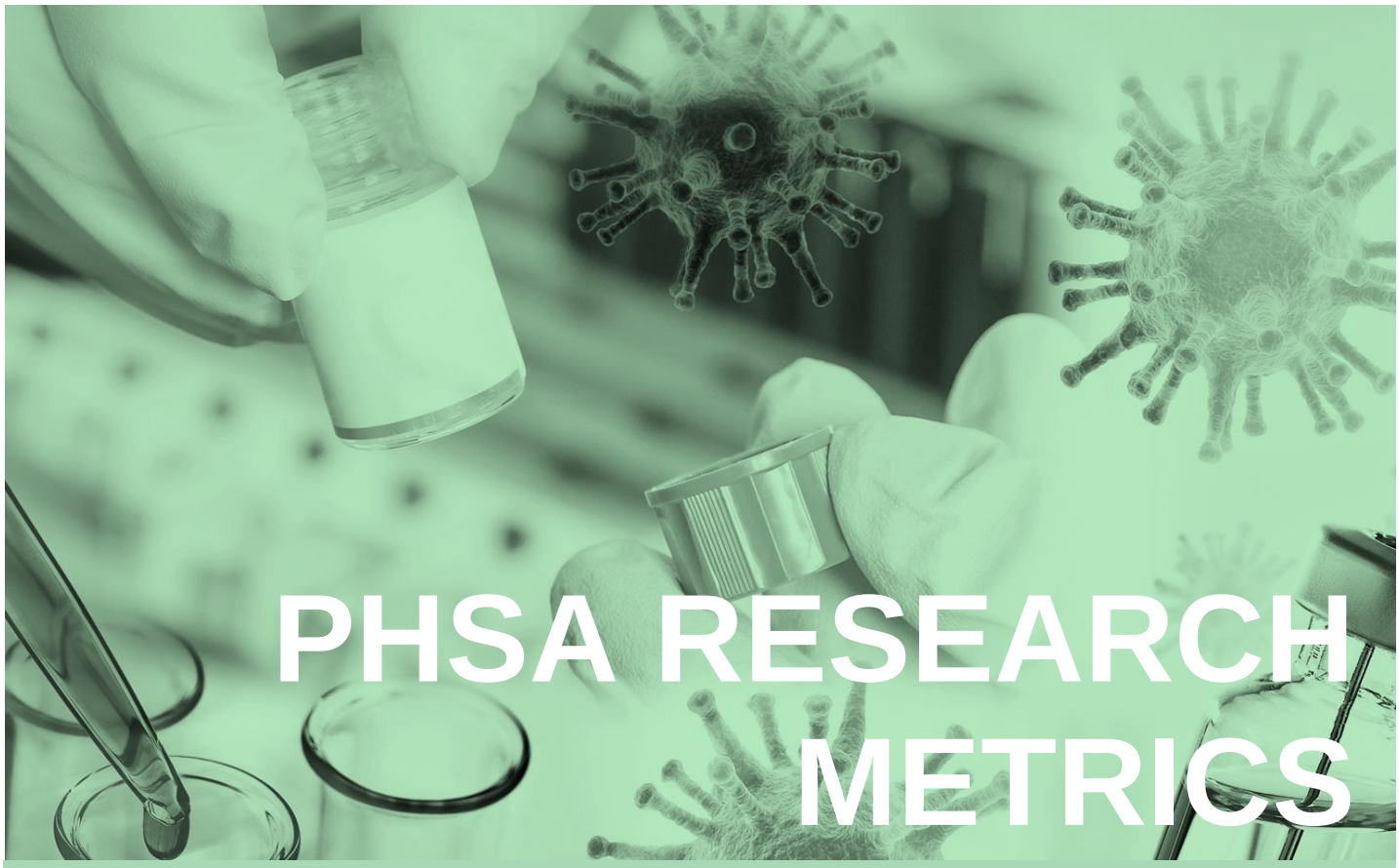

PHSA RESEARCH METRICS

FISCAL YEAR 2019-20

Prepared for:
PHSA Research Committee
Prepared by:
Ellen Chesney, Chief Administrative Officer – Research
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PHSA Research Metrics Working Group
PHSA Performance Measurement & Reporting

Provincial Health Services Authority
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SUPPLEMENTARY REPORT

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PHSA RESEARCH METRICS FISCAL YEAR SUMMARY – PHSA OVERALL

Indicator		Key Measure Description	FY 2017-18	FY 2018-19	FY 2019-20
			Value	Value	Value
Producing & Advancing Knowledge	1a	**Total Annual Grant Awards by Type** (including Major CFI Infrastructure grants)	**$152,418,527**	**$134,292,906**	**$145,597,847**
		Salary Awards	13,731,347	13,121,094	**13,788,858**
		Infrastructure Awards	10,678,089	6,260,726	**7,011,184**
		Operating Grants	122,147,885	112,180,392	**119,979,796**
		Other	5,861,206	2,730,693	**4,818,009**
	1b	**Total Annual Grant Awards by RISe Sector** (including Major CFI infrastructure grants)			
		Government	75,675,710	65,855,459	66,778,795
		Non-Profit	57,711,527	50,949,809	60,676,760
		Industry	19,031,290	17,487,637	18,142,292
	1c	**CIHR Annual Grant Application Success Rate - PHSA Overall/ Nat'l**			
		Foundation Grant (Open)	11.1%/11.9%	0%/13%	N/A
		Fall Project Grant	15.4%/15.9%	17.7%/14.9%	25.3%/15.7%
		Sprint Project Grants	19.7%/15.5%	20.3%/15.6%	19.7%/16.9%
	1d	**Total # of Publications with Program Author**			
		BCCHR	943	858	1,060
		BC Cancer	449	655	744
		WHRI	585	670	752
		BCCDC	215	305	161
		BCMHSUS	82	61	127
Building Research Capacity	2a	**Total # of Research Trainees**	1,970	2,315	2,601
	2c	**Total # of Researchers** (excluding Category 3 – Affiliate Investigator)	817	788	832.5
	2e	**Research Support Fund Grants** (Tri-Council only)	$3,973,494	$4,049,673	$4,063,179
Achieving Economic Benefits & Innovation	3a	# of Invention disclosures	41	48	32
		# of Provisional Patent applications filed	21	24	24
		# of PCT applications filed	3	6	9
		# of Patents Filed/Issued	18/30	12/17	11/21
	3b	# Active License Agreements	175	116	123
		# of Spin-off Companies	12	14	17
		IP related revenue – Realized Revenue			
		BC Cancer	$285,169	$445,861	$432,697
		BCCHR	$40,921	$66,713	$93,000
Advancing Health & Policy Benefits	4a	**Clinical Trials** (including Non-PHSA PIs utilizing PHSA facilities and resources)			
		# active trials at the end of the FY	561	619	656
		Cumulative Subject Enrollment at end of FY	149,773	47,600	21,400
	4b,c,d	**Registries as Research Resources**			
		# of Research Requests/Approvals	211/200	240/227	236/226

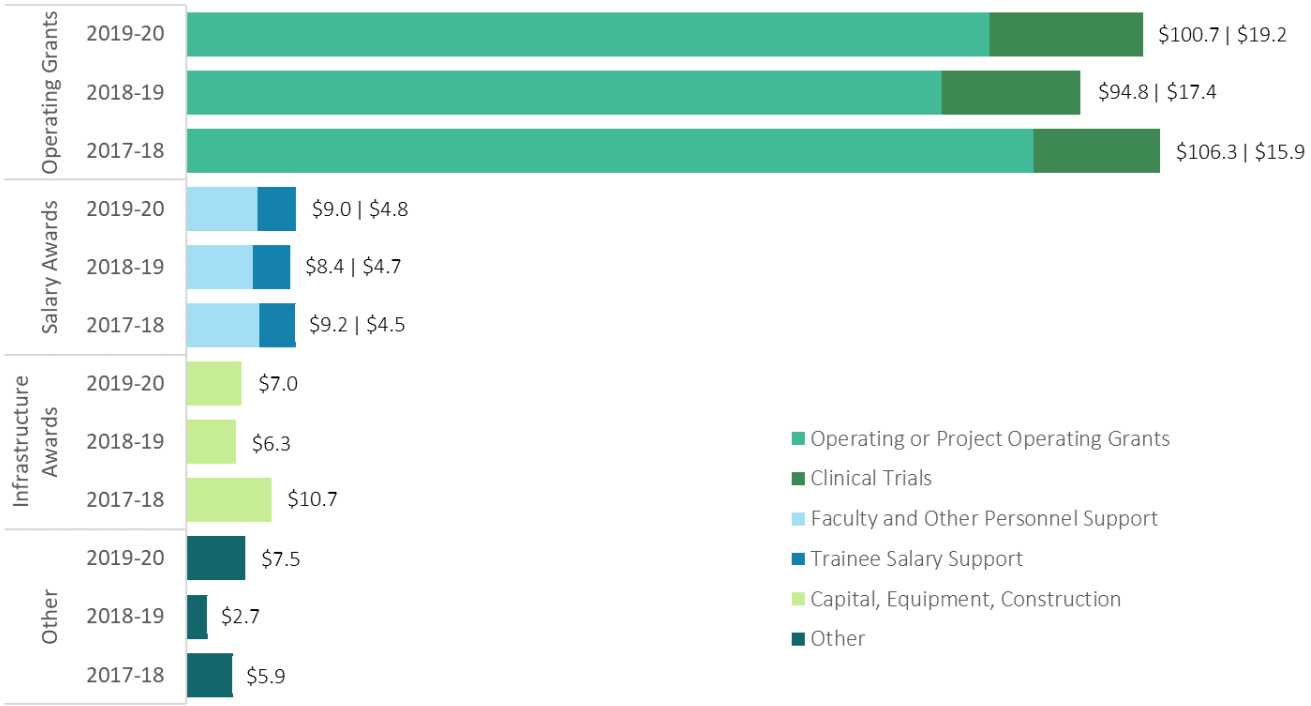
PHSA AGGREGATE ANALYSIS

Producing and Advancing Knowledge

In FY 2019-20, researchers affiliated with PHSA were awarded a total of $145,597,847, an increase of approximately 8.4% from FY 2018-19. Operating Grants ($119,979,796) increased by 7% from FY 18-19. Operating grants continue to make up the largest portion (82.4%) of total funding received. Operating grants support specific, time-limited research projects. While operating grants are the "bread and butter" of research grants, salary awards are important to provide researchers with the protected time to successfully compete for operating grants and represent approximately 9.4% of total awards for the past five fiscal years.

A breakdown of funding types and subtypes by fiscal year can be found in Figure 1. For FY 2019-20, the subtype of Operating or Project Operating Grants garnered the largest portion of research funding in its type category. Clinical Trials funding continued to increase resulting in the highest percentage of total funding (13.2%) since reporting began in FY 12-13.

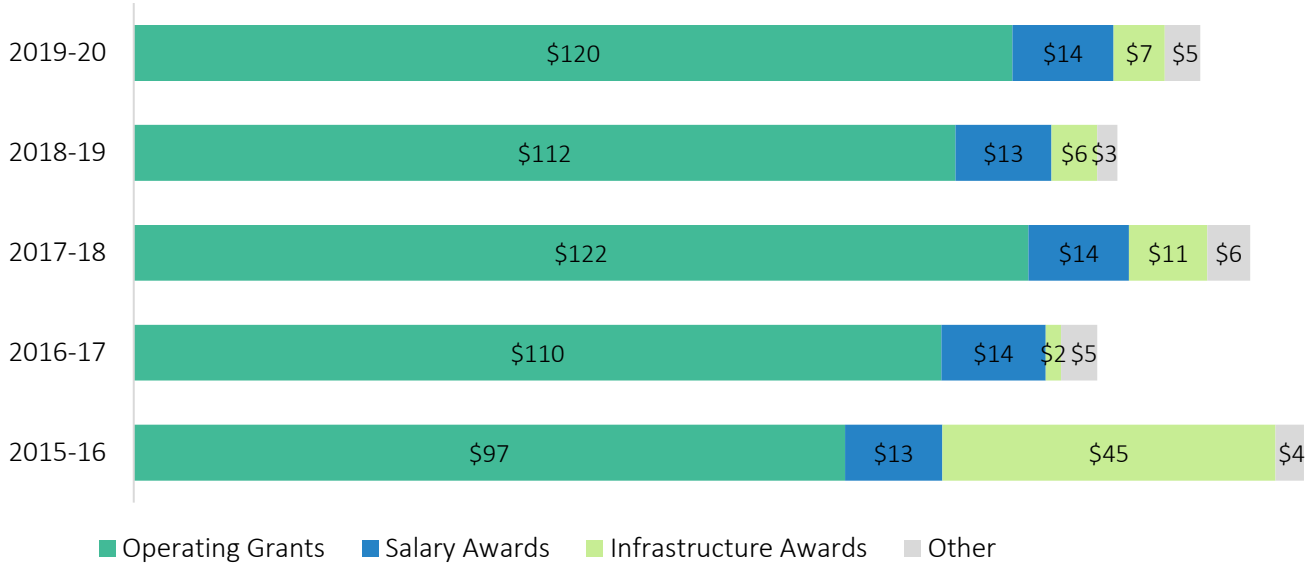
FIGURE 1 Total PHSA Research Funding by Funding Type and Sub-Type by Fiscal Year



(values are in millions)

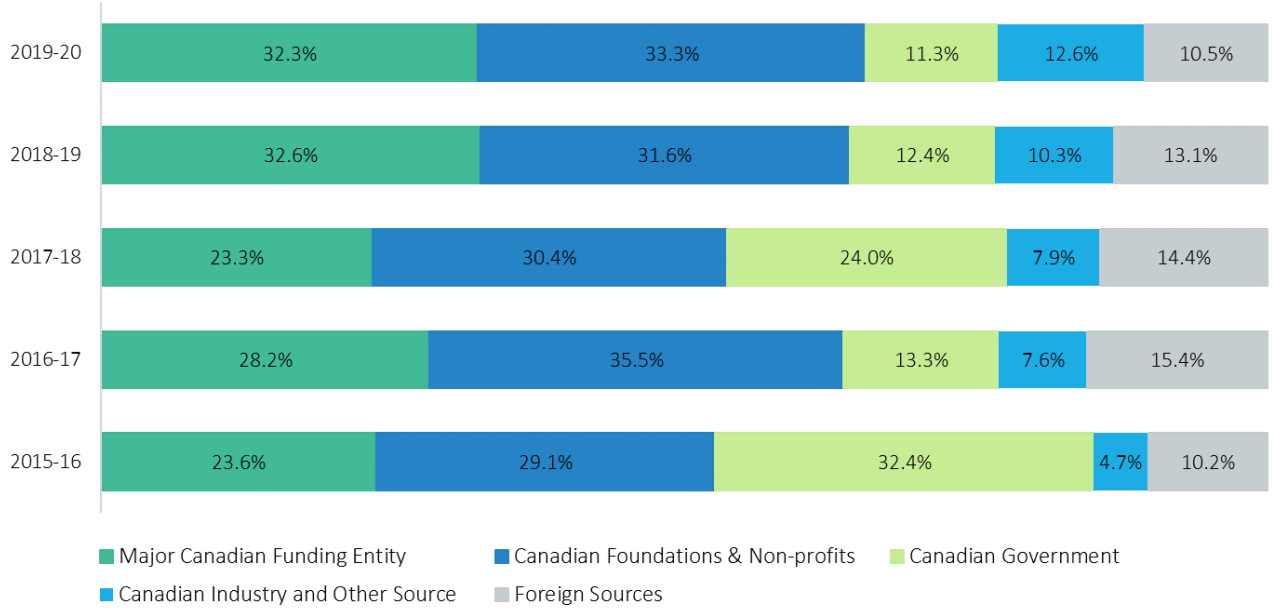
Research Support Fund grants total $4,063,177 and represent funding to support the indirect costs of research for tri-council awards, but is not included in total research funding or the figures below. Because research support is a shared expense between UBC and PHSA research programs, PHSA has negotiated to receive 66% of the applicable UBC Research Support grant. Figure 2 shows Total Research Funding by Fiscal Year and Type for the past five fiscal years.

FIGURE 2 Total PHSA Research Funding by Fiscal Year and Type



A comparison of funding source by source category over five (5) fiscal years can be found in Figure 3. This figure, generated by compiling hundreds of potential sources into five categories, highlights the extent to which primary sources of funding vary from year to year. This year, Major Canadian Funding entities and Canadian Foundations & Non-profits remained stable with 65.6% of the total, in line with other non-CFI/BCKDF competition years. The decrease in funding from Canadian Government is due to no major CFI and BCKDF competitions this fiscal year. Canadian Industry and Foreign sources remained relatively stable from last year's levels.

FIGURE 3 Percentage of PHSA Research Funding by Funding Source Category by Fiscal Year



In addition to the above, Figures 4 and 5 show the same award data by RISe sector (see Glossary – Appendix 1, pg. 64, for sector definition) both by fiscal year and by program for five fiscal years. Category percentages are relatively unchanged from FY 18-19.

FIGURE 4 Percentage of PHSA Research Funding by RISe Sector and Fiscal Year

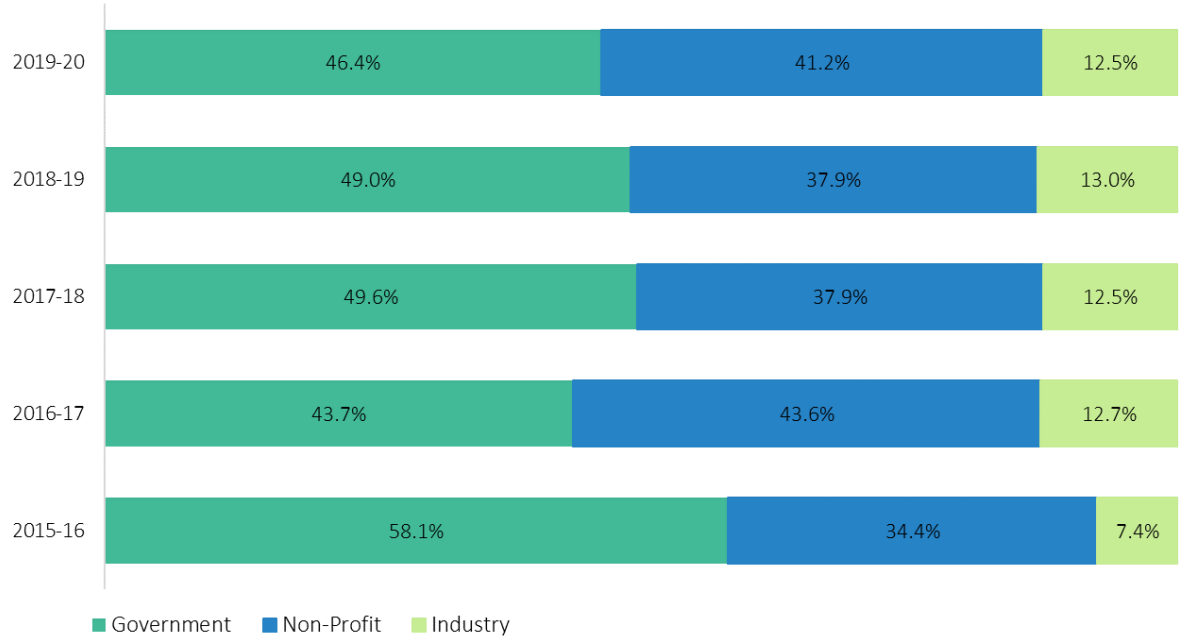
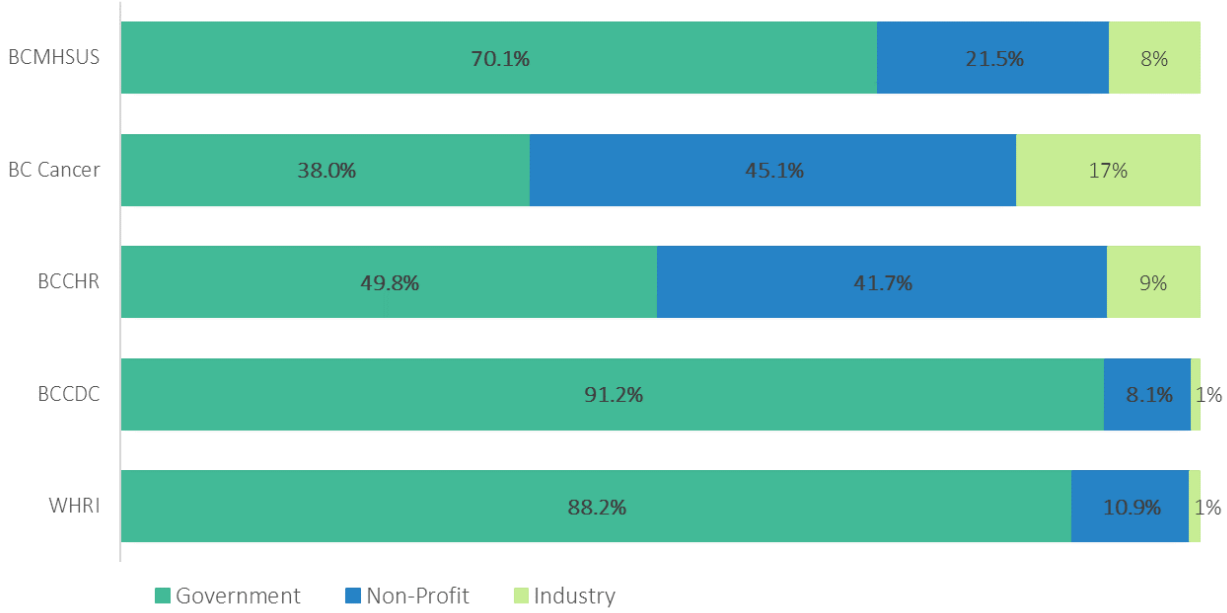


Figure 5 shows the percentage of funding by RISe sector and program for FY 2019-20. This graph reflects the variations in funding sources for all PHSA research entities, as BCMHSUS, BCCDC and WHRI rely heavily on government funding.

FIGURE 5 Percentage of PHSA Research Funding by RISe Sector and Program



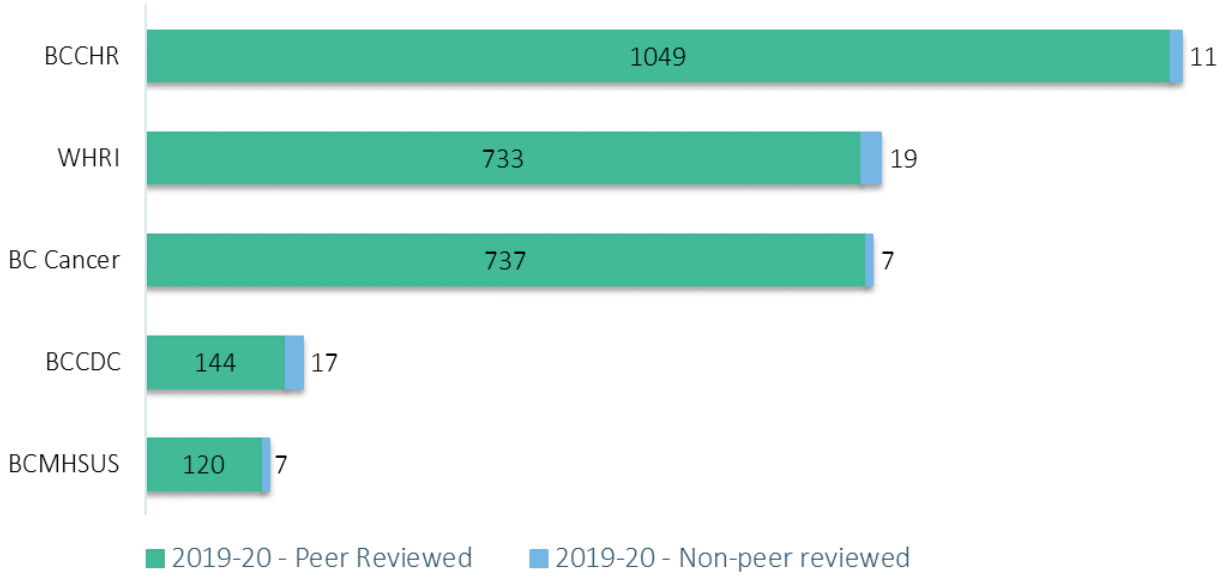
The application success rate is reported for the Fall 2019 and Spring 2020 CIHR grant competitions. Results (see table 1) are shown for National and PHSA research entities combined. PHSA enjoyed success in the Project Grant program and was above the national averages resulting in 33 awards. Due to COVID-19, the Spring 2020 CIHR grant competition was cancelled and subsequently reinstated with revised timelines.

TABLE 1 PHSA Annual Grant Application Success Rate

Grant Funding Opportunity	National Overall Results % (Approved/Submitted)	PHSA Results % (Approved/Submitted)
2019-09 Project Grant	15.7% (389/2,484)	25.3% (19/75)
2020-03 Project Grant	16.9% (359/2,130)	19.7% (14/71)

Statistics for publications were collected utilizing SciVal with Scopus as the source. Publications were collected in the categories of books, book chapters, peer-reviewed publications inclusive of published journal articles, case reports, essays, literature reviews, and reports produced for government. See Figure 6 for a breakdown of total publications by program and category. Totals are reported by calendar year for all programs. A breakdown by types is shown in the program specific sections due to low sample size.

FIGURE 6 Total Number of Publications by Program and Category



Building Research Capacity

PHSA research entities identified 832.5 researchers in categories 1, 2, and 5 in FY 2019-20, up 44.5 from FY 2018-98 (see Figure 7). The increase is attributed to the growth in membership of WHRI (33.5 or 22% increase of previous FY). Category 3 researchers are defined as Affiliate Investigators and represent those researchers with a primary affiliation with a research or academic institution external to PHSA, but who wish to remain collaborators with PHSA researchers. PHSA does not track category 3 members funding, publications or trainees. Details on affiliate members can be found in each program section. BC Cancer, BCMHSUS and BCCHR are able to report their researchers utilizing BCCHR defined categories, which highlight the amount of time protected for research purposes. BC Cancer, BCCDC and WHRI define researchers utilizing a methodology that best reflects the type of work and relationships they have with their researchers. Further information on these methods can be found in specific program sections. An attempt to count each researcher only once was made by attributing each researcher to the entity where the bulk of salary and/or support are received. Category 1 researchers are best positioned to compete for external grants.

FIGURE 7 Total Number of PHSA Researchers by Category and FY

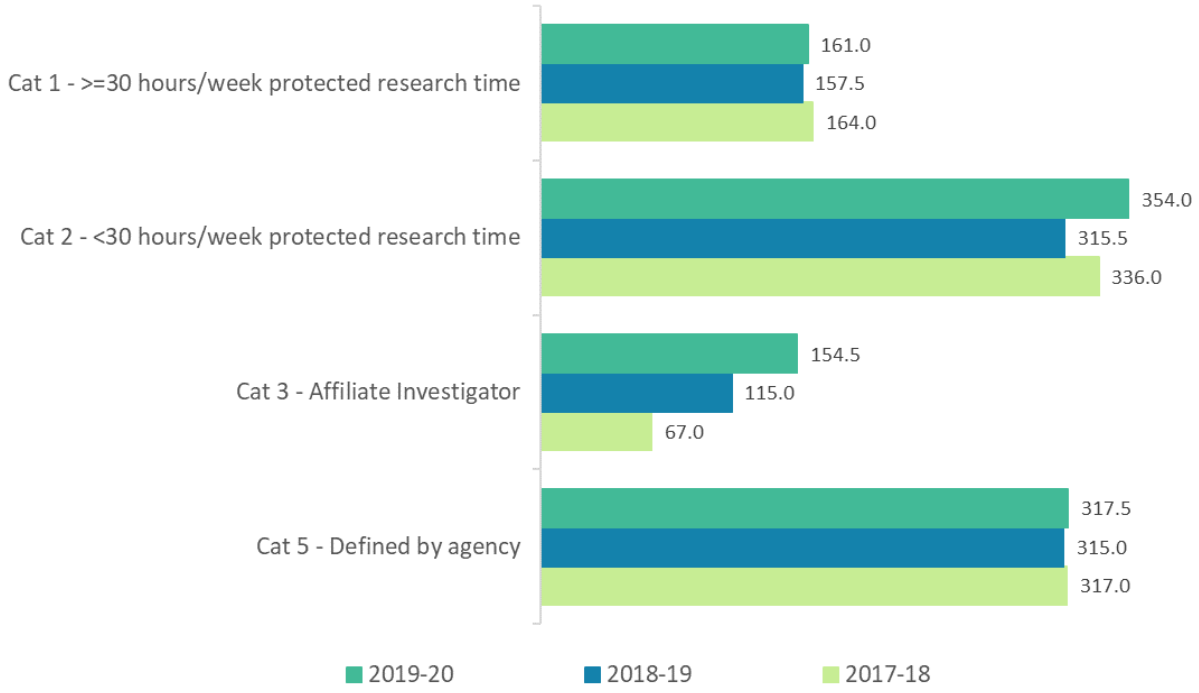


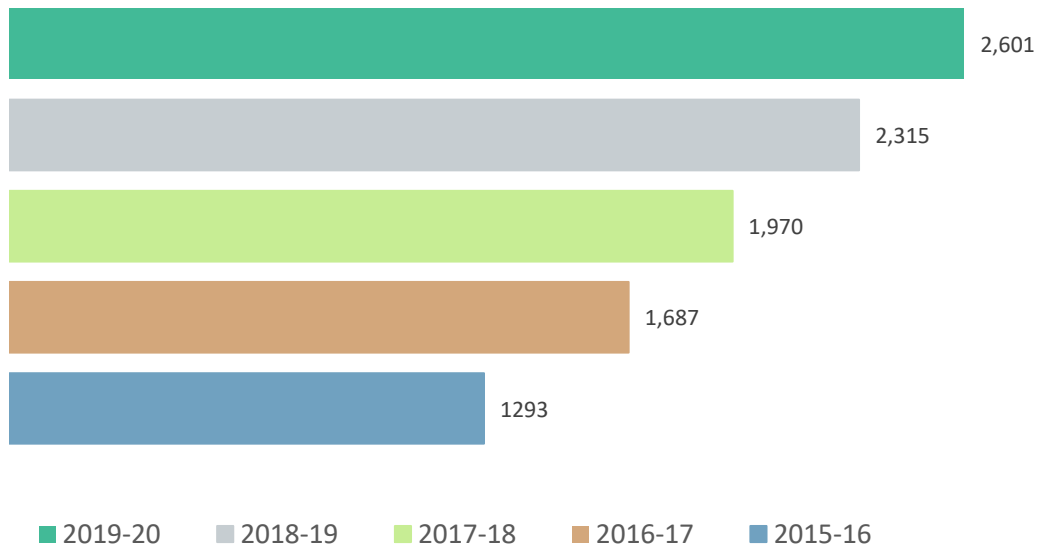
Table 2 provides summary statistics by program at the Principal Investigator (PI) level. PHSA received funding for 406 Principal Investigators collaborating with 1,431 UBC co-investigators for 1,301 unique studies in FY 2019-20. This excludes Salary and Other award types as these are not designated for specific studies and the number of co-investigators from other academic institutions.

TABLE 2 Number of Funded Studies, PI's, UBC Co-PI's and Award Amount by Program

Program	# of Unique Studies	# of Unique PI's by Program	# of UBC Co-PIs by Program	Total Award Amount
BC Cancer	572	157	593	$69,692,034
BCCHR	643	189	633	$48,080,815
WHRI	58	28	141	$5,273,819
BCCDC	40	23	58	$3,110,924
BCMHSUS	12	9	6	$833,388
Grand Total	**1,301**	**406**	**1,431**	**$126,990,980**

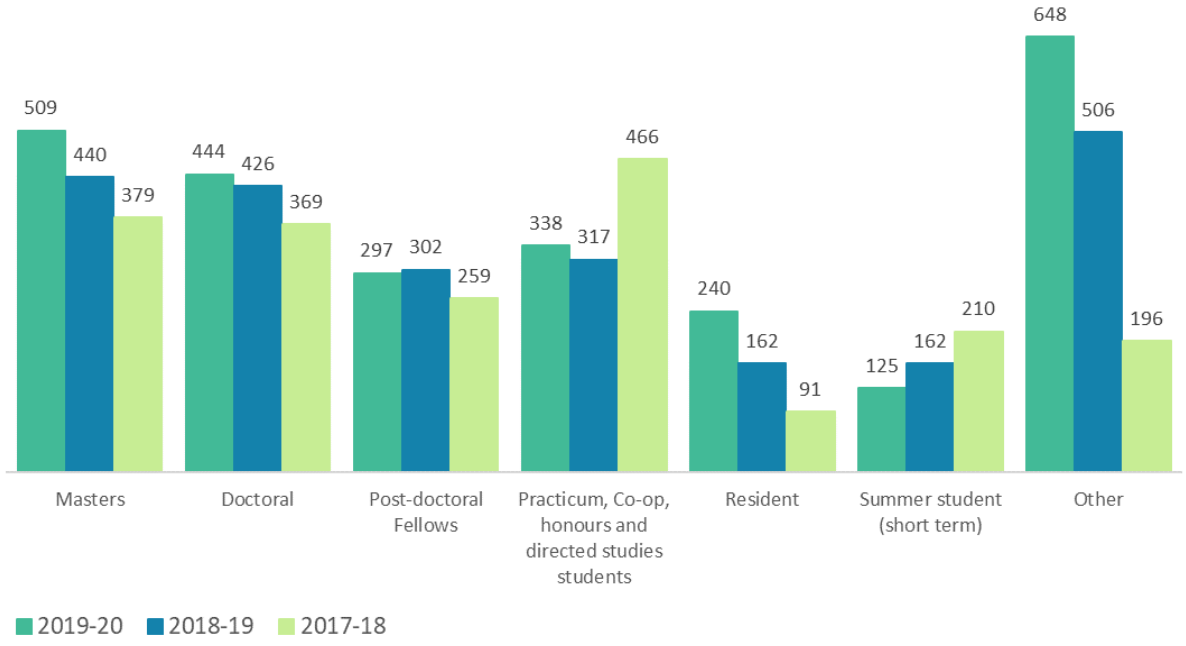
During FY 2019-20, PHSA researchers provided training and supervision to a total of 2,601 research trainees, an increase of 286 or 12.4% from FY 2018-19. This is a significant metric because the training of Post-doctoral fellows (PDFs), Doctoral, and Masters Trainees in particular is a major indicator of the degree to which PHSA and its research entities are supporting their academic mandate and ensuring the next generation of highly qualified research personnel. In addition, Post-doctoral fellows and Doctorals contribute significantly to the conduct of research under the supervision of principal investigators. See Figure 8 and 9 for the number of trainees by type and fiscal year for PHSA overall.

