BC CHILDREN'S HOSPITAL RESEARCH INSTITUTE (BCCHR)

Producing and Advancing Knowledge

In FY 2024-25, researchers affiliated with BCCHR were awarded a total of $147,665,932 in research funding, an increase of 93.0% from last fiscal year. Operating grants represent 42.2% of total funding received. A breakdown of funding types and subtypes can be found in Figure 25, and by funding source category in Figure 26.

BCCHR's FY 2024-25 portion of the Research Support Fund Program grant totalled $1,856,937, but is excluded from total research funding and figures below. Total COVID-19 related research funding was $2,646,705 and is included in the figures below.

FIGURE 25 Total BCCHR Research Funding by Funding Type and Sub-Type by Fiscal Year

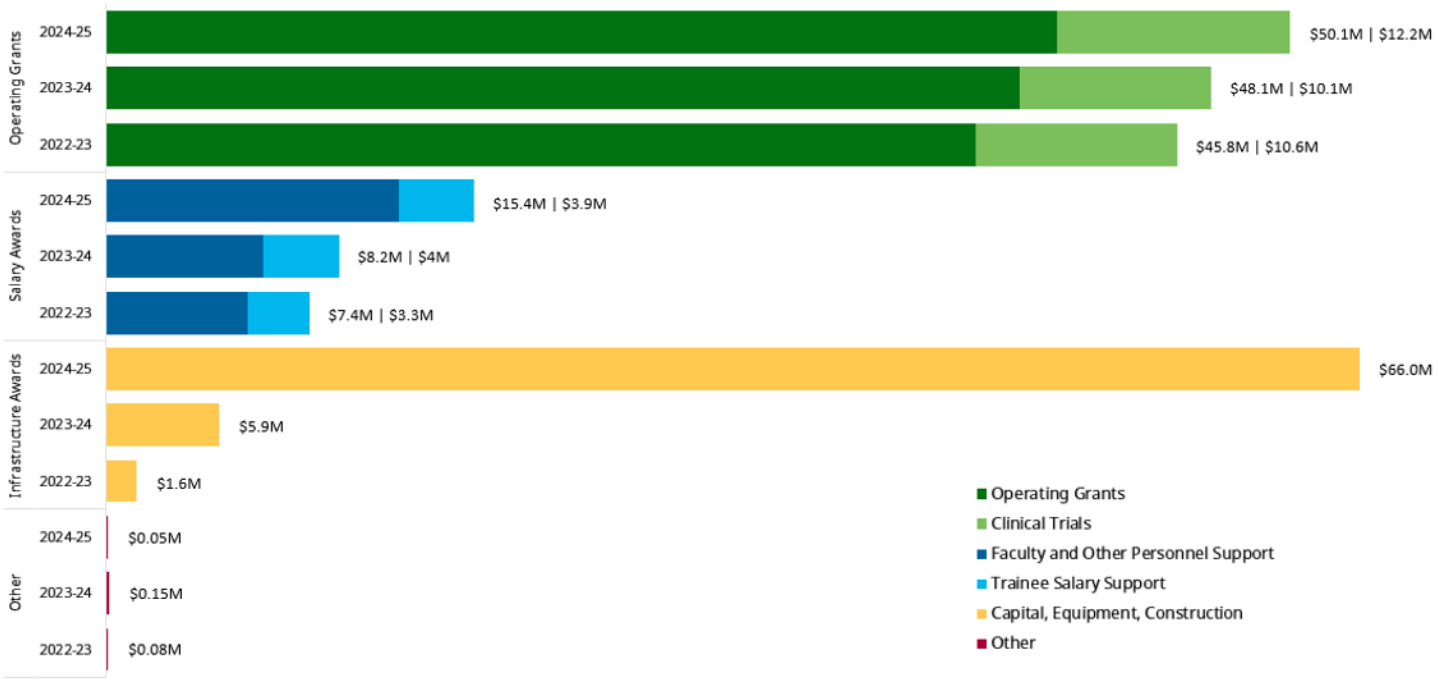
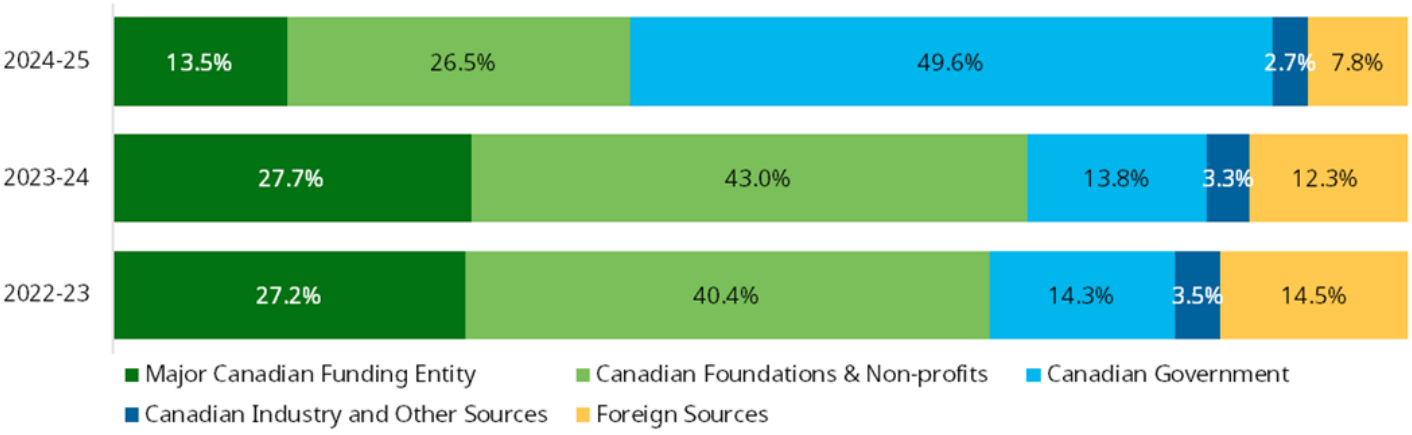
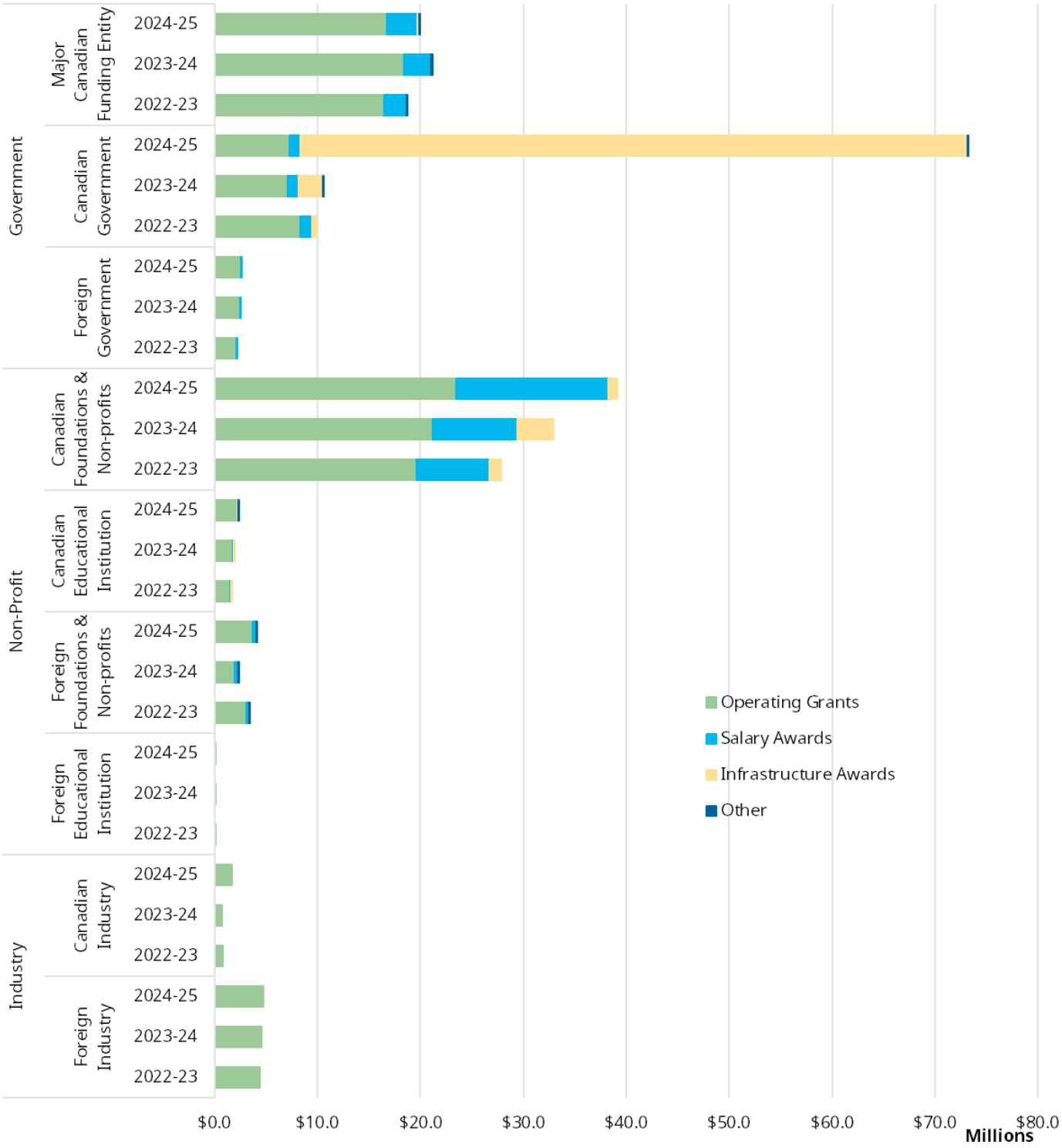


FIGURE 26 Percentage of BCCHR Research Funding by Funding Source Category by Fiscal Year



The top three funding categories are Canadian Government (49.6%), Canadian Foundations & Non-Profits (26.5%), and Major Canadian Funding Entity (13.5%). Figure 27 details the funding categories by RISe sector, funding source category and funding type.

