



FY 2023-24

PHSA RESEARCH AND STUDENT EDUCATION

Prepared for:
PHSA Research and Academic Development Committee

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ACKNOWLEDGEMENTS

The following report is prepared for the Provincial Health Services Authority (PHSA) Board of Directors on an annual basis to present data related to the Framework for PHSA Research Metrics (see Appendix 2) and the Framework for PHSA Student Education Metrics (see Appendix 3). As an academic health sciences organization, PHSA works in close partnership with the University of British Columbia, BC Institute of Technology, Simon Fraser University, University of Victoria, University of Northern BC, and other BC educational institutions. BC Emergency Health Services works closely with the Justice Institute of BC.

The research and student education activities described in this report are made possible only through the collaboration and partnership of PHSA, its programs and research entities, and its academic and health authority partners.

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PHSA'S MEASURABLE COMMITMENT TO RESEARCH & EDUCATION

Introduction to PHSA's 7th Consolidated Summary Report

PHSA Research & Academic Development is pleased to present its seventh annual consolidated summary of PHSA research and student education metrics. This year's report provides integrated information relating to PHSA's academic health science mandate for research and student education. This year's report includes:

- Dashboards that reflect, at a glance, quantitative metrics based on PHSA Board-approved performance indicator frameworks
- Narrative that highlights PHSA's academic health science mandate, and the impacts and outcomes being realized in research and student education
- PHSA program sections that identify the Top 3 research accomplishments by research entity (important achievements that may not be well reflected through quantitative metrics), present research and student education infographics (illustrating high level inputs and outputs), and detail research outcomes identified by PHSA research entities
- Examples of important research questions that are being answered through the rich data assets available in PHSA registries

This consolidated and integrated reporting approach communicates how research is driving patient and health system benefits, and how student education is preparing a high-performance health workforce for the future. While research, inquiry and learning take place across PHSA, this report relates activities associated with PHSA's five programs that have research institutes and that play a vital role in providing students with clinical practice education: BC Children's (BC Children's Hospital Research Institute), BC Women's (Women's Health Research Institute), BC Cancer (BC Cancer Research Institute), BC Mental Health & Substance Use Services (BC Mental Health & Substance Use Research Institute), and BC Centre for Disease Control (UBC Centre for Disease Control). This report also relates the essential training role of BC Emergency Health Services.

Detailed data for the PHSA Board-approved frameworks for research and student education metrics continue to be reported in the related supplementary reports that support operational decision-making and are available on the PHSA website: <http://www.phsa.ca/our-research/research-focus/research-education-metrics>

PHSA is one of Canada's largest academic health science organizations – organizations with an integrated mandate to deliver care, conduct research and train students. PHSA's provincial mandate strongly reinforces that role, specifying PHSA is "expected to conduct world-class research, and deliver excellence in education and training [...] to support and underpin its ability to develop evidence-informed clinical policy and to deliver high quality provincial clinical services."

The following report illustrates PHSA's commitment to this critical role and the benefits that derive to patients, populations, and the BC health system.

PHSA is mandated to conduct world-class research, and to deliver excellence in education and training.

