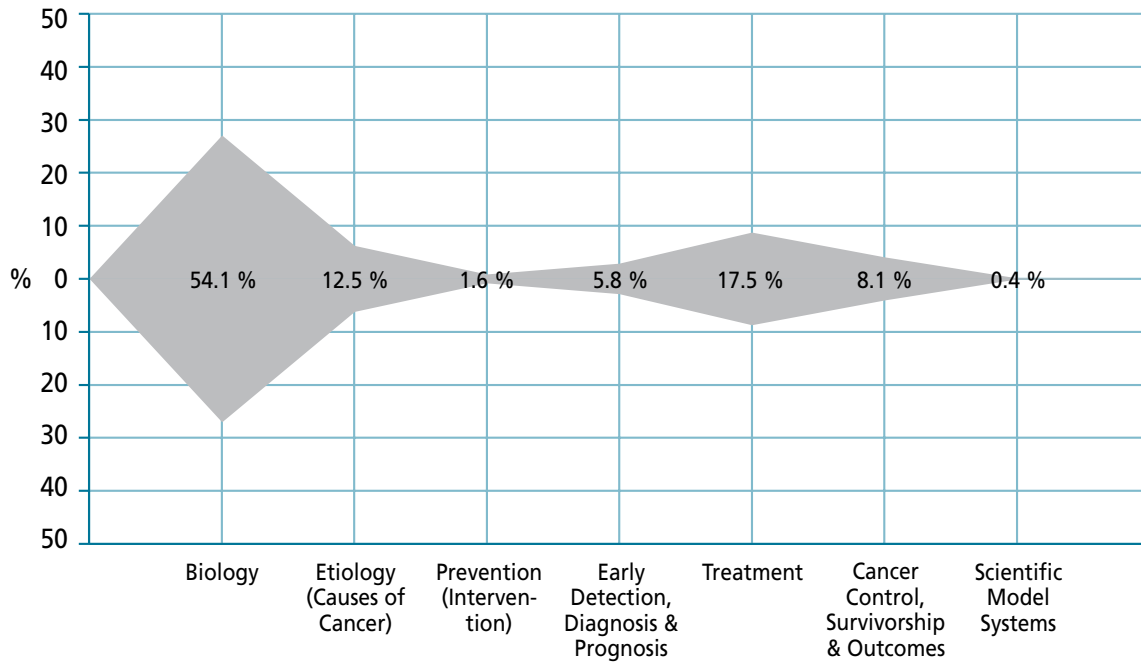


FIGURE 4.4.4

**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT IN OPERATING GRANT PROGRAMS THAT ARE FOCUSED ON ONE OR MORE RESEARCH AREAS BY CSO CATEGORY (\$61.1M)**

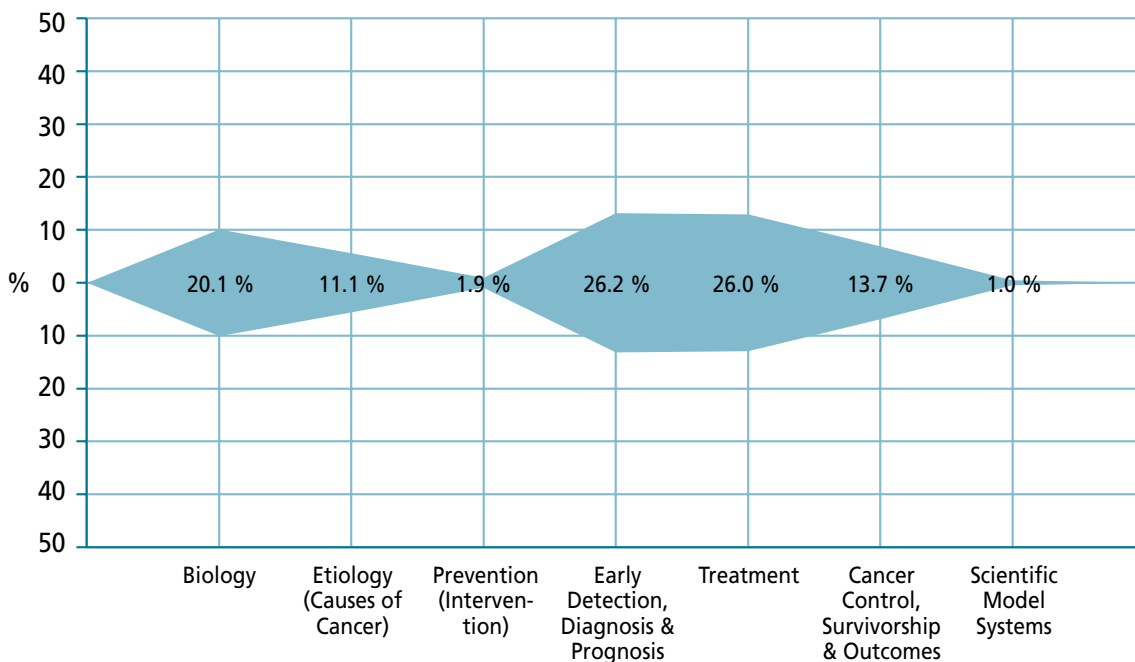
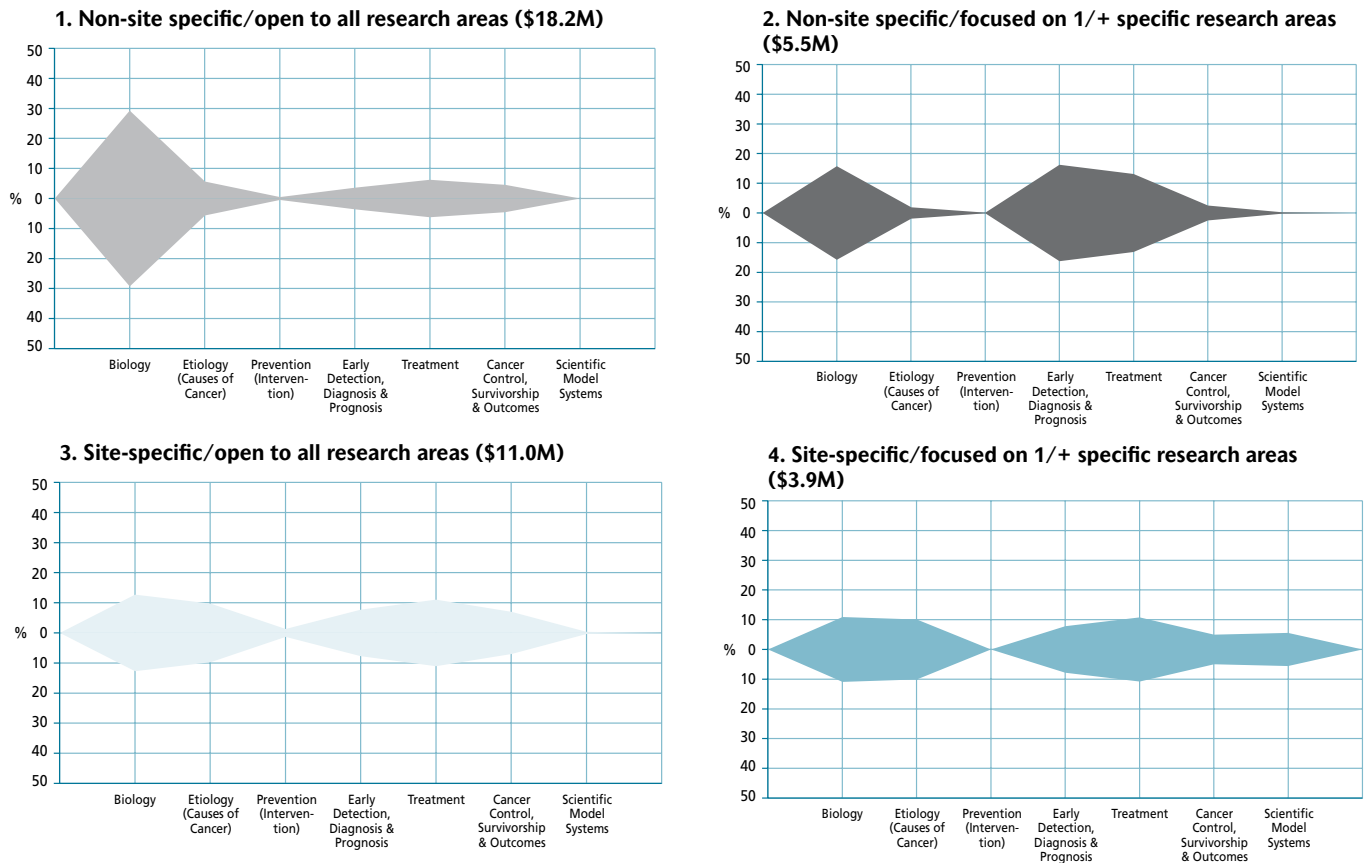