FIGURE 8 Total Number of PHSA Trainees by Fiscal Year



The increase in the Other category is due to BCCHR combining Practicum, Co-op students with Summer students in their data collection and BCMHSUS reporting undergraduate and volunteers. The type of trainees with the largest increase in FY 19-20 are Masters and Residents.

FIGURE 9 Total Number of PHSA Trainees by Type by Fiscal Year

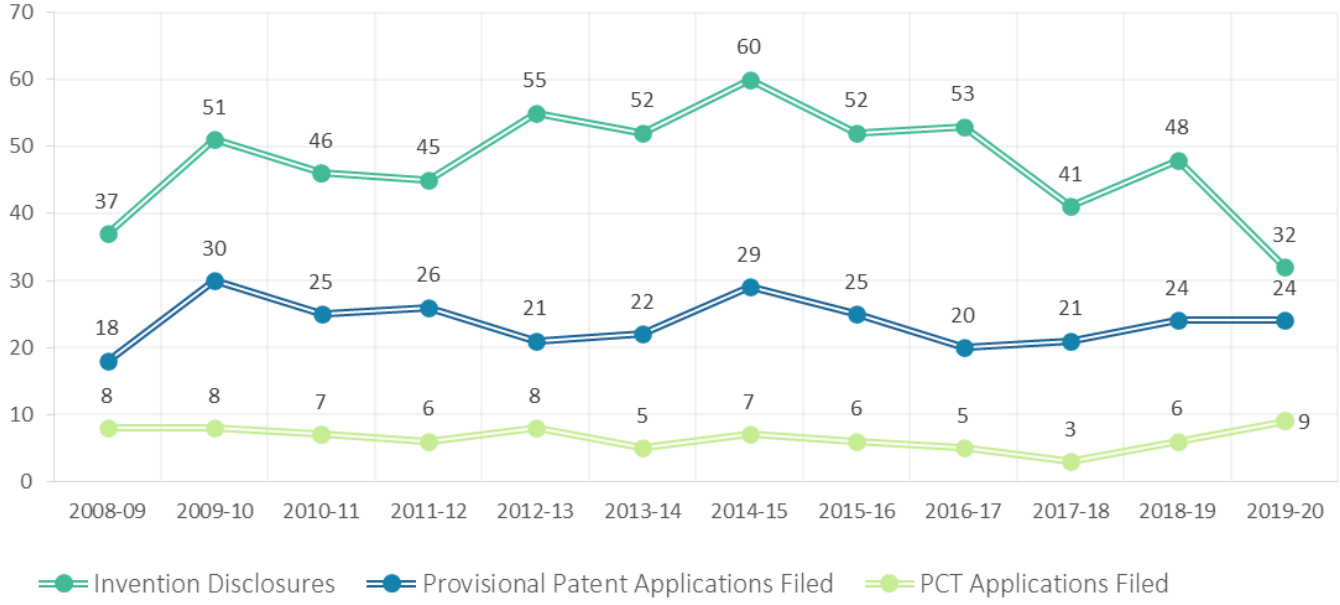


Achieving Economic Benefits and Innovation

The patent process, along with data on licensing and spin-off companies, is provided to measure the commercialization of discoveries, and other economic benefits resulting from these discoveries. Data are included for BC Cancer and BCCDC (through the TDO), and BCCHR (through UILO). Program specific IP related revenue data is provided in program sections.

See Figure 10 for total number of invention disclosure, provisional patent and patent cooperative treaties (PCT) applications filed by fiscal year. Invention disclosures are primarily internal documents, filed with TDO to inform the decision of whether or not to proceed with the patent process. The next stage in the patent process is to file provisional patent applications followed by patent cooperative treaties, or PCTs, which act as a gateway to world-wide patents, each step involving greater specificity.

FIGURE 10 Total # of Invention Disclosures, Provisional Patent and PCT Applications Filed by Fiscal Year



See Figure 11 for the number of national provisional patent applications filed and issued. Applications filed in a given year represent different applications than those which are approved in that same year.

FIGURE 11 Total # of National Provisional Patent Applications Filed and Issued by Fiscal Year

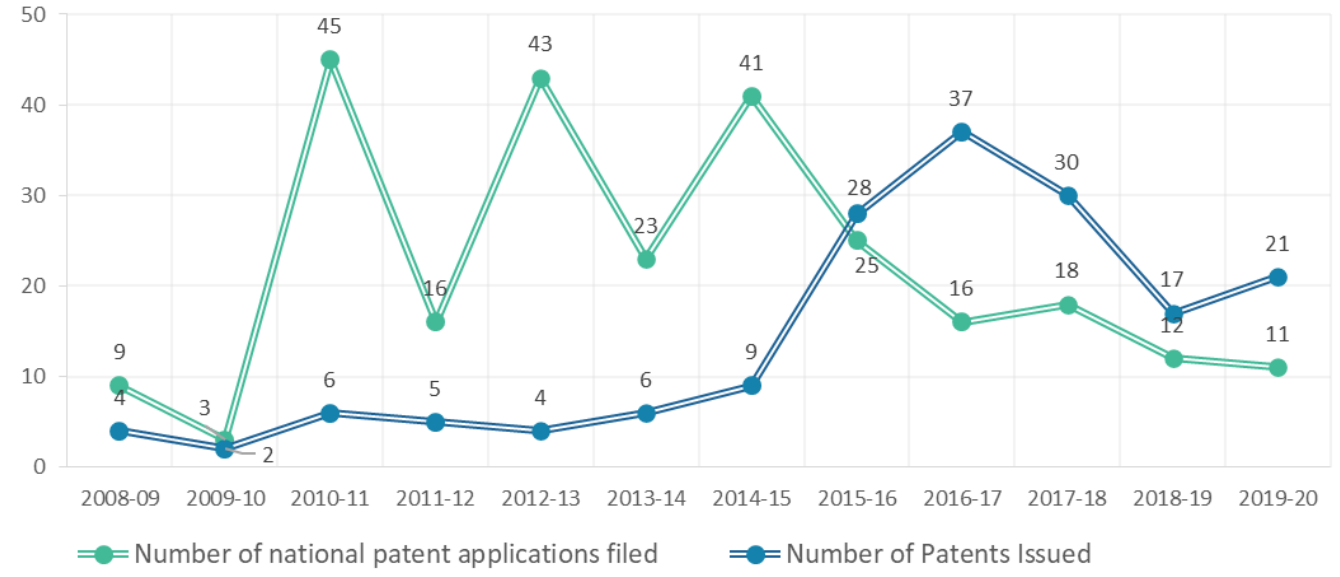
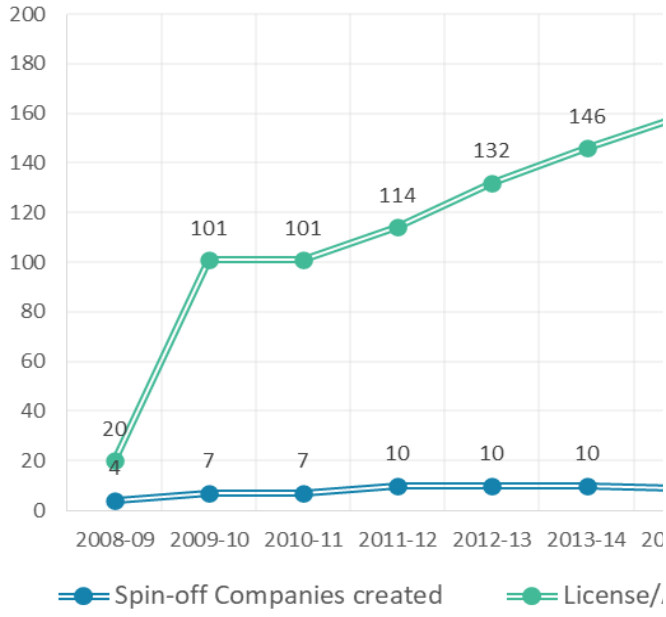


Figure 12 shows all licensing agreements and spin-off companies for PHSA Overall, combined for the past 12 years. Data is collected from the Technology Development Office (TDO) of BC Cancer and through UBC's University-Industry Liaison Office (UILO) which includes activities from BCCHR and BCMHSUS researchers. Program specific numbers can be found in the BC Cancer and BCCHR program sections. Three spin-offs were created; Alpha9 Theranostics, Innovakine Therapeutics Inc. (BC Cancer) and Incisive Genetics (BCCHR).

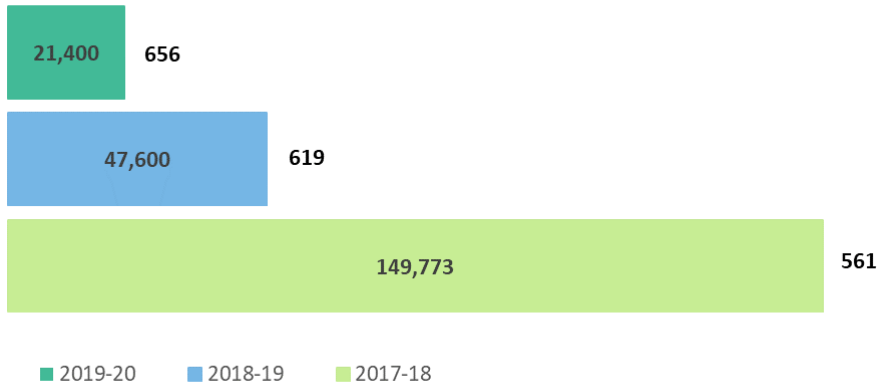
FIGURE 12 License/Assignment Agreements and Spin-Off Companies by Fiscal Year



For FY 2019-20, the number of clinical trials increased by 37 to 656, a 6% increase over FY 18-19. The large decrease in enrollment, is primarily due to the termination of the Randomized Controlled Trial of Human Papilloma Virus (HPV) Testing for Cervical Cancer Screening study that expired in Oct 2019. See Figure 13 for number of Clinical Trials and Total Cumulative Subject Enrollment by Fiscal Year.

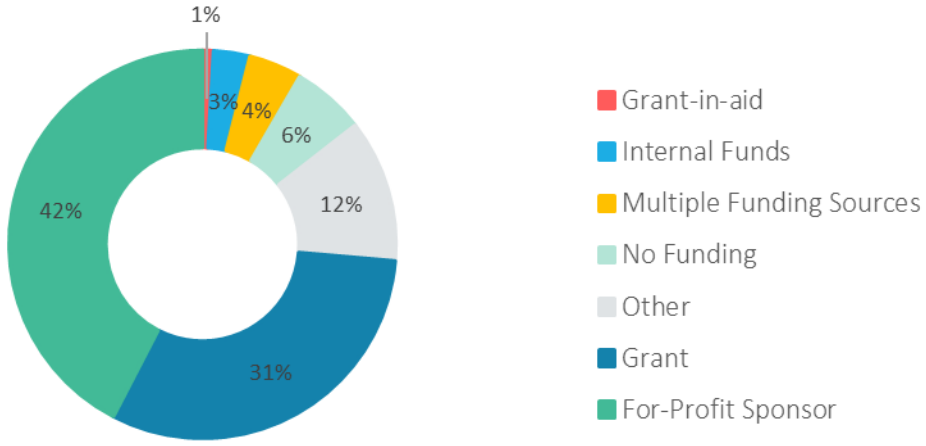
The opportunity to participate in clinical trials is an important metric because it offers patients the opportunity to participate in clinical evaluation of new drugs, many of which achieve therapeutic benefits beyond those offered by standard of care treatment. Clinical trials also represent the final step in the translational research continuum, which begins with basic or discovery research, includes development of particular products, and culminates with the testing of those products in rigorous trials

FIGURE 13 Total Cumulative Subject Enrollment and # of Clinical Trials by Fiscal Year



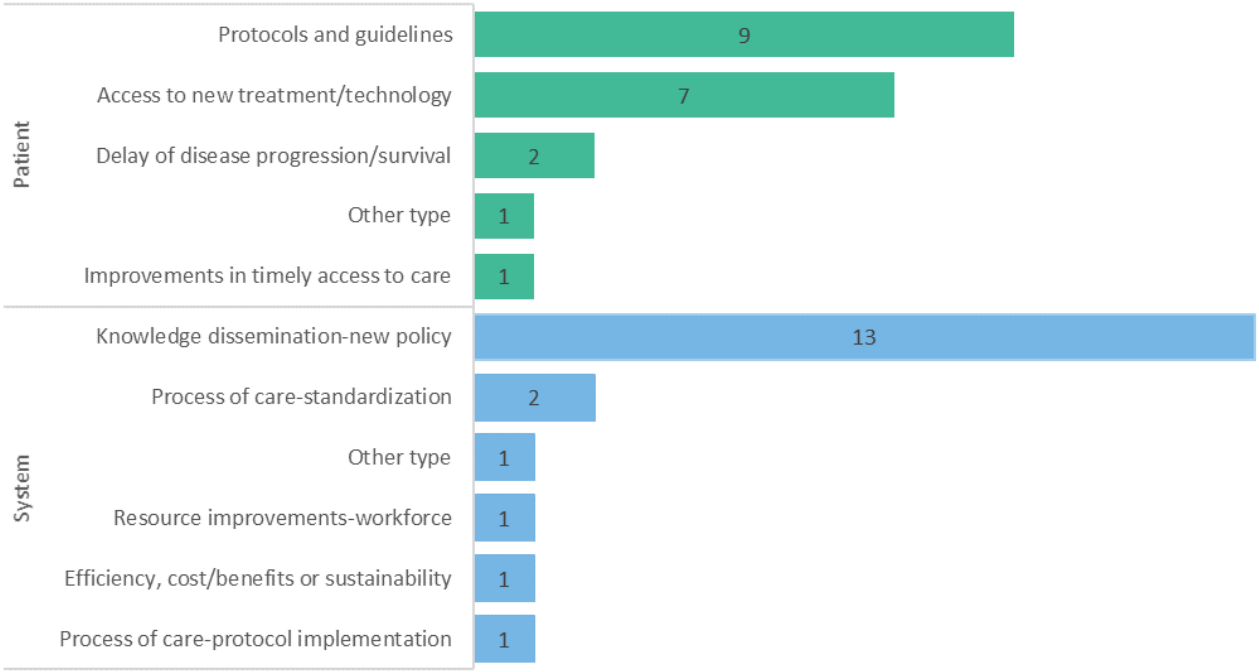
Grant funding type for Clinical Trials is sourced from the REB (Research Ethics Board) file and reflects the funding type entered as part of the ethics application (see Glossary – Appendix 1, page 66 for a definition of funding types). The percentage of trials that are industry sponsored (For-Profit Sponsor) was 42%, up 8% from FY 18-19. This increase is due to better data quality. See Figure 14 for a breakout of trials by funding type percentage and the details on the number of trials in each category. The Other category includes CT's with no funding type or with funding types that cannot be classified into one of the other categories.

FIGURE 14 PHSA Percent of Clinical Trial Grant Funding Type – Active and Terminated Trials within the FY



In FY 2018-19, the programs completed the survey that asked respondents to identify guidelines, drugs, diagnostic agents or devices adopted or approved in FY 2018-19 because of research driven by PHSA researchers or collaborative research in which PHSA researchers were key participants. The survey was not intended to be exhaustive, but to capture the significant, top of mind advancements, and, further, asked respondents to identify the benefits to patients, population health, and/or health system sustainability of those advancements. Respondents were asked to classify the stated benefits into categories to more fully summarize the responses. Figure 15 is a summary of the classification of benefits realized through research. These represent the top choice of category as many benefits were classified into more than one category.

FIGURE 15 Classification of Benefits Summary for All Programs



BC CANCER

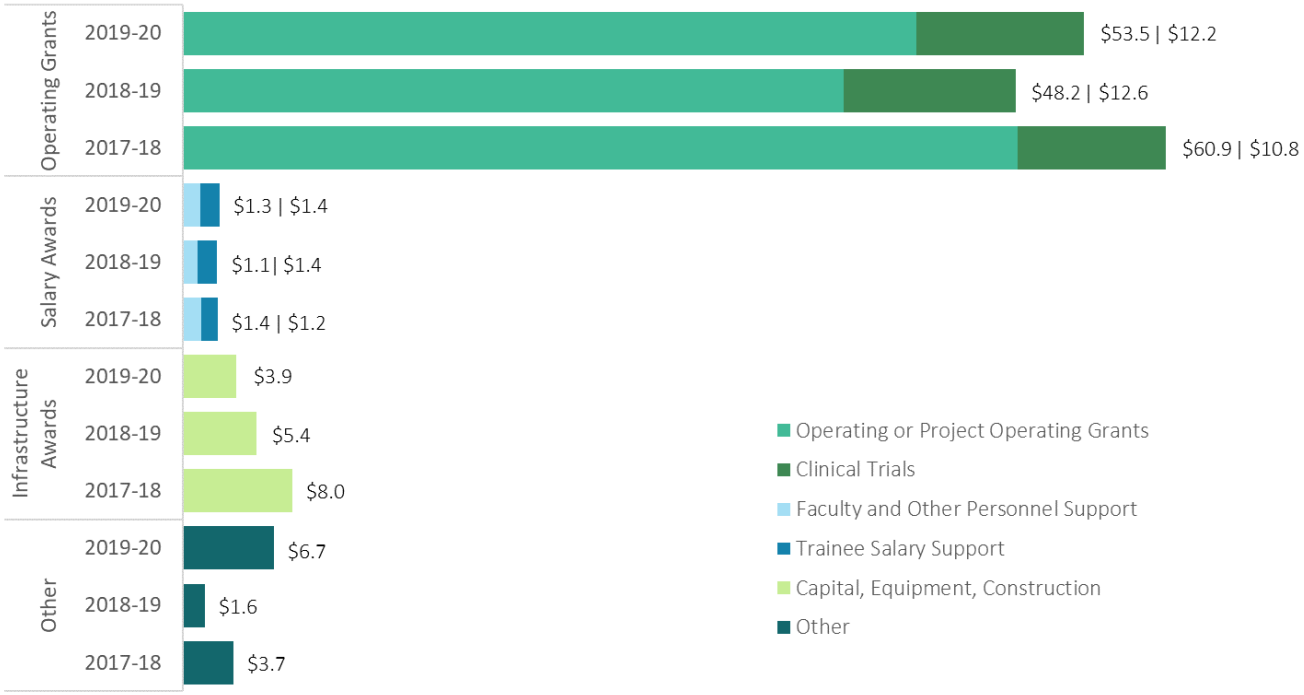
Producing and Advancing Knowledge

In FY 2019-20, researchers affiliated with BC Cancer were awarded a total of $76,382,784 in research funding which represents a $6,008,931 or 8.5% increase over FY 18-19. Operating Grants ($65,757,997) represent 86.1% of total awards.

A breakdown of funding types and subtypes can be found in Figures 16.

BC Cancer's portion of the Research Support Fund grant for FY 2019-20 is $1,626,148 but is not included in total research funding or the figures below.

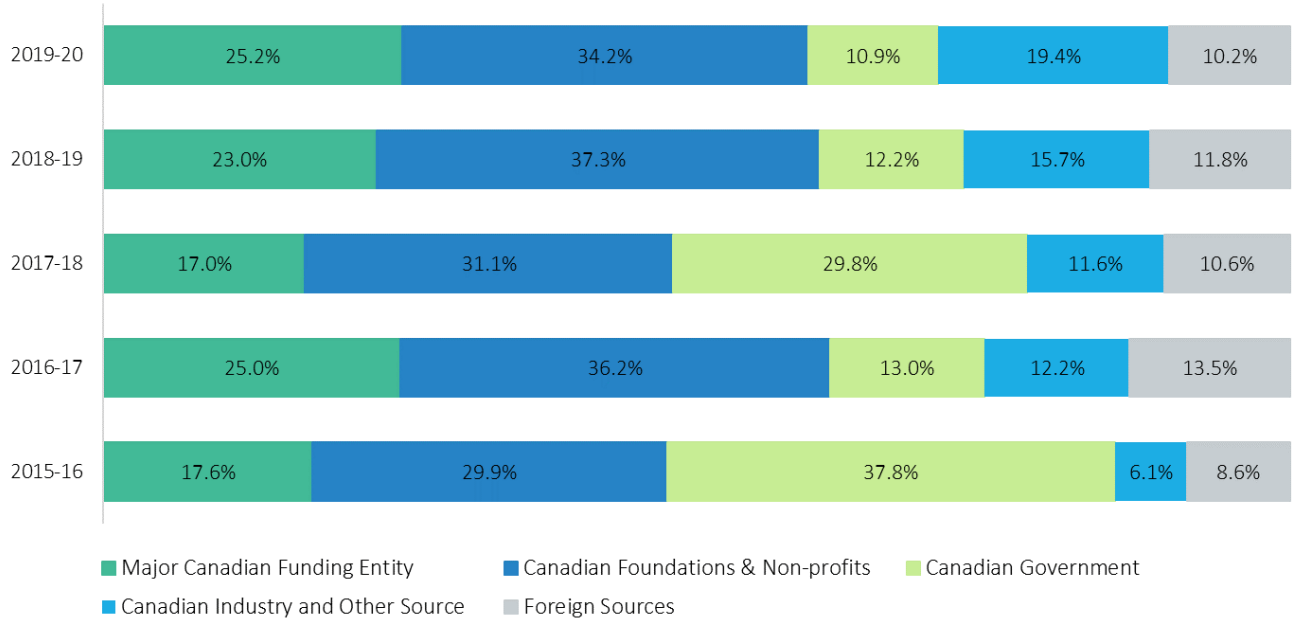
FIGURE 16 Total BC Cancer Research Funding by Funding Type and Sub-type by Fiscal Year



(values are in millions)

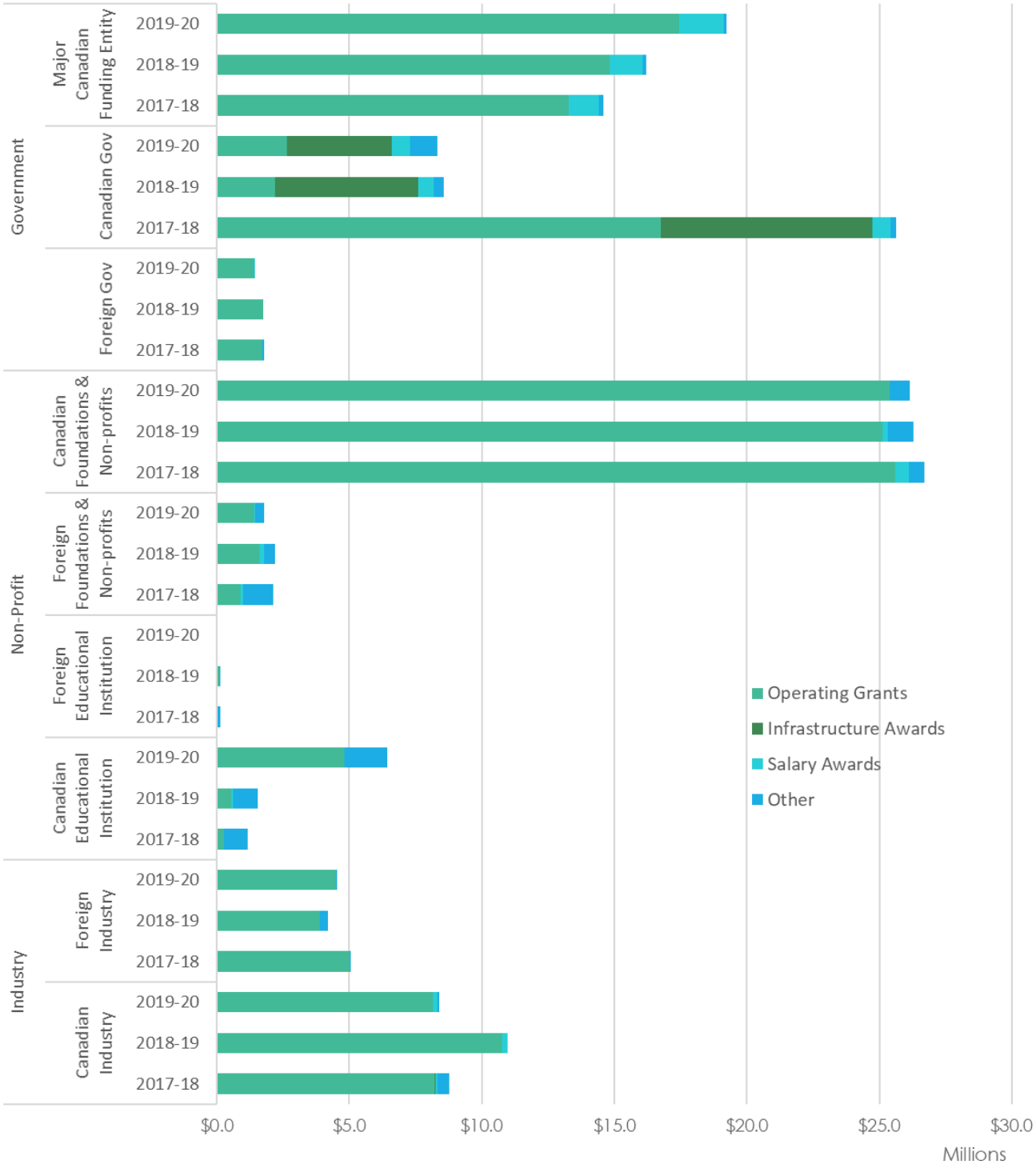
Figure 17 shows the percentage of funding by funding source category for the past 5 fiscal years. The Major Canadian Funding Entity category includes CIHR and its Institutes, Genome Canada and the Provincial Genome Agencies, Michael Smith Foundation for Health Research (MSFHR), Natural Sciences & Engineering Research Council (NSERC), and the Social Sciences & Humanities Research Council (SSHRC). While there has been fluctuation between categories, Canadian sources of funding have remained approximately 80% of total funding, each year. The percentage breakdown was very similar to the previous FY.

FIGURE 17 Percentage of BC Cancer Research Funding by Funding Source Category by Fiscal Year



As in the PHSA overall section, BC Cancer's Total Award Funding is shown by RISe sector, Funding Source Category and Funding Type. In FY 19-20, the top funding sources are, Canadian Foundations & Non-profits, Major Canadian Funding Sources (CIHR, MSFHR, NSERC, SSHRC and Genome Canada), Canadian Industry and Canadian Education Institutions. Of note is the decrease in Canadian Government funding due to no large infrastructure awards. Figure 18 details the major funding categories by funding type.

FIGURE 18 BC Cancer Research Funding by RISe Sector, Funding Source Category and Type by Fiscal Year



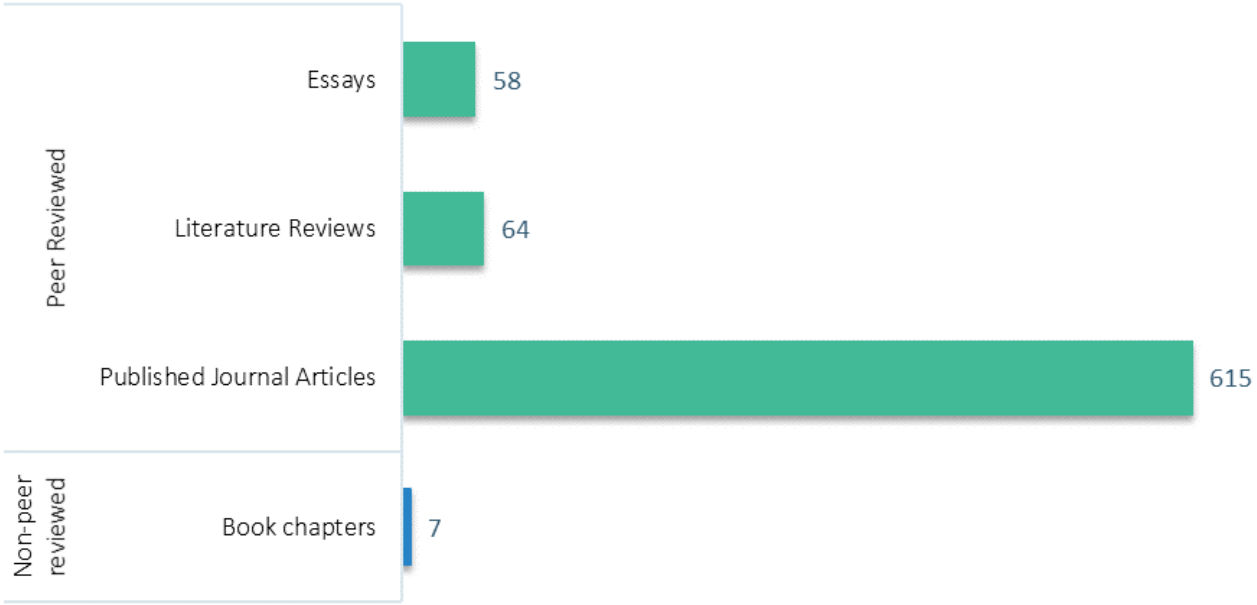
The application success rate is reported for the Fall 2019 and Spring 2020 CIHR grant competitions. Results (see table 1) are shown for National and PHSA research entities combined. BC Cancer was successful in the Project Grant competitions for a total of 7 awards, beating the national average in the Fall 2019 Project competition.

TABLE 3 BC Cancer Annual Grant Application Success Rate

Grant Funding Opportunity	National Overall Results % (Approved/Submitted)	BC Cancer Results % (Approved/Submitted)
2019-09 Project Grant	15.7% (389/2,484)	22.7% (5/22)
2020-03 Project Grant	16.9% (359/2,130)	6.9% (2/29)

Total number of publications by type and category of peer vs. non-peer review is seen in Figure 19. BC Cancer had a total of 744 publications, with a majority (615) of published journal articles.

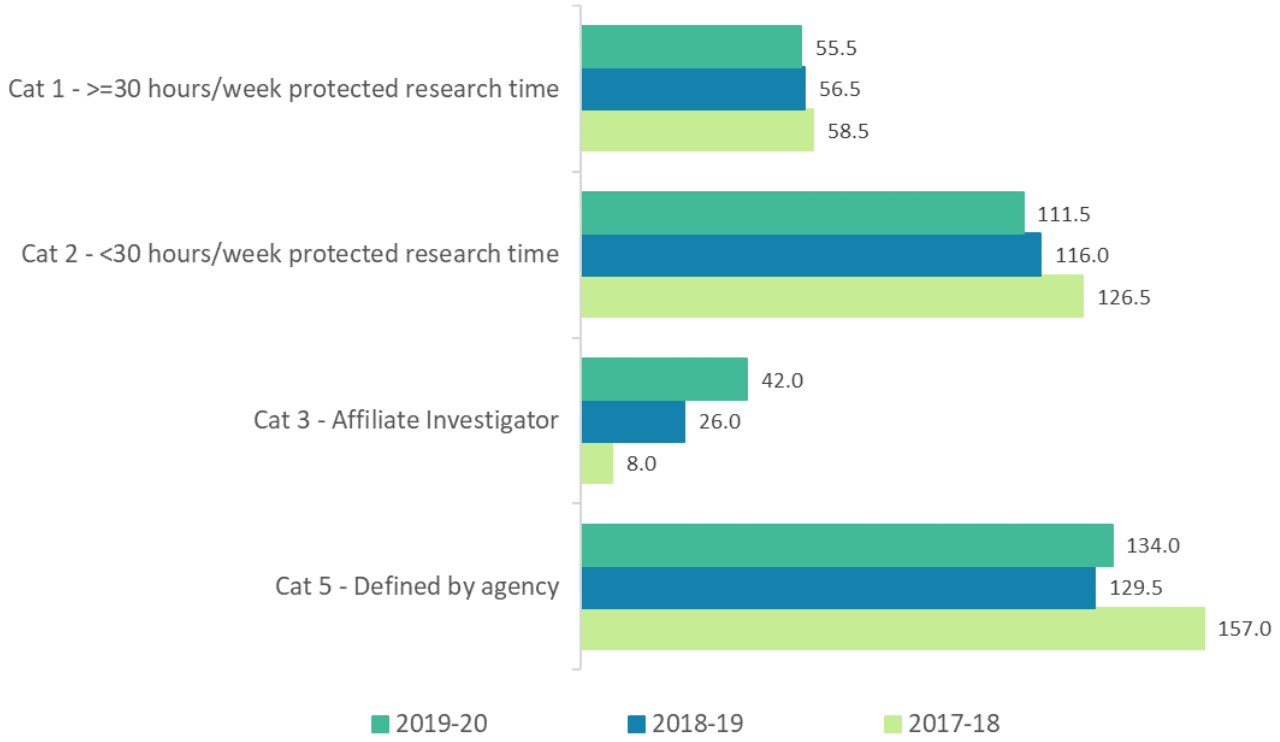
FIGURE 19 Total Number of BC Cancer Publications by Type and Category



Building Research Capacity

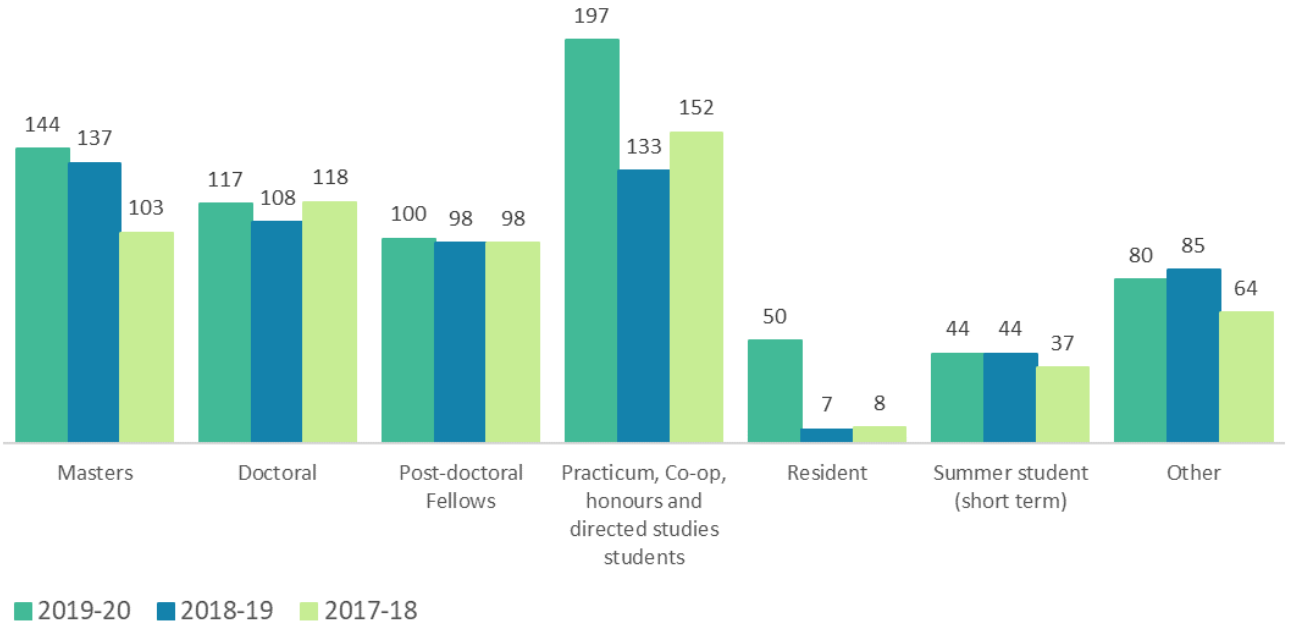
BC Cancer has a total of 301 researchers in FY 2019-20 in categories 1, 2, and 5. While adoption of the BCCHR category classifications is in place, a significant amount (134) of the total researchers are in Category 5, which is a program specific category used to describe researchers that do not meet BCCHR category classifications. For BC Cancer, the majority of Category 5 researchers are Medical or Radiation Oncologists, Program or Practice Leaders, and Nurses. As in past year's reports, researchers whose funding is officially split 50/50 between research entities are classified as 0.5. See Figure 20 for the number of researchers by category.