PHSA RESEARCH METRICS

FISCAL YEAR SUMMARY - PHSA OVERALL

Indicator	Key Measure Description	FY 2021-22	FY 2022-23	FY 2023-24	
		Value	Value	Value	
Producing & Advancing Knowledge	1a	Total Annual Grant Awards by Type (including Major CFI Infrastructure grants)	\$177,100,074	190,089,694	218,873,616
		Salary Awards	13,811,897	16,573,879	19,781,724
		Infrastructure Awards	8,077,745	6,316,173	16,998,023
		Operating Grants	155,130,637	163,514,856	181,890,928
		Other	79,795	3,684,786	202,942
		COVID-19 Research Funding (included in above categories)	13,520,117	7,057,997	11,026,956
	1b	Total Annual Grant Awards by RISE Sector (including Major CFI infrastructure grants)			
		Government	76,402,654	85,150,160	102,028,986
		Non-Profit	76,243,844	83,475,718	92,417,844
		Industry	24,453,576	21,463,815	24,426,786
	1c	CIHR Annual Grant Application Success Rate - PHSA Overall/ Nat'l			
		Fall Project Grant	28.1%/26.0%	45.2%/25.0%	27.8%/17.5%
		Spring Project Grants	29.2%/22.3%	25.0%/22.4%	20.0%/15.3%
1d	Total # of Publications w/ Program Author				
	BCCHR	1,284	1,403	1,338	
	BCCRI	761	940	855	
	WHRI	1,006	1,244	1,250	
	BCCDC	301	308	214	
	BCMHSUS	151	127	145	
Building Research Capacity	2a	Total # of Research Trainees	2,917	3,120	2,982
	2c	Total # of Researchers (excluding Category 3 – Affiliate Investigator)	940.5	963	1,049.5
	2e	Research Support Fund Grants (Tri-Council only)	\$4,303,669	\$4,134,441	\$4,036,502
Achieving Economic Benefits & Innovation	3a	# of Invention Disclosures	35	31	25
		# of Provisional Patent Applications Filed	17	15	10
		# of PCT Applications Filed	8	5	6
		# of Patents Filed/Issued	115/30	15/42	17/36
	3b	# Active License Agreements	130	133	134
		# of Spin-off Companies	19	20	21
		IP Related Revenue – Realized Revenue			
	BCCRI	\$2,210,216	\$855,384	\$393,634	
	BCCHR	\$1,209,525	\$912,212	\$991,513	
Advancing Health & Policy Benefits	4a	Clinical Trials (including Non-PHSA PIs utilizing PHSA facilities and resources)			
		# active trials at the end of the FY	695	706	712
		Cumulative Subject Enrollment-end of FY	36,287	37,266	31,855
4b	Registries as Research Resources				
	# of Research Requests/Approvals	273/257	223/165	266/255	

PHSA STUDENT EDUCATION METRICS

FISCAL YEAR SUMMARY - PHSA OVERALL

Indicator		Key Measure Description	FY 2021-22	FY 2022-23	FY 2023-24
			Value	Value	Value
Build Student Education Capacity	1a	Total Number of Student Hours by Program (excludes medical learners)	315,031	344,384	410,877
		BCCH (including Sunny Hill)	131,221	124,248	146,788
		BCEHS	61,668	80,162	94,160
		BCW	45,954	50,668	58,625
		BCMHSUS (Forensics, MH & Addictions, CHS, Red Fish)	38,909	42,455	61,040
		BC CANCER – all locations	30,775	37,380	39,685
		BCCDC	3,674	7,246	7,070
		All Other	2,830	2,226	3,509
	1a	Total Number of Students by Program (excludes medical learners)	2,130	2,260	2,872
		BCCH (including Sunny Hill)	894	802	1,012
	BCEHS	439	645	823	
	BCW	362	357	389	
	BCMHSUS (Forensics, MH & Addictions, Burnaby Centre, CHS, Red Fish)	262	283	450	
	BC CANCER – all locations	139	135	148	
	BCCDC	16	19	21	
	All Other	18	19	29	
1b	Total Number of Medical Learners (Undergraduate & Post-Graduate)				
	Undergraduate Medical Students (annual)	492	419	388	
	Post-Graduate Medical Residents (annual)	858	888	868	
1c	Estimated FTE of staff time in direct supervision of students**	112	130	145	
1f	Total Number of PHSA declined placement requests in HSPnet	377	239	206	
1g	Total # of Staff Participants participating in Preceptor/Educator Training				
	Educator Pathway Project (Preceptor/Educator Training)	526	259	302	
	BC Emergency Health Services (Preceptor Training)	57	121	63	
1h	Total Number of Preceptors in HSPnet with and without a placement**				
	With a placement	377	563	671	
	Without a placement	309	198	186	
Build Effective Partnerships and Collaborations to Support Innovation	2a	Total # of Affiliation Agreements	75	75	64
	2b	Top 5 Education Institutions by student hours-all disciplines**			
		University of BC	50,458	60,198	97,624
		BCIT	75,262	71,642	72,021
		Justice Institute of BC	45,456	57,114	51,327
	Columbia Paramedic Academy	11,544	23,296	43,025	
	Douglas College	17,579	26,566	25,811	
2c	Distribution of Student Hours by Student Education setting**				
	Hospital	175,874	184,565	219,683	
	On Car	61,668	80,162	94,160	
	Outpatient/Mixed	66,887	66,643	81,161	
	Other (Population Health and Corporate)	10,602	13,014	15,873	
Results	3a	# of hires at PHSA with previous PE Placement**	483 (12%)	568 (12%)	642 (13%)