FIGURE 4.4.5

2006 BREAST CANCER RESEARCH INVESTMENT BY OPERATING GRANTS TYPOLOGY AND CSO CATEGORY



4.5 RELATED SUPPORT GRANTS

Grants that support travel, workshops/symposia and researcher time for proposal development and letters of intent formed a small amount (\$776,645) of the overall cancer research investment in 2006. They are, however, a distinct type of funding mechanism and worthy of some elaboration.

CIHR made more than half of the investment in grants for related support (52.5%) (Table 4.5.1). Investment by ACB formed a large proportion (75.2%) of the total investment in related support grants given to principal investigators in Alberta and was the only cancer agency providing programs within this funding mechanism. CCS and TFF were the only voluntary sector organizations

that invested in this type of grant, and they accounted for 9.2% and 6.5%, respectively, of the overall investment. CTCRI was the only multi-funded initiative that invested in related support grants in 2006.

Table 4.5.2 shows the distribution of related support grants by the type of program. Travel awards and workshop/symposia support form 44.2% of the total investment within this category.

The distribution of related support grants is also different from that of other funding mechanisms. Lung cancer was the single most funded site (8.2%), followed by oral cancers (included in other sites and not shown separately), which accounts for 6.2% of the investment, or \$47,949 (Figure 4.5.1).

TABLE 4.5.1

**2006 CANCER RESEARCH INVESTMENT IN RELATED SUPPORT GRANTS BY PARTICIPATING ORGANIZATIONS AND PROVINCE OF PI/PL**

Sector[1]	Organization Type	Organization	Alta.	B.C.	Man.	N.S.	Ont.	Que.	Sask.	Outside Canada	TOTAL	
GOVERNMENT	Federal	Canadian Institutes of Health Research	\$14,893	\$71,980	\$28,041	\$23,989	\$144,474	\$122,852	\$0	\$1,109	\$407,338	
	Provincial Cancer Agency	Alberta Cancer Board	\$120,083	-	-	-	-	-	-	-	\$120,083	
	Provincial Health Research Organization	Alberta Heritage Foundation for Medical Research	\$19,635	-	-	-	-	-	-	-	-	\$19,635
		Fonds de la recherche en santé du Québec	-	-	-	-	-	-	\$1,779	-	-	\$1,779
		Nova Scotia Health Research Foundation	-	-	-	\$6,289	-	-	-	-	-	\$6,289
		Saskatchewan Health Research Foundation	-	-	-	-	-	-	-	\$10,000	-	\$10,000
VOLUNTARY	Canadian Cancer Society		\$0	\$10,000	\$0	\$0	\$42,346	\$19,175	\$0	\$0	\$71,521	
	The Terry Fox Foundation		\$0	\$0	\$0	\$0	\$20,000	\$28,200	\$2,500	\$0	\$50,700	
MULTI-FUNDED		Canadian Tobacco Control Research Initiative	\$5,061	\$1,875	\$11,157	\$11,212	\$59,995	\$0	\$0	\$0	\$89,300	
<b>TOTAL</b>			<b>\$159,672</b>	<b>\$83,855</b>	<b>\$39,198</b>	<b>\$41,490</b>	<b>\$266,815</b>	<b>\$172,006</b>	<b>\$12,500</b>	<b>\$1,109</b>	<b>\$776,645</b>	

Cells with a dash indicate provinces outside the jurisdictions of provincial funders.