FIGURE 20 Total Number of BC Cancer Researchers by Category and Fiscal Year



During FY 2019-20, BC Cancer researchers provided training and supervision to a total of 732 trainees, an increase of 120 (19.6%) over FY 18-19. See Figure 21 for the number of trainees by type. The largest increases were seen in the Practicum, Co-op, honours and directed studies students and in resident. Factors influencing the number of trainees include but are not limited to, operating grant success rates; whether trainees can obtain fellowships to secure their own funding, and how often trainee competitions are held and the envelope of funding.

FIGURE 21 Total Number of BC Cancer Trainees by Type and Fiscal Year



Achieving Economic Benefits and Innovation

Patent Activity has remained relatively stable over the last three fiscal years (see Figure 22). Invention disclosures are primarily internal BC Cancer documents, filed with the Technology Development Office (TDO) to inform the decision of whether to proceed with the patent process. The next stage in the patent process is to file provisional patent applications followed by patent cooperative treaties, or PCTs, which act as a gateway to world-wide patents.

National patent applications are then filed with each step involving greater specificity. A diverse set of patents issued including four patents licensed to Nanostring/ Veracyte and three patents licensed to Alpha 9. See Figure 23 for a breakdown by fiscal year.

FIGURE 22 BC Cancer Invention Disclosures, Provisional Patent and PCT Applications by Fiscal Year

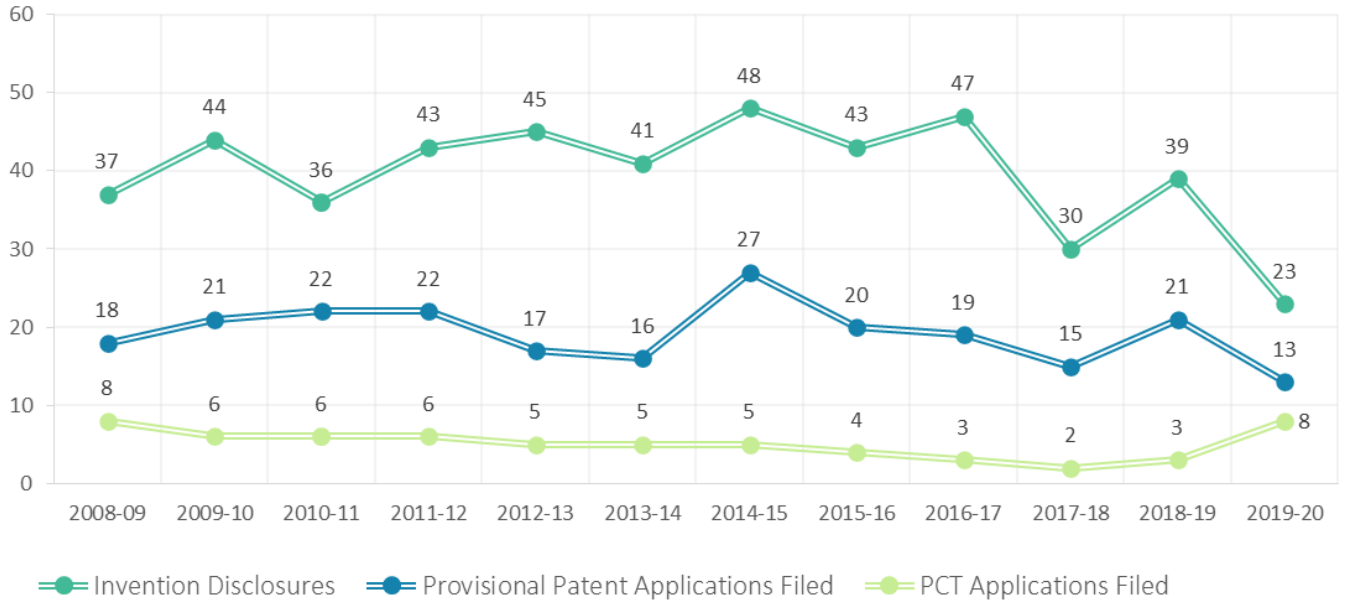
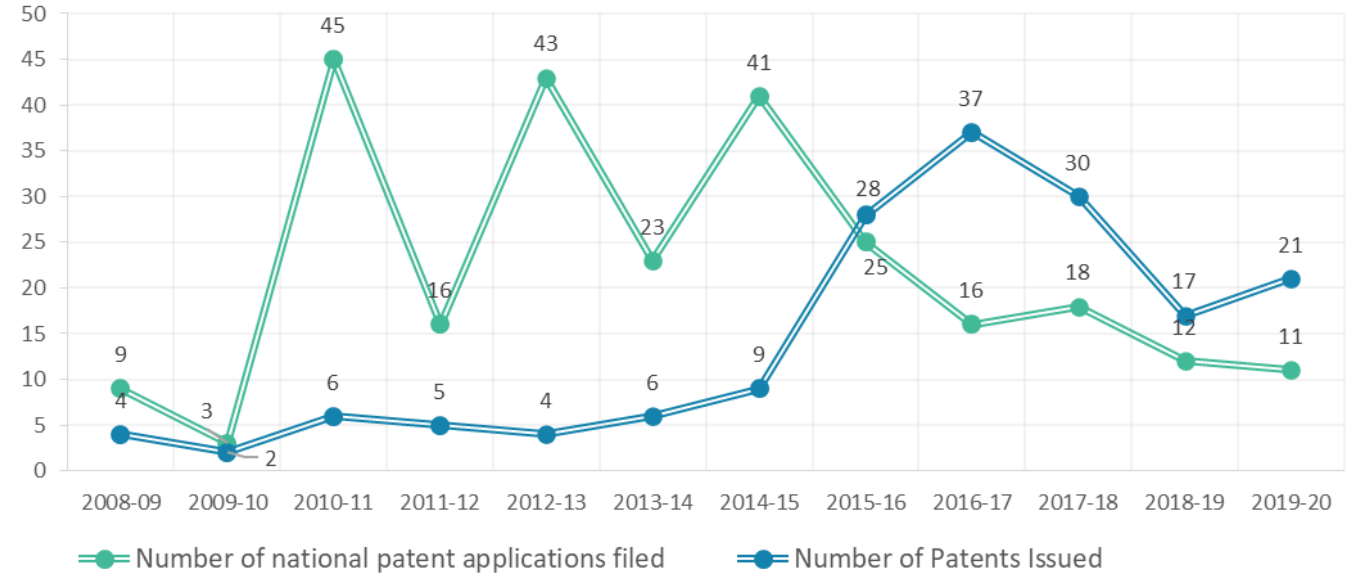
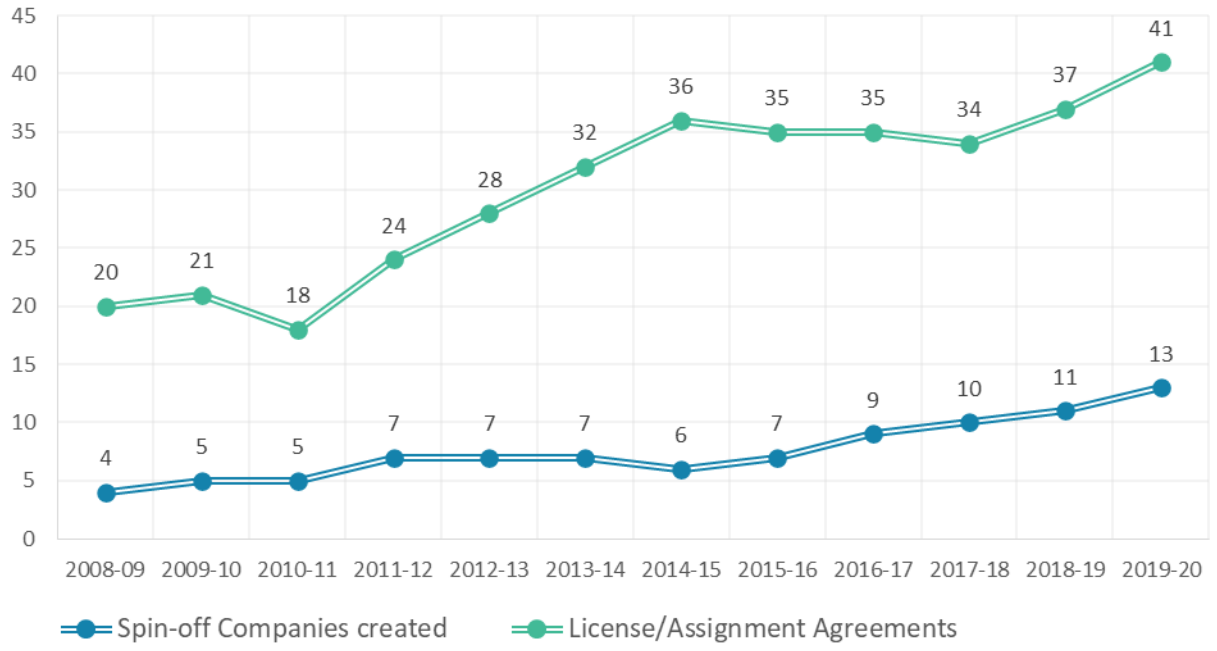


FIGURE 23 BC Cancer National Patent Activity by Fiscal Year



In FY 2019-20, there were 41 active license agreements (see Figure 24), including seven (7) new licenses/ assignment agreements. There were two (2) new spin-off companies created; Alpha9 Theranostics, And Innovakine Therapeutics Inc. Alpha-9 Theranostics is a new radiopharmaceutical company developing breakthrough products for cancer imaging by positron emission tomography (PET) and therapy using radioactive isotopes. Innovakine Therapeutics Inc. is an innovative platform technology company developing novel molecular tools to revolutionize cell-based therapies for cancer, infectious disease, autoimmunity and regenerative medicine. Other active Spin-off companies include Aquinox Pharmaceuticals, Essa Pharmaceuticals, Repeat Diagnostics, Logipath Medical, Qing Bile Therapeutics, Metera Pharma, Fusion Genomics, ARTMS Products and CPI.

FIGURE 24 BC Cancer License Agreements and Spin-Off Companies by Fiscal Year



IP related revenue, in accordance with UBC (University Industry Liaison Office UILO) definitions (see Glossary – Appendix 1, page 62) is reported in Table 4. Expenses related to patenting, license IP and legal costs totaled $425,737 in FY 2019-20. Realized licensing revenue per the distribution agreements totals $432,697 with $149,682 to PHSA and $283,015 to BC Cancer departments. While distribution agreements vary, typically the inventor receives 50% of the net licensing revenue, with the remainder split between PHSA, BC Cancer departments, and UBC for those researchers with a UBC affiliation.

TABLE 4 TDO IP Related Revenue

IP RELATED REVENUE	FY 2015-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20
Royalties	$337,646.78	$765,483.79	$410,845.30	$637,718.79	$729,984.18
Equity Liquidated	$257,794.00	$101,351.28	$303,880.54	$122,861.33	$31,375.94
License Fees	$111,500.00	$149,840.95	$113,517.95	$251,513.80	$302,783.22
License Management	$299,798.18	$237,120.85	$154,190.87	$112,066.91	$134,207.37
Option Fees	$5,000.00				
GROSS LICENSING REVENUE (TOTAL)	**$1,011,738.96**	**$1,253,796.85**	**$982,434.66**	**1,127,160.83**	**$1,198,350.71**

Advancing Health and Policy Benefits

See Table 5 for a detailed breakdown of clinical trial activity by fiscal year. The large decrease in enrollment, is primarily due to the termination of the Randomized Controlled Trial of Human Papilloma Virus (HPV) Testing for Cervical Cancer Screening study that expired in Oct 2019.

TABLE 5 BC Cancer Clinical Trials

	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Total Number of Clinical Trials active during the FY	321	317	303	321	309	337	367
Status of the Trial at the end of the FY:							
Total Number of Active Trials	274	234	249	265	257	277	288
Total Number of Trials that closed during the FY	47	83	54	56	52	60	79
Enrolment Numbers:							
Expected Local Subject Enrolment (for the term of the study)	36,653	41,867	41,598	44,305	43,064	47,366	23,563
Total Cumulative Subject enrolment at the end of the FY	27,299	28,521	29,244	30,084	34,573	34,341	8,270

Grant funding type is reported for Clinical Trials in figure 25. This information is sourced from the REB file and reflects the funding type entered as part of the ethics application (see Glossary – Appendix 1, page 66 for a definition of funding types). This information can be used to trend the percentage of trials that are industry sponsored. Fifty-nine percent (59%) of BC Cancer Clinical Trials are Industry funded.

FIGURE 25 BC Cancer Percentage of Clinical Trial Grant Funding Type – Active and Terminated Trials within the FY

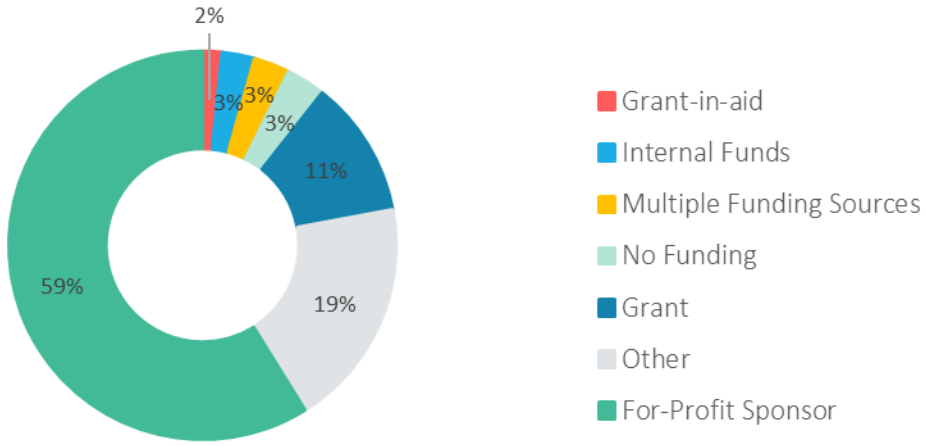


Table 6 reflects BC Cancer's Top Three Achievements/Accomplishments/Highlights, and can include awards, citations, clinical programs, either in progress or historical, and be relevant to FY 19-20 timeframe (April 1, 2019 - March 31, 2020).

TABLE 6 BC Cancer Top Three Achievements/Accomplishments/Highlights

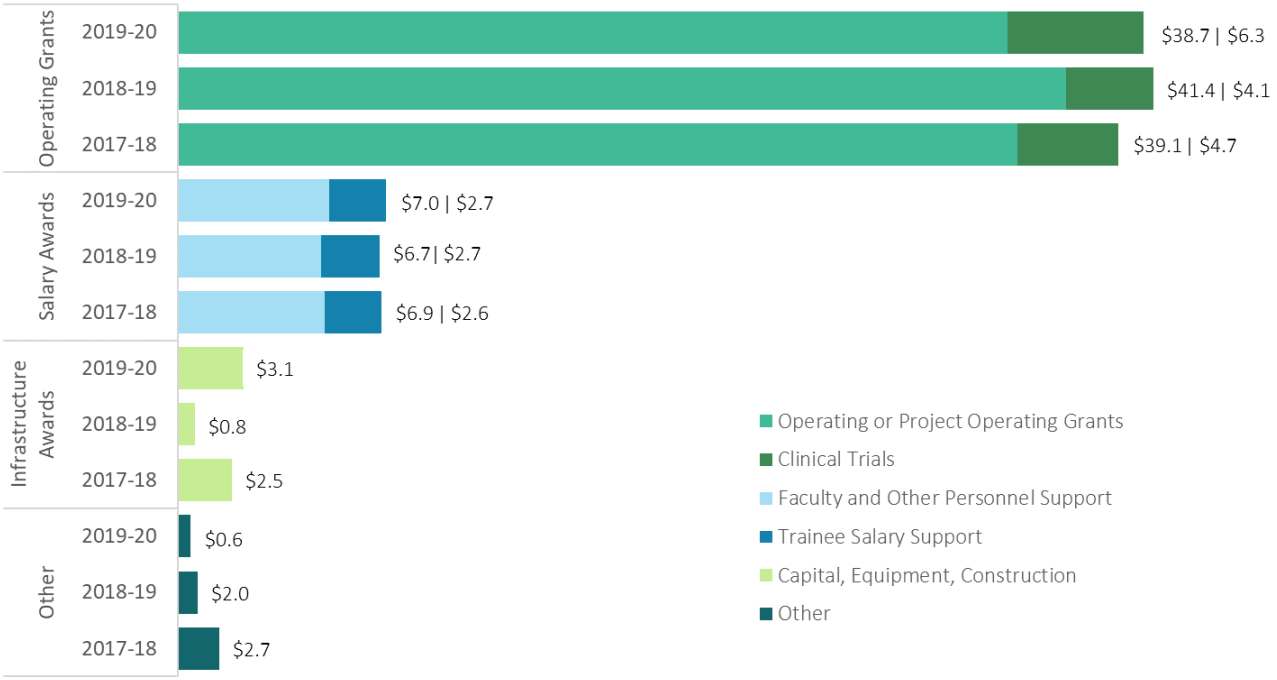
DR. CONNIE EAVES INDUCTED INTO THE CANADIAN MEDICAL HALL OF FAME
Dr. Connie Eaves, co-founder of BC Cancer's Terry Fox Laboratory, was inducted into the Canadian Medical Hall of Fame. Further, she received the Gairdner Wightman Award, which is awarded to a Canadian health researcher whose career has demonstrated extraordinary leadership and exceptional science. To cap things off she was also listed as one of Chatelaine Magazine's Women of the Year for her award-winning research on stem cells, leukemia and breast cancer. Dr. Eaves' work over the last 50 years has been a team effort carried out in part with her husband, Dr. Allen Eaves, now an emeritus. Their research has led to meaningful insights into the cells that produce leukemia and breast cancer, including uncovering chemotherapy resistant cancer stems cells and the presence in some types of leukemic patients of normal blood stem cells where these cells had not been previously detectable. Such discoveries have spurred the development of new treatments for these cancers. Many of the pioneering research methodologies generated by Dr. Eaves have also become the gold standard globally, facilitating research around the world.
GENOME SCIENCES CENTRE CELEBRATES 20 YEAR ANNIVERSARY
BC Cancer celebrated 20 years of Canada's Michael Smith Genome Sciences Centre at BC Cancer (GSC). Over the last 20 years the GSC has trained more than 2000 highly qualified personnel and published more than 1400 peer-reviewed papers which have attracted more than 170,000 citations. It has been part of nearly 900 research projects and has contributed to thousands of national and international research collaborations. More than $1.1 billion dollars from over 160 funders has been awarded to the GSC's 13 principal investigators. This past year the GSC sequenced 391,012,881,130,938 bases of DNA, bringing its total to more than 2.74 pentabases - roughly equivalent to the number of base-pairs in nearly 900 human genomes. The GSC also had the pleasure of hosting the Honourable John Horgan, Premier of British Columbia, who received a hands-on, personal tour of its DNA sequencing and bioinformatics technology platform from Director and Distinguished Scientist, Dr. Marco Marra.
BC CANCER JOINS PAN-CANADIAN HOPE CANCER CENTRE NETWORK
BC Cancer Research to be part of Pan-Canadian network "Marathon Of Hope Cancer Centres Network". The network, which will receive $150M over five years from the Federal Government is led by the Terry Fox Research Institute (TFRI). The network will unite cancer centres across Canada for the first time, accelerating the implementation of precision medicine so that Canadian cancer patients can access the right treatment at the right time for their particular cancer, no matter where they live in the Country. Precision medicine is a highly promising framework for cancer research and care that takes the genetic characteristics of each patient and their cancers into consideration to personalize treatments, making them more effective and reducing negative side-effects associated with current therapies. The Marathon of Hope Cancer Centres network will help make precision medicine for cancer a reality by bringing together the country's top cancer centres and their researchers to share data and apply new technologies such as genomics, advanced imaging, big data and artificial intelligence for the benefit of patients. Five regional consortia, representing cancer research and care institutions in BC, Ontario, Quebec, the Prairies and Atlantic Canada will participate in the network once fully operational. A key network deliverable is the creation of a 15,0000 high-quality sharable dataset of cancer cases - to be completed by 2023.

BC CHILDREN'S HOSPITAL RESEARCH INSTITUTE (BCCHR)

Producing and Advancing Knowledge

In FY 2019-20, researchers affiliated with BCCHR were awarded a total of $58,390,196 in research funding, an increase of $1,724,576 (3%) from last FY. The amounts awarded as Operating Grants ($45,003,668) make up approximately 77% of total funding received. Clinical Trial funding reached an all time high for BCCHR at 10.8% of total funding. A breakdown of funding types and subtypes can be found in Figure 26. BCCHR's portion of the Research Support Fund Program grant totaled $1,955,531, for FY 2019-20 but is not included in total research funding or the figures below.

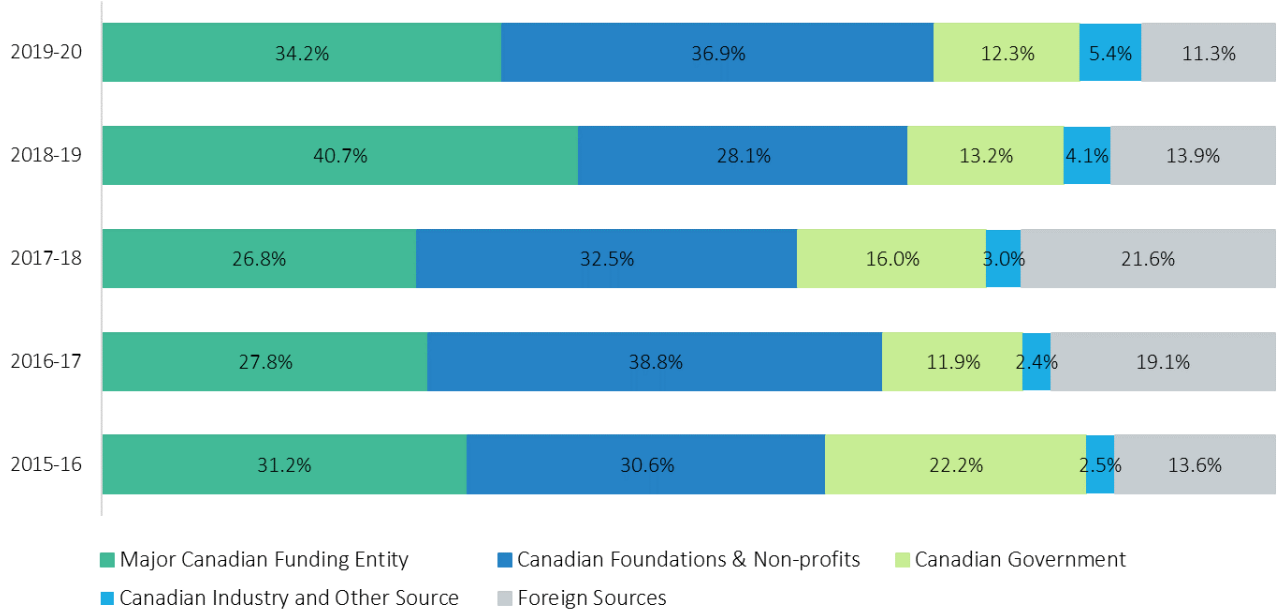
FIGURE 26 Total BCCHR Research Funding by Funding Type and Sub-type by Fiscal Year



(values are in millions)

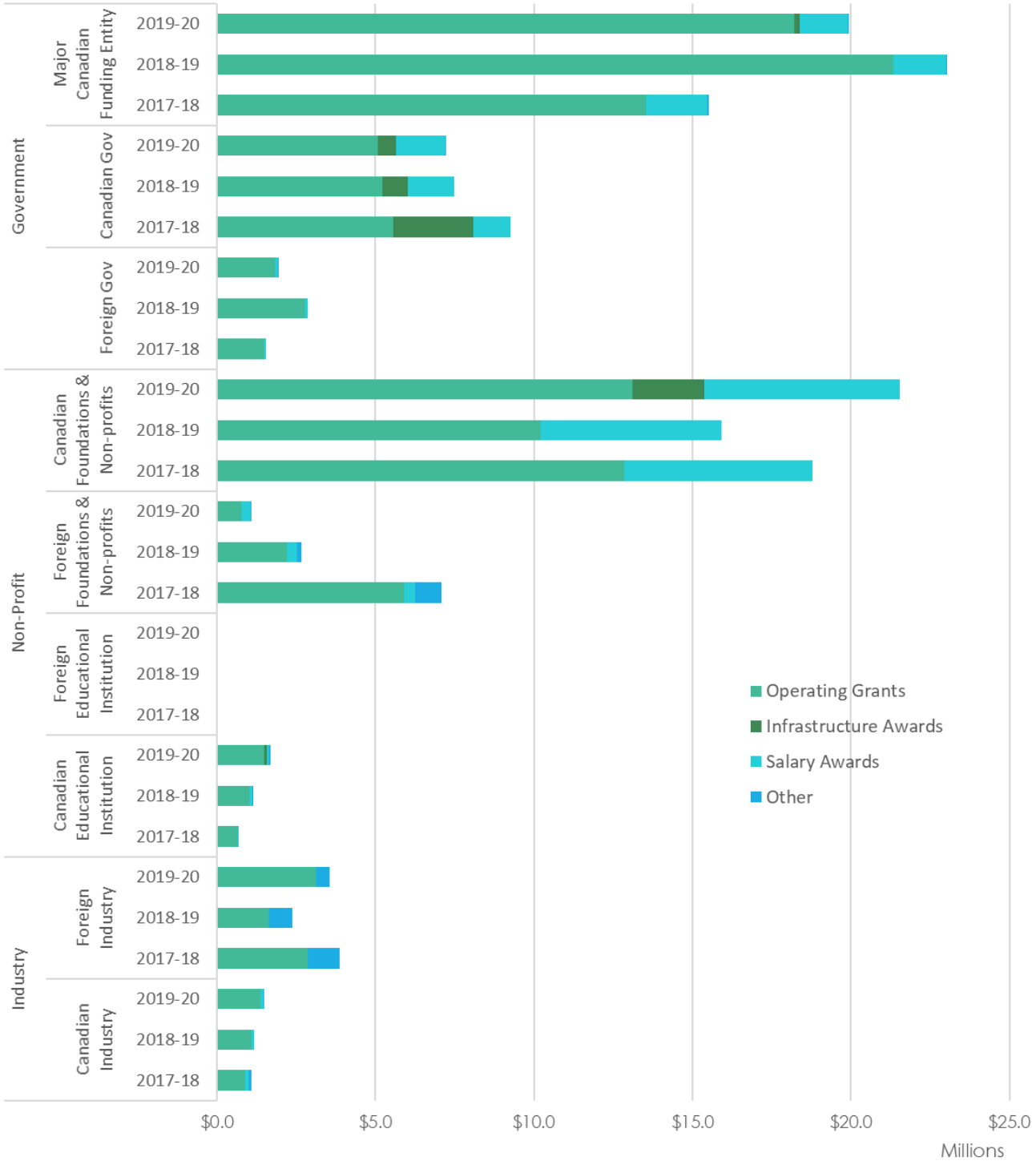
Figure 27 shows funding by funding source category. For FY 19-20, Canadian Foundations & Non-profits saw an increase to 36.9% attributable to an increase in awards from the BC Children's Hospital Foundation. The Major Canadian Funding Entity category saw a decrease due to fewer CIHR awards.

FIGURE 27 Percentage of BCCHR Research Funding by Funding Source Category by Fiscal Year



The top three funding categories are Canadian Foundations & Non-Profits (36.9%), Major Canadian Funding Entity (34.2%), and Canadian Government (12.3%). Figure 28 details the RISe sector and funding categories by funding type.

FIGURE 28 BCCHR Research Funding by RISe Sector, Funding Source Category and Type by Fiscal Year



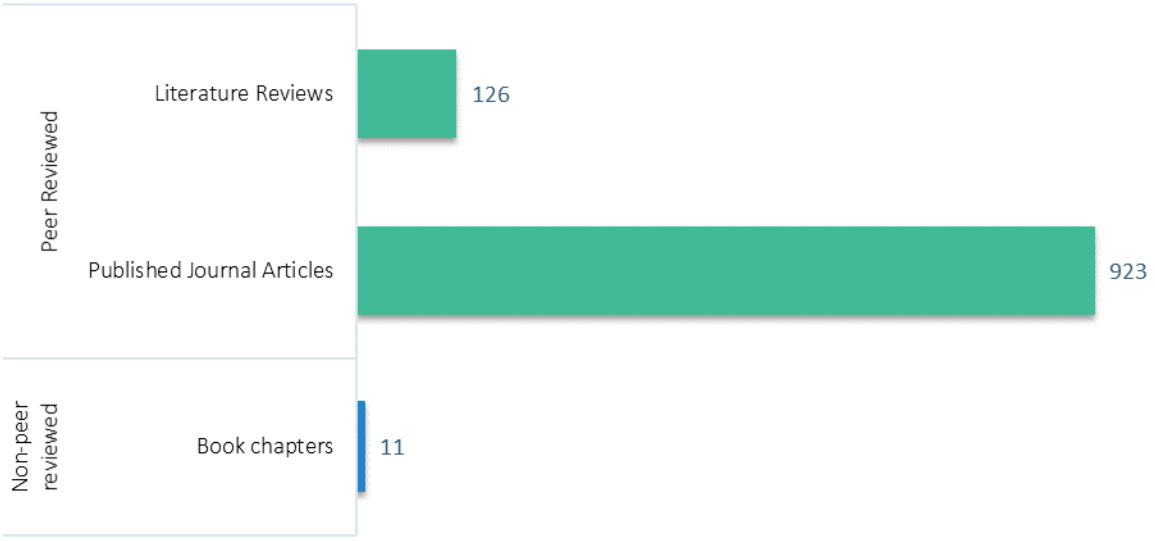
The application success rate is reported for the Fall 2019 and Spring 2020 CIHR grant competitions. Results (see table 1) are shown for National and PHSA research entities combined. BCCHR was successful in the Project Grant competitions for a total of 16 awards, beating the national average in the Fall and Spring Project competitions.

TABLE 7 BCCHR Annual Grant Application Success Rate

Grant Funding Opportunity	National Overall Results % (Approved/Submitted)	BCCHR Results % (Approved/Submitted)
2019-09 Project Grant	15.7% (389/2,484)	26.5% (9/34)
2020-03 Project Grant	16.9% (359/2,130)	28% (7/25)

BCCHR had 1,060 publications in calendar year 2019, with 99% of them being peer reviewed. Total number of publications by type and category of peer vs. non-peer reviewed, is seen in Figure 29. Peer review represents the gold standard for scientific credibility. The program total represents the number of publications where at least one program researcher was an author of the publication. When researchers from more than one research entity/program collaborate on the same publication, it is counted once for each program. BCCHR includes case reports and essays in journal articles and accepts e-journal articles.

FIGURE 29 Total Number of BCCHR Publications by Type and Category



Two full fiscal years' worth of data is provided for the BCCHR four research specific social media channels; Facebook (member since July 2011); Twitter (member since March 2009); Instagram (member since January 2018); and LinkedIn (member since 2015). Tracking and reporting of this data is a measure of knowledge translation in addition to meeting the following goals with regard to BCCHR research activities:

- To increase online visibility of and traffic to BCCHR website
- To have our audience complete a specific ask, such as sign up for our newsletter, request information about a study, donate to research
- To further disseminate the knowledge that's produced here to the public, to our own PIs and trainees, and to our colleagues at BCCHF, BCCH and PHSA
- To engage and connect internal audiences including researchers and students

Table 8 shows annual results of two fiscal years, compared to the previous fiscal year. These metrics are a measure of reach and engagement and provide an indication of the volume of activity. They also include data that shows activity after a program posts content. These would include conversation rate (# of comments your content generated); amplification rate (the # of times your content was shared) and applause rate (# of likes or favorite clicks per post).

In addition to the below activity, many BCCHR researchers maintain their own professional accounts to engage peers, funders and patients, but this information is not tracked.