**Excludes undergraduate and post-graduate medical students*

ONE OF CANADA'S LARGEST ACADEMIC HEALTH SCIENCE ORGANIZATIONS

PHSA ATTRACTS HIGHEST EVER RESEARCH FUNDING AND SUPPORTS RECORD NUMBER OF STUDENTS

Annual metrics show that PHSA's researchers again surpassed previous levels of external research funding and supported the highest ever number of students with clinical placements, reflecting the growing strength of PHSA's research and student education enterprise over the past fiscal year.

PHSA researchers generated more than \$218 million in external funding this past year, an increase of more than \$28 million over the previous year. PHSA also plays a unique role in BC's health education system and provided specialized training placements, often unavailable elsewhere in the province, to 4,128 students this past year.

This past fiscal year, PHSA completed the second year of its multi-year Research Roadmap, a first-ever enterprise-wide research strategic plan. Championed and approved by PHSA's Research Leadership Council, the Roadmap aims to strengthen the PHSA research enterprise through collective and coordinated efforts on:

- Fostering alignment with clinical priorities
- Optimizing investment in research
- Removing barriers
- Enabling scaling and sharing of resources
- Strengthening shared infrastructure and expertise

Of the Research Roadmap's 32 projects which support 11 strategic initiatives, two were initiated, ten were in process, and seven were completed this fiscal year.

Research Metric Highlights

PHSA researchers attracted more than \$218 million in external funding in FY 2023/24, including \$11 million in COVID-19 research funding. Reflecting their competitive success, PHSA researchers surpassed the national average success rate in the Canadian Institutes of Health (CIHR) fall and spring operating grants. Remarkably, the average success rate of PHSA researchers was more than 27% in the Fall 2023 operating grant competition compared to a national average success rate of 18%. The total number of PHSA researchers grew from 963 to 1,050 researchers. The number of research trainees slightly decreased from 3,120 to 2,982. PHSA researchers continue to publish prolifically, with the total number of publications up for two of the PHSA research entities, and slightly decreased for the remaining PHSA research entities. Revenues from the Research Support Fund, a federal funding program that supports the indirect costs of research, dropped slightly from \$4.1 million to \$4.0 million.

PHSA actively advances commercialization of research discoveries, and generated IP revenue in FY 2023/24 of \$1,385,147. The number of inventions disclosed decreased from 31 to 25, and the number of provisional patent applications and PCT applications filed remained relatively stable at 10 (down from 15) and 6 (up from 5), respectively. The number of patents filed slightly increased from 15 to 17. The number of patents issued slightly decreased from 42 to 36. The number of active licensing agreements increased from 133 to 134. One new spinoff company was created, Arrowsmith Genetics, bringing the number of active PHSA spinoff companies to 21.

PHSA's Multi-year Research Roadmap continues to strengthen the PHSA research enterprise through collective and coordinated efforts.

PHSA
Researchers
attracted
more than
\$218 million in
external
funding in FY
2023/24.

As a preclinical stage precision clinical oncology company, Arrowsmith Genetics analyzes patient-specific tumour mutations to identify new oncology drug targets and generate small-molecule therapy candidates for the targets. The company was developed in partnership between Dr. Peter Stirling, Distinguished Scientist and Deputy Director of BC Cancer's Terry Fox Lab and Dr. Phil Hieter, Professor of Medical Genetics at the University of British Columbia's Michael Smith Lab.