FIGURE 27 BCCHR Research Funding by RISe Sector, Funding Source Category and Type by Fiscal Year



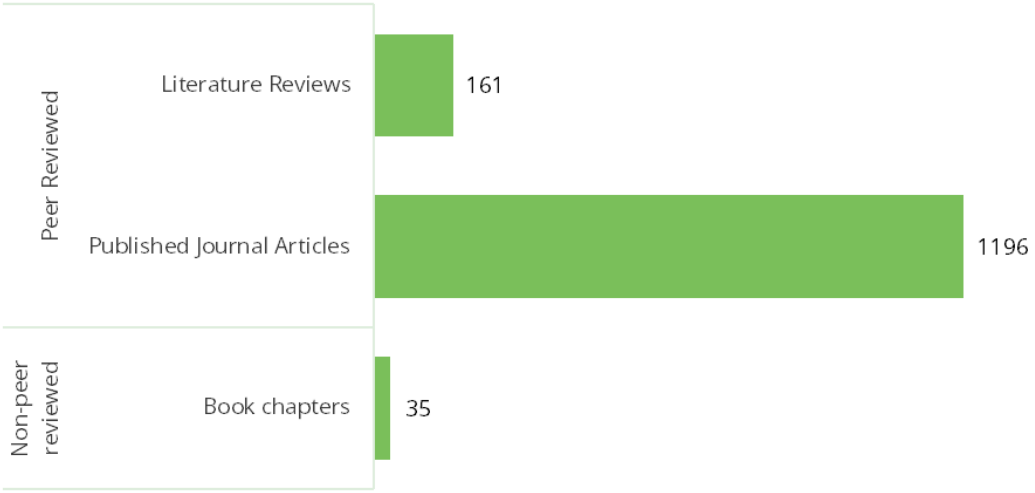
The application success rate is reported for the Fall 2024 and Spring 2025 CIHR grant competitions. Results are shown for National and BCCHR in Table 8. BCCHR was successful in both project grant competitions for a total of 18 awards out of 62 applications, exceeding the national average in both Project competitions.

TABLE 8 BCCHR Annual CIHR Grant Application Success Rate

CIHR Grant Funding Opportunity	National Overall Results % (Funded/Submitted)	BCCHR Results % (Funded/Submitted)
2024-09 Project Grant	17.2% (453/2631)	32.4% (11/34)
2025-03 Project Grant	15.5% (435/2814)	25.0% (7/28)

BCCHR had 1,392 publications in calendar year 2024, with 97.5% of them being peer reviewed. Total number of publications by type and category of peer vs. non-peer reviewed, is seen in Figure 28. 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 28 Total Number of BCCHR Publications by Type and Category