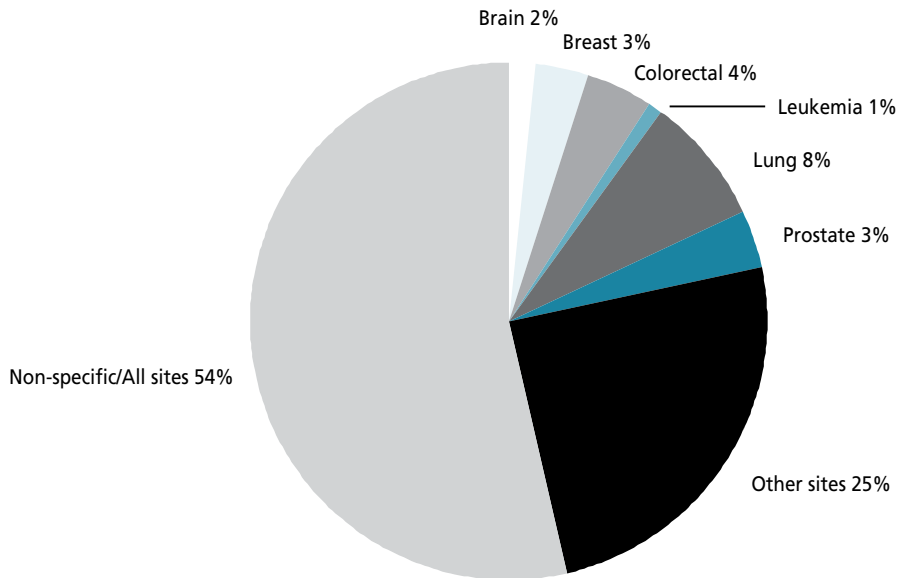
[1] Refers to the sector of the organization that administered the funding program.

TABLE 4.5.2

**2006 CANCER RESEARCH INVESTMENT IN RELATED SUPPORT GRANTS BY TYPE OF PROGRAM AND NUMBER OF PROJECTS**

TYPE OF PROGRAM	2006 Investment		Number of Projects
	\$	%	
International exchanges	\$154,294	20	15
Release time/letters of intent	\$278,951	36	66
Travel awards/workshop & symposia support	\$343,400	44	119
<b>TOTAL</b>	<b>\$776,645</b>	<b>100</b>	<b>200</b>

FIGURE 4.5.1

**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT IN RELATED SUPPORT GRANTS BY CANCER SITE (\$0.8M)****4.6 TRAINEE AWARDS**

In 2006, \$26.6M was invested in trainee awards. Trainees at Canadian institutions received 86.0% of this investment (Table 4.6.1). Another 10.6% went to trainees studying at US institutions. The remaining 3.4% of the investment went to trainees studying in the following countries: Australia, France, Germany, Great Britain, Italy, Japan, the Netherlands, and Sweden.

The proportion of provincial government investment in trainee awards relative to the provincial totals was highest in Alberta (47.0%) and British Columbia (41.2%). The federal investment in trainee awards accounted for 100% of the total New Brunswick and Newfoundland and Labrador investment and it was also high in Ontario (76.0%) and Saskatchewan (70.1%). Cancer research investment in trainee awards by the voluntary sector was 16%, with the largest share of those dollars going to PIs in Ontario.

Nearly 40% (39.9%) of the trainee investment was for post-doctoral studies/fellowships (Table 4.6.2). Trainees with active awards during 2006 studied at one of 31 academic institutions or other institutions (e.g. industrial fellowships) in Canada. Nearly one in every four domestic trainee dollars (23.7%) in 2006 went to trainees at the University of Toronto (Table 4.6.3).

Removing block training grants from the trainee awards (block grants go to a university faculty team rather than an individual trainee), site-specific investment was compared for trainee awards and operating grants. Proportionately more of the trainee investment was non-site specific/relevant to all cancer sites, 43.1% versus 35.5%, respectively (Figure 4.6.1), but, for the most part, the proportions of site-specific investments were similar. For trainee awards, the investment in breast cancer research (14.5%) was nearly double that of any other cancer site.