Dr. Stirling and Dr. Hieter created a humanized yeast mutational mapping platform that can identify binding sites unique to the targeted protein. This technology enables new strategies for targeted therapies that could create stronger treatment responses and reduce off-target effects.

Clinical trial activity continued to increase in 2023/24. The number of active trials increased from 706 trials in FY 2022/23 to 712 trials in FY 2023/24. The number of enrolled participants slightly decreased from 37,266 participants to 31,855 participants in the same timeframe.

PHSA's impressive research metrics reflect the resilience of PHSA's research strength in the aftermath of COVID-19, and the continued success of PHSA researchers.

Student Education Metric Highlights

To align with the training component of the tripartite mandate, PHSA is committed to championing quality student education experiences across its services and programs. With specialized services and unique staff knowledge and expertise, PHSA plays a critical role in the development of a prepared workforce across BC's health system. Student practice education includes the learning activities that occur in health settings for students enrolled in a recognized academic institution who have a practicum as part of their program requirements.

Student education data supports informed and strategic decisions to align student education activities with health human resource strategies and changing health system needs. PHSA monitors and communicates student activity data by discipline, academic partner, and PHSA program each term and annually.

PHSA supports learning for students from all disciplines of the health care teams in its programs. PHSA proudly welcomed a total of 4,128 students in placements across the organization in the past fiscal year. Of these students, 388 were medical undergraduates (MDUG), 868 were residents enrolled in Post-Graduate Medical Education (PGME), 1,357 were nursing students, and 1,515 were other members of the interprofessional team, including 823 paramedics completing on-car experiences.

There were 671 preceptors actively supporting students this year, with 365 preceptors participating in training sessions. PHSA has education affiliation agreements with 64 academic partners to support these placements. The top five partners this year for the most student placement hours (excluding medical students' hours) are the University of British Columbia (UBC), BC Institute of Technology (BCIT), Justice Institute of BC (JIBC), Columbia Paramedic Academy, and Douglas College. Based on the feedback in a new hire survey, 642 new employees hired at PHSA this year noted that their experience of placement influenced their decision to join our organization as employees.

Student
education
placement
activity data
support
strategic
planning
across health
and
education.

RESEARCH IMPACTS AND OUTCOMES

PHSA-LED DISCOVERY IS MAKING A DIFFERENCE FOR PATIENTS

While quantitative metrics describe PHSA's academic health science mandate to a degree, the qualitative description of accomplishments, outcomes and studies generated using PHSA's rich registry data sets is needed to more fully understand how PHSA research is impacting patients, populations, and the health system.

For the seventh year, PHSA research entities were asked to identify their top three accomplishments, giving them an opportunity to highlight key successes relevant to their differing foci, strengths and size. Several of the top three accomplishments this past year reflected provincial, national and international level contributions in vital domains such as developing novel therapies to advancing clinical care. Detailed in this report's program specific sections, examples of key accomplishments include:

- Developing a novel digital 120-gene expression assay to assign cell-of-origin in diffuse large B-cell lymphoma (LExA120).
- Using sublingual immunotherapy as a safe path to overcoming food allergies for older children or building immune resistance for those who can't risk consuming allergens.
- Advancing clinical knowledge of pharmacogenomic-guided treatment for major depression, potentially increasing population health and reducing health system costs.
- Launching the Beyond the Binary in BC Guide, a patient-oriented and trauma-informed approach to incorporating gender equity into women's health research to support the conduct of gender equitable health research for women, trans and non-binary people.
- Exploring how building relationships with Indigenous communities can increase trust in public health.

As in past years, PHSA research entities were asked to identify any guideline, drug, diagnostic agent, or device adopted or approved in FY 2023/24 as a result of research driven by PHSA researchers, or collaborative research in which PHSA researchers were key participants. Recognizing that PHSA research entities function across the research spectrum from basic cell biology to clinical research to health system research, research outcomes generated in the basic research domain are also included. Research outcomes are innovations such as methodologies or software used in the conduct of research that have been developed by PHSA researchers and adopted or approved by other major entities in FY 2023/24.