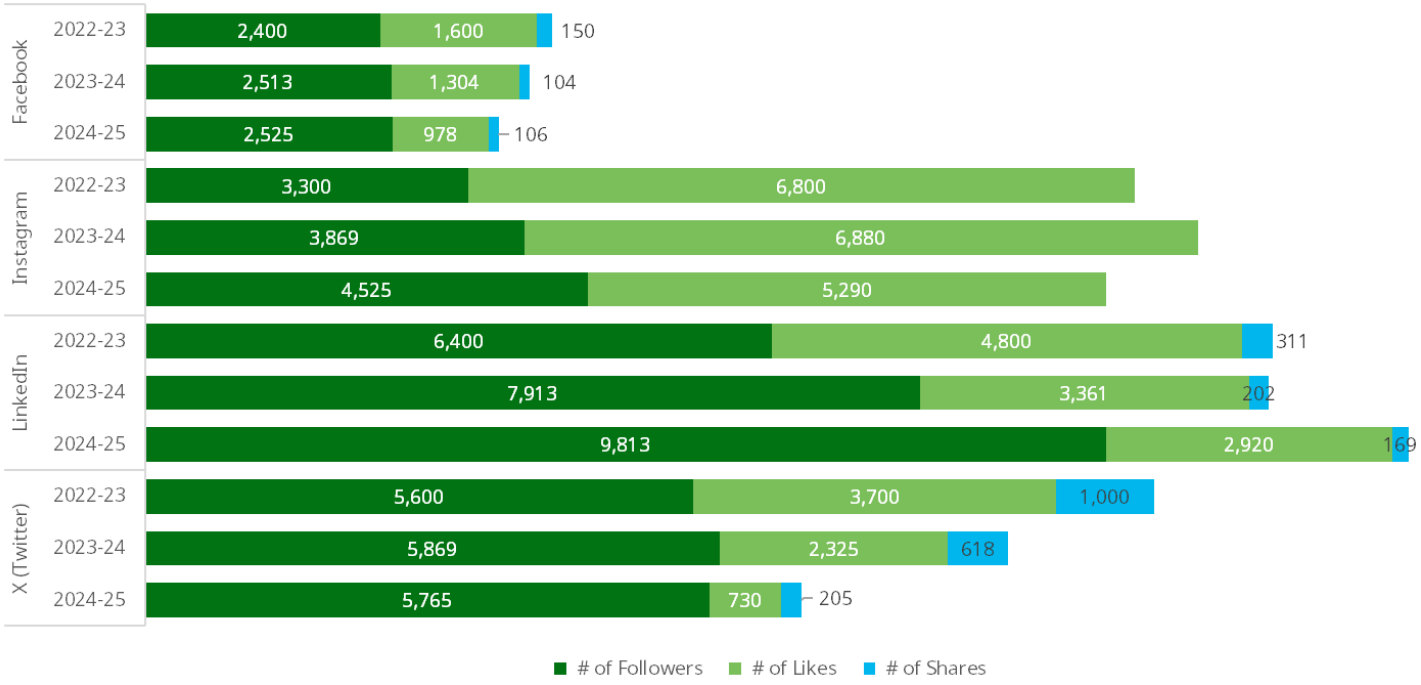


Three fiscal years' worth of data is provided for BCCHR's four research specific social media channels in Figure 29; Facebook (member since July 2011); X, formerly known as Twitter (member from March 2009 – January 2025); Instagram (member since January 2018); and LinkedIn (member since 2015). Tracking 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 the BCCHR website
- To have the BCCHR audience complete a specific ask, such as sign up for newsletters, request information about a study, donate to research
- To further disseminate knowledge that's produced at BCCHR to the public, to BCCHR PIs and trainees, and to colleagues at BCCHF, BCCH and PHSA
- To engage and connect internal audiences, including researchers and students

These metrics are a measure of reach and engagement and provide an indication of the volume of activity. 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.

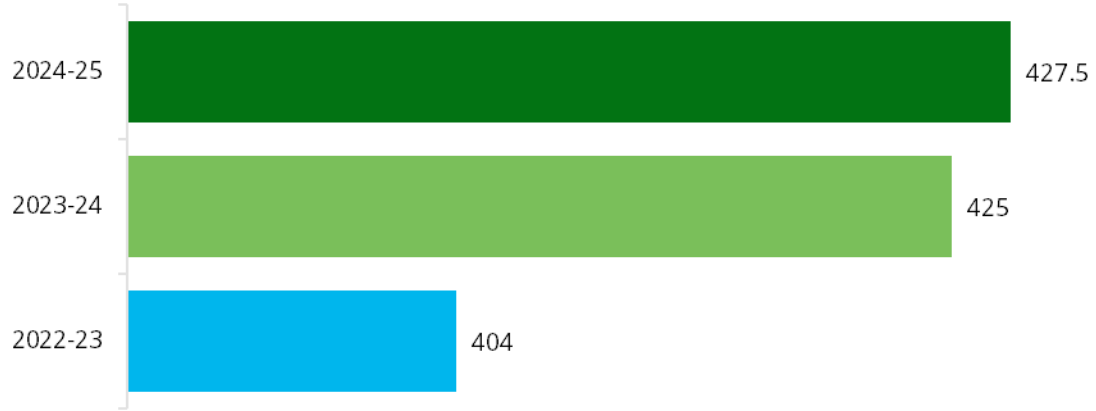
FIGURE 29 BCCHR Social Media Statistics



Building Research Capacity

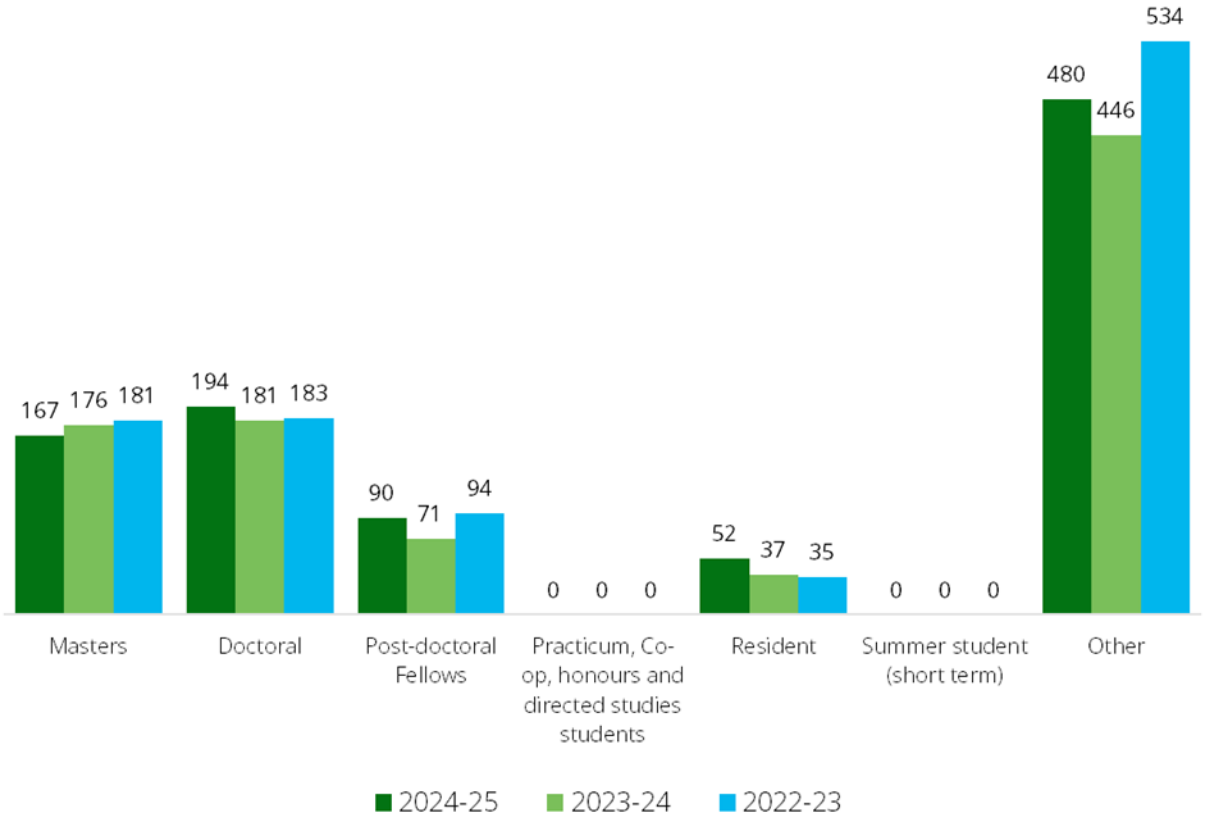
BCCHR had a total of 427.5 researchers in FY 2024-25. These researchers include those primarily based on the Children's & Women's Oak Street campus, as well as affiliate investigators that are not based on site, but who collaborate with BCCHR members and are affiliated with a Research Theme. These numbers exclude emeritus/emerita investigators who have prior status as investigators with BCCHR. See Figure 30 for the number of BCCHR researchers by fiscal year.