TABLE 4.6.1

**2006 CANCER RESEARCH INVESTMENT IN TRAINEE AWARDS [1] BY PARTICIPATING ORGANIZATIONS AND PROVINCE OF PI/PL**

Sector [2]	Organization Type	Organization Name	Alta.	B.C.	Man.	N.B.	N.L..	N.S.	Ont.	Que.	Sask.	Canada Total	Outside Canada	TOTAL	
<b>GOVERNMENT</b> \$23,197,970 87%	<b>Federal</b> \$18,163,722 68%	Canadian Institutes of Health Research	\$834,251	\$1,315,649	\$698,603	\$1,925	\$11,750	\$307,583	\$5,464,402	\$4,339,422	\$338,279	\$13,311,864	\$2,682,286	\$15,994,150	
		Natural Sciences and Engineering Research Council	\$102,792	\$310,567	\$26,642	\$0	\$5,833	\$30,092	\$664,361	\$296,598	\$31,092	\$1,467,976	\$262,767	\$1,730,743	
		Networks of Centres of Excellence	\$30,000	\$0	\$0	\$0	\$0	\$0	\$15,000	\$0	\$0	\$45,000	\$0	\$45,000	
		Social Sciences and Humanities Research Council	\$96,878	\$66,925	\$0	\$0	\$0	\$0	\$157,695	\$19,167	\$0	\$340,664	\$53,165	\$393,829	
	<b>Provincial Cancer Agency</b> \$822,283 3%	Alberta Cancer Board	\$447,783	-	-	-	-	-	-	-	-	-	\$447,783	-	\$447,783
		CancerCare Manitoba	-	-	\$249,500	-	-	-	-	-	-	-	\$249,500	-	\$249,500
		Cancer Care Nova Scotia	-	-	-	-	-	\$60,000	-	-	-	-	\$60,000	-	\$60,000
		Cancer Care Ontario	-	\$0	-	-	-	-	-	\$65,000	-	-	\$65,000	-	\$65,000
	<b>Provincial Health Research Organization</b> \$4,211,964 16%	Alberta Heritage Foundation for Medical Research	\$562,344	\$0	\$0	\$0	\$0	\$28,500	\$40,000	\$0	\$0	\$0	\$630,844	\$151,983	\$782,827
		Fonds de la recherche en santé du Québec	\$0	\$20,000	\$0	\$0	\$0	\$0	\$42,500	\$1,474,719	\$0	\$0	\$1,537,219	\$98,873	\$1,636,091
		Manitoba Health Research Council	\$0	\$0	\$195,166	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$195,166	\$0	\$195,166
		Michael Smith Foundation for Health Research	\$0	\$1,331,289	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,331,289	\$0	\$1,331,289
		Nova Scotia Health Research Foundation	\$0	\$0	\$0	\$0	\$0	\$109,091	\$0	\$0	\$0	\$0	\$109,091	\$0	\$109,091
		Saskatchewan Health Research Foundation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$157,500	\$157,500	\$0	\$157,500
	<b>VOLUNTARY</b> \$3,233,846 12%	Canadian Breast Cancer Foundation	\$0	\$147,929	\$0	\$0	\$0	\$0	\$0	\$443,167	\$0	\$0	\$591,096	\$0	\$591,096
		Canadian Cancer Society	\$66,298	\$0	\$0	\$0	\$0	\$0	\$0	\$212,965	\$114,143	\$0	\$393,406	\$9,020	\$402,426
		The Cancer Research Society	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$63,333	\$86,667	\$0	\$150,000	\$0	\$150,000
The Kidney Foundation of Canada		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$27,500	\$0	\$27,500	\$0	\$27,500	
The Terry Fox Foundation		\$7,868	\$25,979	\$43,000	\$0	\$0	\$43,875	\$1,053,765	\$420,763	\$0	\$0	\$1,595,249	\$467,575	\$2,062,824	
<b>MULTI-FUNDED</b> \$132,237 less than 1%	Canadian Prostate Cancer Research Initiative	\$0	\$50,000	\$0	\$0	\$0	\$0	\$0	\$50,000	\$0	\$0	\$100,000	\$0	\$100,000	
	Canadian Tobacco Control Research Initiative	\$0	\$12,293	\$0	\$0	\$0	\$0	\$0	\$19,944	\$0	\$0	\$32,237	\$0	\$32,237	
<b>TOTAL</b>			<b>\$2,148,213</b>	<b>\$3,280,631</b>	<b>\$1,212,911</b>	<b>\$1,925</b>	<b>\$17,583</b>	<b>\$579,141</b>	<b>\$8,292,132</b>	<b>\$6,778,977</b>	<b>\$526,870</b>	<b>\$22,838,383</b>	<b>\$3,725,670</b>	<b>\$26,564,052</b>	

Cells with a dash indicate provinces outside the jurisdictions of provincial funders.

[1] Includes Canada Graduate Scholarships totalling \$2,947,439 (CIHR \$2,175,095, NSERC \$538,125, SSHRC \$235,219).

[2] Refers to the sector of the organization that administered the funding program.

TABLE 4.6.2

**2006 CANCER RESEARCH INVESTMENT IN TRAINEE AWARDS BY TRAINEE LEVEL AND NUMBER OF PROJECTS**

TYPE OF TRAINEE AWARD	2006 Investment		Number of Projects	Number of Projects Weighted at 100%
	\$	%		
Undergraduate	\$389,040	1.46	37	31
Graduate	\$9,064,543	34.12	629	601
Post-doctoral/Fellowship	\$10,589,949	39.87	354	340
Institutional training award	\$6,520,520	24.55	25	22
<b>TOTAL</b>	<b>\$26,564,052</b>	<b>100.00</b>	<b>1,045</b>	<b>994</b>

TABLE 4.6.3

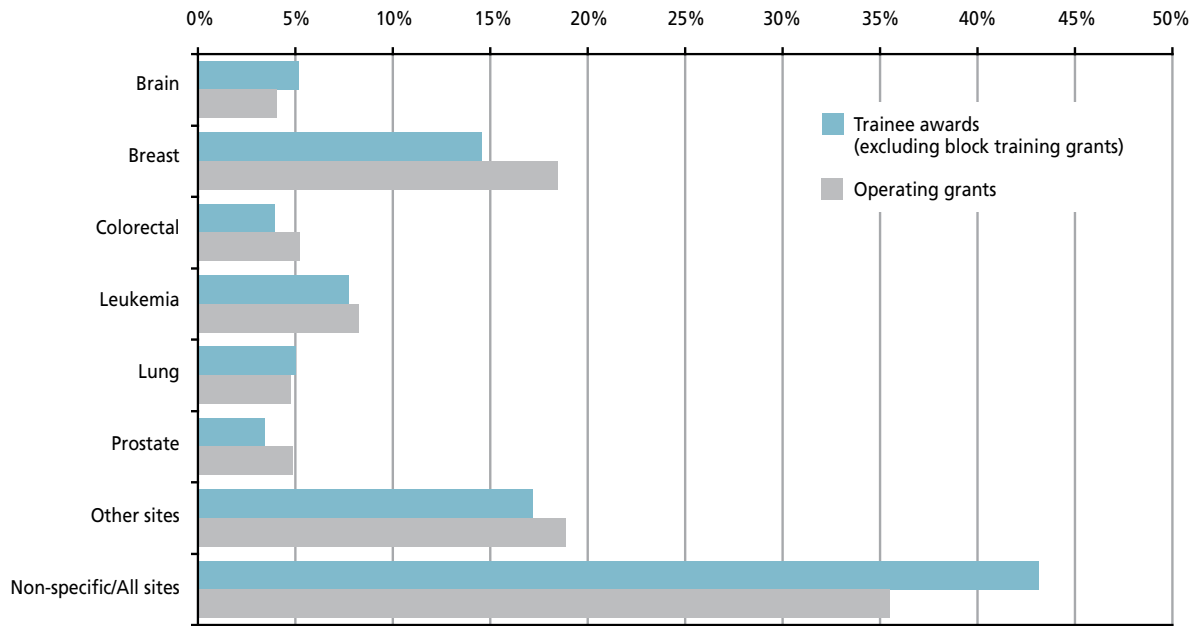
**2006 CANCER RESEARCH INVESTMENT IN TRAINEE AWARDS BY TRAINEE LEVEL AND CANADIAN INSTITUTION**