PHSA research entities achieved outcomes that advanced care, treatment, and prevention in many other areas. Examples of outcomes from research activities, further detailed in the program section of this report, include the following:

- BC Cancer implemented Canada's first province-wide lung cancer screening program, based on research from an initial pilot study. Over 14,000 British Columbian's were contacted by the 36 CT screening sites by the end of 2023 to determine screening eligibility through low dose screening chest CT scan.
- Based on work of a WHRI researchers, the province of British Columbia launched a new cervix self-screening program in January 2024 that includes an option for at-home cervical cancer screening, the first of its kind in Canada.

Quantitative metrics tell only part of PHSA's success story. Top accomplishments, outcomes, and the studies generated using PHSA's rich registry data further illuminate impact.

PHSA's provincial registries are a major asset in gaining insights on clinical outcomes and health system design.

- A BCMHSUS researcher contributed to the American Congress of Rehabilitation Medicine's new diagnostic criteria for mild traumatic brain injuries that can be used across the lifespan and apply in sports, civilian trauma and military settings.
- BCCDC researchers led the development of a new diagnostic testing method for sexually transmitted and blood borne infections which uses fingerprick-collected dried blood samples that can be collected in clinics, by peers or oneself.
- BCCHR investigators discovered a new gene involved in Lupus, an autoimmune disorder, that will enable patients and their families to be genetically tested for the condition and improve future diagnoses and treatment options.

PHSA's large number of provincial registries and longitudinal data sets on services provided to specific populations and related outcomes is a major asset of PHSA. These rich data resources, unique in Canada, include a wealth of information that is studied to gain insights on clinical outcomes and health system design. A survey of PHSA's registry data stewards identified many research questions currently being addressed through registry data. Below are just a few examples, highlighting the tremendous research value of these datasets, and how they are being used to directly improve health outcomes and evaluate optimum care delivery models.

- Tissue samples from the BC Children's Hospital Biobank are undergoing investigation to understand rare diseases in children, through BCCHR's Rare Disease Discovery Hub.
- Data from the BC Cardiac Registry is being used to determine the rate of cardiac arrest in patients with psychiatric disorders.
- Data from Endometriosis and Pelvic Pain Interdisciplinary Cohort (EPPIC) are being used to assess the economic impact of the interdisciplinary model of care for endometriosis and chronic pain.
- The COVID-19 dataset is being used to understand the effectiveness of the COVID-19 vaccine in people living with HIV and who inject drugs.
- PROMIS Renal data are being used to understand the environmental impact (i.e., carbon footprint) of different types of kidney care.
- PROMIS Transplant data are being used to evaluate outcomes from donated organs (e.g., liver, lung) by medically assisted in dying (MAiD) donors versus donation after cardiac death or neurological determination of death donors.
- Perinatal Services BC Registry data are being used to understand prescription medication use in the year before, during and in the year after pregnancy, and to explore the prevalence of pregnancy outcomes based on use of specific drugs and drug classes.
- BC Trauma Services Registry data are being used to explore trauma intubations' characteristics and to determine the first-pass success rate of endotracheal intubation in trauma patients.
- BC Tumour Tissue Repository tissues are being analyzed to identify new predictive and prognostic markers for neuroendocrine tumours.
- BC Cancer Lung Cancer Screening Program data are being used to investigate inequity in spatial access to lung cancer screening.

- BC Breast Cancer Screening program data are being used to identify gaps in breast cancer care delivery when comparing rural populations to urban populations in British Columbia.
- BC Cervical Cancer Screening program data are being used to understand cervix screening history and outcomes for individuals who have received a human papillomavirus (HPV) vaccine.

PHSA's rich data resources, unique in Canada, include a wealth of information that can be studied to gain insights on clinical outcomes and health system design.

Discovery, innovation, and the application of new knowledge generated by PHSA researchers is clearly making a difference, improving clinical outcomes and the effectiveness of BC's health system in myriad ways.