FIGURE 30 Total Number of BCCHR Researchers by Fiscal Year



During FY 2024-25, BCCHR researchers provided training and supervision to a total of 983 trainees, an increase of 72 trainees from FY 2023-24. See Figure 31 for number of trainees by type. BCCHR currently tracks full-time research trainees (masters, doctoral and post-doctoral fellows) and undergraduate students undertaking their training at BCCHR.

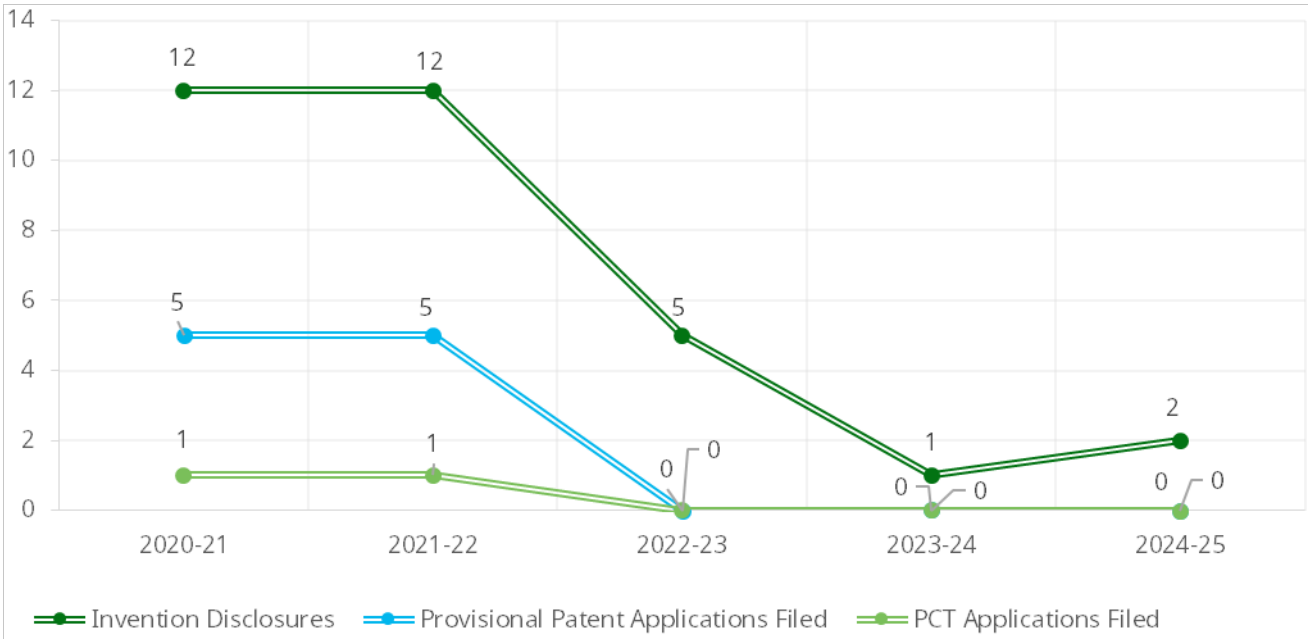
FIGURE 31 Total Number of BCCHR Trainees by Type and Fiscal Year