Province	Institution [1]	Undergraduate	Graduate	Post-doctoral/ Fellowship [2]	Institutional training award	TOTAL	% of total
Alta.	University of Alberta	\$250,595	\$469,498	\$277,149	\$360,500	\$1,357,741	5.94
	University of Calgary	\$138,445	\$362,611	\$228,667	\$50,000	\$779,723	3.41
	University of Lethbridge	\$0	\$10,750	\$0	\$0	\$10,750	0.05
B.C.	Simon Fraser University	\$0	\$65,211	\$45,000	\$0	\$110,211	0.48
	University of British Columbia	\$0	\$1,763,541	\$884,619	\$453,920	\$3,102,079	13.58
	University of Northern British Columbia	\$0	\$0	\$8,580	\$0	\$8,580	0.04
	University of Victoria	\$0	\$29,761	\$0	\$0	\$29,761	0.13
	Welichem Biotech Inc. [2]	–	–	\$30,000	–	\$30,000	0.13
Man.	University of Manitoba	0	\$371,486	\$220,425	\$621,000	\$1,212,911	5.31
N.B.	University of New Brunswick	\$0	\$1,925	\$0	\$0	\$1,925	0.01
N.L.	Memorial University of Newfoundland	\$0	\$17,583	\$0	\$0	\$17,583	0.08
N.S.	Dalhousie University	\$0	\$185,016	\$92,375	\$301,750	\$579,141	2.54
Ont.	Cancer Care Ontario [2]	–	–	\$22,500	–	\$22,500	0.10
	GeneNews™ Ltd. [2]	–	–	\$25,000	–	\$25,000	0.11
	Health Canada [2]	–	–	\$22,500	–	\$22,500	0.10
	McMaster University	\$0	\$309,509	\$88,000	\$0	\$397,509	1.74
	Queen's University	\$0	\$212,925	\$66,183	\$193,398	\$472,506	2.07
	University of Guelph	\$0	\$70,625	\$45,000	\$0	\$115,625	0.51
	University of Toronto	\$0	\$1,299,786	\$2,323,459	\$1,785,246	\$5,408,490	23.68
	University of Waterloo	\$0	\$161,350	\$0	\$363,512	\$524,862	2.30
	University of Western Ontario	\$0	\$269,695	\$45,000	\$301,750	\$616,445	2.70
	University of Windsor	\$0	\$7,500	\$0	\$0	\$7,500	0.03
	Université d'Ottawa	\$0	\$252,708	\$307,541	\$0	\$560,249	2.45
	Wilfrid Laurier University	\$0	\$11,667	\$0	\$0	\$11,667	0.05
	York University	\$0	\$107,278	\$0	\$0	\$107,278	0.47
Que.	BioAxone Thérapeutique Inc. [2]	–	–	\$23,056	–	\$23,056	0.10
	Concordia University	\$0	\$5,833	\$0	\$0	\$5,833	0.03
	HEC Montréal	\$0	\$13,333	\$0	\$0	\$13,333	0.06
	Institut national de la recherche scientifique	\$0	\$45,908	\$4,583	\$0	\$50,492	0.22
	McGill University	\$0	\$1,142,540	\$685,246	\$1,695,611	\$3,523,398	15.43
	Merck Frosst Canada Ltd. [2]	–	–	\$44,500	–	\$44,500	0.19
	Thallion Pharmaceuticals Inc. (Ecopia BioSciences Inc.) [2]	–	–	\$17,500	–	\$17,500	0.08
	Univ. du Québec à Montréal	\$0	\$78,050	\$11,250	\$0	\$89,300	0.39
	Univ. du Québec à Trois-Rivières	\$0	\$79,170	\$0	\$0	\$79,170	0.35
	Université Laval	\$0	\$635,460	\$409,926	\$0	\$1,045,387	4.58
	Université de Montréal	\$0	\$677,768	\$636,306	\$393,833	\$1,707,907	7.48
	Université de Sherbrooke	\$0	\$123,467	\$55,635	\$0	\$179,102	0.78
	Sask.	University of Saskatchewan	\$0	\$168,758	\$358,112	\$0	\$526,870
<b>TOTAL</b>		<b>\$389,040</b>	<b>\$8,950,712</b>	<b>\$6,978,111</b>	<b>\$6,520,520</b>	<b>\$22,838,383</b>	<b>100</b>

[1] Investment shown for each university includes its affiliated research hospitals and research institutes.

[2] Post-doctoral studies/fellowships may be undertaken at institutions other than universities (e.g. industrial fellowships).

FIGURE 4.6.1

**DISTRIBUTION OF 2006 CANCER RESEARCH INVESTMENT IN TRAINEE AWARDS (\$20.0M) [1] AND OPERATING GRANTS (\$208.6M) BY CANCER SITES**

[1] Includes only awards given to individual trainees (excludes block training grants).