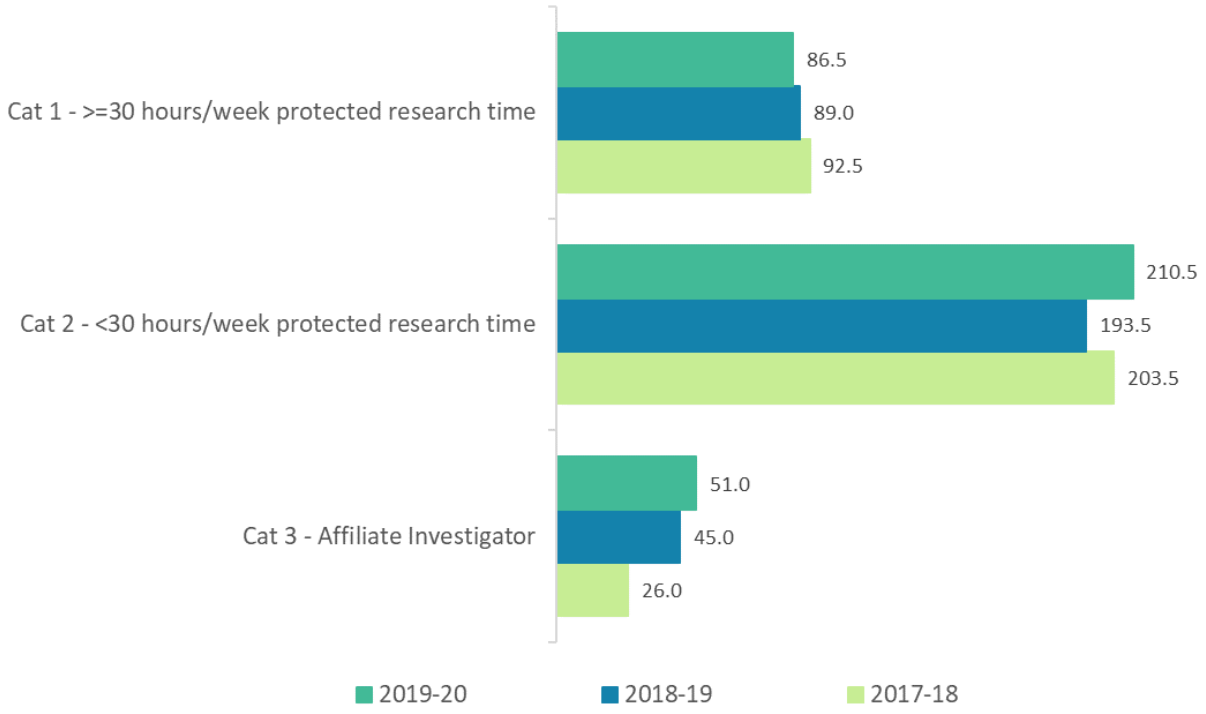
TABLE 8 BCCHR Social Media Statistics

Social Media Channel		Followers			Activity Rate			
		# of Followers	# of New Followers	% change	# of likes	% change	# of shares	% change
Twitter	FY 2019-20	3,329	924	38%	5,676	+34%	1,619	+8%
	FY 2018-19	2,405	626	+35.2%	4,228	+36.3%	1,505	+3%
LinkedIn	FY 2019-20	2,011	705	+54%	2,586	+143.3%	86	21.1%
	FY 2018-19	1,306	389	+42.4%	1,063	+19.8%	71	+255%
Facebook	FY 2019-20	1,806	581	+47%	7,641	+96%	850	+80%
	FY 2018-29	1,225	324	+36%	3,895	+17.4%	473	+63 .7%
Instagram	FY 2019-20	1,618	1,138	+237%	9,641	+525%	na	na
	FY 2018-19	480	151	+31.5%	1,543	+197.3%	58	+107.1%

Building Research Capacity

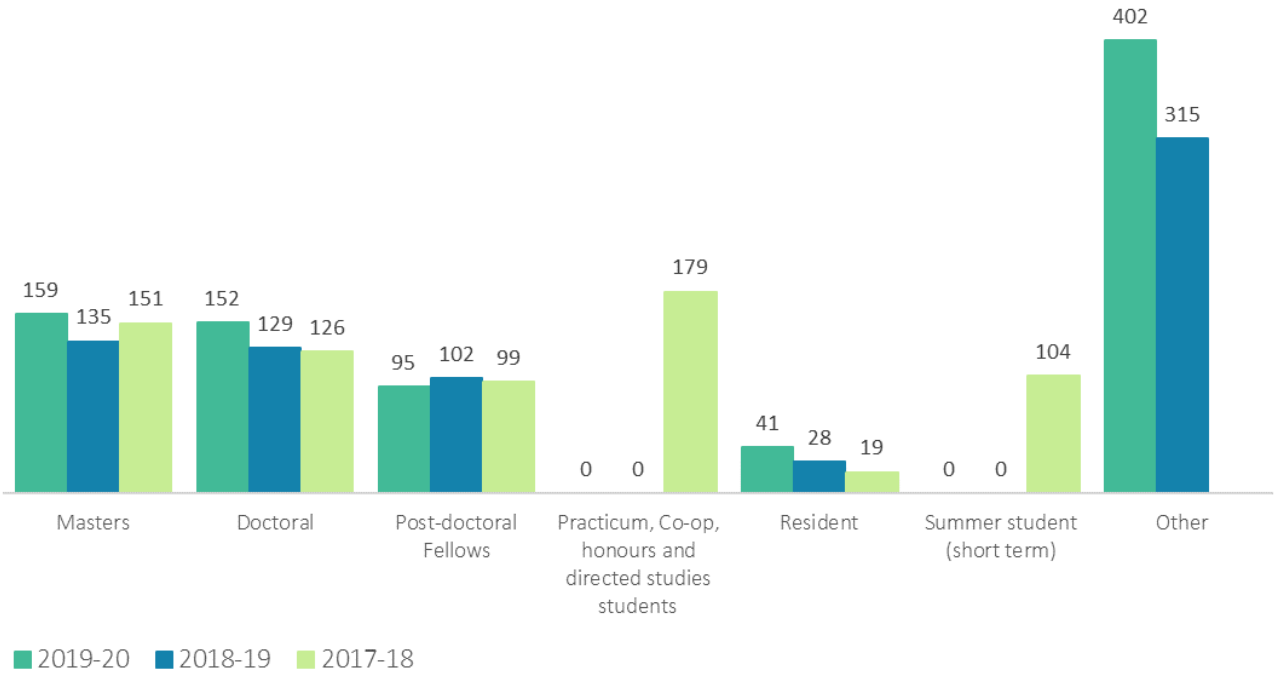
BCCHR has a total of 297 researchers in categories 1 and 2 and 51 affiliate researchers. The distribution of these researchers is represented in Figure 30. Researchers in categories 1 and 2 are primarily based on the Children's & Women's Health Centre of BC campus with the largest proportion of the members being split between Category 1 – those that have greater than 30 hours per week of their time protected for research and Category 2 – those that have less than 30 hours per week of protected research time. Category 3 members are affiliate investigators that are not based on site but who collaborate with BCCHR members and are affiliated with a research theme. Their primary affiliation will be with another academic and/or research institution. The purpose of this category is to provide official recognition for these individuals who collaborate with BCCHR members on a regular basis. The BCCHR does not track category 3 members funding, publications, or trainees. These numbers exclude Emeritus/Emerita Investigators who have prior status as investigators with BCCHR.

FIGURE 30 Total Number of BCCHR Researchers by Category



During FY 2019-20, BCCHR researchers provided training and supervision to a total of 849 (up 140 from FY 2018-19) trainees. The large increase in the Other category is due to the tracking of Practicum, Co-op, honours and directed studies students in additional to summer students in one combined category, without the ability to differentiate type. See Figure 31 for number of trainees by type. BCCHR currently tracks full-time research trainees (masters, doctoral and postdoctoral fellows) and undergraduate students undertaking their training at BCCHR.

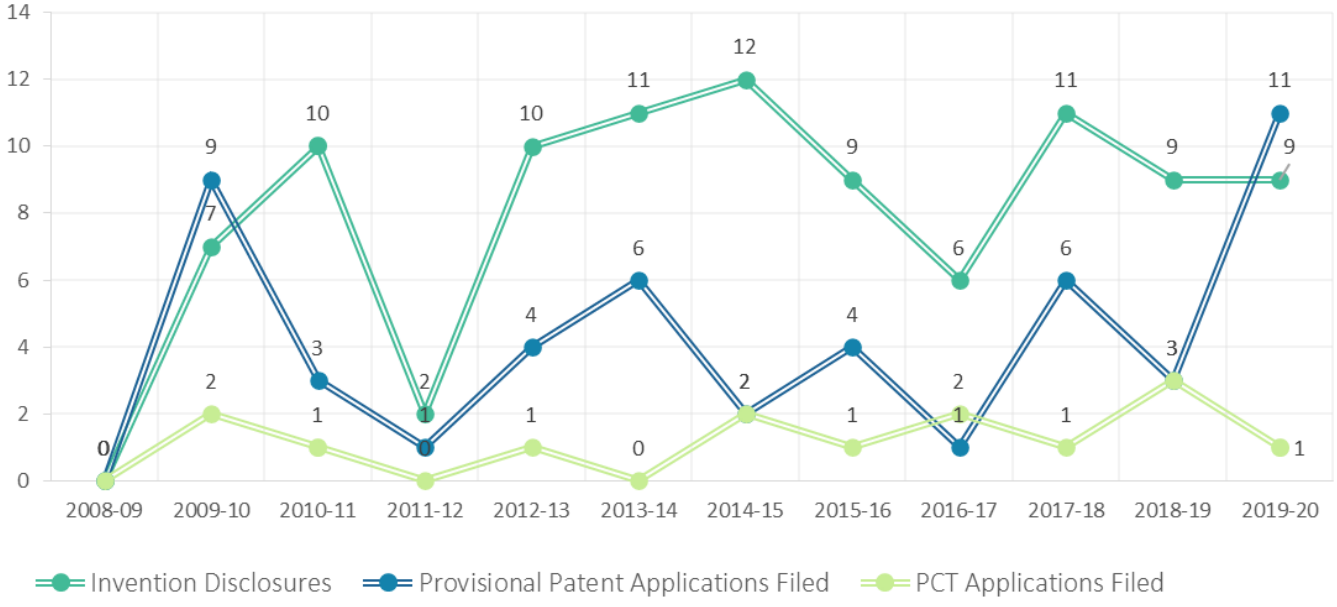
FIGURE 31 Total Number of BCCHR Trainees by Type



Achieving Economic Benefits of Innovation

The number of invention disclosures, provisional patent and PCT applications filed by fiscal year are shown in Figure 32

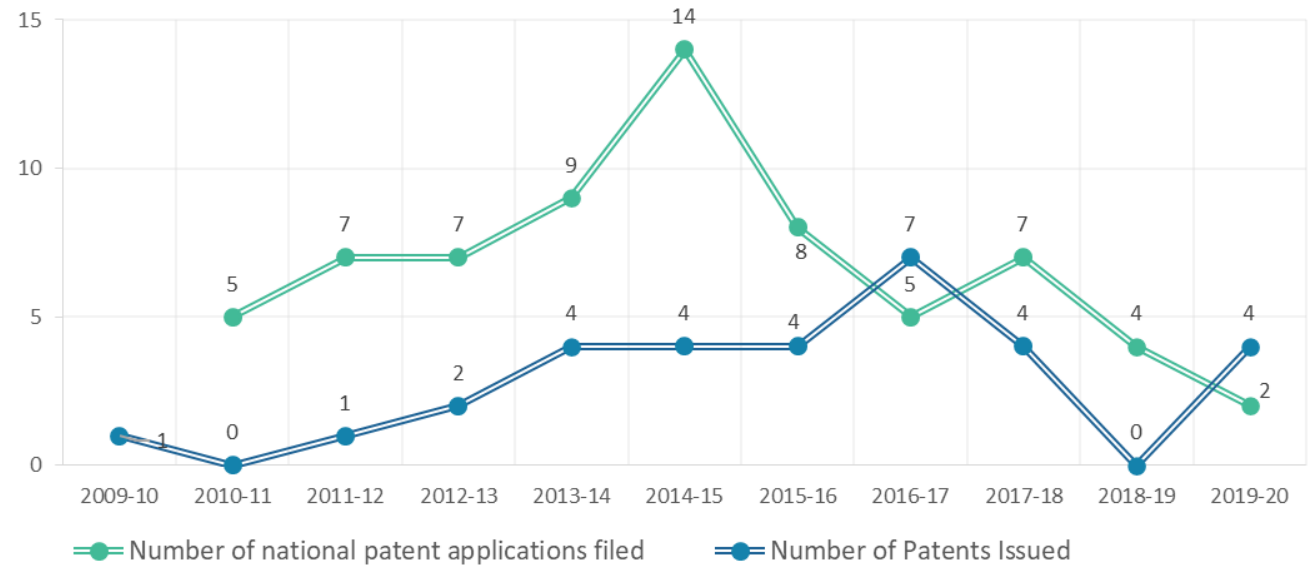
FIGURE 32 BCCHR Invention Disclosures, Provisional Patent and PCT Applications Filed by Fiscal Year



Patents are reported in Figure 33 below. Applications filed in a given year represent different applications than those which are approved in that same year (which typically are the result of applications in previous years).

Data is collected and reported by the University of British Columbia University-Industry Liaison Office (UILO).

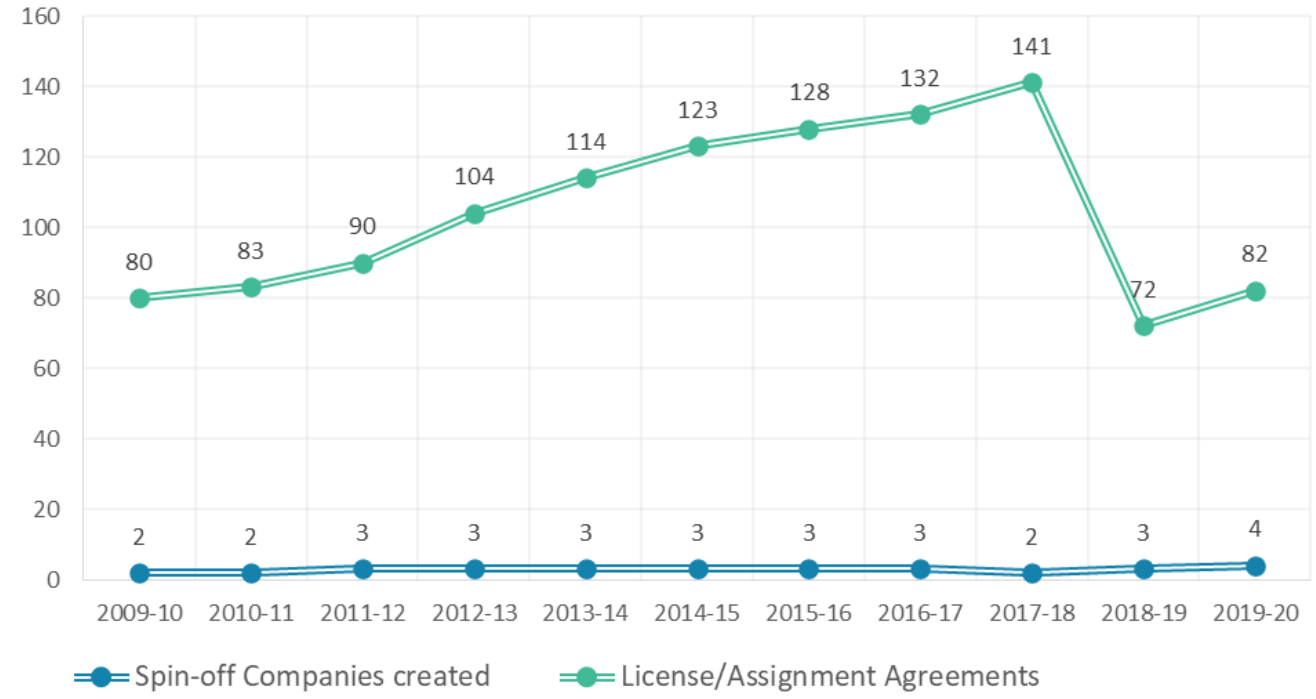
FIGURE 33 BCCHR National Patent Activity by Fiscal Year



In FY 2019-120 there were 82 active license/assignment agreements in place (See Figure 34), ten (10) new. One new spin-off company was created in FY 19-20: Incisive Genetics. Incisive Genetics' team of scientists have discovered and are continuing to successfully develop disruptive and proprietary gene editing delivery platform technology.

BCCHR holds shares in Lions Gate Technologies, ME Therapeutics, and Xenon Pharmaceuticals (private) which is held in trust by UBC.

FIGURE 34 BCCHR License/Assignment Agreements and Spin-off Companies by Fiscal Year



IP related line item revenue data for FY 19-20 is shown below. Expenses related to patenting, license IP and legal costs totaled $39,000 in FY 2019-20. Realized licensing revenue per the distribution agreements totals $93,000 to C&W.

TABLE 9 BCCHR IP Related Revenue

IP RELATED REVENUE	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 19-20
Royalties	$178,795.65	$258,100	NA	$313,462.10	$635,065.03
Equity Liquidated					
License Fees				$50,000.00	
License Management		$36,600	NA		
Option Fees					
GROSS LICENSING REVENUE (TOTAL)	**$178,795.65**	**$$225,800**	**NA**	**$363,452.79**	**635,065.03**

Advancing Health and Policy Benefits

See Table 10 for a detailed breakdown of clinical trial activity by fiscal year. The percentage of BCCHR trials that had no enrollment figures (18%) declines by 10% in FY 19-20.

TABLE 10 BCCHR Clinical Trials

	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Total Number of Clinical Trials active during the FY	166	183	180	198	195	212	200
Status of the Trial at the end of the FY:							
Total Number of Active Trials	133	143	152	154	153	175	153
Total Number of Trials that closed during the FY	33	40	28	44	42	37	47
Enrolment Numbers:							
Expected Local Subject Enrolment (for the term of the study)	120,491	102,505	103,936	106,212	102,916	108,147	104,957
Total Cumulative Subject enrolment at the end of the FY	7,023	31,379	26,846	57,789	108,720	6,564	5,632

Grant funding type is reported for Clinical Trials in Figure 35. This information is sourced from the REB (Research Ethics Board) file and reflects the funding type entered as part of the ethics application (see Glossary – Appendix 1, page 66 for a definition of funding types). Fifty-eight percent (58%) of BCCHR's Clinical Trials are Grant funded, with 24% Industry funded.

FIGURE 35 BCCHR Percentage of Clinical Trial Grant Funding Type – Active and Terminated Trials within the FY

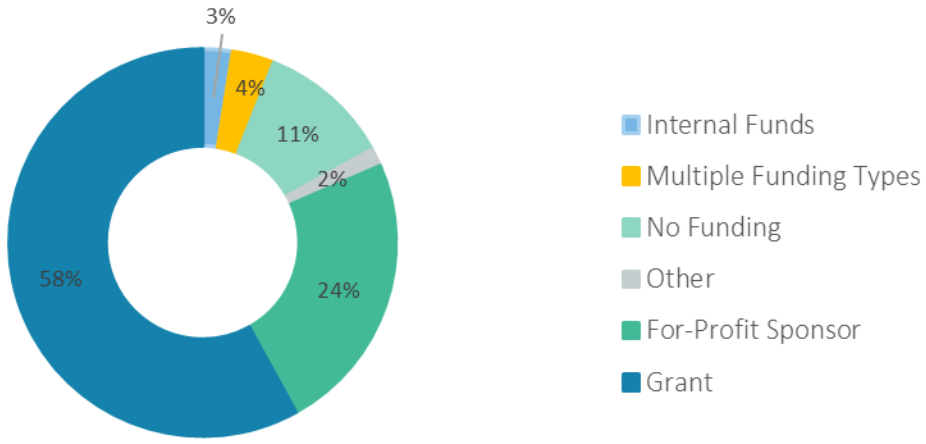


Table 11 reflects BCCHR's Top Three Achievements/Accomplishments/Highlights, and can include awards, citations, clinical programs, either in progress or historical, and be relevant to FY 19-20 timeframe (April 1, 2019 - March 31, 2020).

TABLE 11 BCCHR Top Three Achievements/Accomplishments/Highlights

FALLING CHILDHOOD ASTHMA RATES LINKED TO DECLINING USE OF UNNECESSARY ANTIBIOTICS
Asthma rates are falling thanks to efforts by physicians to avoid prescribing antibiotics to young children, except when necessary. That's the key finding of a BC Children's Hospital study that shows being prescribed antibiotics within the first 12 months of life is associated with almost double the risk of being diagnosed with asthma by age five. The study, published in *The Lancet Respiratory Medicine*, suggests that careful antibiotic use in children under the age of one is important to help preserve the diversity and abundance of healthy gut bacteria, making children less susceptible to developing asthma later in life. This research was done in partnership with BC Centre for Disease Control.
NATIONAL LEADERSHIP IN GLOBAL EFFORT TO TRIAL NEW TREATMENTS FOR COVID-19
A BC Children's researcher is leading the Canadian Treatments for COVID-19 (CATCO) trial which will evaluate different treatments such as antiretroviral drugs and anti-malarial drugs for COVID-19 patients in hospital. The CATCO trial is part of a multinational initiative called the Solidarity Trial which is being coordinated by the World Health Organization and supported by the Canadian Institutes of Health Research in an unprecedented level of global collaboration. Results from the trial will provide clinicians with evidence-based research on which drugs can be used to treat the virus in a way that is safe for patients.
SPECIALIZED IMMUNE CELLS COULD HELP REPAIR DAMAGE FROM INFLAMMATORY BOWEL DISEASE IN CHILDREN
A new BC Children's study suggests that specialized immune cells that dampen inflammation and help repair the gut could be used as a potential therapy for children dealing with the painful symptoms of inflammatory bowel disease. Published in *Gastroenterology*, the research shows that a specific type of T cell, called a Tr1 cell, produces a chemical signal that helps repair the barrier formed by cells lining the gut and encourages the production of protective mucus. As a new therapy, Tr1 cells could both suppress the inflammation that is ravaging the lining of the gut and help heal the tissue lining that keeps out harmful bacteria. This new treatment would be particularly helpful for as many as one third of IBD patients do not respond to the current frontline treatment.

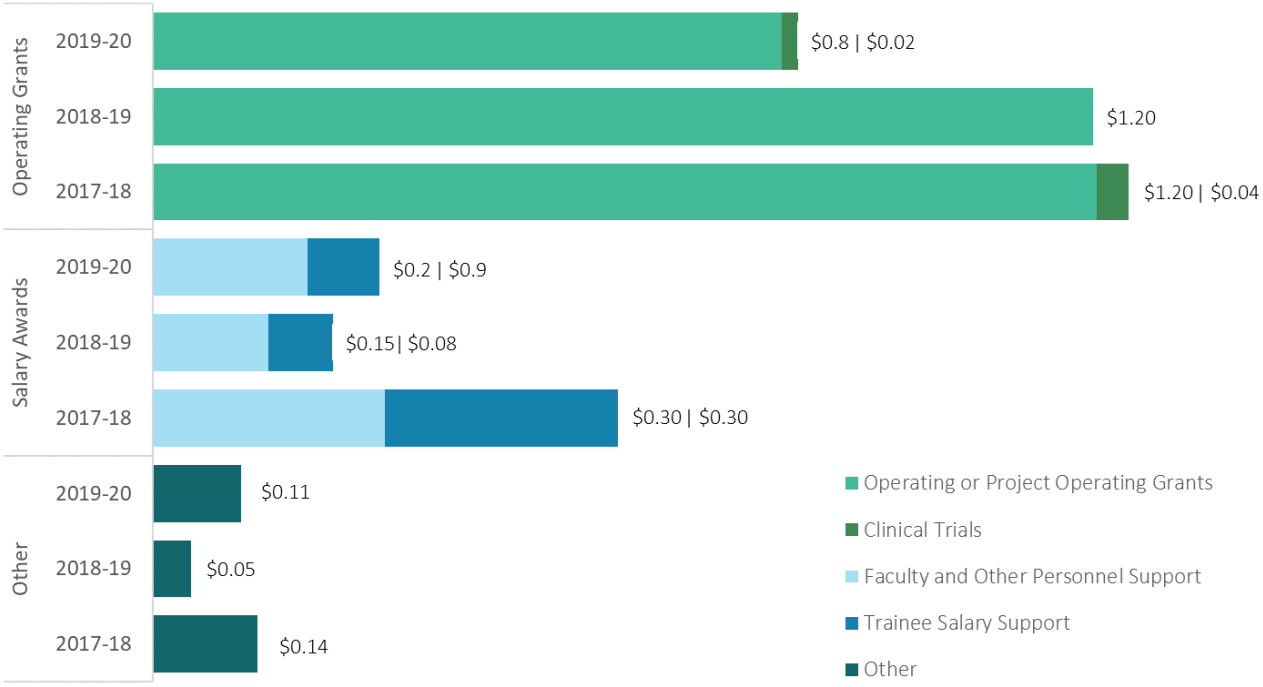
BC MENTAL HEALTH & SUBSTANCE USE SERVICES RESEARCH INSTITUTE (BCMHSUS)

BC MENTAL HEALTH & SUBSTANCE USE SERVICES
Provincial Health Services Authority

Producing and Advancing Knowledge

In FY 2019-20, researchers associated with BCMHSUS, were awarded a total of $1,240,424. Operating grants make up the majority (67%) of awards. A breakdown of funding types and subtypes can be found in Figure 36. The drop-in award funding from FY 19-20 continues to be influenced by a drop in the number of researchers associated with BCMHSUS as well as a reduction in grant funds from the non-profit sector. BCMHSUS's portion of the Research Support Fund Program grant totaled $161,183 for FY 2019-20 but is not included in total research funding or the figures below.

FIGURE 36 BCMHSUS Research Funding by Funding Type and Sub-type by Fiscal Year



(values are in millions)

Figure 37 shows funding by funding source category. The Canadian Foundation & Non-profits category is the result of awards from BCCHR. Due to the small number of awards, the category percentages fluctuate year over year.

FIGURE 37 Percentage of BCMHSUS Research Funding by Funding Source Category by Fiscal Year

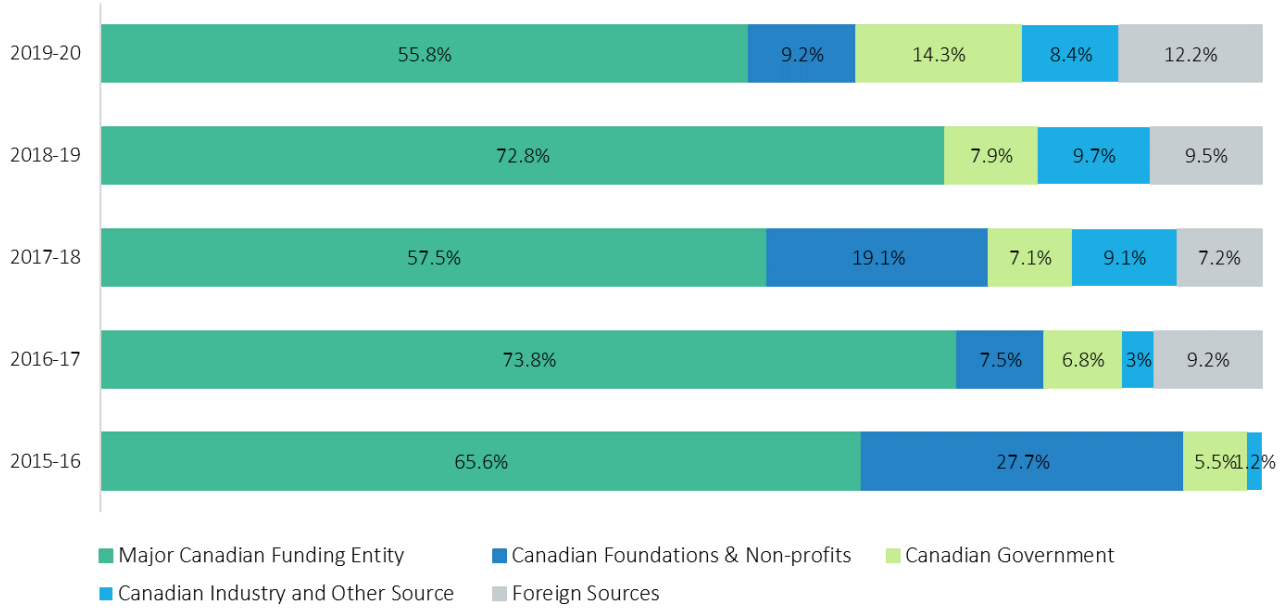
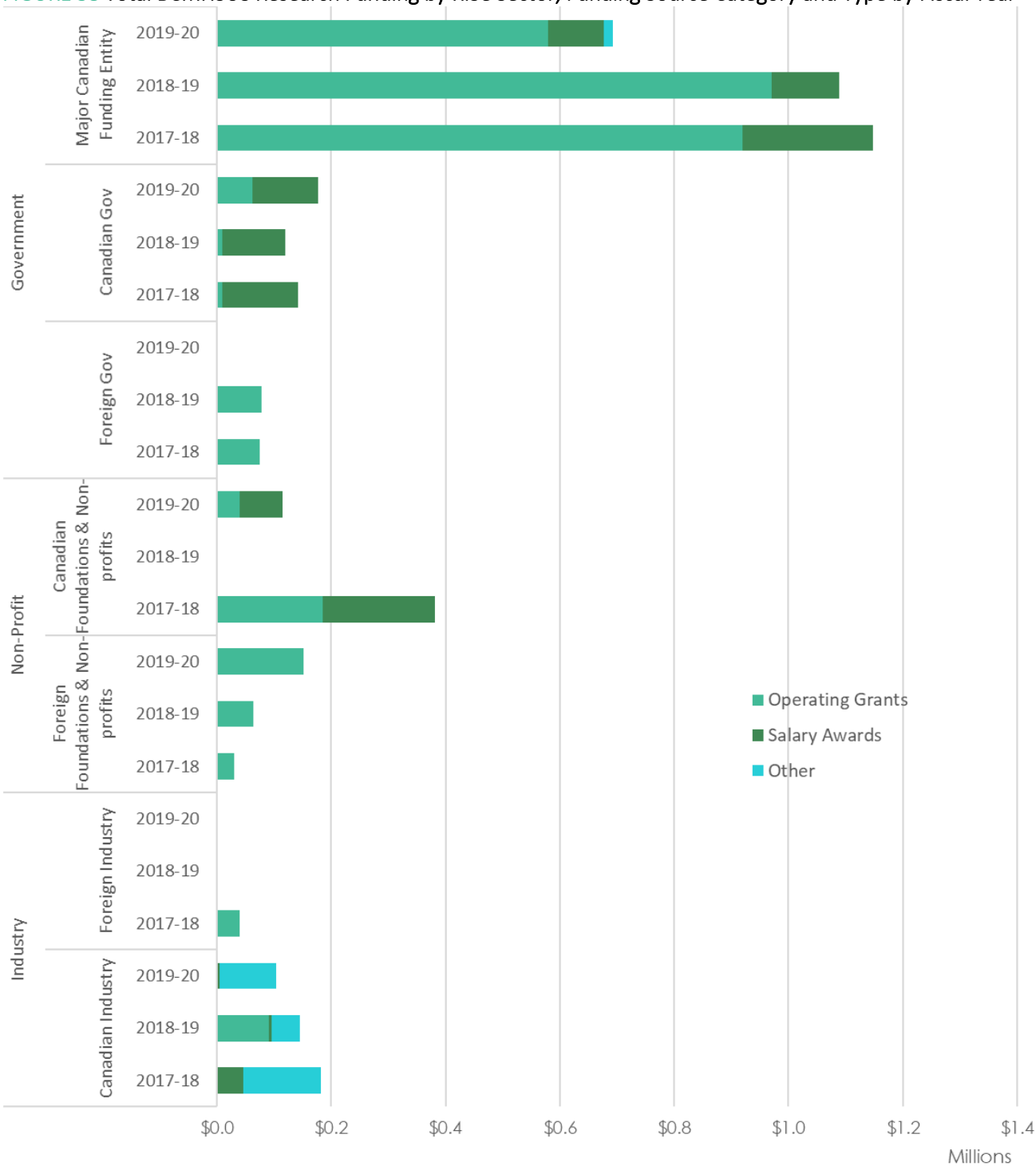


Figure 37 shows total awards by funding source category, with Major Canadian Funding Entity (73%) sources being the largest. Figure 38 details the major funding categories by RISe sector, funding source category and funding type.

FIGURE 38 Total BCMHSUS Research Funding by RISe Sector, Funding Source Category and Type by Fiscal Year



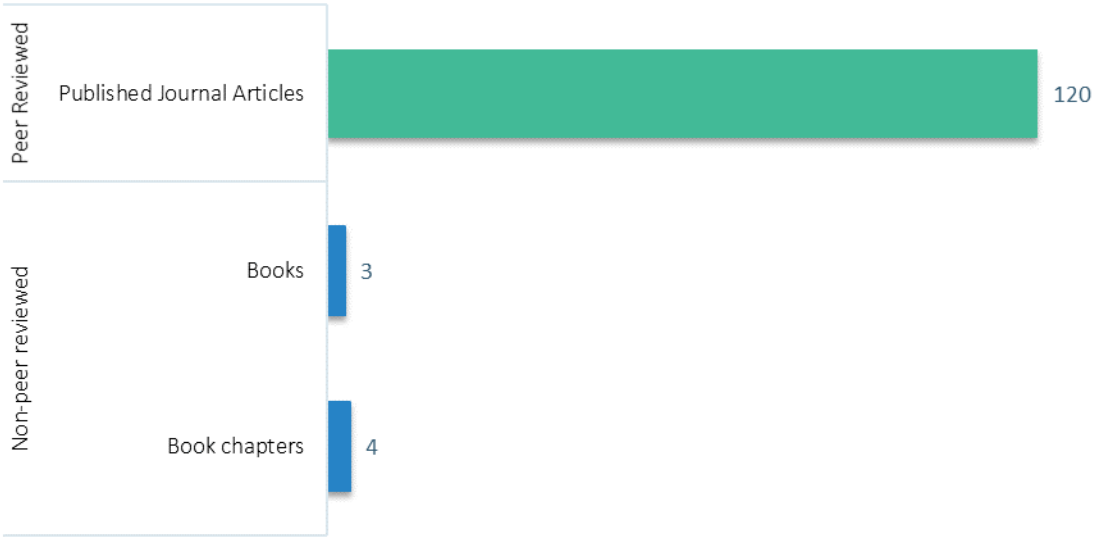
The application success rate is reported for the Fall 2019 and Spring 2020 CIHR grant competitions. Results (see table 1) are shown for National and PHSA research entities combined. BCMHSUS was successful in both Project Grant competitions for a total of 3 awards and beat the National grant application success rate in the Spring competition.

TABLE 12 BCMHSUS Annual Grant Application Success Rate

Grant Funding Opportunity	National Overall Results % (Approved/Submitted)	BCMHSUS Results % (Approved/Submitted)
2019-09 Project Grant	15.7% (389/2,484)	11.1% (1/9)
2020-03 Project Grant	16.9% (359/2,130)	25% (2/8)

BCMHSUS had a total of 127 publications of which 95% were peer reviewed. Total number of publications by type and category (peer vs. non-peer reviewed) is seen in Figure 39. The program total represents the number of publications where at least one program researcher was an author of the publication. When researchers from more than one research entity/program collaborate on the same publication, it is counted once for each program.