Achieving Economic Benefits and Innovation

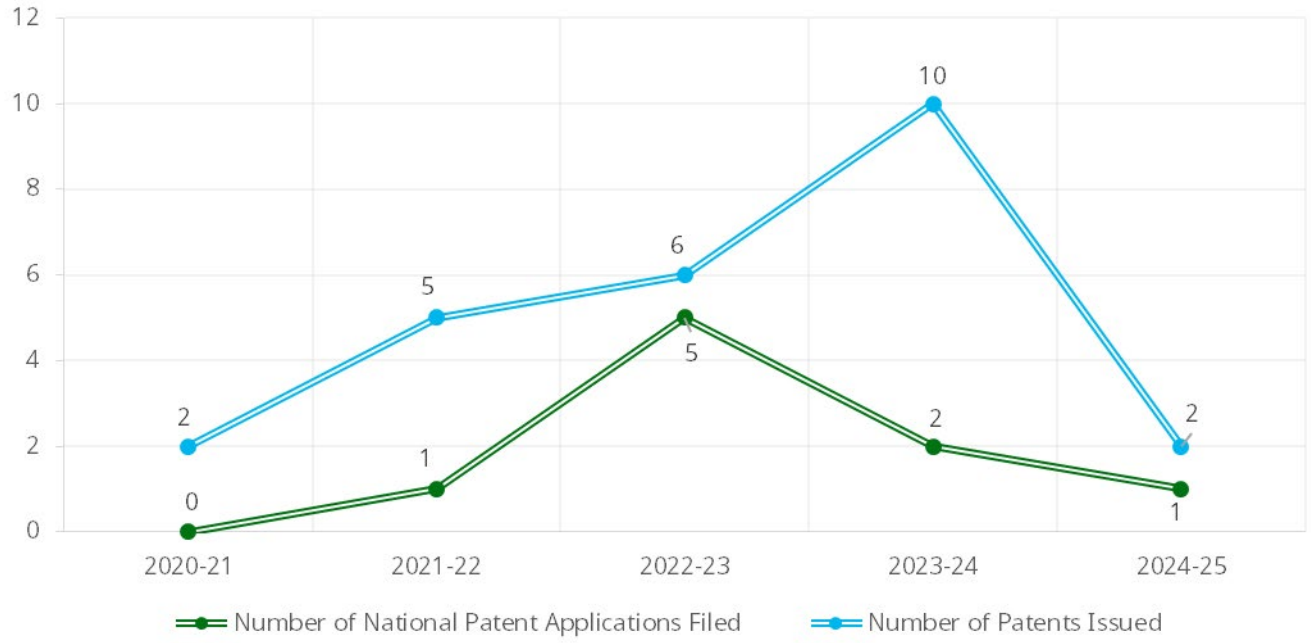
The number of invention disclosures, provisional patent and PCT applications filed by fiscal year are shown in Figure 32.

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



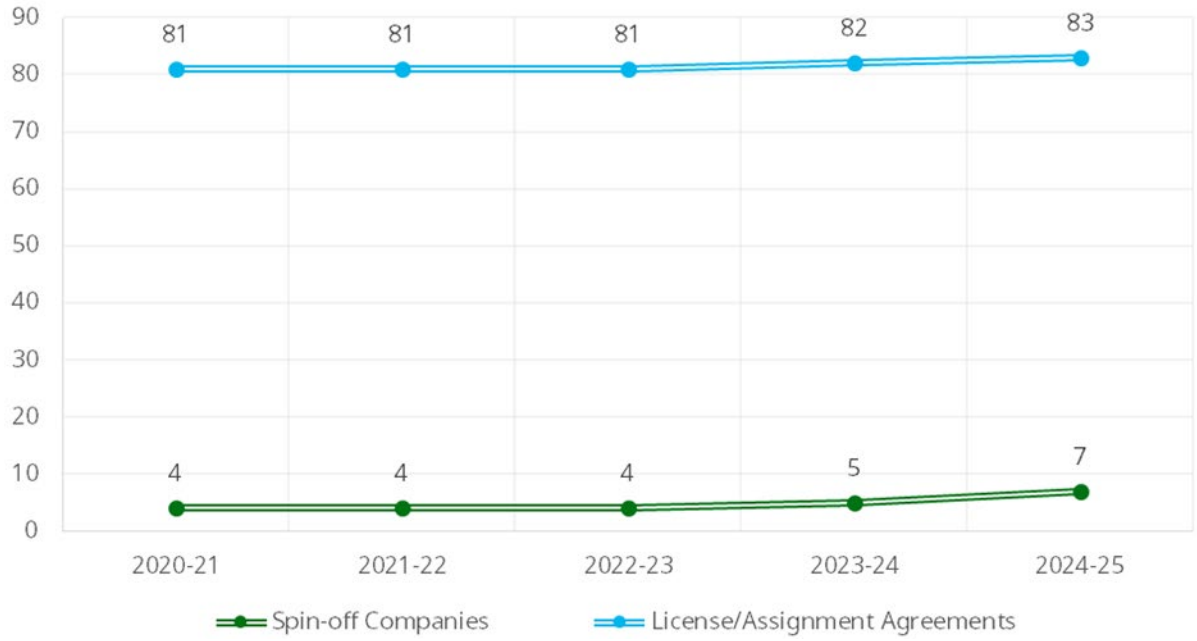
Patent activity is reported in Figure 33 below. Applications filed in a given year represent different applications than those which are approved in that same year and are typically the result of applications in previous years. Data is collected and reported by UBC University Industry Liaison Office (UILO).