**APPENDIX A. ABBREVIATIONS**

<b>ACB</b>	Alberta Cancer Board
<b>AHFMR</b>	Alberta Heritage Foundation for Medical Research
<b>BCF</b>	Canadian Breast Cancer Foundation
<b>CBCRA</b>	Canadian Breast Cancer Research Alliance
<b>CBRPE</b>	Centre for Behavioural Research & Program Evaluation (NCIC, CCS)
<b>CCMB</b>	CancerCare Manitoba
<b>CCNS</b>	Cancer Care Nova Scotia
<b>CCO</b>	Cancer Care Ontario
<b>CCS</b>	Canadian Cancer Society
<b>CFI</b>	Canada Foundation for Innovation
<b>CIHR</b>	Canadian Institutes of Health Research
<b>CIPI</b>	Canadian Institute for Photonic Innovations (an NCE)
<b>CLS</b>	Canadian Light Source
<b>CPACC</b>	Canadian Partnership Against Cancer
<b>CPCRI</b>	Canadian Prostate Cancer Research Initiative
<b>CRCP</b>	Canada Research Chairs Program
<b>CRS</b>	The Cancer Research Society
<b>CSO</b>	Common Scientific Outline
<b>CTCRI</b>	Canadian Tobacco Control Research Initiative
<b>CTG</b>	Clinical Trials Group (NCIC)
<b>FRSQ</b>	Fonds de la recherche en santé du Québec
<b>GC</b>	Genome Canada
<b>ICD-10</b>	International Statistical Classification of Diseases and Related Health Problems, 10th Revision
<b>ICRP</b>	International Cancer Research Partners
<b>KFOC</b>	The Kidney Foundation of Canada
<b>MHRC</b>	Manitoba Health Research Council
<b>MITACS</b>	Mathematics of Information Technology & Complex Systems (an NCE)
<b>MRFNB</b>	Medical Research Fund of New Brunswick
<b>MSFHR</b>	Michael Smith Foundation for Health Research
<b>NCE</b>	Networks of Centres of Excellence
<b>NCIC</b>	National Cancer Institute of Canada
<b>NCRI</b>	National Cancer Research Institute (UK)
<b>NRC</b>	National Research Council
<b>NSERC</b>	Natural Sciences and Engineering Research Council
<b>NSHRF</b>	Nova Scotia Health Research Foundation
<b>OCC</b>	Ovarian Cancer Canada
<b>OICR</b>	Ontario Institute for Cancer Research
<b>PCRFC</b>	Prostate Cancer Research Foundation of Canada
<b>PHAC</b>	Public Health Agency of Canada
<b>PI</b>	Principal Investigator
<b>PL</b>	Project Leader
<b>QBCF</b>	Quebec Breast Cancer Foundation/Fondation du cancer du sein du Québec
<b>SCA</b>	Saskatchewan Cancer Agency
<b>SCN</b>	Stem Cell Network (an NCE)
<b>SHRF</b>	Saskatchewan Health Research Foundation
<b>SSHRC</b>	Social Sciences and Humanities Research Council
<b>TFF</b>	The Terry Fox Foundation
<b>TFRI</b>	Terry Fox Research Institute

## APPENDIX B. DATA CAVEATS FOR INDIVIDUAL ORGANIZATIONS

ORGANIZATION [1]	NUMBER OF PROJECTS [2]	CAVEATS		
		PROJECT DESCRIPTIONS [3]	IMPUTED BUDGETS [4]	IMPUTED START &/END DATES [5]
Alberta Cancer Board	236	No descriptions for 4 projects*		
Alberta Heritage Foundation for Medical Research	156		64	
Brain Tumour Foundation of Canada	10	Lay abstracts only		
C17 Research Network	4	Lay abstracts only		
Canada Foundation for Innovation	267	Keywords only; no descriptions provided.*		14 end dates
Canada Research Chairs Program	221	Lay abstracts only*		
Canadian Breast Cancer Foundation	124			
Canadian Breast Cancer Research Alliance	127			
Canadian Cancer Society	513			
Canadian Institutes of Health Research	2,061	No descriptions for 78 projects*	Imputed partner contributions for 141 projects.	
Canadian Prostate Cancer Research Initiative	15			
Canadian Tobacco Control Research Initiative	112			
CancerCare Manitoba	69	Lay abstracts only for 58 projects		
Cancer Care Nova Scotia	24	Lay abstracts only for 11 projects		
Cancer Care Ontario	19	Lay abstracts only		
Fonds de la recherche en santé du Québec	283	No descriptions for 5 projects*		
Genome Canada	7	Lay abstracts only		
Manitoba Health Research Council	27	Lay abstracts only		
Medical Research Fund of New Brunswick	3			
Michael Smith Foundation for Health Research	178			
National Research Council	15	Lay abstracts only		
Natural Sciences and Engineering Research Council	243	No descriptions for 221 projects*	1	97
Networks of Centres of Excellence	9	Lay abstracts only		
Nova Scotia Health Research Foundation	21	No descriptions for 5 projects*; lay abstracts for all others		
Ontario Institute for Cancer Research	73			
Ovarian Cancer Canada	6	Lay abstracts only	3	6
Prostate Cancer Research Foundation of Canada	36			
Quebec Breast Cancer Foundation/Fondation du cancer du sein du Québec	3			
Saskatchewan Cancer Agency	8			
Saskatchewan Health Research Foundation	24	Lay abstracts only		
Social Sciences and Humanities Research Council	36	No descriptions provided*	7	26
The Cancer Research Society	190			
The Kidney Foundation of Canada	8			
The Terry Fox Foundation	261			

\*Where no descriptions were available, public information (i.e., thesis abstracts, publications, web-based information) was used to code the project. For all CRC grants, additional public information was used for coding purposes. In rare cases where no public information was available, the project was coded on the basis of the title.

[1] This list does not contain the Indirect Costs Program, given the nature of the program, which is institution-specific and not research project-specific.