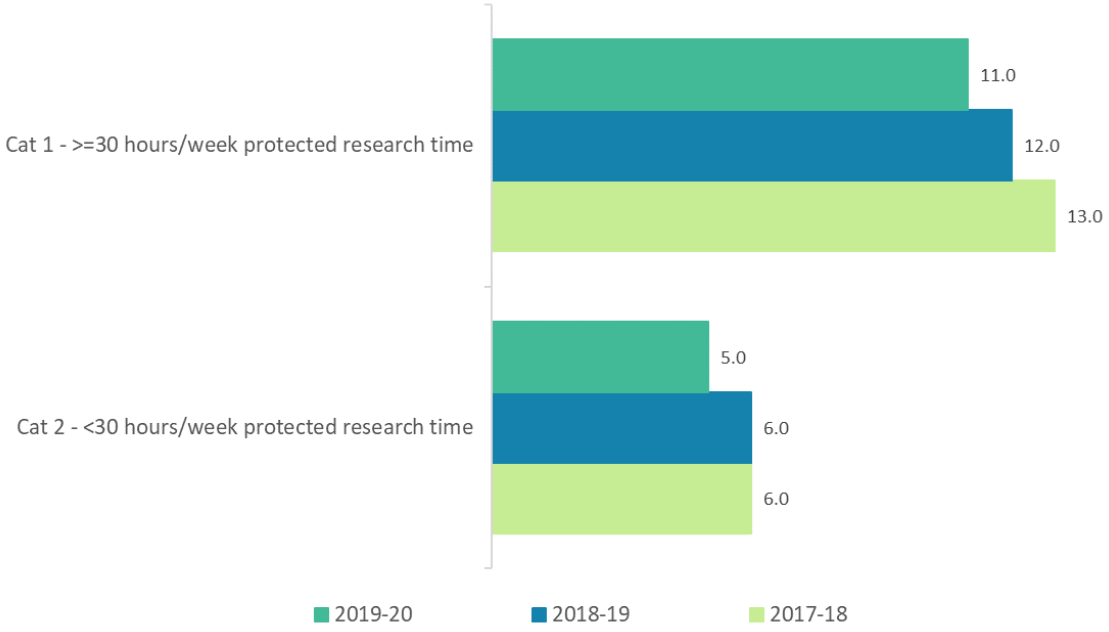
FIGURE 39 Total Number of BMHSUS Publications by Type and Category



Building Research Capacity

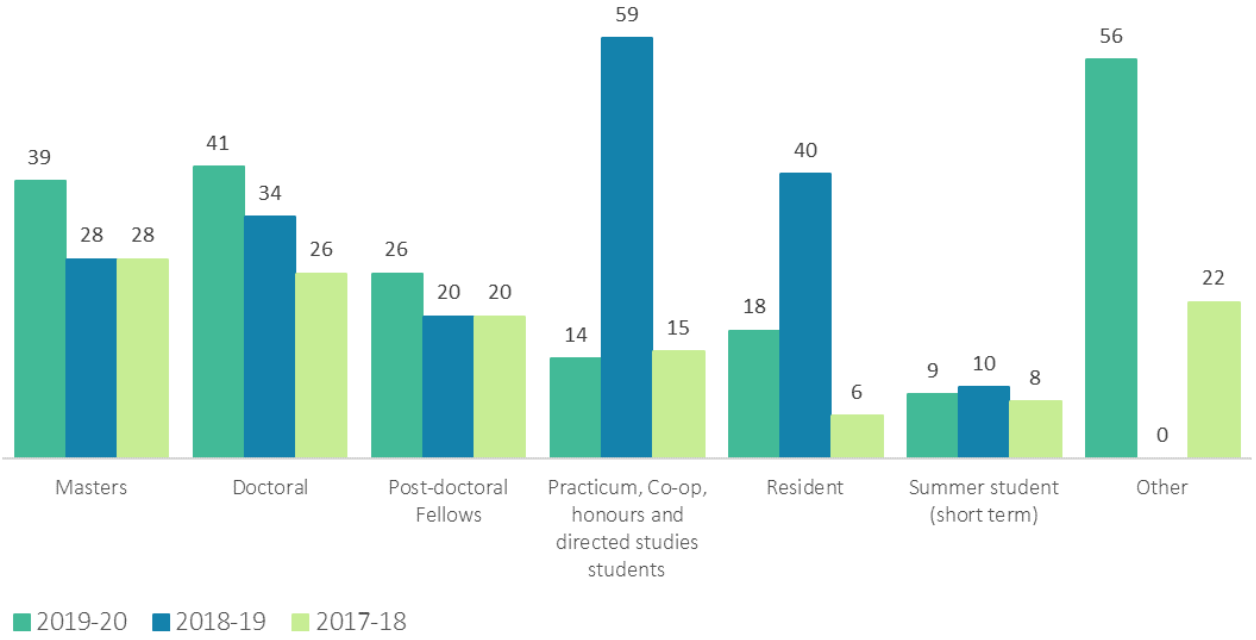
BCMHSUS had a total of 16 researchers in FY 2019-20, with 11 having greater than 30 hours of protected research time per week (Figure 40). While this is a decrease from previous years, a number of BCMHSUS clinicians engaged in research are now counted in the BCCHR totals following the operational transfer of Child & Youth Mental Health back to BC Children's Hospital.

FIGURE 40 Total Number of BCMHSUS Researchers by Category



During FY 2019-20, BCMHSUS researchers provided training and supervision to a total of 203 trainees, an increase of 12 over last FY (see Figure 41).

FIGURE 41 Total Number of BCMHSUS Trainees by Category



Advancing Health and Policy Benefits

See Table 13 for a detailed breakdown of clinical trial activity by fiscal year. Of note is that all of BCMHSUS trials contained enrollment figures in all REB (Research Ethics Board) records.

TABLE 13 BCMHSUS Clinical Trials

	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Total Number of Clinical Trials active during the FY	7	5	4	2	5	7	7
Status of the Trial at the end of the FY:							
Total Number of Active Trials	7	5	4	2	5	7	7
Total Number of Trials that closed during the FY	2	0	0	0	0	0	0
Enrolment Numbers:							
Expected Local Subject Enrolment (for the term of the study)	688	563	640	450	902	1,217	1,320
Total Cumulative Subject enrolment at the end of the FY	56	77	228	244	423	465	565

Grant funding type is reported for Clinical Trials in Figure 42. This information is sourced from the REB (Research Ethics Board) file and reflects the funding type entered as part of the ethics application (see Glossary – Appendix 1, page 66 for a definition of funding types). The majority, eighty-six percent (86%) of BCMHSUS' Clinical Trials are Grant funded.

Figure 42

FIGURE 42 BCMHSUS Percentage of Clinical Trial Grant Funding Type – Active and Terminated Trials within the FY

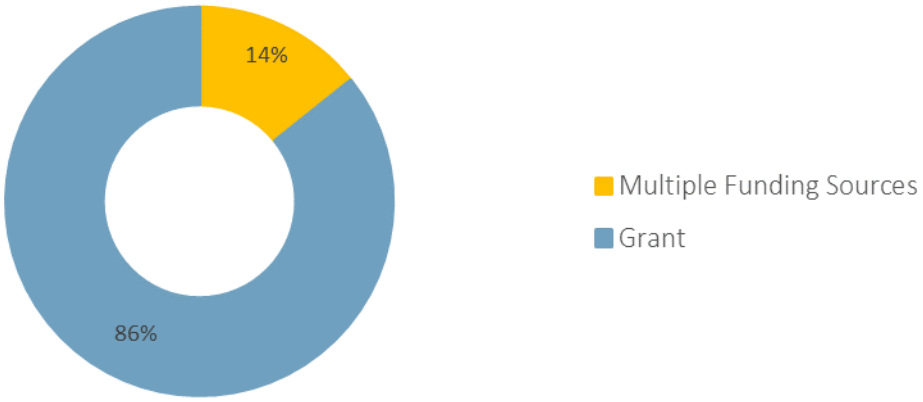


Table 14 reflects BCMHSUS' Top Three Achievements/Accomplishments/Highlights, and can include awards, citations, clinical programs, either in progress or historical, and be relevant to FY 19-20 timeframe (April 1, 2019 - March 31, 2020).

TABLE 14 BCMHSUS Top Three Achievements/Accomplishments/Highlights

DR. AUSTIN RECIPIENT OF THE 2019 DR. SAMARTHJI LAL AWARD FOR MENTAL HEALTH RESEARCH AND CANADIAN ACADEMY OF HEALTH SCIENCES SCIENTIFIC LECTURE AWARD.
BC Mental Health & Substance Use Services Research Institute's Executive Director Dr. Jehannine Austin is the recipient of the 2019 Dr. Samarthji Lal Award for Mental Health Research and Canadian Academy of Health Sciences Scientific Lecture Award. The Dr. Samarthji Lal award recognizes innovative thinking in the area of mental health research and is awarded annually to a researcher working in a Canadian institution in the area of mental health, focusing on major mental disorders. Dr. Austin received this award for her work in genetic counselling. She hopes that the award leads to greater recognition for psychiatric genetic counselling and the benefits it can have for patients.
MR. JACOB STUBBS, DR. PANENKA AND OTHER BCMHSUS MEMBERS PUBLISH META-ANALYSIS OF THE BURDEN OF TRAUMATIC BRAIN INJURY IN THE LANCET PUBLIC HEALTH.
Multiple BC Mental Health & Substance Use Services Research Institute investigators, including graduate student Jacob Stubbs as lead author and senior author Dr. William Panenka, published, "Meta-analysis of the Burden of Traumatic Brain Injury" in the Lancet Public Health in December 2019. This brought a lot of attention to this very important issue, including multiple radio and TV appearances, in addition to extensive print media coverage including from CTV, Global and the Guardian. Their research team found that around half of homeless people have suffered a traumatic brain injury (TBI) in their lifetime, with almost one quarter having experienced a moderate or severe injury - defined as being unconscious for at least 30 minutes or a visible injury on an MRI scan with lingering disability. The study was funded by a Canadian Institutes of Health Research project grant.
BCMHSUS PHD RECEIVES THE NECIA ELVIN MEMORIAL PRIZE FOR SCHIZOPHRENIA RESEARCH.
Dr. Melissa Woodward received the Necia Elvin Memorial Prize for Schizophrenia Research. Dr. Woodward's doctoral work with BCMHSUS researcher Dr. Donna Lang focused on the impact of exercise on the brain for people with schizophrenia and other psychosis-spectrum disorders. She has recently published their findings on increases in medial temporal cortical regions in women with early psychosis who completed a 12-week aerobic exercise program, and these brain changes were associated with improvements in symptom severity. This is one of the first exercise intervention studies to focus on women with early psychosis and highlights the need for exercise to best address neuroanatomic, clinical, and physical health concerns during the early stages of illness. Dr. Woodward continues with BCMHSUS as a postdoctoral research fellow with Dr. Honer.

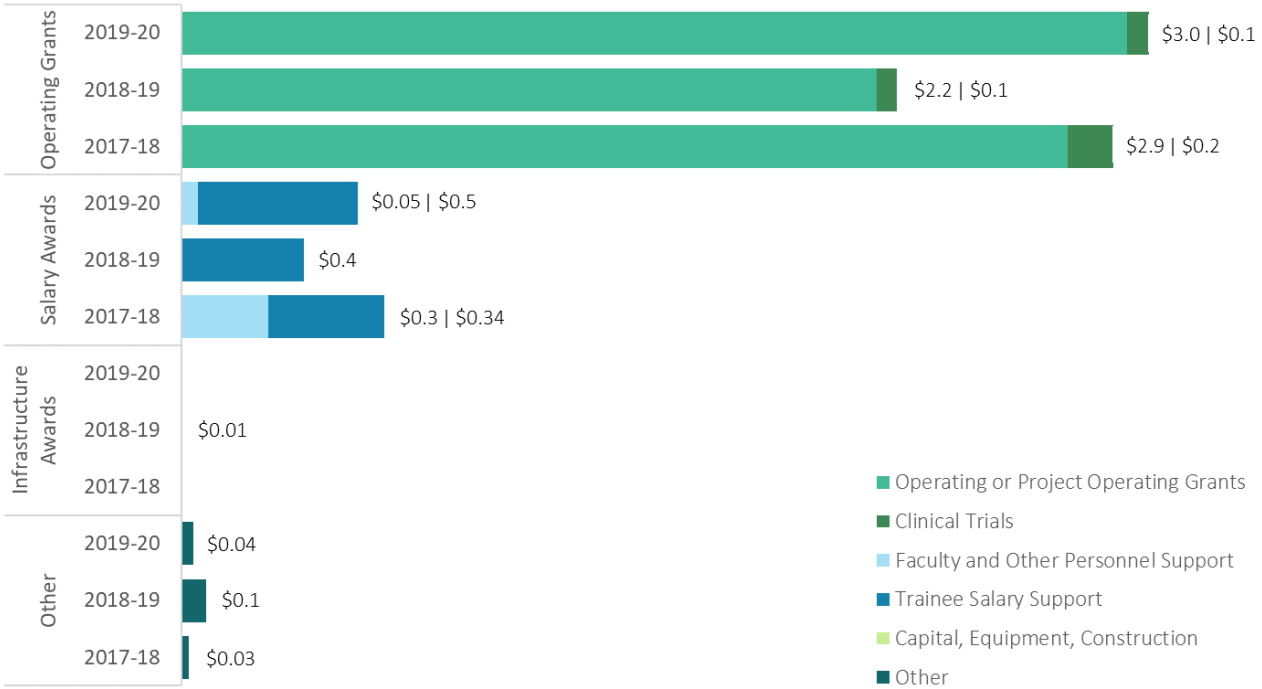
BC CENTER FOR DISEASE CONTROL/UBC CDC (BCCDC)

BC Centre for Disease Control
Provincial Health Services Authority

Producing and Advancing Knowledge

In FY 2019-20, researchers affiliated with BCCDC were awarded a total of $3,715,547 in research funding. The amount awarded as Operating Grants ($3,110,924) makes up 84% of total awards. A breakdown of funding types and subtypes can be found in Figure 43 and by funding source category in Figure 44. BCCDC's portion of the Research Support Fund Program grant totaled $129,220 for FY 2019-20 but is not included in total research funding or the figures below. Because of its public and population health mandate, research at BCCDC is very much embedded within its clinical mandate and, as such, is also supported by operating funding to a significant degree.

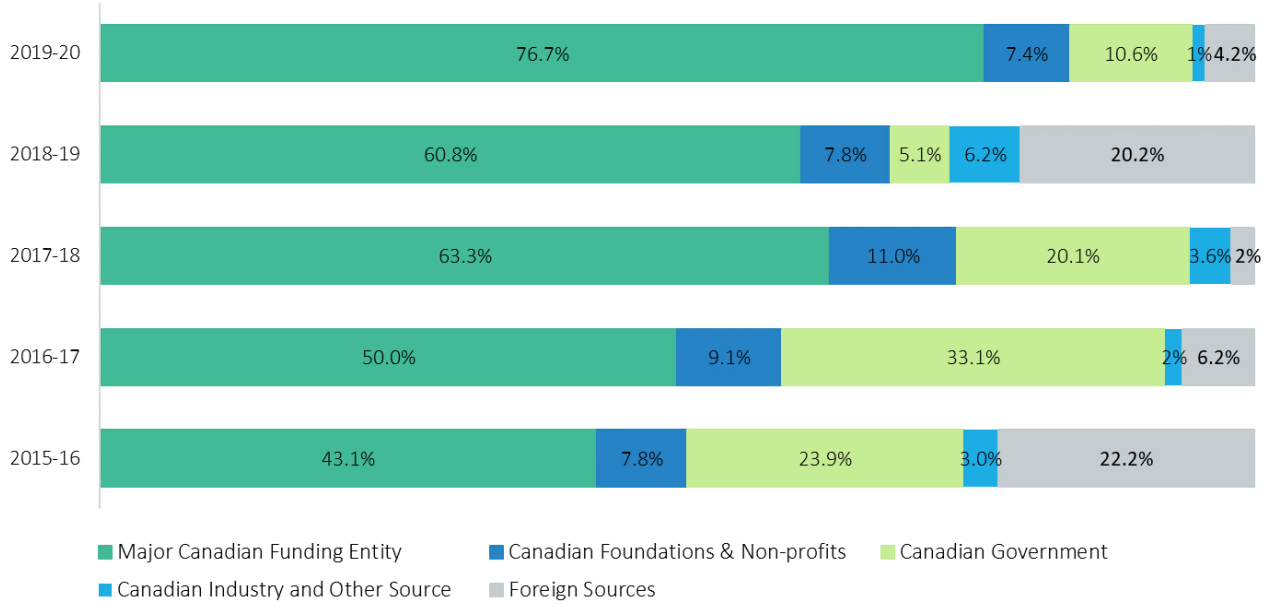
FIGURE 43 Total BCCDC Research Funding by Funding Type and Sub-type by Fiscal Year



(values are in millions)

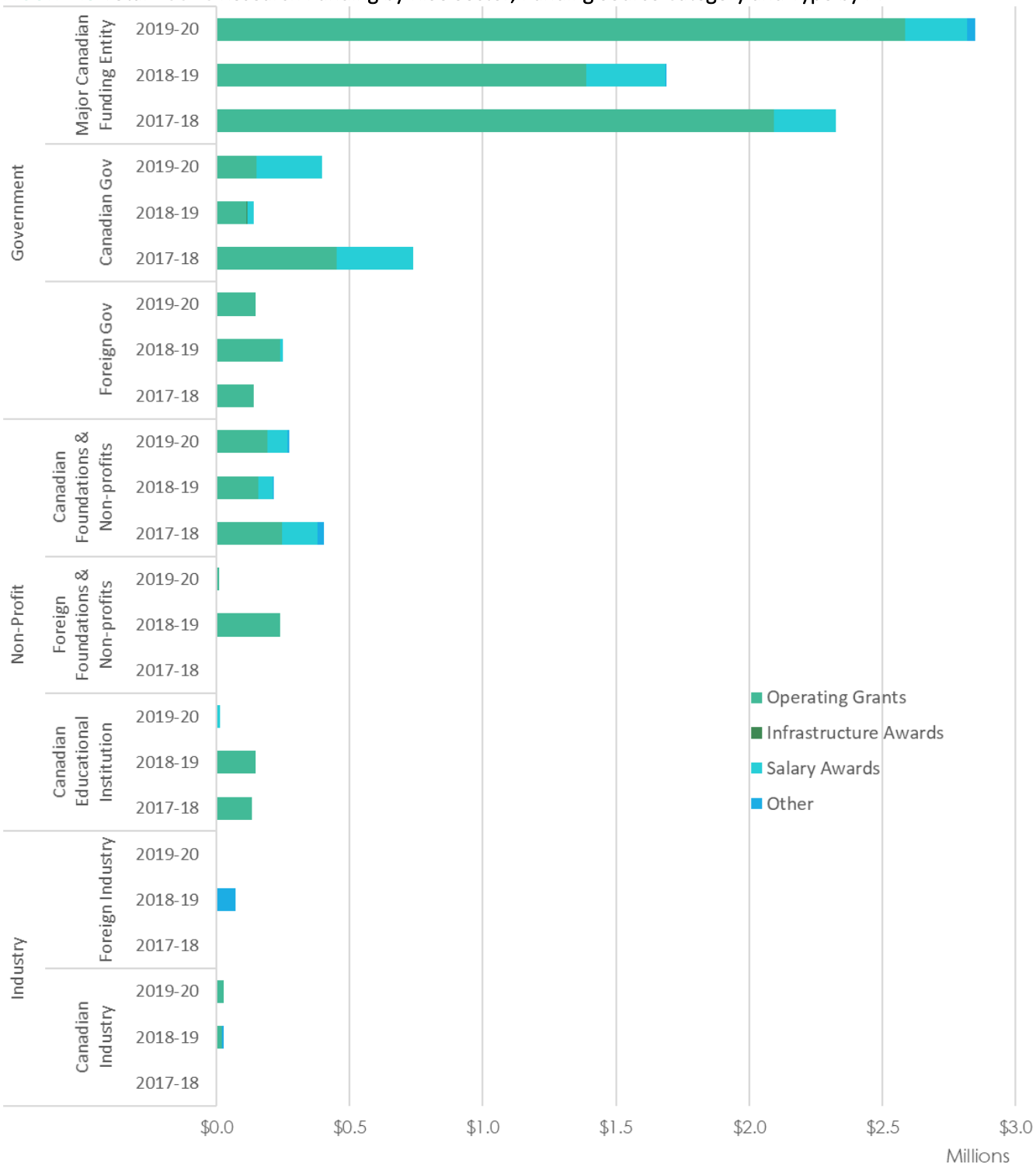
Figure 44 shows funding by funding source category. For FY 19-20, the increase in the Major Canadian Funding Entity category is due to awards from CIHR and BC Genome and Provincial Genome agencies.

FIGURE 44 Percentage of BCCDC Research Funding by Funding Source Category by Fiscal Year



The top two funding categories are Major Canadian Funding Entity (77%) and Canadian Government (11%). Figure 45 details the RISe sector and major funding categories by funding type.

FIGURE 45 Total BCCDC Research Funding by RISe Sector, Funding Source Category and Type by FY



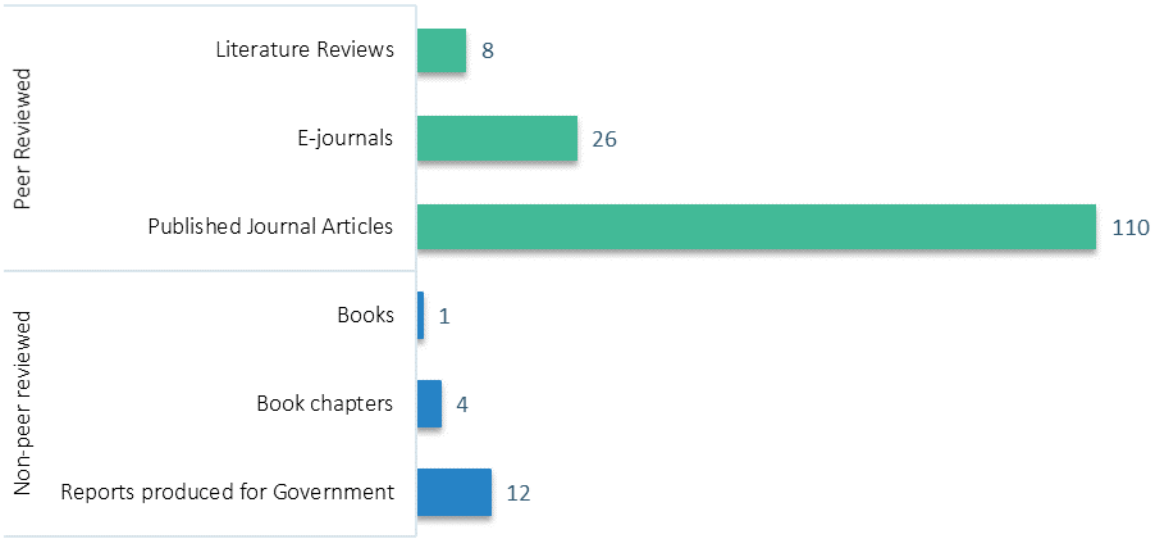
Reporting for two Project Grant competitions during FY 2019-20 is included in Table 15. BCCDC was successful in the Fall and Spring Project Grant competitions for a total of 4 awards, beating the national average for both competitions.

TABLE 15 BCCDC Annual Grant Application Success Rate

Grant Funding Opportunity	National Overall Results % (Approved/Submitted)	BCCDC Results % (Approved/Submitted)
2019-09 Project Grant	15.7% (389/2,484)	33.3% (2/6)
2020-03 Project Grant	16.9% (359/2,130)	50% (2/4)

BCCDC had a total of 161 publications of which 89% were peer reviewed. Total number of publications by type and category (peer vs. non-peer reviewed) is seen in Figure 46. The program total represents the number of publications where at least one program researcher was an author of the publication. When researchers from more than one research entity/program collaborate on the same publication, it is counted once for each program.

FIGURE 46 Total Number of BCCDC Publications by Type and Category

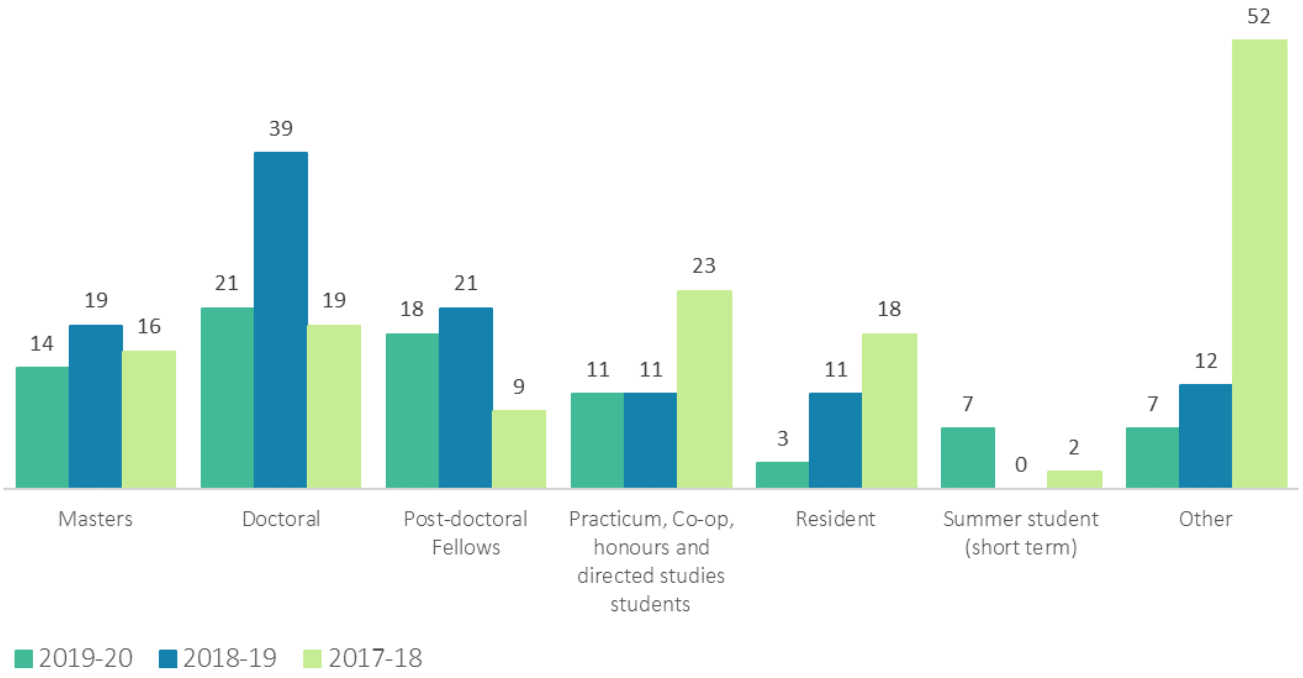


Building Research Capacity

BCCDC defines a researcher as any principal investigator or co-investigator involved in BCCDC research projects. BCCDC had a total of 34.5 researchers meeting this definition in FY 2019-20.

During FY 2019-20, BCCDC researchers provided training and supervision to a total of 81 trainees (see Figure 47). Trainees in the Other category includes medical students, research associates, undergraduates and clinical fellows.

Figure 47 Total Number of BCCDC Trainees by Type



Advancing Health and Policy Benefits

Clinical trial data from the REB is provided for a third year utilizing the same methodology as last year. See Table 16 for a detailed breakdown of clinical trial activity by fiscal year.

TABLE 16 BCCDC Clinical Trials

	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Total Number of Clinical Trials active during the FY	2	3	4	5	5	9	11
Status of the Trial at the end of the FY:							
Total Number of Active Trials	2	3	4	5	4	8	10
Total Number of Trials that closed during the FY	0	0	0	0	1	1	1
Enrolment Numbers:							
Expected Local Subject Enrolment (for the term of the study)	532	401	2,000	2,696	2,750	6,699	10,579
Total Cumulative Subject enrolment at the end of the FY	55	157	294	2,656	1,639	2,707	2,961

Grant funding type is sourced from the REB (Research Ethics Board) file and reflects the funding type entered as part of the ethics application (see Glossary – Appendix 1, page 66 for a definition of funding types). Seventy-three Table 17 reflects BCCDC's Top Three Achievements/Accomplishments/Highlights, and can

percent (73%) of BCCDC's clinical trials are grant funded, 9% have multiple funders, with the remaining 18% with no funding.

include awards, citations, clinical programs, either in progress or historical, and be relevant to FY 19-20 timeframe (April 1, 2019 - March 31, 2020).

TABLE 17 BCCDC Top Three Achievements/Accomplishments/Highlights

BCCDC COMPLETES RAPID DEVELOPMENT OF A BRAND NEW COVID-19 DIAGNOSTIC TEST BY BCCDC'S PUBLIC HEALTH LABORATORY
The first case of COVID-19 was detected in BC on January 28, 2020 and this was due to the rapid development of a brand new COVID-19 diagnostic test by BCCDC's Public Health Laboratory. Testing capacity was ramped up to thousands of tests per day in a few short months. Daily epidemiological summaries were posted online providing up to date information to the public health community, healthcare providers, the Ministry of Health, media and the public. By March, BCCDC researchers obtained a $150K Genome BC grant and a $1M CIHR grant to genetically sequence cases which was useful in determining outbreak clusters in the province. A $120K MSFHR was also obtained to analyze blood sera to determine population infection rates.
BCCDC RELEASED A NEW 3-YEAR DIRECTIONAL PLAN, MOVING FORWARD, 2019-2022
In December 2019, BCCDC released a new 3-year directional plan, Moving Forward, 2019-2022. This plan outlines the Provincial Health Services Authority's/BCCDC's vision, mission and values that guide PHSA's work in public health, and denotes priorities for the coming years. These priorities include: climate change; prevention of substance use harms; positive mental health; emerging infectious diseases; chronic disease prevention; vaccine hesitancy and immunization coverage; advance data science, surveillance and analytics; a 21st century public health laboratory; enable and support partnerships; address health equity and act on truth and reconciliation; establish organizational clarity and collaboration; solidify relationships with academic partners.
BCCDC'S MANDATE EXPANDED TO INCLUDE CHRONIC DISEASE/INJURY PREVENTION AND THE POPULATION AND PUBLIC HEALTH PROGRAM
BCCDC's mandate expanded to include chronic disease/injury prevention in 2016, and the Population and Public Health (PPH) program physically moved to BCCDC in 2019, when it became a formal service line of BCCDC. This move enhanced PPH's capacity in health surveillance, research and provincial prevention programs, and increased collaboration with other service lines at BCCDC and UBC's School of Population and Public Health. PPH's major research achievements in the year 2019/20 include: increased collaboration with the BC Public Health Observatory, contribution to collaborative research (example, the association between children's asthma and antibiotic prescribing published in a Lancet journal), completion of community health service area profiles, development of injury data-mart within BCCDC data warehouse, and development of food security indicator criteria.

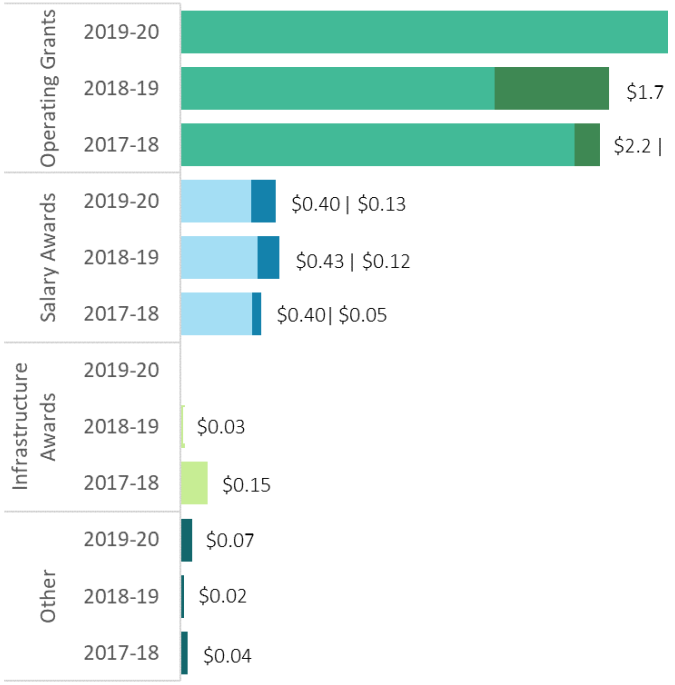
WOMEN'S HEALTH RESEARCH INSTITUTE (WHRI)

WOMEN'S HEALTH RESEARCH INSTITUTE AT BC WOMEN'S

Producing and Advancing Knowledge

In FY 2019-20, researchers affiliated with WHRI were awarded a total of $5,868,896 in research funding, which represents a 98% increase over last year. The amount awarded as Operating Grants ($5,273,819) makes up 90% of total awards. The large increase in Operating Grants is related to a $20 million dollar award over five years to support the program of research which will explore new strategies to better prevent and treat cervical cancer. A breakdown of funding types and subtypes can be found in Figure 48 and by funding source category in Figure 49. WHRI's portion of the Research Support Fund Program grant totaled $191,095 for FY 2019-20 but is not included in total research funding or the figures below. WHRI shares investigators with a number of other health research institutes and universities and benefits from additional external grant revenues linked to these investigators.