FIGURE 33 BCCHR National Provisional Patent Applications Filed and Issued by Fiscal Year



In FY 2024-25, there were 83 active license/assignment agreements in place (See Figure 34). Two new spin-off company were attributed to BCCHR in FY 2024-25: Arrowsmith Genetics, and Amphoraxe Life Sciences. BCCHR holds shares in: Incisive Genetics, Lions Gate Technologies, ME Therapeutics, and more.

FIGURE 34 BCCHR License Agreements and Spin-Off Companies by Fiscal Year



IP related line-item revenue data for FY 2024-25 is shown below in Table 9. Expenses related to patenting, license IP and legal costs totalled $1,962.91 in FY 2024-25. Realized licensing revenue per the distribution agreements totalled $1,804,445.24 with $271,897.89 to PHSA.

TABLE 9 BCCHR IP Related Revenue

IP RELATED REVENUE	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Royalties	$727,424.30	$837,237.00	$283,716.00	$223,456.72	$931,165.41
Equity Liquidated	-	$331,104.00	-	-	-
License Fees	-	$101,705.00	$630,466.00	$781,476.43	$896,489.39
License Management	-	-	-	-	-
Option Fees	-	-	-	-	-
Technology Assignment	-	-	-	-	-
GROSS LICENSING REVENUE (TOTAL)	**$727,424.30**	**$1,270,046.00**	**$914,182.00**	**$1,004,933.15**	**$1,827,654.80**

Advancing Health and Policy Benefits

See Table 10 for a detailed breakdown of clinical trial activity by fiscal year.

TABLE 10 BCCHR Clinical Trials

	FY 2022-23	FY 2023-24	FY 2024-25
Total Number of Clinical Trials Active during the FY	248	243	235
Status of the Trial at the end of the FY:			
Total Number of Approved Trials	186	184	175
Total Number of Trials that closed during the FY	62	59	60
Enrollment Numbers:			
Expected Local Subject Enrollment for the study term	21,814	31,548	23,432
Total Cumulative Subject Enrollment at the end of the FY	17,667	13,980	11,981

Grant funding type is reported for clinical trials in Figure 35. 33% of BCCHR's clinical trials in FY 2024-25 were industry funded.

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

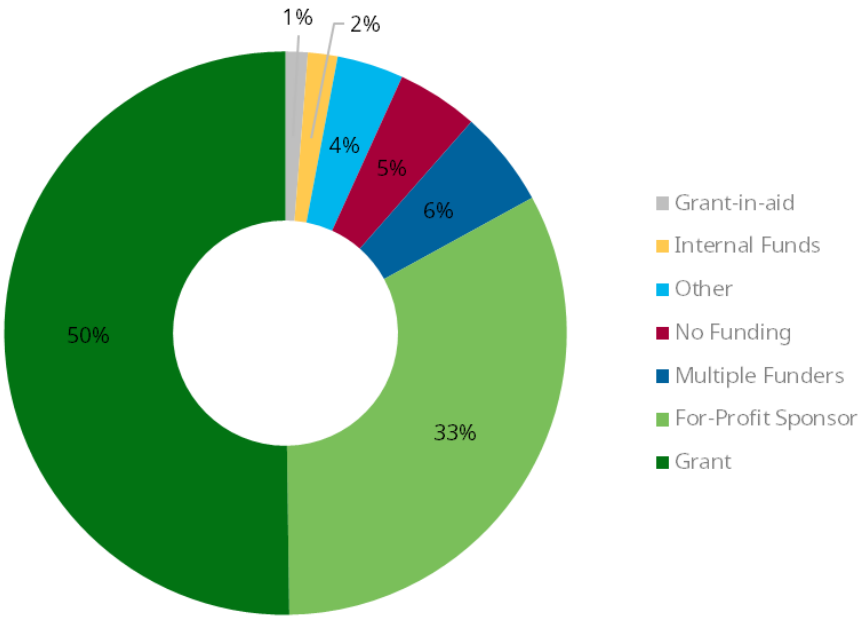


Table 11 reflects BCCHR's highlighted impacts that represent the breadth of research activity over the FY 2024-25 timeframe (Apil 1, 2024 – March 31, 2025).