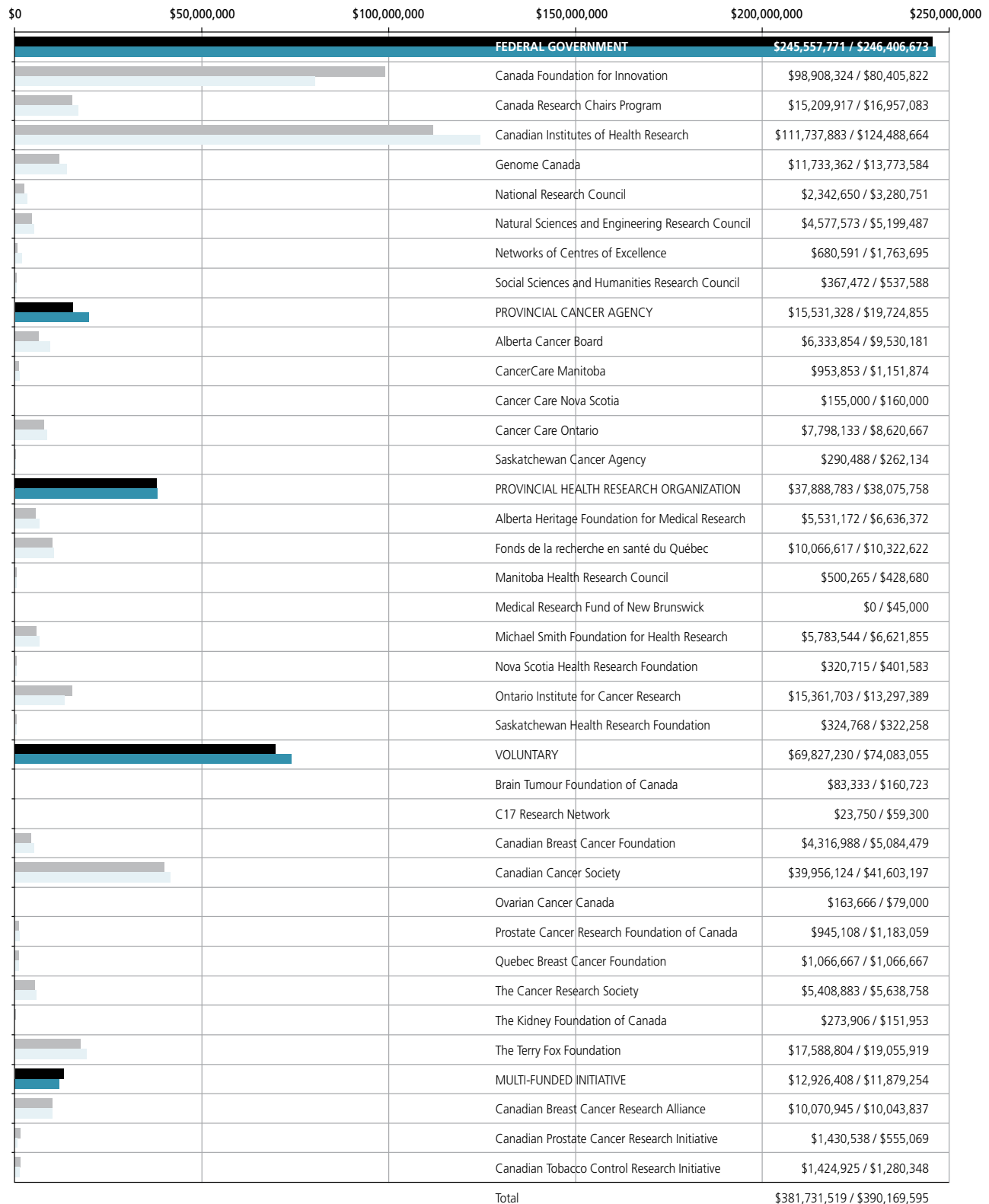
[2] Total number of projects submitted to date to CCRA.

[3] Descriptions are important to the coding/project classification process. The more information available about a given project, the more confident we are about the classification results.

[4] AHFMR does not disclose salary grants by researcher and provided CCRA with averaged salary figures for these projects. For all other projects where total project budget information was not made available, budgets were imputed on the basis of "like" grants.

[5] Proactive public disclosure of start/end dates for NSERC and SSHRC grants over \$25,000 was announced by the Government of Canada on October 21, 2005. Both organizations now publish this information, on a go-forward basis, on their respective web sites. CFI end dates were unavailable for projects still in progress. Dates were imputed on the basis of "like" grants for which data were available, or other public information, and will be revised when these dates are made available.

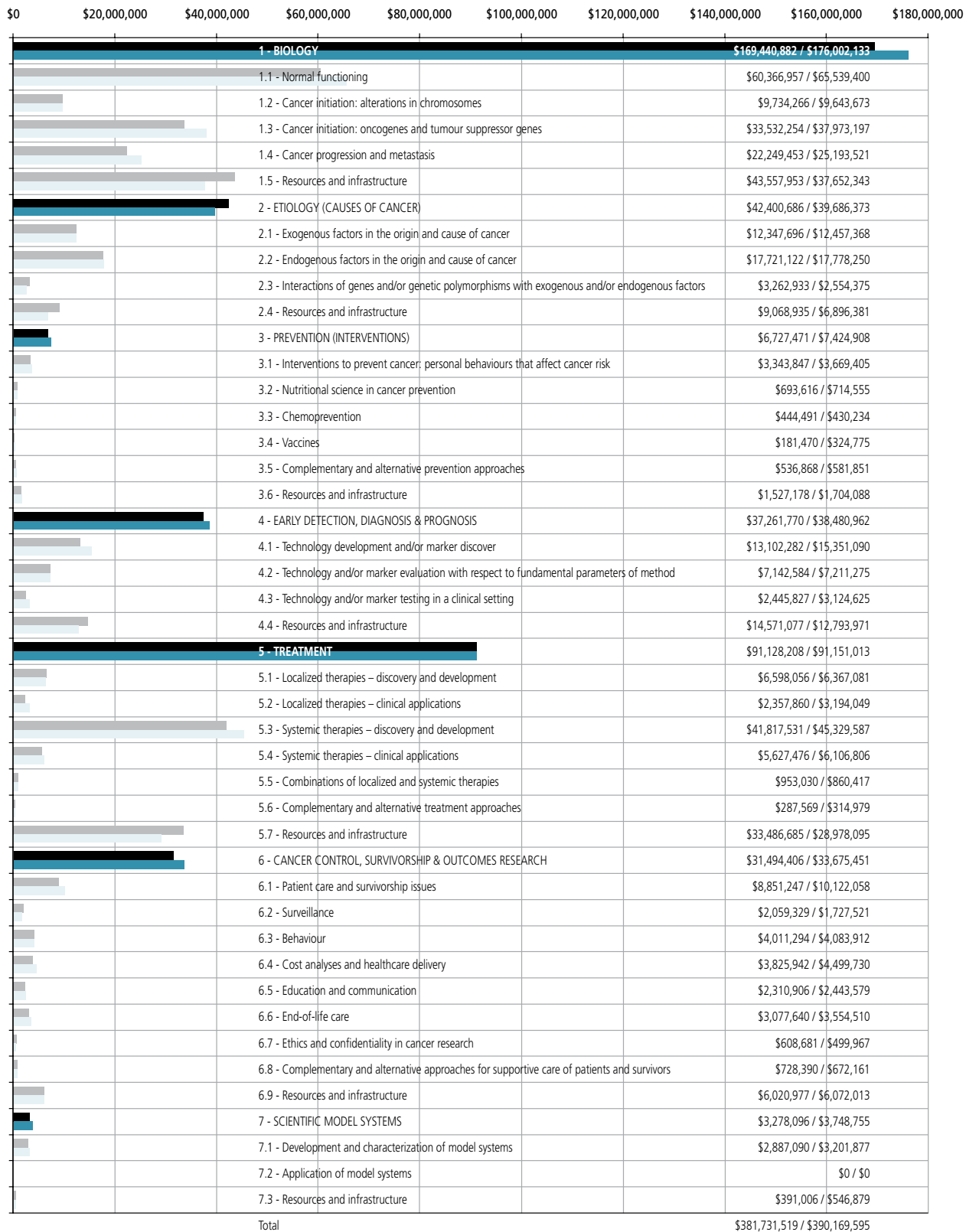
**APPENDIX C. 2005 AND 2006 INVESTMENT BY ORGANIZATION**    2005 / 2006