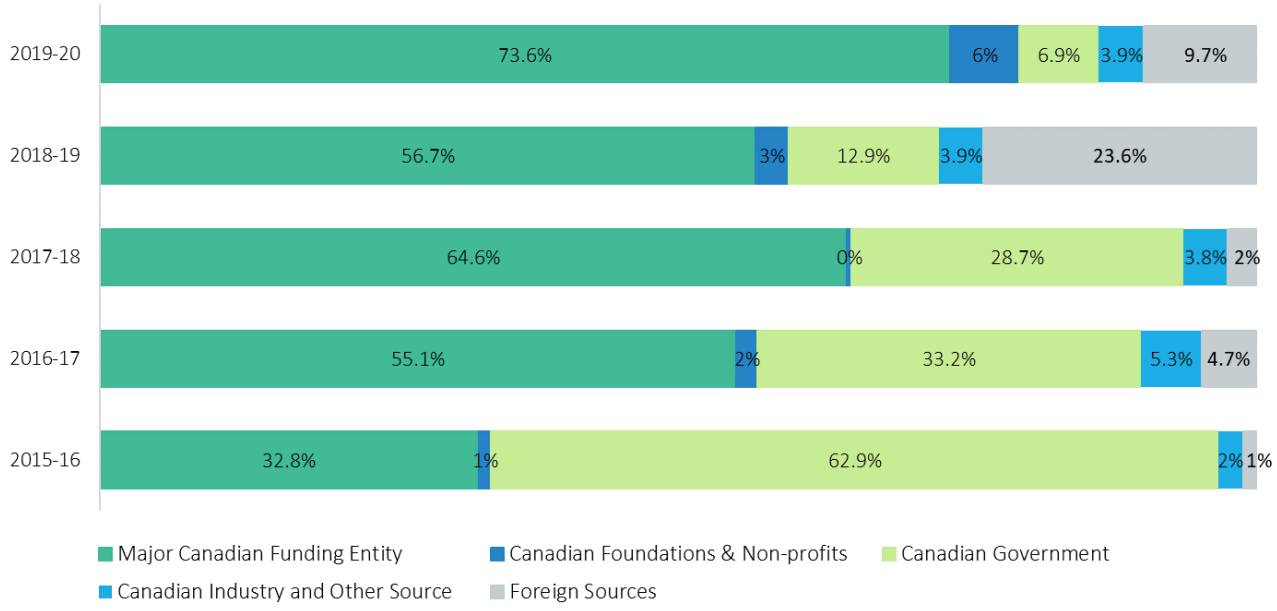
FIGURE 48 Total WHRI Research Funding by Funding Type and Sub-type by Fiscal Year



(values are in millions)

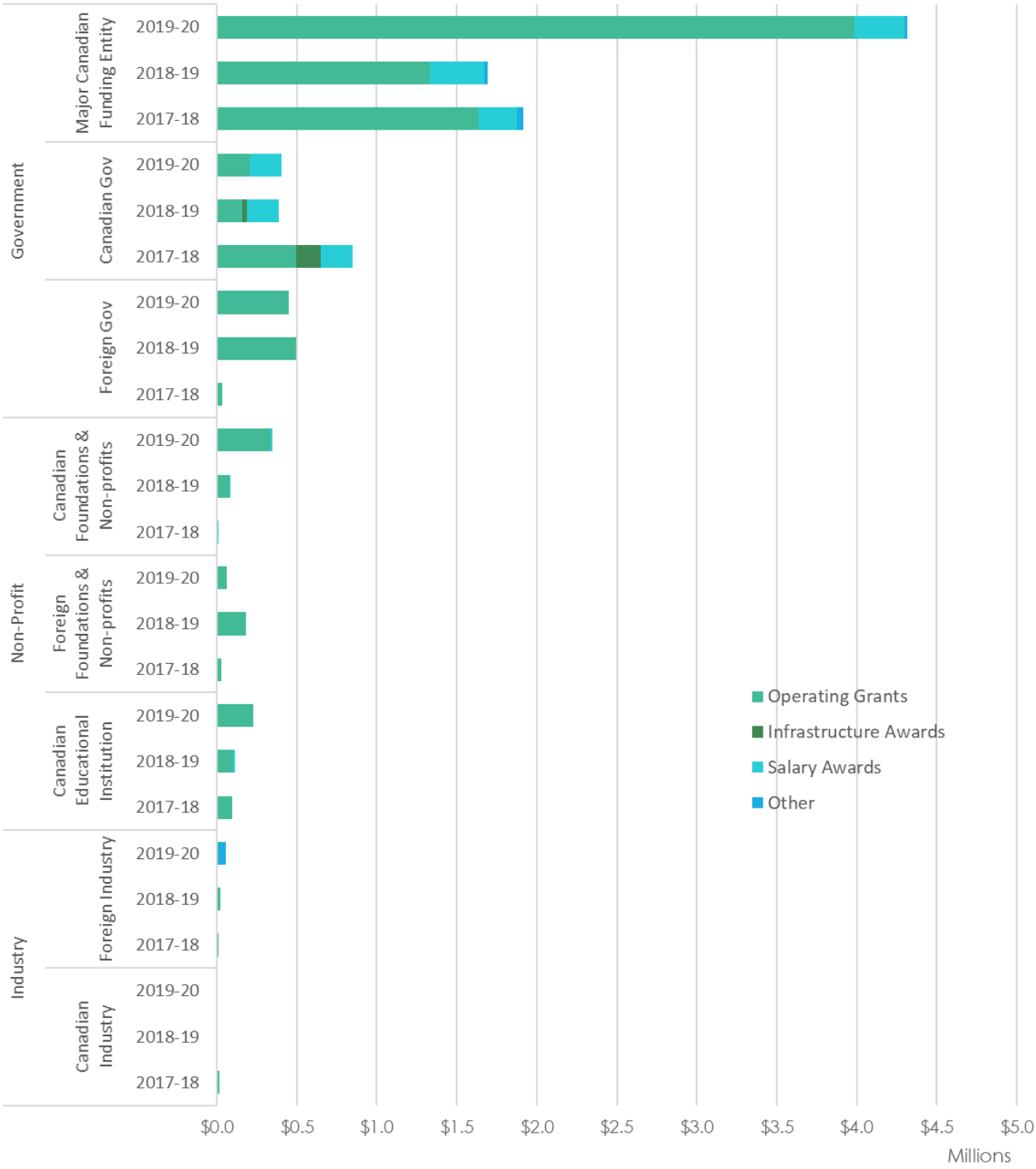
Figure 49 shows funding by funding source category. For FY 19-20, the increase in the Major Canadian Funding Entity category is due to a large increase in CIHR awards.

FIGURE 49 Percentage of WHRI Research Funding by Funding Source Category by FY



In FY 2019-20, the top two funding categories are Major Canadian Funding Entity (74%) and Canadian Government (7%) and Canadian Foundations & Non-profits (6%). Figure 50 details the major funding categories by funding type.

FIGURE 50 Total WHRI Research Funding by RISe Sector, Funding Source Category and Type by Fiscal Year



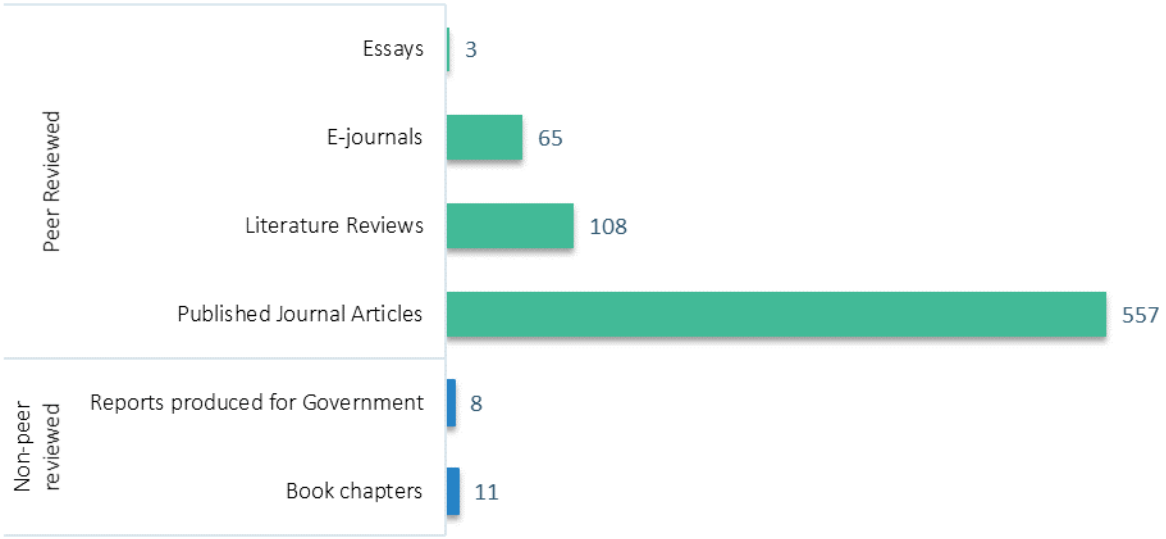
Reporting for CIHR Funding competitions includes two Project Grant competitions. WHRI was successful in both Project Grant competitions with a total of 3 awards. In both Project Grant competitions, WHRI was above the national average success rate. WHRI investigators apply for grant competitions that are offered by a variety of granting agencies.

TABLE 18 WHRI Annual Grant Application Success Rate

Grant Funding Opportunity	National Overall Results % (Approved/Submitted)	WHRI Results % (Approved/Submitted)
2019-09 Project Grant	15.7% (389/2,484)	50% (2/4)
2020-03 Project Grant	16.9% (359/2,130)	20% (1/5)

WHRI had a total of 752 publications in calendar year 2019 of which 97% were peer reviewed. Total number of publications by type and category (peer vs. non-peer reviewed) is shown in Figure 51. Peer review represents the gold standard for scientific credibility. The program total represents the number of publications where at least one program researcher was an author of the publication. When researchers from more than one research entity/program collaborate on the same publication, it is counted once for each program.

FIGURE 51 Total Number of WHRI Publications by Type and Category



Two full fiscal years' worth of data is provided for WHRI 's four research specific social media channels; Facebook (member since Aug 2010); Twitter (member since August 2010); Instagram (member since May 2018; and LinkedIn (member since June 2017). Tracking and reporting of this data is a measure of knowledge translation in addition to meeting the following goals with regard to WHRI research activities:

- Increase traffic to the WHRI website
- Enhance the profile of the WHRI as one of only 3 women's research institutes in Canada
- Increase the number of times that WHRI researcher publications are cited
- Strengthen and track the impact of WHRI events (e.g. #WHRISym19, 18, 17, etc.)
- Disseminate research evidence to targeted knowledge users (e.g. patients, providers, prescribers, decision makers)
- Track the impact of KT/dissemination campaigns (e.g. #itsnotinyourhead)

Table 19 shows annual results of two fiscal years, compared to the previous fiscal year. These metrics are a measure of reach and engagement and provide an indication of the volume of activity. They also include data that shows what happens after a program posts content. These would include conversation rate (# of comments your content generated); amplification rate (the # of times your content

was shared) and applause rate (# of likes or favorite clicks per post).

In addition to the below activity, many WHRI researchers maintain their own professional accounts to engage peers, funders and patients, but this information is not tracked.

TABLE 19 WHRI Social Media Statistics

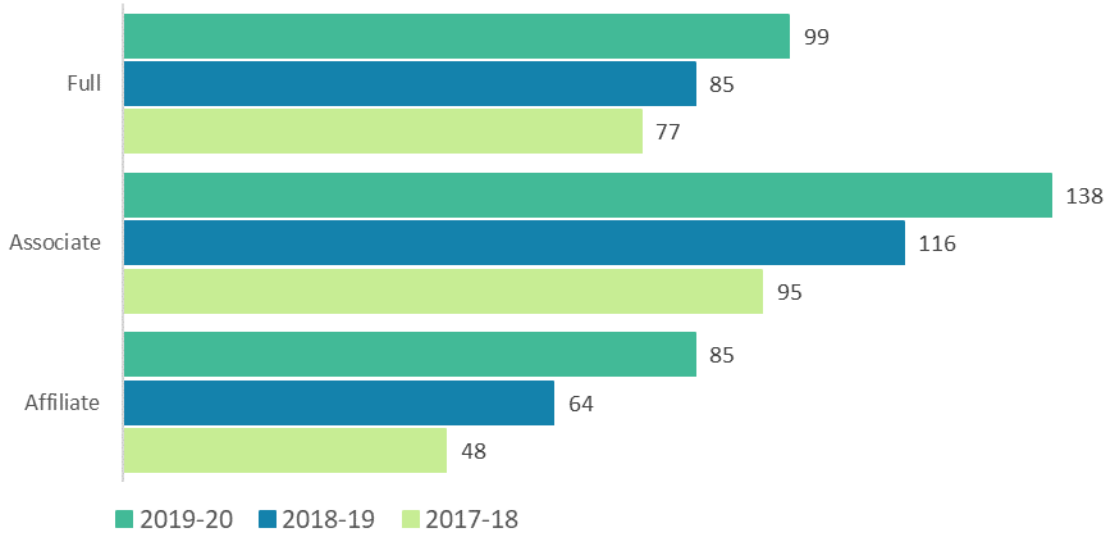
Social Media Channel		Followers			Activity Rate			
		# of Followers	# of New Followers	% change	# of likes	% change	# of shares	% change
Twitter	FY 2019-20	3,996	1,833	+85%	2,643	-13%	800	-48%
	FY 2018-19	2,163	-	-	3,052	-	1,528	-
LinkedIn	FY 2019-20	201	120	+148%	32	-16%%	4	+33%
	FY 2018-19	81	36	+80%	38	-	3	-
Facebook	FY 2019-20	728	108	+17%	329	-16%	63	+29%
	FY 2018-19	620	98	+18.8%	49	-	392	-
Instagram	FY 2019-20	858	547	+176%	900	+267%	na	na
	FY 2018-19	311	56	+22%	245	-10.6%	4	-33.3%

Building Research Capacity

In an effort to show WHRI's activities, their membership statistics are shown (see Figure 52). In FY 2019-20, membership increased by 57 for a total of 322 members, a 22% increase. The membership categories are as follows:

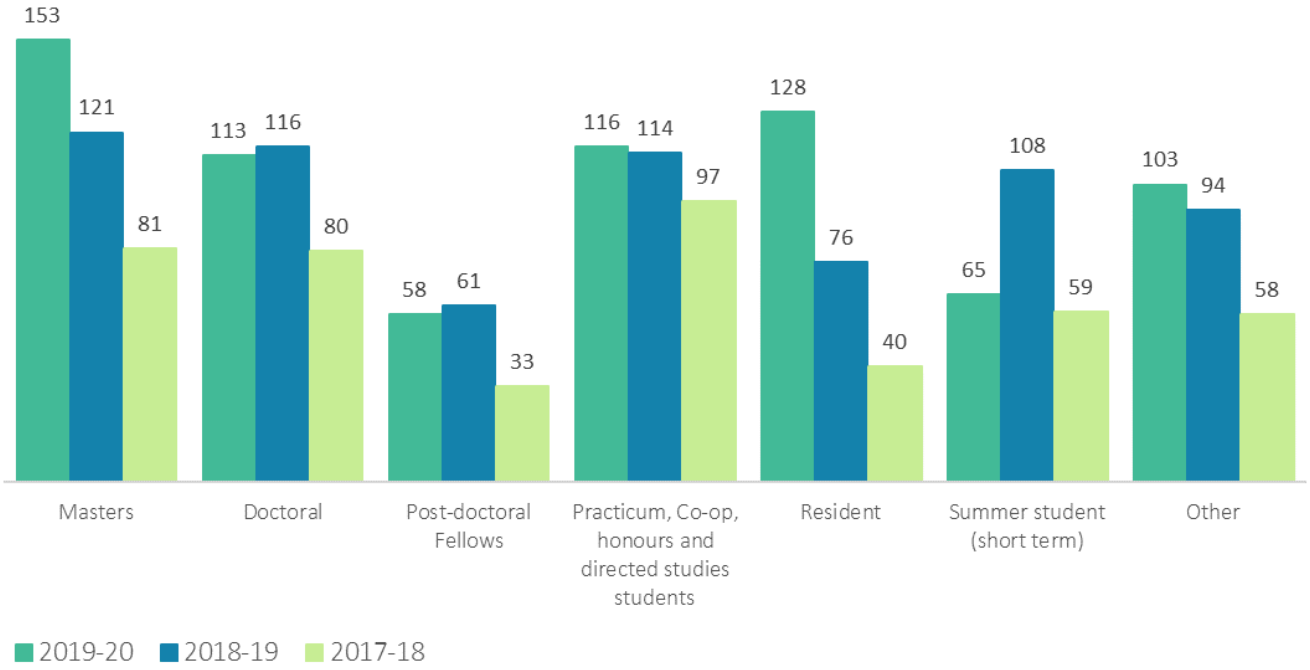
Full Member	Individuals involved in women's health research for which the WHRI would be the only research institute affiliation.
Associate Member	Individuals who are involved in women's health research, at least in part, but have a strong relationship with another research institute (e.g. BCCHR) that they wish to maintain; the result is a dual membership with the WHRI and their current affiliation.
Affiliate Member	Individuals who are extensively involved with another institute but may have projects that would overlap with WHRI.

Figure 52 Total WHRI Membership by Category



WHRI researchers provided training and supervision to a total of 736 trainees (see Figure 53) and increase of 46 (7%) over last fiscal year. This increase is attributed to activities related to growing WHRI's membership and they absorb the trainees associated with these new members.

Figure 53 Total Number of WHRI Trainees by Type



Advancing Health and Policy Benefits

Clinical trial data from the REB (Research Ethics Board) is provided utilizing the same methodology as last year. See Table 20 for a detailed breakdown of clinical trial activity by fiscal year.

TABLE 20 WHRI Clinical Trials

	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Total Number of Clinical Trials active during the FY	26	27	28	11	31	38	53
Status of the Trial at the end of the FY:							
Total Number of Active Trials	26	20	24	7	23	30	40
Total Number of Trials that closed during the FY	6	7	4	4	8	8	13
Enrolment Numbers:							
Expected Local Subject Enrolment (for the term of the study)	3,709	3,433	4,058	1,162	6,653	10,928	40,133
Total Cumulative Subject enrolment at the end of the FY	1,811	1,940	2,360	545	3,092	3,160	3,521

Grant funding type is reported for Clinical Trials in figure 54. This information is sourced from the REB (Research Ethics Board) file and reflects the funding type entered as part of the ethics application (see Glossary – Appendix 1, page 66 for a definition of funding types). Forty-five percent (45%) of WHRI's clinical trials are Grant funded, and 21% are Industry funded.

FIGURE 54 WHRI Percentage of Clinical Trial Grant Funding Type – Active and Terminated Trials within the FY

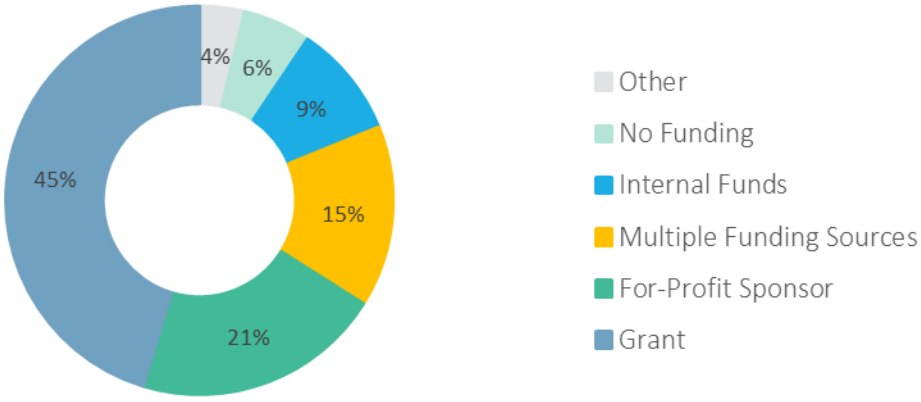


Table 21 reflects WHRI's Top Three Achievements/Accomplishments/Highlights, and can include awards, citations, clinical programs, either in progress or historical, and be relevant to FY 19-20 timeframe (April 1, 2019 - March 31, 2020).

TABLE 21 WHRI Top Three Achievements/Accomplishments/Highlights

WHRI 2019–2024 STRATEGIC PLAN RELEASED
This plan was developed based on consultation with WHRI members, key stakeholders in the health research and education communities, patients, staff, Indigenous partners, and the WHRI scientific advisory committee. Four priorities guide the implementation of the WHRI's 5-year strategic plan: 1) increase capacity to catalyze new women's health research; 2) nurture existing relationships and cultivate new collaborations; 3) increase and promote research translation, implementation, and communication; and 4) to be a national leader in advancing women's health research. In addition to the priorities outlined in our plan, we have developed four new strategic frameworks to guide our work in the areas of: partnership engagement; patient engagement; knowledge translation; and trainees and mentorship.
CREATED A NEW NATIONAL PARTNERSHIP AMONGST CANADA'S THREE WOMEN'S HEALTH RESEARCH INSTITUTES
At a summit held in November 2019 in Toronto, the leaders of Canada's three women's health research entities (Women's Health Research Institutes, Vancouver; Women and Children's Health Research Institute, Edmonton; and Women's College Research Institute, Toronto) came together to discuss the future of science that strives to close health gaps for women. The event ended with a commitment from each institute to partner together and embark on an initiative to create a pan-Canadian women's health research strategy and national network. Toward this goal, a Project Manager for this national partnership has now been hired to oversee the activities required for the initiation of this new national partnership.
LAUNCHED THE @WOMENSRESEARCH PODCAST TO ADVANCE WOMEN'S HEALTH RESEARCH
Over half the population listens to podcasts*. In March 2020, the WHRI released the inaugural episode of the @WomensResearch podcast. This new medium is a powerful tool for communicating with a public audience and will be a vehicle to increase the use and impact of investigators' research and provide a forum to discuss pressing issues in the field of women's health research. Recent topics that have been covered in the podcast include: the importance of knowledge translation and disseminating research results, debunking health-related misinformation online, how and why to do sex and gender-based research, and how to be a 'virtual' leader in a remote working environment. *https://www.podcastinsights.com/podcast-statistics/

REGISTRIES & DATASETS

Advancing Health and Policy Benefits

For a seventh year, data was collected from PHSA's registries and data sets to capture information to allow identification of users of the databases, how the data support research and a benefit classification which provides a deeper understanding of the benefits resulting from the use of these data for research.

Data stewards for a total of 16 PHSA registries or datasets, were invited to participate in a survey designed to assess the research activities of the registry/dataset. Completed surveys from 14 out of the 16 registries/datasets were obtained. The Research Metrics working group drew a distinction between two types of databases that might be counted. The first are those that serve as registries. These are the result of significant infrastructure investment in the collection of longitudinal data that are regional, provincial or national in scope regarding provision of services to specific population(s), maintained for the purposes of undertaking analysis, surveillance and/or research. They represent a significant resource for and investment in research. The second (not collected) are short-term, project-related databases that are primarily grant funded and are not maintained for use beyond the term of a given research project.

Registry/data set Definition/Purpose

The information on each registry/dataset was compiled from online resources and is described below.

REGISTRY/DATASET	PURPOSE
BC CANCER REGISTRY	The BC Cancer Registry is a population-based registry of all cancers diagnosed in British Columbia residents. It collects data and generates cancer statistics on the BC Population for the purpose of monitoring the burden of cancer in the province. It also serves as a source of information for research.
BC CARDIAC REGISTRY (HEARTIS)	Heart Information System (HEARTis) tracks a patient journey for all current and future cardiac procedures, throughout British Columbia, from registry on the waitlist to procedure completion and follow up. Its purpose is to support clinical care, quality assurance and improvement, and outcome-based research.
BCEHS CARDIAC ARREST REGISTRY (CAR)	The BCEHS Cardiac Arrest Registry captures comprehensive data on all out-of-hospital cardiac arrests attended by emergency medical services in British Columbia. The data is used to monitor response intervals, clinical practice guidelines and cardiac arrest patient outcomes. Additionally, the registry supports a significant research program into the care of cardiac arrest patients.
PARAMEDIC SYSTEM EVALUATION AND RESEARCH DATABASE (PSERD)	The (PSERD) contains data abstracted from electronic patient care records (ePCR), derived from all paramedic-patient encounters in the British Columbia Emergency Health Services (BCEHS). The PSERD also contains data from the computer aided dispatch system (911).
BC GENERATIONS PROJECT	The BC Generations Project is British Columbia's largest-ever health study. The Project follows a cohort of nearly 30,000 BC participants who volunteer their health information and biological samples to help researchers learn more about how environment, lifestyle and genes contribute to cancer and other chronic diseases.
BC PERINATAL DATABASE REGISTRY (BCPDR)	The (BCPDR) contains data abstracted from obstetrical and neonatal medical records on nearly 100% of births in the province of British Columbia from over 60 hospitals as well as births occurring at home attended by BC registered midwives. The BCPDR also collects data on maternal postpartum readmissions up to 42 days post-delivery and baby transfers and readmissions up to 28 days after birth. Data access is provided for public-interest research purposes, surveillance, program delivery, and evaluation.

REGISTRY/DATASET	PURPOSE
BC TRAUMA REGISTRY	Provides data collection, reporting and support of research and quality initiatives related to trauma care.
BCCH'S BIOBANK	The mission of the BCCH BioBank is to provide a comprehensive service for the collection, processing, storage, rapid access and retrieval of biospecimens and clinical information for research projects using a professional and compassionate approach to patient consenting that adheres to the highest standards of research ethics and patient privacy. A single biospecimen from one patient has the ability to fuel numerous research projects, any one of which might lead to an important medical breakthrough. BC Children's Hospital BioBank collects samples from patients at both BC Children's Hospital and BC Women's Hospital.
CERVICAL CANCER SCREENING DATABASE	A population based clinical system for cervical cancer screening as well as a lab system for all gynaecological cytology performed by the Provincial lab.
ENDOMETRIOSIS AND PELVIC PAIN INTERDISCIPLINARY COHORT (EPPIC)	A prospective data collection to evaluate patient outcomes after interdisciplinary care for endometriosis and pelvic pain
HEREDITARY CANCER PROGRAM	The Hereditary Cancer Program provides genetic counselling and genetic testing for BC/Yukon residents who may have inherited an increased risk for specific types of cancer.
LUNG CANCER SCREENING PROGRAM	The BC Lung Screen Trial provides the only access to organized lung cancer screening to eligible B.C. residents.
PROMIS-BC RENAL/TRANSPLANT	Patient Records and Outcome Management Information System – is the renal care community's clinical information system. With data collected from the 39 renal units in British Columbia, PROMIS supports: Individual patient care management; Renal unit management; Continuous quality improvement and research; Outcomes-based planning. PROMIS database is used as a source of important epidemiological data in support of clinical trials and for assessing new therapies.
SCREENING MAMMOGRAPHY DATABASE (SMP)	Clinical system for scheduling, reporting and tracking of screening mammography exams.
SURGICAL PATIENT REGISTRY (SPR)	SPR is a provincial program involving the five regional Health Authorities, the Provincial Health Services Authority (PHSA) and the Ministry of Health (MoH). SPR tracks patients waiting for surgery in British Columbia and provides information to evaluate and monitor surgical wait times in the province.
TUMOUR TISSUE REPOSITORY (TTR)	TTR is a provincial resource to support translational cancer research at BC Cancer, across Canada and internationally. The TTR is a state-of-the-art tumour bank that collects tissues, blood, and clinical information and processes these to create anonymous cases that can be studied by cancer researchers to understand how cancer develops, how it grows, how it spreads, and how it responds to treatment.

Supporting Research Activities

For FY 2019-20, all fourteen (14) of registries/datasets are used for the purpose of research as defined by UBC (see Glossary – Appendix 1, page 67). In addition, respondents were asked to identify other activities they provide in support of research. Table 22 lists the support activities by registry/dataset and shows the number of times in the past three fiscal years that a registry has provided a particular support activity. These research support activities are ranked from most provided to least over the three-year period.

TABLE 22 Research Activities Supported by Registries and Datasets

Research Support Activity	Cancer	Cardiac	Cervical	Perinatal	Renal	SMP	SPR	Transplant	Trauma	TTR	Biobank	Generations	Hereditary	EPPIC	Lung	BCEHS-CAR	BCEHS-Paramedic	Grand Total
Support in managing and linking data	3	3	1	3	3	3	1	3	3	3	2	1	1	2	2	1	1	36
Assist in identifying knowledge gaps and improvement needs	3	3	2	3	3	3	1	3	3		1	1	1	3	3	1	1	35
Support in designing research studies	3	3	1	3	3	3		2	3	3	1	1	1	3	3	1	1	35
Facilitate communication to identify pertinent research question		3	2	2	3	3		2	3			1	1	1	3	1	1	26
Support in conducting biostatistical analysis		3	1	3	3	2	1	2	2	1		1	1	2	3			25
Support in ensuring studies meet regulatory standards		3	1	2	2	2		2	3	3	1			1	3			23
Provide specialized and multidisciplinary methodological expertise		3		2	3	2			3	2				2	3			20
Application of new technical capabilities to provide more timely access to wider range of data		1		2	1		1	1	3				1	1	2		1	14
Teaching and hands on training for the above		2		1	3					2					3			11
Support in providing and teaching project management skills				2	2								1					5
Not used to support research activities							2				1							3
Grand Total	9	24	8	23	26	18	6	15	23	14	6	5	7	15	25	4	5	233

Respondents were asked if they submit data to external organizations for the purposes of research. See Table 23 for the breakdown of data set type by registry/dataset for FY 2019-20. This table lists the type of external data set and shows the number of times in the past three years that the registry has submitted data. The type of dataset is ranked from most submitted to least.

TABLE 23 Provision of Data to external Data Sets by Registry

Type of External Data Set	Cancer	Cardiac	Perinatal	Renal	SMP	SPR	Transplant	Trauma	TTR	Biobank	Lung	EPPIC	BCEHS-Paramedic	BCEHS-CAR	Grand Total
Pan Canadian dataset	3	3	1	3	3	1	3	1	3		2				23
Cross feeding within PHSA		3	3	3		1	1	3				1	1		16
Provincial data		3	3	2		3								1	12
International dataset	1			2			3				1				7
Data Not Submitted to Any Organization										2		2			4
Grand Total	4	9	7	10	3	5	7	4	3	2	3	3	1	1	62

Names of the external datasets include:

Provincial:
Chronic Disease Registry Initiative
First Nations Health Authority
Ministry of Health
Population Data BC
BC ROC (Resuscitation Outcomes Consortium)

Pan Canadian:
Canadian Cancer Registry – Statistics Canada
Canadian Joint Replacement Registry - CIHI
Canadian Organ Replacement Registry (CORR)
Canadian Ovarian Experimental Unified Resource (COEUR) – Terry Fox Research Institute
Canadian Partnership for Tomorrow Project – Canadian Partnership Against Cancer
Canadian Resuscitation Outcomes Consortium (CanROC)
Canadian Tissue Repository Network (CTRNet)
Institute for Clinical Evaluative Sciences (ICES)
Pan-Canadian Early Detection of Lung Cancer Study
Public Health Agency of Canada (Canadian Breast Cancer Screening Database)
VIGOUR (Virtual Coordinating Centre for Global Collaborative Cardiovascular Research)

International:
North American Association of Central Cancer Registries (NAACCR)
International Agency for Research on Cancer (IARC – a division of the World Health Organization)
International Cancer Benchmarking Partnership at Cancer Researchers UK
International Society for Heart & Lung Transplant (ISHLT)
Chronic Kidney Disease Prognosis Consortium (CKD-PC)
ISHLT (International Society of Heart and Lung Transplant)

Nature of Research Activities

CIHR (Canadian Institutes of Health Research) categorizes health research into four broad themes: biomedical research, clinical research, health services research (research respecting health systems and services); and social, cultural, environmental and population health. Research pursued using the registries/datasets above are categorized in Figure 55. Access requests are summarized in Figure 56. For examples of the types of research questions posed by researchers, please see Table 6 in the PHSA Research and Student Education Metrics Consolidated Summary Report.