TABLE 11 BCCHR Research Outcomes

BC Children's Hospital Research Institute (BCCHR) – Research Outcomes
Matching young cancer patients to the best treatments **Classification:** Patient – Delay of disease progression/survival BCCHR researchers with the Michael Cuccione Childhood Cancer Research Program and the BRAvE (Better Responses through Avatars and Evidence) Initiative developed a quick method to find personalized treatments for young cancer patients. The method goes beyond looking at the tumour's genes by also analyzing the proteins and then evaluating drug responses to the patient's cancer that has been grown on a fertilized chicken egg. For the first time earlier this year, this proteomics guided approach identified a treatment for a young cancer patient at BC Children's Hospital quickly enough to inform the patient's care.
Targeted treatment for inflammatory bowel diseases receives patent **Classification:** Patient – Access to new treatment/technology BCCHR researchers have developed a new drug delivery mechanism called GlycoCaging for treating inflammatory bowel diseases. The technology couples the drugs to a sugar "cage" that can only be broken down by bacteria in the lower gastrointestinal tract, allowing for more precise delivery of IBD drugs. Researchers have found that this method can reduce the dosage of drugs by 90 per cent while still achieving the same treatment results and eliminating off-target effects. A recent high-profile paper, demonstrated the effectiveness of the technique in animal models and the technology has received a patent.
A patient-driven tool to empower families to assess penicillin allergy risk **Classification:** System – Efficiency, cost/benefits or sustainability Dr. Tiffany Wong, Dr. John Jacob, and their team developed a patient-friendly tool to help families assess whether a reported penicillin allergy is likely to be true. Since most people who think they're allergic to penicillin are not, the team saw a need for an easy-to-use version of existing clinical tools that families could complete themselves. They tested the tool with children and pregnant people referred to the Allergy Clinics at BC Children's Hospital. In over two-thirds of cases, the patient tool matched allergist assessments, especially for those considered low risk — suggesting it is both safe and reasonably accurate. In most of the remaining cases, the tool was more cautious than the allergist. By supporting early self-assessment, the tool has the potential to empower patients to assess their risk and advocate for their care. It also allows families to have early education about penicillin allergies and may also increase the efficiency of health-care visits, reduce wait times for specialist assessments, and minimize the impact of personal bias in clinical decision-making. The latest version of the tool incorporates AI-powered video screening in English, Punjabi, and Mandarin to improve accessibility for diverse communities.
BCCHR mobile app could save lives around the world **Classification:** Patient – Improvements in timely access to care The Institute for Global Health (IGH) has developed the RRate app — a mobile application that measures breathing rate. Recent research investigated if health-care workers would obtain the same results if they repeatedly measured a child's breathing rate in a busy environment by using the app. Evidence shows that RRate is a better solution than other available devices.

Assessing risk of post-discharge mortality in Uganda: Using prediction models to save children's lives

Classification:
Patient – Protocols and guidelines

Researchers at BC Children's Hospital aimed to improve care for children with suspected sepsis by creating and testing tools to predict which patients are at high risk of dying after leaving the hospital. In many low-income countries, more than five per cent of children die after hospital discharge, but there is a lack of tools to help identify which children are most at risk.

The team developed several prediction tools using a wide range of patient information, making sure the models would be practical even in low-resource settings. These tools successfully identified high-risk children, allowing health-care providers to plan better care after discharge, such as follow-up visits or home support. By spotting at-risk children early, the models help guide more focused, life-saving care and improve outcomes for children in poorer settings.

Canada-wide study confirms safety of COVID-19 vaccines for children and adolescents

Classification:
System – Knowledge dissemination-new policy

BCCHR researchers conducted a large cohort study with the Canadian National Vaccine Safety Network (CANVAS) to investigate the short- and medium-term safety of mRNA COVID-19 vaccines in children and adolescents, with more than 1 million participants enrolled. The study aimed to profile adverse effects following each dose, and evaluate the link between vaccination and health-related events occurring within seven days.

The findings from this study contributed to a better understanding of mRNA COVID-19 vaccine safety in the pediatric population and provided critical evidence to inform policies and safety profiles of vaccines among children and adolescents. This research also offers valuable insights to patients, parents, and clinicians so that they know what to expect following vaccination and can make informed decisions by balancing the benefits and risks, particularly among adolescents. Continuous monitoring of vaccine safety, with separate evaluations for different age groups, is key.

New guidelines for young children receiving bone marrow transplants

Classification:
System – Process of care-standardization

To provide children who have signs of lung chronic graft-versus-host disease (cGvHD) with proper diagnosis and treatment, the 2014 National Institutes of Health (NIH) guidelines recommend a lung biopsy or a breathing test called spirometry, which measures how much and how fast kids can breathe in and out of their lungs. Spirometry requires a big forced breathing manoeuvre that is often hard for children, especially if they're feeling weak. BCCHR researchers investigated the utility of the multiple breath washout (MBW) test and addressed some of the limitations in the NIH guidelines. There's evidence that MBW is feasible, sensitive, and specific for the diagnosis of cGvHD in younger children, and this test is especially useful for kids who can't perform spirometry. The findings led to discussions with international experts in the field and played a part in integrating MBW into recent recommendations to screen for lung cGvHD**.**

New diagnostic and risk assessment tool for chronic graft vs host disease

Classification:
Patient – Access to new treatment/technology

To help diagnose and predict chronic Graft vs Host disease more accurately and more quickly, Dr. Kirk Schultz used a machine learning based model combined with data from pediatric patients to develop blood-based panels of biomarkers that can either diagnose cGVHD or determine the risk a patient has of developing cGVHD in the future. These panels of biomarkers can help minimize the impact of cGVHD. The risk assignment algorithm can identify high- or low-risk patients before the onset of the disease and is currently planned for use in the first biomarker-based pre-emptive trial ever done in children or adults. The diagnostic panel can help by providing a more definitive diagnosis, allowing for therapy to begin earlier and potentially avoiding irreversible damage.