Total investment in 2005 was \$382M; in 2006, \$390M. Organizations are listed alphabetically under the relevant funding sector (sector totals are shown in upper case letters on the y-axis). Contributions to multi-funded initiatives are not included in the amounts shown for CIHR, CBCF, CCS, and CRS. This graph does not include estimates for the Indirect Costs Program and the BC Cancer Agency.

## APPENDIX D. 2005 AND 2006 INVESTMENT BY CSO CODE

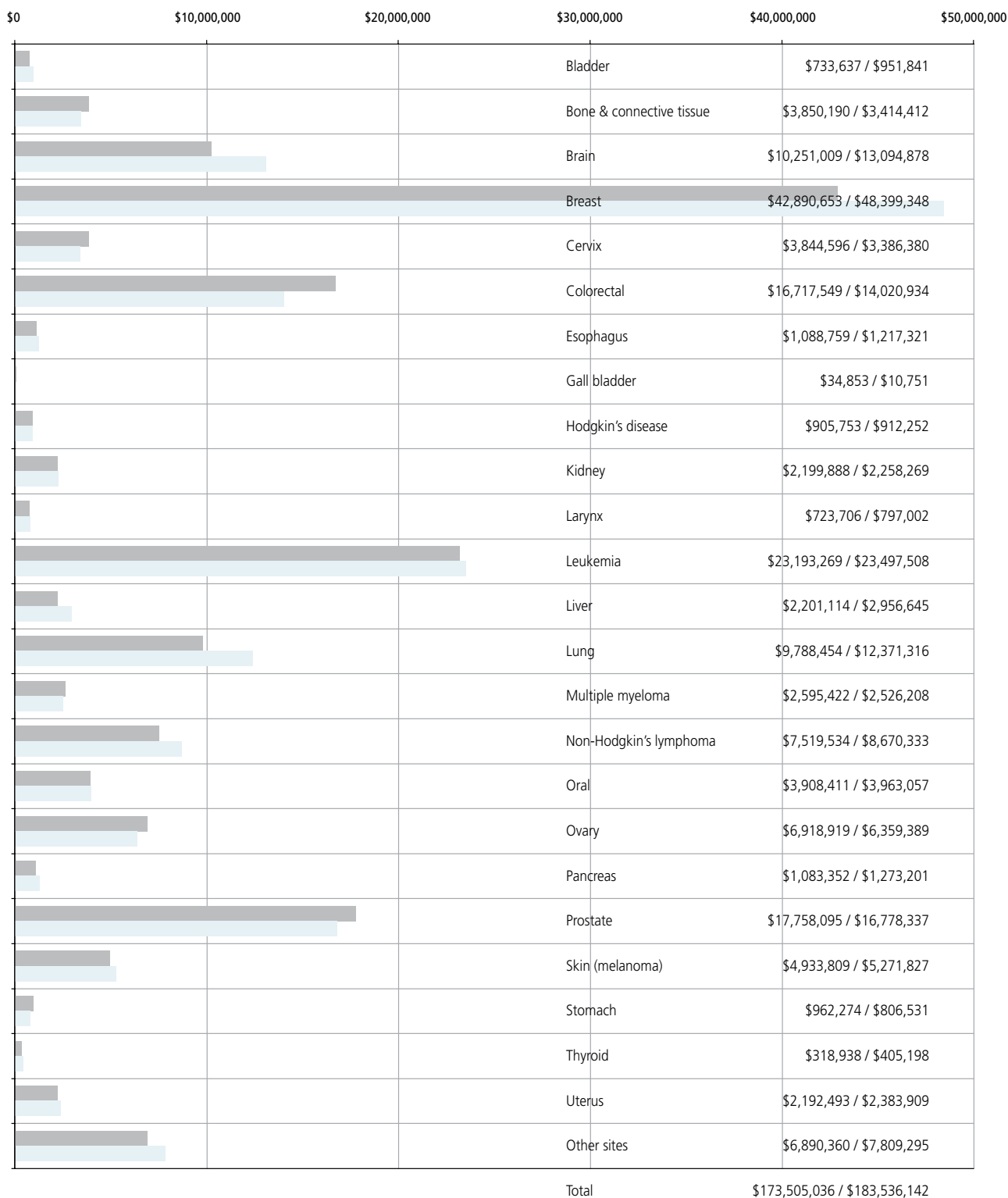
■ 2005 / ■ 2006



Category totals are indicated in upper case letters on the y-axis. Total investment in 2005 was \$382M; in 2006, \$390M. This graph does not include estimates for the Indirect Costs Program and the BC Cancer Agency.

APPENDIX E. 2005 AND 2006 INVESTMENT BY CANCER SITE

■ 2005 / ■ 2006



Site-specific investment in 2005 was \$174M; in 2006, \$184M. This graph does not include estimates for the Indirect Costs Program and the BC Cancer Agency.



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