FIGURE 55 Ranking of Predominant Nature of Research Questions Using Data from the Registries/Datasets

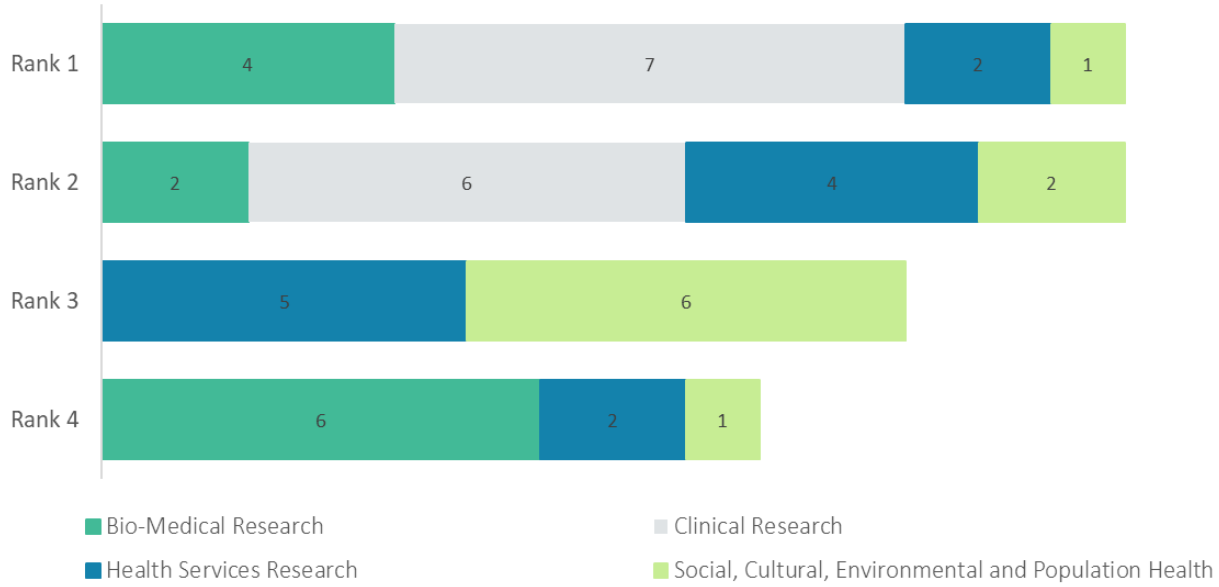
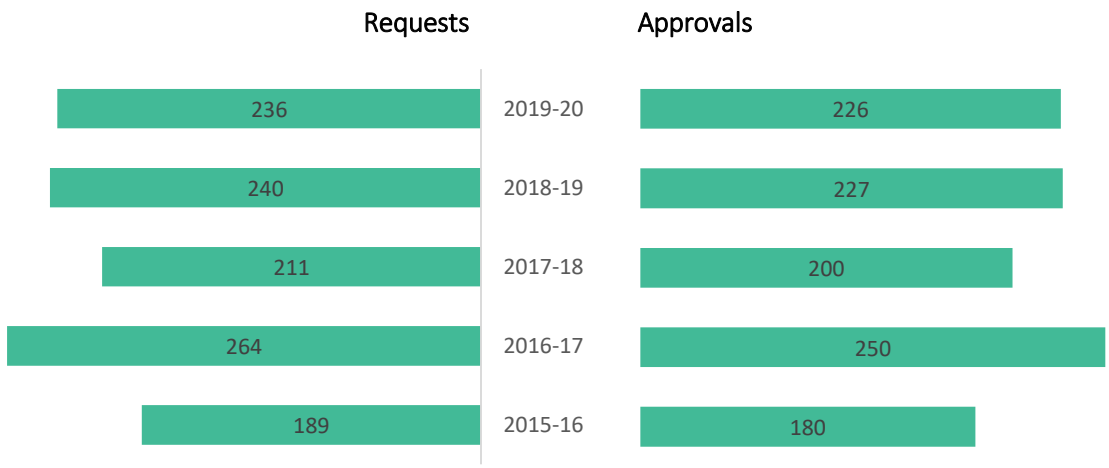


FIGURE 56 Research Access Requests and Approvals from Registry/Dataset by Fiscal Year



APPENDIX 1 - GLOSSARY

GLOSSARY	
TERM	**DESCRIPTION *[DATA SOURCE]***
METRIC DEFINITIONS	
Metrics 1ab, 2b – Total annual grant awards, Total annual external grant awards by major funding categories by program or research entity	Total Annual Award ($) for Grants, Awards and Contracts by Funding Source *[RISe annual file provided by UBC Office of Research Services]*
Metric 1c – Annual grant application success rate by program/research entity. Added in FY 09-10	Success rates for two CIHR operating grant competitions (March and September of applicable year) for BC Cancer and BCCHR, BCMHSUS and WHRI. *[CIHR website for National results; Program results self-reported on the excel data collection form]*
Metric 1d – Total # of Publications Added in FY 10-11; Category addition in FY 11-12	Total number (of publications, not authors) published within applicable calendar year meeting the following criteria: Book, book chapter, reports produced for the government, peer-reviewed publication inclusive of published journal articles, case reports, essays, literature reviews, e-journals and monographs. Excluded = abstracts, editorials, summaries, letters to the Editor, epubs, in press and submitted publications. *[Programs self-report utilizing SciVal to search Scopus utilizing researcher name; Program inputs data on excel data collection form]*
Metric 2a – Total number of trainees by program/research entity	Total Number (head count, not FTE) of Research Trainees by Student Type. (Exclude clinical trainees who are supported during their brief research rotations.) Research trainees counted will be any individuals who are primarily supervised by a researcher affiliated with the reporting unit, during all or a portion of the reporting year. *[Programs manually request trainee statistics from individual investigators and input data on excel data collection form]*
Metric 2c – Total number of researchers by program/research entity	List of Researcher Names including Research definition (This metric is to be collected based on BCCHR methodology category types wherever possible, if not available in that format, please designate your category as "5" and add your research definition in the space provided.) Added in FY 11-12 is a column to collect whether a researcher is a shared resource or 100% attributable to a specific program. *[Previous year's researchers are provided to each program from the researcher database in excel; Programs provide additions, deletions, changes on excel data collection form]*
Metric 2d - Infrastructure Investments - Major CFI Infrastructure Grants (Added FY 10-11)	Total FY $ for Leading Edge Fund (LEF)/New Initiatives Fund (NIF) awards from Canada Foundation for Innovation. LEF projects sustain and further enhance the most advanced research and technology development efforts already supported by past CFI investments. LEF projects build on existing areas of research priority where institutions have a competitive advantage and a proven track record in enhancing Canada's science and technology capacity. NIF projects build Canada's capacity in new, promising areas of research and technology development. Also included in these amounts are the matching funds (industry, educational, charity, etc.) to these awards. Excluded from these amounts are $'s associated with the Infrastructure Operating Fund (IOF) or Leaders Opportunity Fund (LOF) from CFI. These get

TERM	DESCRIPTION *[DATA SOURCE]*
	reported under Infrastructure – HR awards and operating grant categories respectively. *[RISe annual file provided by UBC Office of Research Services]*
Metric 2e – Research Support Fund Program grants (Added FY 12-13)	A federally funded grant to Canadian post-secondary institutions to help pay the indirect costs of research (e.g. salaries for research administrative staff, administrative costs associated with patent activities, maintenance of lab space). These annual grants are based on a formula related to tri-council award amounts (CIHR, NSERC, and SSHRC) and are paid to the research institutes based on a formal revenue sharing agreement. Due to how UBC is now reporting revenue precipitated by policy changes of the CAUBO (Canadian Association of University Business Officers), PHSA includes revenue related to the Research Support Fund program. *[RISe annual file provided by UBC Office of Research Services]*
Metric 3a - # of intellectual property disclosures, patents by program/research entity	Total number of Invention Disclosure (internal documents), provisional patent and PCT applications by fiscal year. *[BCTDO (for BC Cancer) and UILO (all other programs) complete the excel data collection form]*
Metric 3b – Licenses, royalty income and # spin-off companies (Revised FY 10/11) (Revised Net Licensing Rev definitions in FY 2013-14)	Total number of active license/assignment agreements and spin-off companies. List the names of all active spin-off companies. These numbers represent cumulative totals from year to year and are no longer reported by region. IP related revenue shall follow the UILO (University-Industry Liaison Office) definitions from FY 2010-11 forward. **Definitions:** **Gross licensing revenue** = Royalties + Equity Liquidated + Option Fees + License Fees + License Management + Technology Assignment; Royalties - royalty payments including minimum annual royalty payments License Fees – upfront payments, milestone payments and other payments associated with the license License Management - legal fees incurred by TDO (Technology Development Office) or UILO relating to the licensed IP and reimbursed by licensees **Total TDO Expenses for patenting and legal costs** **Expenses for Licensed IP** – patenting, legal and related costs associated with licensed IP **Realized revenue per distribution agreements** – revenue accrued to PHSA program after distribution to inventors, obligations due to affiliated academic institutions, granting agencies and inventor departments. The revenue distribution varies by entity and will be noted in the narrative. <u>Royalty, equity liquidated and licensee fees</u> When the UILO licenses technology to a company, the terms of the license typically include a requirement to pay a % royalty on product sales, an upfront license fee and an annual license maintenance fee. The UILO may also negotiate an equity component (company stock) as part of the license agreement. Under the licensing scenario, the University still owns the technology but is granting a license to a third party. <u>Option Fees</u>

TERM	DESCRIPTION *[DATA SOURCE]*
	This relates to the scenario when a company desires an option on a technology (essentially reserving/holding the technology). These are usually short-term contracts that have a modest option fee. <u>Technology Assignment</u> This relates to the scenario when a company wishes to take ownership of the technology and in return pays an Assignment fee. *[BCTDO (for BC Cancer) and UILO (all other programs) complete the excel data collection form]*
Metric 4a – Clinical Trials Source: Ethics Module for all REBs	Number of active trials and cumulative subject enrollment at the end of the year. Includes CT data for all PHSA and non-PHSA PIs using PHSA facilities and resources
FUNDING TYPE CATEGORIES (COLUMNS)	
Funding Types/Grant Types	The columns on worksheet 1ab, 2b that correspond to the funding types agreed to by the Research Metrics Working Group on July 22, 2009 and revised at the working group's direction in subsequent fiscal years.
SALARY AWARDS	
Faculty and other personnel support	Dollar amount for FY for supported faculty salary awards including chairs.
Trainee salary support	Dollar amount for FY for supported trainee salary awards including trainee research allowances.
INFRASTRUCTURE AWARDS	
Human Resources	Dollar amount for FY for Human Resource Infrastructure including Michael Smith Foundation for Health Research (MSFHR) - team start-up, team, research units, platforms, networks and institutional infrastructure, CFI Infrastructure Operating Fund (IOF) awards.
Capital, Equipment, Construction	Dollar amount for FY for capital, equipment, or construction awards including BC Knowledge Development Fund (BCKDF), matched sources (charities, industry) and other large equipment grants. Excluded are Canada Foundation for Innovation (CFI) awards (see next category).
Capital, Equipment, Construction - Major CFI (Added in FY 10-11)	Dollar amount for FY for capital, equipment, or construction Major Canada Foundation for Innovation (CFI) awards for Leading Edge Fund (LEF)/New Initiatives Fund (NIF) awards. Also included in these amounts are the matching funds (industry, educational, charity, etc.) to these awards. Excluded are $'s associated with the Infrastructure Operating Fund (IOF) or Leaders Opportunity Fund (LOF) from DFI. These get reported under Infrastructure - HR and Operating Grant categories respectively. (see Metric definition 2d for further detail)
OPERATING GRANTS	
Operating or Project Operating Grants (not exclusive of the next three columns)	Dollar amount for FY for operating or project operating grants including when the salary component is embedded in a grant; includes establishment grants; includes development grants.
Clinical Trials (4a) (Definition clarified in FY 10-11)	Dollar amount for FY for any research project that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes. Health related interventions include any intervention used to modify a biomedical or health-related outcome, for example drugs, surgical procedures, devices, behavioral treatments, dietary interventions, and process-of-care changes. Health outcomes include any biomedical or health

TERM	DESCRIPTION *[DATA SOURCE]*
	related measures obtained in patients or participants, including pharmacokinetic measures and adverse events.
Clinical Trials (4a) (Definition clarified in FY 10-11)	Dollar amount for FY for research involving a new laboratory technique or process, e.g. a new more cost-effective processing for a genetic diagnostic test, or a new tissue preparation process, etc. Trials that may use clinical material but do not directly involve patients in the research or involve a risk to the patients (may involve their tissue or blood samples however).
Grant in Aid	Dollar amount for FY for Grant-in-aid awards (Broad topic but not directed). A Grant-in-Aid is essentially a donation to one or more researchers, normally to conduct research in an area that is of mutual interest to both the donor and the researcher(s). These grants are normally in the form of a one-page letter addressed to a researcher and signed by the donor, and accompanied by the grant funds. Characteristics: • Sponsor supports research activities of an individual researcher or group of researchers. Sponsor does not restrict use of funds • Funds are paid in advance • No invoicing or financial statements are required by Sponsor • University/Host Institution retains all rights to inventions and other intellectual property • University/Host Institution is free to publish results • University/Host Institution provides the Sponsor with a final report only • Parties to the Agreement: University/Host Institution and Sponsor (may include University/Host Institution Affiliated Hospitals)
Other Funding Type – Service Contracts Added as sub-type of Other Funding Type category in FY2010-11; Combined into one "Other" category as of FY 14-15	Characteristics: (1) Solely for testing, evaluation or analysis of materials or compounds owned by the Sponsor with no intellectual input or value-added by UBC. (2) Sponsor retains all rights to intellectual property provided by the Sponsor for the services
Other Funding Type – Donations & Endowment Interest Added as sub-type of Other Funding Type category in FY2010-11; Combined into one "Other" category as of FY 14-15	A donation is a gift given by an individual or an organization to a non-profit organization, charity or private foundation in support of a specific purpose. Endowment – gift of money or income producing property to a public organization (such as a hospital foundation or university) for a specific purpose (such as research or scholarships). Generally, the endowed asset is kept intact and only the income (known as endowment interest) generated by it is consumed.
Other Funding Type Combined into one "Other" category as of FY 14-15	Dollar amount for FY, combined, of any grant, award or contract that does not fit into the above categories. Please specify name of Funding Type in space provided.
FUNDING SOURCE CATEGORIES (ROWS)	
UBC RISe Sector	Sector denotes an area of the **economy** in which the funder is assigned. This decision is based on how the organization is funded. Three sectors are currently utilized by UBC's Research Information System (RISe) and include: **Non-Profit** – funding provided mostly by private donations and endowments. **Industry** – funding provided by a for-profit business in the private or commercial sectors of business.

TERM	DESCRIPTION *[DATA SOURCE]*
	Government – funding provided by local, provincial, national, federal or foreign government entity. [definitions to be further developed with input from Working Group and RISe personnel]
Funding Sources/Granting Program	The rows on worksheet 1ab, 2b that correspond to the funding sources agreed to by the Research Metrics Working Group on July 22, 2009 and modified in subsequent fiscal years.
CIHR and its institutes (included in Major Canadian Funding Category)	The Canadian Institutes of Health Research and its thirteen subsidiary institutes: * Aboriginal Peoples' Health * Aging * Cancer Research * Circulatory and Respiratory Health * Gender and Health * Genetics * Health Services and Policy Research * Human Development, Child and Youth Health * Infection and Immunity * Musculoskeletal Health and Arthritis * Neurosciences, Mental Health and Addiction * Nutrition, Metabolism and Diabetes * Population and Public Health
CCSRI (formerly NCIC/Canadian Cancer Society/CCSR) – (name changed to CCSRI for FY 11-12 and moved to CDN Foundation & Non-profit category)	On February 1 2009, the Canadian Cancer Society integrated the operations of the National Cancer Institute of Canada (NCIC), creating the Canadian Cancer Society Research Institute. Grants from all three of these organizations should go in this category.
NSERC (included in Major Canadian Funding Category)	Natural Sciences and Engineering Research Council
SSHRC (included in Major Canadian Funding Category)	Social Sciences and Humanities Research Council
Genome Canada and provincial Genome agencies (included in Major Canadian Funding Category)	Genome Canada, and its regional centres: Genome BC, Genome Alberta, Ontario Genomics Institute, Genome Quebec, Genome Prairie, and Genome Atlantic
MSFHR (included in Major Canadian Funding Category)	Michael Smith Foundation for Health Research (BC)
Canadian Industry	Canadian-based for-profit corporations. Decisions on whether a funding source is Canadian or Foreign are driven by award payment or contract address.
Canadian Foundations & Non-Profits (name modified in FY 12-13 to align with UBC categories – all historical data was recoded)	Canadian not for profit organizations including foundations and charities. These include grants that are "internally" sourced (i.e. that are from BCCHR, BC Cancer or their affiliated Foundations such as BCWF, BCCHF, and BCCF etc.)
Canadian Educational Institution	This was added in FY 09-10 as a separate Funding Source Category and includes all educational and/or academic institutions in Canada. Foreign Educational Institutions are categorized under Foreign Other Source.

TERM	DESCRIPTION *[DATA SOURCE]*
Canadian Government	Provincial, municipal, territorial or federal governments and crown corporations in Canada
Foreign Industry	For-profit corporations outside Canada. Decisions on whether a funding source is Canadian or Foreign are driven by award payment or contract address.
Foreign Foundations & Non-Profits (name modified in FY 12-13 to align with UBC categories – all historical data was recoded)	Not for profit organizations including foundations and charities headquartered outside Canada, e.g. March of Dimes, American Cancer Society
Foreign Government	Provincial, municipal, territorial or federal governments and government-controlled corporations outside Canada including the armed forces (e.g. US Military)
Foreign Other Source	All Foreign funding sources not captured in the above Foreign categories including Foreign Educational Institutions.
CLINICAL TRIAL GRANT FUNDING TYPES	
Source of funds refers to the funder, sponsor, grantor, or agency (government, industry, and non-profit) that is providing the funds needed to undertake the project. Projects are not considered "For-Profit" if a sponsor is only collaborating and not funding the study (e.g., providing study drug or lab space only).	
Grant	Funding provided for specific projects by sponsors in the government or non-profit sectors.
For-Profit Sponsor (Industry or Pharmaceutical)	Funding provided for specific projects by sponsors in the industry sector.
Grant-in-aid	Funding provided for general research activities by sponsors in any sector (Industry, Government or Non-profit)
Internal Funding	Funded by internal program department, program operational budget or non-profit foundation (e.g. salary award)
No Funding	No funding provided.
Other	Funding not yet known when ethics application was submitted.
Multiple Funding Type	Any combination of the above funding types.
RESEARCH TRAINEES CATEGORIES (COLUMNS)	
Research Trainee	Total number of research trainees by student type excluding clinical trainees who are supported during their brief research rotations. Research trainees counted will be any individuals who are primarily supervised by a researcher affiliated with the reporting unit, during all or a portion of the reporting year.
Masters	Graduate students enrolled in a full time Master's program who are supervised by a faculty member affiliated with the reporting organization.
Doctoral (changed from PhD in FY 2010-11)	Graduate students enrolled in a full time PhD program who are supervised by a faculty member affiliated with the reporting organization.
Post-doctoral	Full time post-doctoral fellows whose primary focus is research (NOT clinical fellows)
Summer students (short term)	High school and or university students who are engaged in a short-term program with the reporting program for a limited period (e.g. over the summer, a few weeks)
Residents	MDs engaged in a residency program that may include a research rotation
Practicum, co-op, honors and directed studies students	High school and/or university students whose assignment to the reporting organization is according to a practicum, co-op, honours and/or directed studies program
Other Research Trainee Type	(Reporting organization to specify definition)
RESEARCH TRAINEES (ROWS)	

TERM	DESCRIPTION *[DATA SOURCE]*
Do you Support These Types of Research Trainees	To be answered Yes or No for each Research Trainee Category listed above. Is used to indicate that a research entity does have Research Trainees of this type but has no data collection ability. This will distinguish between those with zero (0) Trainee types from those that have them but can't count them.
Total Head Count	Total number of research trainees of that type, not an FTE (Full Time Equivalent number).
LIST OF RESEARCHER NAME (COLUMNS AND ROW)	
Category (modified to add Shared Membership sub-category under BCCHR categories 1-3 in FY 2010-11) Membership categories revised FY 16-17	A number one through five (MUST have one selected). Categories 1-4 are as described in the BCCHR "Guide for Completing an Application for Membership" available online at http://www.cfri.ca/research_support/forms/membership.asp. These categories are based on a calculation of a given individual's research hours/week. Category 5 will be for those research entities/programs who do not utilize the CFRI categories. If you utilize category 5, please indicate the definition that your research entity/program uses to define Researchers. A shared membership sub-category available in CFRI Categories 1-3 was added in FY 2010-11. This new category allows individuals to formally declare their alignments (including percentage affiliation) with more than one organization. Category 4 was clarified to include only affiliate investigators that are not based on site but who collaborate with program members. Their primary affiliation will be with another academic and/or research institution. New categories for FY 16-17: http://bcchr.ca/research-support/membership
First, Last, Middle name	Self-explanatory, e.g. Jane Mary Smith
Short Name	Name as it would appear in PubMed, for example, Smith, JM
Count Attributed to Program Added in FY 11-12	An indication by number (1 or .5) of whether a researcher is attributable to applicable program 100% (full) or 50% (shared).
UBC's definition of Research Added in FY 13-14	UBC defines research involving human subjects as "any systematic investigation (including pilot studies, exploratory studies, and course-based assignments) to establish facts, principles or generalizable knowledge which involves: living human subjects; or human remains, cadavers, tissues, biological fluids, embryos or foetuses." It does not include…" quality assurance studies, performance reviews or testing within normal educational requirements, or activities undertaken for administrative or operational reasons…" unless they include an 'element of research.'
OTHER	
Fiscal Year	Includes data for April 1 - March 31 of applicable fiscal year (i.e., FY 14-15 is April 1, 2-14 – March 31, 2015)

APPENDIX 2 - PHSA FUNDING SOURCES

PHSA FUNDING SOURCES				
FNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
Canadian Foundations & Non-profits	**Non-Profit**	**48,425,278**	**42,500,967**	**46,305,039**
	British Columbia Cancer Foundation	14,518,334	12,885,122	11,291,980
	BC Children's Hospital Research Institute	10,634,910	9,299,990	9,468,669
	British Columbia Children's Hospital Foundation	6,929,109	3,298,281	4,492,185
	Terry Fox Research Institute	4,519,702	5,264,004	6,795,186
	Canadian Cancer Society	2,500,381	2,295,525	766,706
	Canadian Partnership Against Cancer	936,742	677,525	752,745
	NCIC Clinical Trials Group	860,853	898,343	1,041,691
	The Canadian Paediatric Society	716,464	431,212	565,217
	Juvenile Diabetes Research Foundation Canadian Clinical Trial Network	600,000	108,700	316,456
	Prostate Cancer Canada	556,466	448,945	1,795,170
	Lotte & John Hecht Memorial Foundation	506,423	425,000	196,434
	VGH and UBC Hospital Foundation	430,800	220,800	220,800
	Leukemia & Lymphoma Society of Canada	400,000	375,000	515,002
	Canadian Cancer Trials Group	354,543	257,402	0
	Vancouver Prostate Centre	340,026	375,341	157,000
	Crohn's and Colitis Canada	277,500	364,700	379,000
	Heart and Stroke Foundation of Canada	233,628	140,245	253,477
	Cystic Fibrosis Canada	229,392	203,495	200,117
	Kids Brain Health Foundation	181,000	0	0
	Lawson Foundation	175,000	0	199,750
	Brain Canada	173,244	430,507	736,632
	Women's Health Research Institute (WHRI)	152,195	2,200	2,200
	The W. Garfield Weston Foundation	148,244	20,769	0
	Huntington Society of Canada	130,000	100,000	0
	Canadian Blood Services	129,285	129,285	96,964
	Canadian Institute for Advanced Research	115,000	4,000	125,750
	Multiple Sclerosis Society of Canada	105,500	105,500	100,000
	Arthritis Society	102,400	151,108	100,000
	Canadian Foundation for Translational Immunology	99,844	0	0
	Canadian HIV Trials Network	98,077	50,000	0
	Cancer Research Society	90,000	90,000	510,000
	BCCDC Foundation for Population and Public Health	89,000	109,631	222,936
	Centre for Drug Research and Development	86,223	0	4,174
	Myeloma Canada Research Network (MCRN)	85,659	10,000	0
	R. Howard Webster Foundation	80,000	80,000	80,000
	BC Women's Hospital and Health Centre Foundation	77,147	77,147	0
	The Alva Foundation	72,479	46,000	64,870
	Weston Brain Institute	67,281	103,620	452,353
	Canadian Cancer Society Research Institute	63,750	1,837,309	2,519,625
	Vancouver Foundation	60,086	80,000	105,000
	Transplant Research Foundation of British Columbia	55,000	50,000	50,000
	British Columbia Lung Association	50,000	50,000	100,000
	C.H.I.L.D. Foundation	50,000	0	0
	Sick Kids Foundation	32,302	21,929	0

PHSA FUNDING SOURCES				
FNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Max Bell Foundation	32,000	0	0
	Genito Urinary Medical Oncologists of Canada (GUMOC)	30,000	0	0
	Sunnybrook Odette Cancer Centre	30,000	0	0
	Pancreas Centre BC	27,900	58,925	77,900
	Lung Cancer Canada	25,000	5,000	0
	Canadian Association of Gastroenterology	22,500	73,500	50,000
	Saskatchewan Health Research Foundation	18,770	15,930	0
	Lloyd Jones Collins Foundation	15,000	6,000	3,000
	Parachute Canada	11,000	118,000	20,778
	Various Companies	10,000	0	0
	Canadian Foundation for Dental Hygiene Research and Education	10,000	0	0
	Canadian Dermatology Foundation	10,000	55,000	35,000
	Carraresi Foundation	10,000	0	0
	Canadian Donation and Transplantation Research Program (CDTRP; formerly CNTRP)	10,000	50,000	0
	CHU de Quebec Universite Lavel (CHUL) QC	9,968	0	0
	Lawson Health Research Institute	9,800	4,200	170,501
	C17 Research network	8,788	0	3,110
	Ontario Institute for Cancer Research	7,500	17,900	0
	Diabetes Canada (formerly Canadian Diabetes Association)	5,000	0	150,000
	Canadian Society of Allergy and Clinical Immunology	3,750	0	0
	Ontario Clinical Oncology Group	3,300	16,380	13,780
	Fondation Centre de cancerologie Charles-Bruneau	750	3,000	0
	Donations for Health Science Research	265	43,613	5,283
Major Canadian Funding Entity	**Government**	**47,040,017**	**43,714,656**	**35,506,808**
	Canadian Institutes of Health Research (CIHR)	33,341,976	31,434,349	26,776,006
	Genome Canada and Provincial Genome agencies	8,533,566	7,979,549	4,799,694
	Michael Smith Foundation for Health Research	3,311,442	0	0
	NSERC	1,853,034	1,671,829	1,607,225
	MSFHR	0	2,628,928	2,323,883
Canadian Government	**Government**	**16,504,072**	**16,706,282**	**36,613,936**
	Canada Foundation for Innovation	4,673,954	6,128,560	17,124,864
	Canada Research Chairs	2,421,667	2,230,000	2,200,000
	British Columbia Knowledge Development Fund (BCKDF)	1,242,500	123,818	8,745,456
	Provincial Health Services Authority	849,253	680,118	43,000
	St. Paul s Hospital (Providence Health Auth)	722,617	0	0
	British Columbia Ministry of Health	688,813	915,257	1,028,570
	Stem Cell network (SCN) - Networks of Centres of Excellence (NCE)	571,200	180,000	436,450
	Public Health Agency of Canada	546,317	403,435	529,713
	BioCanRx - Networks of Centres of Excellence (NCE)	497,705	819,962	790,249
	Transport Canada	400,000	361,791	158,954
	NanoMedicines Innovation Network (NMIN) - Networks of Centres of Excellence (NCE)	394,600	0	0
	Allergy, Genes and Environment Network (AllerGen) - Networks of Centres of Excellence (NCE)	288,884	666,884	286,547
	British Columbia Ministry of Children and Family Development	255,333	192,815	190,135

PHSA FUNDING SOURCES				
FNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	British Columbia Centre for Disease Control	246,008	23,577	499,082
	Kids Brain Health Network - Networks of Centres of Excellence (NCE)	241,560	1,254,671	2,717,465
	Hospital for Sick Children Toronto	213,818	228,211	68,293
	Employment and Social Development Canada	199,780	0	0
	Grand Challenges Canada	180,563	285,452	178,563
	Health Canada	174,675	0	0
	Innovation, Science and Economic Development Canada	169,879	180,191	139,722
	University Health Network	169,430	31,956	181,996
	British Columbia Investment Agriculture Foundation	165,027	0	0
	Hospital for Sick Children Research Institute	162,619	0	0
	Government of Canada	145,527	202,134	165,665
	Province of British Columbia	139,879	165,191	104,722
	Communities Against Preventable Injuries Association	125,488	125,488	0
	British Columbia Immunization Committee	109,290	32,096	138,731
	BC SUPPORT Unit	102,000	0	0
	Alberta Innovates	77,083	50,200	0
	British Columbia Mental Health & Substance Use Services	66,000	10,000	10,000
	Prostate Centre's Translational Research Initiative For Accelerated Discovery and Development (PC-TRiADD)	46,875	140,625	187,500
	Cancer Care Manitoba	45,000	120,000	45,000
	National Research Council	40,468	0	0
	SSHRC	40,000	0	0
	International Development Research Centre	39,923	91,351	96,135
	Providence Health Care	37,636	48,643	0
	Canadian Blood and Marrow Transplant Group	30,000	0	0
	Canada First Research Excellence Fund	28,400	26,010	0
	Sinai Health System	18,241	0	0
	City of Surrey	15,963	91,856	44,159
	New Frontiers in Research Fund	15,000	0	0
	Department of Foreign Affairs, Trade and Development	14,090	13,860	0
	Fisheries and Oceans Canada NB	9,500	0	0
	Children's & Women's Health Centre of BC - KDZ12432/KDZ12447 (BCCHF)	2,500	0	0
	Children's Hospital of Eastern Ontario	1,500	0	0
	Princess Margaret Hospital Consortium	-4,250	0	31,982
	British Columbia Cancer Agency (BCC)	-118,243	613,869	101,224
Canadian Industry	**Industry**	**9,990,511**	**10,819,344**	**10,062,368**
	AstraZeneca Canada Inc.	1,540,129	787,318	503,142
	Bristol-Myers Squibb Co. (Canada)	1,374,103	912,284	1,216,781
	Roche Canada	1,321,914	798,739	1,237,020
	Pfizer Canada Inc.	850,594	2,785,057	1,775,579
	Janssen Inc.	696,364	568,148	349,383
	Merck Canada Inc.	601,999	95,969	0
	Novartis Pharmaceuticals Canada Inc.	557,486	1,004,927	424,253
	Merck Frosst Canada Inc.	485,293	616,614	495,651
	PSI CRO Research Canada, Inc.	394,893	-300	0
	Sanofi-Aventis Canada Inc.	241,221	393,777	746,547
	Ipsen Biopharmaceuticals Canada Inc.	185,713	0	0
	Canarie Inc.	169,731	216,621	246,300

PHSA FUNDING SOURCES				
FNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Pharmaceutical Research Associates Inc.	154,335	15,199	0
	Astellas Pharma Canada Inc.	148,467	438,437	360,879
	VBI Vaccines Inc.	139,308	215,515	0
	Xenon Pharmaceuticals Inc.	100,000	0	1,735
	Hai Beverages Inc.	99,661	0	0
	Various Companies	90,103	65,580	53,624
	Genzyme Canada Inc.	68,958	12,684	19,133
	Translational Research in Oncology (TRIO)	66,911	0	0
	GlaxoSmithKline (Canada) Inc.	61,512	23,464	57,009
	Virogin Biotech Canada Ltd.	59,320	30,000	0
	StemCell Technologies Inc.	54,000	0	35,000
	Renaissance BioScience Corporation	45,000	0	0
	Quintiles Canada Inc.	41,104	43,281	36,615
	Concord Pacific Developments Ltd.	40,585	25,058	13,466
	MethylGene Inc.	38,191	0	62,835
	SignalChem Lifesciences Corporation	35,000	25,000	46,500
	AbbVie Corporation	32,983	1,005	12,169
	Genova Biotech Canada Ltd. Burnaby	32,717	0	0
	Dynacare	32,506	32,506	32,506
	Medtronic of Canada Ltd.	30,000	30,000	0
	ProSafe Pharmaceuticals Inc	30,000	45,000	45,000
	LifeLabs	25,000	25,000	0
	Pharmaplanter Technologies Inc.	23,419	124,688	117,188
	Applied Biological Materials Inc.	22,500	45,000	60,000
	Eli Lilly Canada Inc.	17,934	81,951	168,314
	Destiny Bioscience AB	17,341	0	0
	GenePOC Inc.	16,315	52,052	0
	Cuprous Pharmaceuticals Inc.	10,000	0	170,000
	Trillium Therapeutics Inc.	9,257	544,712	7,238
	Marigold Foundation Ltd.	9,000	9,000	0
	General Electric Canada	9,000	0	0
	Derm-Biome Pharmaceuticals, Inc	8,120	0	0
	Katenies Research and Management Services	6,000	12,000	0
	Wyeth Research (CAN)	5,112	213	10,247
	Cannevert Therapeutics Limited (CTL)	4,444	54,444	113,610
	Vesalius Cardiovascular Inc.	4,350	0	0
	Hoffmann-La Roche Ltd. (Canada)	3,650	64,300	22,245
	Bayer Inc. (Canada)	1,738	63,238	75,843
	Aspect Biosystems	1,575	0	0
	Coastal Genomics Burnaby	1,534	0	0
	Electrom LEV	745	0	0
	Kinexus Bioinformatics Corp.	420	0	0
	Spinologics. Inc	250	0	0
	Takeda Canada Inc.	-13,244	0	62,586
	Amgen Canada Inc.	-14,049	48,558	44,617
Foreign Industry	**Industry**	**8,151,701**	**6,668,294**	**8,968,922**
	TESARO Inc.	1,074,149	959,384	206,236
	Nestec Ltd. (US Research Centre)	797,875	366,090	214,405

PHSA FUNDING SOURCES				
FNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Paul G. Allen Frontiers Group	648,380	506,535	0
	Vertex Pharmaceuticals inc.	431,957	222,559	194,384
	National Football League	387,058	0	0
	Zogenix International Limited	386,089	221,746	306,882
	Acerta Pharma, BV	316,990	201,007	373
	Millennium Pharmaceuticals Inc.	250,141	373,214	242,497
	Tx Cell SA	239,692	473,486	473,486
	Vita Imaging Inc.	228,362	0	0
	Nektar Therapeutics	206,120	85,114	0
	Janssen Research and Development, LLC	191,402	19,601	0
	Genentech Inc.	173,339	23,014	168,790
	Clovis Oncology, Inc	161,814	17,100	0
	Agios Pharmaceuticals	157,247	0	0
	Celgene Corp.	149,408	129,719	165,629
	Shire Human Genetic Therapies Inc.	126,407	104,988	52,768
	Nanostring Technologies	118,880	315,000	0
	Cascadian Therapeutics	111,888	40,774	0
	Agensys Inc.	96,053	300,903	1,286,434
	Bristol-Myers Squibb Co. (US)	91,945	65,905	132,580
	ReveraGen BioPharma, Inc.	89,636	56,036	0
	Italfarmaco SpA	87,563	26,250	0
	Aragon Pharmaceuticals	86,647	47,620	189,613
	Vitaflo USA, LLC	82,709	0	0
	Parexel International Corp.	80,776	61,407	223,005
	Regeneron Pharmaceuticals Inc.	79,039	21,046	0
	PTC Therapeutics Inc.	75,035	0	91,327
	Loxo Oncology	67,427	9,202	0
	Levo Therapeutics, Inc.	65,112	0	0
	IDx Technologies Inc.	64,790	0	0
	Varian Medical Systems, Inc.	62,500	0	61,641
	F. Hoffmann-La Roche Ltd.	60,500	2,500	0
	AbbVie Inc.	56,689	18,262	0
	Uniqure Biopharma BV	53,602	125,950	125,949
	CRISPR Therapeutics AG	52,655	53,593	0
	Beigene, Ltd.	51,642	800	0
	DBV Technologies S.A.	51,471	18,394	183,291
	Pharmacyclics LLC	51,468	750	0
	AVEO Pharmaceuticals, Inc.	48,265	142,708	100,530
	Biogen MA Inc.	47,603	115,419	150,132
	Microsoft Corp.	46,000	0	0
	Debiopharm International SA	43,018	68,559	0
	Savara Inc.	41,717	655	17,647
	Syneos Health, LLC	33,003	0	0
	Novartis Pharma AG	30,722	0	0
	Institute of Regenerative Medicine Italy	29,680	0	0
	Roche Inc.	26,074	30,394	46,429
	OneSkin Technologies	25,098	0	15,600
	Bioverativ Inc.	24,024	10,327	0
	Swedish Orphan Biovitrum AB	23,765	12,502	8,030

PHSA FUNDING SOURCES				
FNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Pfizer Inc. (outside Canada)	20,304	-25,667	265,267
	Tusker Medical, Inc.	19,569	50,401	0
	BioMarin Pharmaceutical Inc.,	19,243	101,527	0
	Albireo AB	19,175	0	0
	Grifols, S.A.	12,490	0	0
	Polynoma LLC	12,290	7,567	27,165
	ViiV Healthcare	10,517	3,541	9,496
	Seattle Genetics, Inc.	9,758	36,041	40,912
	Onyx Pharmaceuticals, Inc.	9,750	4,299	144,773
	PUMA Biotechnology Inc.	8,609	0	45,432
	MedImmune LLC	6,788	0	35,134
	Aventis Pharmaceuticals Inc.	6,772	0	0
	Bristol Myers Squibb Medical Imaging	5,965	4,002	8,965
	Eisai Inc.	3,549	38,520	0
	Abbott	1,540	0	0
	Bayer Healthcare LLC	1,306	2,000	0
	Medivation, Inc.	652	24,973	0
Foreign Foundations & Non-profits	**Non-Profit**	**3,123,592**	**5,350,824**	**9,222,271**
	St. Baldrick's Foundation	416,254	0	0
	Pancreatic Cancer Action Network	387,500	112,500	0
	Children's Oncology Group Foundation USA	342,306	0	0
	Wellcome Trust (UK)	243,523	10,000	181,000
	Susan G. Komen Breast Cancer Foundation	235,000	35,000	0
	Breast Cancer Research Foundation	183,250	250,000	0
	Gray Foundation	168,430	0	0
	Juvenile Diabetes Research Foundation International	163,027	709,701	602,421
	Leukemia & Lymphoma Society	135,607	60,000	60,000
	Brain & Behavior Research Foundation (formerly NARSAD)	130,556	64,527	30,390
	Singapore Institute for Clinical Sciences	104,000	0	0
	Huntington's Disease Society of America	102,368	0	0
	The Dallas Foundation	95,775	0	0
	Pediatric Orthopaedic Society of North America	69,757	59,376	64,665
	Bev Hartig Huntington's Disease Foundation	64,495	0	0
	Jacobs Foundation	55,548	24,000	0
	Entertainment Industry Foundation (EIF)	50,000	400,000	200,000
	Neuroendocrine Tumor Research Foundation	50,000	0	0
	Bill and Melinda Gates Foundation	44,079	1,585,842	4,552,091
	International OCD Foundation	42,528	0	0
	The Waterloo Foundation	34,970	63,270	0
	American Institutes for Research	32,087	0	0
	National Surgical Adjuvant Breast and Bowel Project	30,754	218,773	132,621
	Cystic Fibrosis Foundation Therapeutics Inc.	24,896	14,413	26,512
	Sidra Medical and Research Center	24,365	0	31,692
	International Life Sciences Institute North America	19,860	18,899	0
	Gateway for Cancer Research	9,479	16,162	0
	National Institute for Health Research (UK)	4,334	3,779	3,613
	Fred Hutchinson Cancer Research Center	3,554	404,468	1,144,441

PHSA FUNDING SOURCES				
FNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	AO Foundation	3,090	2,446	0
	Alex's Lemonade Stand Foundation	3,000	0	0
	San Antonio Breast Cancer Symposium	2,597	0	0
	Nationwide Children's Hospital	2,310	0	0
	Thrasher Research Fund	1,907	32,280	2,780
	Pediatric Epilepsy Research Foundation	1,592	4,251	0
	Rock for the Heart Foundation	1,323	0	0
	National Marrow Donor Program	907	0	11,498
	International Hip Dysplasia Institute (IHDI)	282	78,450	74,352
	Orthopaedic Research and Education Foundation (OREF)	150	350	350
	American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Rhoads Research Foundation	-15,513	-13,638	30,000
	The Leona M. and Harry B. Helmsley Charitable Trust	-146,353	156,486	340,780
Canadian Educational Institution	**Non-Profit**	**8,365,437**	**2,961,460**	**2,049,903**
	University of British Columbia	5,026,031	820,476	732,985
	University of Toronto	541,127	0	0
	UBC VP Research & Innovation	460,903	404,794	29,000
	UBC Faculty of Medicine	365,000	275,000	151,667
	UBC Department of Medical Genetics	325,000	75,000	75,000
	UBC Department of Pathology and Laboratory Medicine	290,350	131,380	192,000
	UBC Department of Obstetrics and Gynaecology	263,695	32,994	-3,245
	UBC Peter Wall Institute for Advanced Studies	141,736	60,000	0
	University of Northern British Columbia	128,843	225,923	0
	UBC Department of Paediatrics	125,000	0	0
	UBC Department of Family Practice	106,115	11,500	0
	University of Calgary	103,929	6,565	64,725
	UBC Centre for Molecular Medicine and Therapeutics (CMMT)	74,852	1,687	0
	Simon Fraser University	66,923	85,920	22,184
	UBC School of Population and Public Health	52,254	60,740	54,045
	UBC School of Biomedical Engineering	50,000	50,000	0
	UBC Department of Surgery	50,000	159,000	0
	University of Victoria	32,634	25,937	3,645
	UBC VP Students	30,000	37,500	0
	UBC Department of Anesthesiology, Pharmacology and Therapeutics	28,077	39,227	50,000
	UBC VPR Research Development Fund	25,000	25,000	34,167
	UBC Strategic Excellence Fund	20,000	20,000	318,000
	UBC Unrestricted Research Funds	17,647	264,101	40,425
	UBC Faculty of Graduate and Postdoctoral Studies	13,000	14,000	6,000
	University of Alberta	9,992	0	105,685
	CanChild, Centre for Childhood Disability Research	7,979	0	0
	UBC Hampton Research Endowment Fund	4,994	0	0
	University of Regina SK	3,108	0	0
	UBC Department of Physical Therapy	625	0	0
	UBC School of Kinesiology	625	0	0
Foreign Government	**Government**	**3,957,322**	**5,434,522**	**3,554,966**
	NIH and its institutes (US)	3,348,139	3,866,909	3,002,984
	US Department of Defense	279,607	621,824	345,548
	United States Department of Agriculture	140,271	102,000	0

PHSA FUNDING SOURCES				
FNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	US Department of Commerce	93,399	0	0
	Netherlands Organization for Scientific Research	85,491	80,069	0
	Medical Research Council (UK)	10,415	623,782	0
Foreign Educational Institution	**Non-Profit**	**39,916**	**136,558**	**134,314**
	Columbia University	16,551	0	0
	Albert Einstein College of Medicine USA	15,405	0	0
	University of Utah	4,214	0	0
	University of Washington	3,745	0	0
Grand Total		**145,597,847**	**134,292,906**	**152,418,527**

APPENDIX 3 - BC CANCER FUNDING SOURCES

BC CANCER FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
Canadian Foundations & Non-profits	**Non-Profit**	**26,155,672**	**26,273,708**	**26,718,576**
	British Columbia Cancer Foundation	14,518,334	12,885,122	11,291,980
	Terry Fox Research Institute	4,333,022	5,168,257	6,769,911
	Canadian Cancer Society	2,499,381	2,295,525	748,873
	NCIC Clinical Trials Group	860,853	898,343	1,041,691
	Canadian Partnership Against Cancer	849,382	677,525	752,745
	Prostate Cancer Canada	556,466	448,945	1,733,252
	Lotte & John Hecht Memorial Foundation	506,423	425,000	196,434
	VGH and UBC Hospital Foundation	430,800	220,800	220,800
	Canadian Cancer Trials Group	354,543	257,402	0
	Vancouver Prostate Centre	340,026	375,341	157,000
	Leukemia & Lymphoma Society of Canada	300,000	275,000	435,002
	Canadian Foundation for Translational Immunology	99,844	0	0
	Cancer Research Society	90,000	30,000	390,000
	Centre for Drug Research and Development	86,223	0	4,174
	Myeloma Canada Research Network (MCRN)	85,659	10,000	0
	Canadian Cancer Society Research Institute	63,750	1,774,809	2,208,953
	Genito Urinary Medical Oncologists of Canada (GUMOC)	30,000	0	0
	Sunnybrook Odette Cancer Centre	30,000	0	0
	Pancreas Centre BC	27,900	58,925	77,900
	British Columbia Lung Association	25,000	0	0
	Lung Cancer Canada	25,000	5,000	0
	Carraresi Foundation	10,000	0	0
	Canadian Foundation for Dental Hygiene Research and Education	10,000	0	0
	CHU de Quebec Universite Lavel (CHUL) QC	9,968	0	0
	Lawson Health Research Institute	9,800	4,200	170,501
	Ontario Clinical Oncology Group	3,300	16,380	13,780
Major Canadian Funding Entity	**Government**	**19,239,116**	**16,210,136**	**14,605,794**
	Canadian Institutes of Health Research (CIHR)	13,308,809	11,297,152	10,470,913
	Genome Canada and Provincial Genome agencies	3,876,400	3,219,129	2,786,159
	NSERC	1,075,034	950,329	785,908
	Michael Smith Foundation for Health Research	978,873	743,5250	562,8150
Canadian Government	**Government**	**8,338,774**	**8,571,178**	**25,630,564**
	Canada Foundation for Innovation	3,727,740	5,421,510	14,764,835
	British Columbia Knowledge Development Fund (BCKDF)	1,017,500	0	8,431,564
	St. Paul s Hospital (Providence Health Auth)	722,617	0	0
	Canada Research Chairs	716,667	600,000	700,000
	BioCanRx - Networks of Centres of Excellence (NCE)	491,705	819,962	742,249
	Provincial Health Services Authority	474,267	200,000	0
	NanoMedicines Innovation Network (NMIN) - Networks of Centres of Excellence (NCE)	235,000	0	0
	Hospital for Sick Children Toronto	213,818	228,211	68,293
	University Health Network	169,430	31,956	181,996
	British Columbia Investment Agriculture Foundation	165,027	0	0

BC CANCER FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Hospital for Sick Children Research Institute	162,619	0	0
	Innovation, Science and Economic Development Canada	115,518	115,917	92,500
	Province of British Columbia	85,518	100,917	57,500
	Prostate Centre's Translational Research Initiative For Accelerated Discovery and Development (PC-TRiADD)	46,875	140,625	187,500
	Cancer Care Manitoba	45,000	120,000	45,000
	Sinai Health System	18,241	0	0
	Providence Health Care	15,136	26,143	0
	New Frontiers in Research Fund	15,000	0	0
	Department of Foreign Affairs, Trade and Development	14,090	13,860	0
	Fisheries and Oceans Canada NB	9,500	0	0
	Princess Margaret Hospital Consortium	-4,250	0	31,982
	British Columbia Cancer Agency (BCC)	-118,243	613,869	101,224
Canadian Industry	**Industry**	**8,402,695**	**9,473,442**	**8,786,102**
	AstraZeneca Canada Inc.	1,540,129	787,318	503,142
	Bristol-Myers Squibb Co. (Canada)	1,362,103	912,284	1,209,780
	Roche Canada	1,321,914	798,739	1,237,020
	Pfizer Canada Inc.	846,954	2,690,887	1,741,003
	Janssen Inc.	643,819	472,088	315,136
	Novartis Pharmaceuticals Canada Inc.	540,790	930,830	382,944
	Merck Frosst Canada Inc.	485,293	616,614	300,141
	PSI CRO Research Canada, Inc.	394,893	-300	0
	Ipsen Biopharmaceuticals Canada Inc.	185,713	0	0
	Sanofi-Aventis Canada Inc.	177,913	372,970	746,547
	Astellas Pharma Canada Inc.	148,467	320,525	242,967
	Canarie Inc.	142,500	194,837	246,300
	Various Companies	90,103	65,580	53,624
	Translational Research in Oncology (TRIO)	66,911	0	0
	Virogin Biotech Canada Ltd.	59,320	30,000	0
	StemCell Technologies Inc.	54,000	0	0
	GlaxoSmithKline (Canada) Inc.	51,817	1,024	9,112
	Quintiles Canada Inc.	41,104	43,281	36,615
	MethylGene Inc.	38,191	0	62,835
	SignalChem Lifesciences Corporation	35,000	25,000	46,500
	Genova Biotech Canada Ltd. Burnaby	32,717	0	0
	ProSafe Pharmaceuticals Inc	30,000	45,000	45,000
	Pharmaplanter Technologies Inc.	23,419	124,688	117,188
	Applied Biological Materials Inc.	22,500	45,000	60,000
	Eli Lilly Canada Inc.	17,934	81,951	168,314
	Destiny Bioscience AB	17,341	0	0
	Cuprous Pharmaceuticals Inc.	10,000	0	170,000
	Trillium Therapeutics Inc.	9,257	544,712	7,238
	AbbVie Corporation	7,518	1,005	12,169
	Wyeth Research (CAN)	5,112	213	10,247
	Vesalius Cardiovascular Inc.	4,350	0	0
	Hoffmann-La Roche Ltd. (Canada)	3,650	64,300	36,850
	Bayer Inc. (Canada)	1,738	63,238	75,843
	Aspect Biosystems	1,575	0	0

BC CANCER FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Coastal Genomics Burnaby	1,534	0	0
	Electrom LEV	745	0	0
	Kinexus Bioinformatics Corp.	420	0	0
	Amgen Canada Inc.	-14,049	48,558	44,617
Foreign Industry	**Industry**	**4,544,292**	**4,206,533**	**5,062,379**
	TESARO Inc.	1,074,149	959,384	206,236
	Paul G. Allen Frontiers Group	648,380	506,535	0
	Acerta Pharma, BV	316,990	201,007	373
	Millennium Pharmaceuticals Inc.	250,141	369,268	232,879
	Vita Imaging Inc.	228,362	0	0
	Nektar Therapeutics	206,120	85,114	0
	Janssen Research and Development, LLC	191,402	19,601	0
	Genentech Inc.	173,339	23,014	168,790
	Clovis Oncology, Inc	161,814	17,100	0
	Agios Pharmaceuticals	157,247	0	0
	Celgene Corp.	149,408	129,719	156,153
	Nanostring Technologies	118,880	315,000	0
	Cascadian Therapeutics	111,888	40,774	0
	Agensys Inc.	96,053	300,903	1,286,434
	Aragon Pharmaceuticals	86,647	47,620	189,613
	Regeneron Pharmaceuticals Inc.	79,039	21,046	0
	Varian Medical Systems, Inc.	62,500	0	61,641
	AbbVie Inc.	56,689	18,262	0
	Loxo Oncology	54,971	0	0
	Beigene, Ltd.	51,642	800	0
	AVEO Pharmaceuticals, Inc.	48,265	142,708	100,530
	Debiopharm International SA	43,018	68,559	0
	Pharmacyclics LLC	37,213	750	0
	Syneos Health, LLC	33,003	0	0
	Institute of Regenerative Medicine Italy	29,680	0	0
	Roche Inc.	26,074	30,394	46,429
	Polynoma LLC	12,290	7,567	27,165
	Seattle Genetics, Inc.	9,758	36,041	40,912
	Onyx Pharmaceuticals, Inc.	9,750	4,299	144,773
	PUMA Biotechnology Inc.	8,609	0	45,432
	Aventis Pharmaceuticals Inc.	6,772	0	0
	Eisai Inc.	3,549	38,520	0
	Medivation, Inc.	652	24,973	0
Canadian Educational Institution	**Non-Profit**	**6,446,145**	**1,553,457**	**1,149,870**
	University of British Columbia	5,026,031	820,476	732,985
	University of Toronto	541,127	0	0
	UBC VP Research & Innovation	297,953	0	0
	UBC Faculty of Medicine	195,000	175,000	91,667
	University of Northern British Columbia	128,843	225,923	0
	University of Calgary	103,929	6,565	64,725
	Simon Fraser University	66,923	85,920	22,184
	University of Victoria	32,634	25,937	3,645
	UBC Strategic Excellence Fund	20,000	20,000	120,000

BC CANCER FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	UBC Department of Obstetrics and Gynaecology	19,901	19,994	-3,123
	University of Alberta	9,447	0	0
	University of Regina SK	3,108	0	0
	UBC School of Kinesiology	625	0	0
	UBC Department of Physical Therapy	625	0	0
Foreign Foundations & Non-profits	**Non-Profit**	**1,800,275**	**2,201,332**	**2,140,583**
	Pancreatic Cancer Action Network	387,500	112,500	0
	Children's Oncology Group Foundation USA	342,306	0	0
	Susan G. Komen Breast Cancer Foundation	235,000	35,000	0
	St. Baldrick's Foundation	208,127	0	0
	Breast Cancer Research Foundation	183,250	250,000	0
	Gray Foundation	168,430	0	0
	Leukemia & Lymphoma Society	135,607	60,000	60,000
	Entertainment Industry Foundation (EIF)	50,000	400,000	200,000
	Neuroendocrine Tumor Research Foundation	50,000	0	0
	National Surgical Adjuvant Breast and Bowel Project	30,754	218,773	132,621
	Fred Hutchinson Cancer Research Center	3,554	404,468	1,144,441
	Alex's Lemonade Stand Foundation	3,000	0	0
	San Antonio Breast Cancer Symposium	2,597	0	0
	Orthopaedic Research and Education Foundation (OREF)	150	350	350
Foreign Government	**Government**	**1,436,196**	**1,747,511**	**1,771,931**
	NIH and its institutes (US)	1,307,797	1,125,686	1,352,397
	US Department of Commerce	93,399	0	0
	US Department of Defense	35,000	621,824	345,548
Foreign Educational Institution	**Non-Profit**	**19,620**	**136,558**	**134,314**
	Albert Einstein College of Medicine USA	15,405	0	0
	University of Utah	4,214	0	0
Grand Total		**76,382,784**	**70,373,853**	**86,000,114**

APPENDIX 4 - BCCHR FUNDING SOURCES

BCCHR FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
Major Canadian Funding Entity	**Government**	**19,941,395**	**23,037,165**	**15,510,792**
	Canadian Institutes of Health Research (CIHR)	13,858,509	16,284,316	11,983,719
	Genome Canada and Provincial Genome agencies	3,791,051	4,528,683	1,379,762
	Michael Smith Foundation for Health Research	1,513,835	1,502,6670	1,325,9930
	NSERC	778,000	721,500	821,317
Canadian Foundations & Non-profits	**Non-Profit**	**21,531,595**	**15,925,831**	**18,788,818**
	BC Children's Hospital Research Institute	10,519,910	9,299,990	9,090,855
	British Columbia Children's Hospital Foundation	6,929,109	3,298,281	4,488,964
	The Canadian Paediatric Society	716,464	431,212	565,217
	Juvenile Diabetes Research Foundation Canadian Clinical Trial Network	600,000	108,700	316,456
	Crohn's and Colitis Canada	277,500	364,700	379,000
	Heart and Stroke Foundation of Canada	233,628	140,245	253,477
	Cystic Fibrosis Canada	229,392	203,495	200,117
	Kids Brain Health Foundation	181,000	0	0
	Lawson Foundation	175,000	0	199,750
	Brain Canada	173,244	368,007	674,132
	The W. Garfield Weston Foundation	148,244	20,769	0
	Huntington Society of Canada	130,000	100,000	0
	Canadian Blood Services	129,285	129,285	96,964
	Canadian Institute for Advanced Research	115,000	4,000	125,750
	Multiple Sclerosis Society of Canada	105,500	105,500	100,000
	Arthritis Society	102,400	151,108	100,000
	Leukemia & Lymphoma Society of Canada	100,000	100,000	80,000
	Terry Fox Research Institute	82,113	95,747	25,275
	R. Howard Webster Foundation	80,000	80,000	80,000
	The Alva Foundation	72,479	46,000	64,870
	Weston Brain Institute	67,281	103,620	452,353
	Vancouver Foundation	60,086	80,000	100,000
	Transplant Research Foundation of British Columbia	55,000	25,000	50,000
	C.H.I.L.D. Foundation	50,000	0	0
	Sick Kids Foundation	32,302	21,929	0
	Max Bell Foundation	32,000	0	0
	British Columbia Lung Association	25,000	25,000	50,000
	Canadian Association of Gastroenterology	22,500	73,500	50,000
	Saskatchewan Health Research Foundation	18,770	15,930	0
	Parachute Canada	11,000	118,000	20,778
	Various Companies	10,000	0	0
	Canadian Donation and Transplantation Research Program (CDTRP; formerly CNTRP)	10,000	50,000	0
	Canadian Dermatology Foundation	10,000	55,000	0
	C17 Research network	8,788	0	3,110
	Ontario Institute for Cancer Research	7,500	17,900	0
	Diabetes Canada (formerly Canadian Diabetes Association)	5,000	0	150,000

BCCHR FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Canadian Society of Allergy and Clinical Immunology	3,750	0	0
	Canadian Cancer Society	1,000	0	17,833
	Fondation Centre de cancerologie Charles-Bruneau	750	3,000	0
	Donations for Health Science Research	600	43,413	5,108
Canadian Government	**Government**	**7,188,228**	**7,489,431**	**9,249,646**
	Canada Research Chairs	1,405,000	1,210,000	1,100,000
	Canada Foundation for Innovation	884,520	675,012	2,206,914
	British Columbia Ministry of Health	666,500	891,070	616,070
	Stem Cell network (SCN) - Networks of Centres of Excellence (NCE)	571,200	180,000	392,000
	Transport Canada	400,000	361,791	158,954
	Public Health Agency of Canada	387,651	277,829	248,594
	Provincial Health Services Authority	374,986	480,118	43,000
	Allergy, Genes and Environment Network (AllerGen) - Networks of Centres of Excellence (NCE)	288,884	666,884	286,547
	British Columbia Ministry of Children and Family Development	255,333	192,815	190,135
	Kids Brain Health Network - Networks of Centres of Excellence (NCE)	241,560	1,254,671	2,717,465
	British Columbia Knowledge Development Fund (BCKDF)	225,000	123,818	313,892
	Employment and Social Development Canada	199,780	0	0
	Grand Challenges Canada	180,563	285,452	178,563
	NanoMedicines Innovation Network (NMIN) - Networks of Centres of Excellence (NCE)	159,600	0	0
	Government of Canada	145,527	202,134	165,665
	Communities Against Preventable Injuries Association	125,488	125,488	0
	British Columbia Immunization Committee	109,290	32,096	138,731
	BC SUPPORT Unit	91,000	0	0
	Alberta Innovates	77,083	50,200	0
	Health Canada	74,675	0	0
	Innovation, Science and Economic Development Canada	49,917	56,080	27,500
	Province of British Columbia	49,917	56,080	27,500
	National Research Council	40,468	0	0
	SSHRC	40,000	0	0
	International Development Research Centre	39,923	86,476	92,135
	Canadian Blood and Marrow Transplant Group	30,000	0	0
	Canada First Research Excellence Fund	28,400	26,010	0
	Providence Health Care	22,500	22,500	0
	City of Surrey	15,963	91,856	44,159
	BioCanRx - Networks of Centres of Excellence (NCE)	6,000	0	48,000
	Children's Hospital of Eastern Ontario	1,500	0	0
Foreign Foundations & Non-profits	**Non-Profit**	**1,096,754**	**2,662,402**	**7,088,421**
	Wellcome Trust (UK)	243,523	0	0
	St. Baldrick's Foundation	208,127	0	0
	Juvenile Diabetes Research Foundation International	163,027	709,701	602,421
	Singapore Institute for Clinical Sciences	104,000	0	0
	Huntington's Disease Society of America	102,368	0	0
	The Dallas Foundation	95,775	0	0
	Pediatric Orthopaedic Society of North America	69,757	59,376	64,665

BCCHR FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Bev Hartig Huntington's Disease Foundation	64,495	0	0
	Jacobs Foundation	55,548	24,000	0
	The Waterloo Foundation	34,970	63,270	0
	Cystic Fibrosis Foundation Therapeutics Inc.	24,896	14,413	26,512
	Sidra Medical and Research Center	24,365	0	31,692
	International OCD Foundation	21,264	0	0
	International Life Sciences Institute North America	19,860	18,899	0
	Gateway for Cancer Research	9,479	16,162	0
	National Institute for Health Research (UK)	4,334	3,779	3,613
	AO Foundation	3,090	2,446	0
	Nationwide Children's Hospital	2,310	0	0
	Thrasher Research Fund	1,907	32,280	2,780
	Pediatric Epilepsy Research Foundation	1,592	4,251	0
	Bill and Melinda Gates Foundation	1,423	1,257,711	4,533,038
	Rock for the Heart Foundation	1,323	0	0
	National Marrow Donor Program	907	0	11,498
	International Hip Dysplasia Institute (IHDI)	282	78,450	74,352
	American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Rhoads Research Foundation	-15,513	-13,638	30,000
	The Leona M. and Harry B. Helmsley Charitable Trust	-146,353	156,486	340,780
Foreign Industry	**Industry**	**3,550,893**	**2,365,358**	**3,857,776**
	Nestec Ltd. (US Research Centre)	797,875	366,090	214,405
	Vertex Pharmaceuticals inc.	431,957	222,559	194,384
	National Football League	387,058	0	0
	Zogenix International Limited	386,089	221,746	306,882
	Tx Cell SA	239,692	473,486	473,486
	Shire Human Genetic Therapies Inc.	126,407	104,988	52,768
	Bristol-Myers Squibb Co. (US)	91,945	65,905	132,580
	ReveraGen BioPharma, Inc.	89,636	56,036	0
	Italfarmaco SpA	87,563	26,250	0
	Vitaflo USA, LLC	82,709	0	0
	Parexel International Corp.	80,776	61,407	223,005
	PTC Therapeutics Inc.	75,035	0	91,327
	Levo Therapeutics, Inc.	65,112	0	0
	IDx Technologies Inc.	64,790	0	0
	F. Hoffmann-La Roche Ltd.	60,500	2,500	0
	Uniqure Biopharma BV	53,602	125,950	125,949
	CRISPR Therapeutics AG	52,655	53,593	0
	DBV Technologies S.A.	51,471	18,394	183,291
	Biogen MA Inc.	47,603	115,419	150,132
	Savara Inc.	41,717	655	17,647
	Novartis Pharma AG	30,722	0	0
	OneSkin Technologies	25,098	0	15,600
	Bioverativ Inc.	24,024	10,327	0
	Swedish Orphan Biovitrum AB	23,765	12,502	8,030
	Pfizer Inc. (outside Canada)	20,304	-26,667	265,267
	Tusker Medical, Inc.	19,569	50,401	0
	BioMarin Pharmaceutical Inc.,	19,243	101,527	0
	Albireo AB	19,175	0	0

BCCHR FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	Pharmacyclics LLC	14,255	0	0
	Grifols, S.A.	12,490	0	0
	Loxo Oncology	12,456	9,202	0
	MedImmune LLC	6,788	0	35,134
	Bristol Myers Squibb Medical Imaging	5,965	4,002	8,965
	Abbott	1,540	0	0
	Bayer Healthcare LLC	1,306	2,000	0
Foreign Government	**Government**	**1,924,338**	**2,864,448**	**1,535,110**
	NIH and its institutes (US)	1,583,826	2,030,659	1,402,662
	US Department of Defense	244,607	0	0
	Netherlands Organization for Scientific Research	85,491	80,069	0
	Medical Research Council (UK)	10,415	623,782	0
Canadian Industry	**Industry**	**1,456,481**	**1,173,261**	**1,078,477**
	Merck Canada Inc.	601,999	95,969	0
	Pharmaceutical Research Associates Inc.	154,335	15,199	0
	VBI Vaccines Inc.	139,308	215,515	0
	Xenon Pharmaceuticals Inc.	100,000	0	1,735
	Genzyme Canada Inc.	68,958	12,684	19,133
	Sanofi-Aventis Canada Inc.	63,308	20,807	0
	Janssen Inc.	52,545	96,060	34,248
	Renaissance BioScience Corporation	45,000	0	0
	Concord Pacific Developments Ltd.	40,585	25,058	13,466
	Dynacare	32,506	32,506	32,506
	Medtronic of Canada Ltd.	30,000	30,000	0
	AbbVie Corporation	25,465	0	0
	LifeLabs	25,000	25,000	0
	Novartis Pharmaceuticals Canada Inc.	16,696	74,097	41,308
	GenePOC Inc.	16,315	52,052	0
	Bristol-Myers Squibb Co. (Canada)	12,000	0	0
	GlaxoSmithKline (Canada) Inc.	9,695	22,440	37,497
	General Electric Canada	9,000	0	0
	Marigold Foundation Ltd.	9,000	9,000	0
	Derm-Biome Pharmaceuticals, Inc	8,120	0	0
	Katenies Research and Management Services	6,000	12,000	0
	Pfizer Canada Inc.	3,640	94,170	34,576
	Spinologics. Inc	250	0	0
	Takeda Canada Inc.	-13,244	0	62,586
Canadian Educational Institution	**Non-Profit**	**1,680,216**	**1,147,722**	**670,394**
	UBC Department of Medical Genetics	325,000	75,000	75,000
	UBC Department of Pathology and Laboratory Medicine	290,350	0	80,000
	UBC Department of Obstetrics and Gynaecology	241,294	3,000	1,439
	UBC Faculty of Medicine	170,000	100,000	60,000
	UBC Peter Wall Institute for Advanced Studies	141,736	60,000	0
	UBC Department of Paediatrics	125,000	0	0
	UBC VP Research & Innovation	113,950	399,794	20,000
	UBC Centre for Molecular Medicine and Therapeutics (CMMT)	74,852	1,687	0
	UBC School of Biomedical Engineering	50,000	50,000	0

BCCHR FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
	UBC Department of Surgery	50,000	159,000	0
	UBC VP Students	30,000	37,500	0
	UBC VPR Research Development Fund	25,000	25,000	25,000
	UBC Unrestricted Research Funds	17,647	220,101	40,425
	CanChild, Centre for Childhood Disability Research	7,979	0	0
	UBC School of Population and Public Health	7,254	10,640	13,845
	UBC Hampton Research Endowment Fund	4,994	0	0
	UBC Department of Family Practice	4,615	0	0
	University of Alberta	545	0	105,685
Foreign Educational Institution	**Non-Profit**	**20,296**	**0**	**0**
	Columbia University	16,551	0	0
	University of Washington	3,745	0	0
Grand Total		**58,390,196**	**56,665,620**	**57,779,434**

APPENDIX 5 - BCMHSUS FUNDING SOURCES

BCMHSUS FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
Major Canadian Funding Entity	**Government**	**692,445**	**1,089,477**	**1,147,008**
	Canadian Institutes of Health Research (CIHR)	614,403	992,770	993,841
	Michael Smith Foundation for Health Research	78,042	96,7070	153,1670
Canadian Foundations & Non-profits	**Non-Profit**	**114,665**	**0**	**381,035**
	BC Children's Hospital Research Institute	115,000	0	377,814
	British Columbia Children's Hospital Foundation	0	0	3,221
	Donations for Health Science Research	-335	0	0
Canadian Government	**Government**	**177,389**	**118,889**	**141,944**
	Canada Research Chairs	100,000	100,000	100,000
	British Columbia Mental Health & Substance Use Services	66,000	10,000	10,000
	Innovation, Science and Economic Development Canada	4,444	4,444	15,972
	Province of British Columbia	4,444	4,444	15,972
	Children's & Women's Health Centre of BC - KDZ12432/KDZ12447 (BCCHF)	2,500	0	0
Canadian Industry	**Industry**	**104,105**	**145,944**	**182,389**
	Hai Beverages Inc.	99,661	0	0
	Cannevert Therapeutics Limited (CTL)	4,444	54,444	113,610
	Bristol-Myers Squibb Co. (Canada)	0	0	2,001
	Global Cannabis Applications Corporation	0	10,000	0
	Synaptitude Brain Health Inc.	0	0	10,000
	Drayton Medcanna Solutions Inc.	0	0	7,778
	Emerald Health Therapeutics Inc.	0	81,500	49,000
Foreign Foundations & Non-profits	**Non-Profit**	**151,820**	**64,527**	**30,390**
	Brain & Behavior Research Foundation (formerly NARSAD)	130,556	64,527	30,390
	International OCD Foundation	21,264	0	0
Foreign Government	**Government**	**0**	**78,096**	**74,323**
	NIH and its institutes (US)	0	78,096	74,323
Foreign Industry	**Industry**	**0**	**0**	**39,272**
	Axim Biotechnologies	0	0	39,272
Grand Total		**1,240,424**	**1,496,934**	**1,996,361**

APPENDIX 6 - BCCDC FUNDING SOURCES

BCCDC FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDINT SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
Major Canadian Funding Entity	**Government**	**2,848,638**	**1,687,585**	**2,326,157**
	Canadian Institutes of Health Research (CIHR)	1,751,112	1,372,189	1,629,717
	Genome Canada and Provincial Genome agencies	799,804	231,737	633,773
	Michael Smith Foundation for Health Research	297,722	83,6590	62,6670
Canadian Government	**Government**	**395,033**	**141,196**	**739,779**
	British Columbia Centre for Disease Control	246,008	8,577	433,831
	Health Canada	100,000	0	0
	Canada Foundation for Innovation	38,025	5,119	-862
	BC SUPPORT Unit	11,000	0	0
Canadian Foundations & Non-profits	**Non-Profit**	**274,437**	**215,881**	**404,436**
	Canadian HIV Trials Network	98,077	50,000	0
	BCCDC Foundation for Population and Public Health	89,000	109,631	222,936
	Canadian Partnership Against Cancer	87,360	0	0
Foreign Government	**Government**	**145,489**	**250,824**	**140,634**
	United States Department of Agriculture	140,271	102,000	0
	NIH and its institutes (US)	5,217	138,824	140,634
Canadian Educational Institution	**Non-Profit**	**13,000**	**145,454**	**132,000**
	UBC Faculty of Graduate and Postdoctoral Studies	13,000	0	0
Foreign Foundations & Non-profits	**Non-Profit**	**11,720**	**238,233**	**-67,507**
	Bill and Melinda Gates Foundation	11,720	228,233	19,053
Canadian Industry	**Industry**	**27,231**	**26,696**	**0**
	Canarie Inc.	27,231	21,785	0
Grand Total		**3,715,547**	**2,777,563**	**3,675,499**

APPENDIX 7 - WHRI FUNDING SOURCES

WHRI FUNDING SOURCES				
FUNDING SOURCE CATEGORY	**RISE SECTOR/FUNDING SOURCE NAME**	**2019-20**	**2018-19**	**2017-18**
Major Canadian Funding Entity	**Government**	**4,318,423**	**1,690,292**	**1,917,057**
	Canadian Institutes of Health Research (CIHR)	3,809,142	1,487,922	1,697,816
	Michael Smith Foundation for Health Research	442,970	0	0
	Genome Canada and Provincial Genome agencies	66,311	202,3700	219,2410
Canadian Government	**Government**	**404,649**	**385,587**	**852,002**
	Canada Research Chairs	200,000	200,000	200,000
	Public Health Agency of Canada	158,667	125,606	78,275
	Canada Foundation for Innovation	23,669	26,919	153,977
	British Columbia Ministry of Health	22,313	24,187	412,500
	International Development Research Centre	0	4,875	4,000
	Elizabeth Fry Society of Greater Vancouver	0	4,000	3,250
Foreign Government	**Government**	**451,299**	**493,643**	**32,967**
	NIH and its institutes (US)	451,299	493,643	32,967
Canadian Foundations & Non-profits	**Non-Profit**	**348,909**	**85,547**	**12,175**
	Women's Health Research Institute (WHRI)	152,195	2,200	0
	Terry Fox Research Institute	104,567	0	0
	BC Women's Hospital and Health Centre Foundation	77,147	77,147	0
	Lloyd Jones Collins Foundation	15,000	6,000	3,000
	Donations for Health Science Research	0	200	175
	Canadian Foundation for Infectious Diseases	0	0	4,000
	Vancouver Foundation	0	0	5,000
Canadian Educational Institution	**Non-Profit**	**226,077**	**114,827**	**97,639**
	UBC Department of Family Practice	101,500	11,500	0
	UBC VP Research & Innovation	49,000	0	9,000
	UBC School of Population and Public Health	45,000	42,600	40,200
	UBC Department of Anesthesiology, Pharmacology and Therapeutics	28,077	39,227	50,000
	UBC Department of Obstetrics and Gynaecology	2,500	10,000	-1,561
	UBC Northern Scientific Training Program	0	3,500	0
	UBC Faculty of Graduate and Postdoctoral Studies	0	8,000	0
Foreign Foundations & Non-profits	**Non-Profit**	**63,023**	**184,330**	**30,383**
	American Institutes for Research	32,087	0	0
	Bill and Melinda Gates Foundation	30,936	99,898	0
	Society of Family Planning	0	84,431	17,876
	Foundation for the Advancement of Midwifery	0	0	12,507
Foreign Industry	**Industry**	**56,517**	**24,711**	**9,496**
	Microsoft Corp.	46,000	0	0
	ViiV Healthcare	10,517	3,541	9,496
	Allergan Inc.	0	21,170	0
Canadian Industry	**Industry**	**0**	**0**	**15,400**
	GlaxoSmithKline (Canada) Inc.	0	0	10,400
	Bristol-Myers Squibb Co. (Canada)	0	0	5,000
Grand Total		**5,868,896**	**2,978,936**	**2,967,120**