STUDENT EDUCATION IMPACTS AND OUTCOMES

PHSA SUPPORTS HEALTH HUMAN RESOURCE ACTION PLANNING

The release of the Provincial Student Practice Education Policy, the BC Ministry of Health's Health Human Resource Strategy, and the announcement of health program seat expansions for medicine, nursing, midwifery and allied health have all increased the importance of health and education sectors working together to adopt a system-wide approach to planning, coordinating and delivering student practice education placements for all students.

PHSA Academic Education has participated and co-lead several initiatives this year that support the vision outlined in the documents named above.

Two discipline-specific advisory committees met to deliver the following outcomes:

- Co-develop a regularized plan for student placements with additional capacity
- Document and distribute communication routes and roles to network partners
- Share Innovative placement model examples and resources
- Advance cross-sector collaboration

The regularized plan was determined using quantitative measures to propose a target range of placement commitments. Additional factors were considered and agreed upon at a provincial table.

A third group of representatives from health organizations, post-secondary institutions and government colleagues met to identify areas of provincial collaboration that would strengthen student education activities across the province. Work is planned for next fiscal year to develop an action plan to advance these recommendations.

PHSA is a
leader in
collaborative
planning with
provincial
partners.

STUDENT EXPERIENCES AT PHSA INFORM FUTURE CAREER DECISIONS

Because of the specialized services that are provided, PHSA has a role in supporting students who will become future health care team members across the province. We are also fortunate to welcome many new employees throughout PHSA's sites and programs. When new employees join PHSA we ask: *If you had a student practice experience at PHSA, did it encourage you to come back and work?*

Each year, new employees share their responses to this question. Here are some that highlight for preceptors, leaders and teams how influential their roles can be in supporting the next generation of healthcare team members.

- *I believe that my practicum experience was very encouraging, and it greatly influenced my decision to apply to work at PHSA.*
- *Having a clinical placement through PHSA was an amazing experience and helped me figure out what I wanted to do in my career in the future.*
- *I finished my practicum and was hired, so I am very excited to start working.*
- *Loved the psychologically safe learning environment I was provided as a student, which encouraged me to return as a new grad.*
- *I really enjoyed my practicum at BC Cancer and am looking forward to working with the people I met there. I am excited about the position, as well as the many learning opportunities available, such as the Truth and Reconciliation course.*
- *I think that the main thing that encouraged me to find employment at PHSA was the relationships/friendships that could be seen within the employees. As well as how excited they (the employees) were to meet a new possible coworker.*
- *I have enjoyed my clinical experience in my practicum as a student and I look forward to becoming an employee of PHSA.*
- *The manager and workplace environment during my final practicum is what made me stay at PHSA!*

The perspectives shared by new employees who have had previous placements as PHSA inform the student education programs to ensure preceptors are recognized and that future students are welcomed and supported onto health care teams across PHSA's sites.

RESEARCH METRICS

PHSA OVERALL

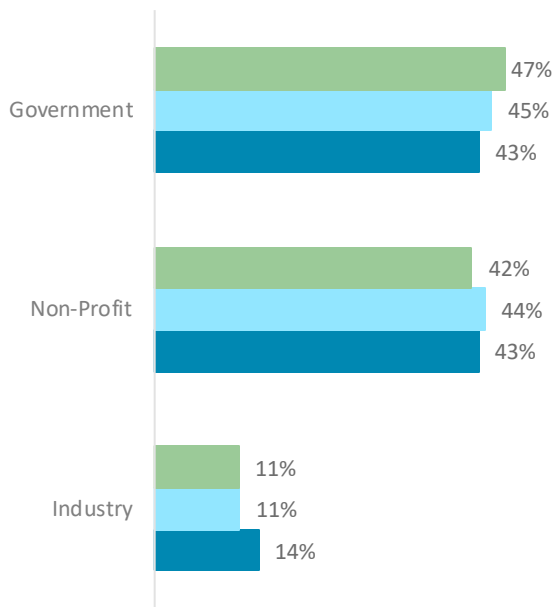


PRODUCING AND ADVANCING KNOWLEDGE

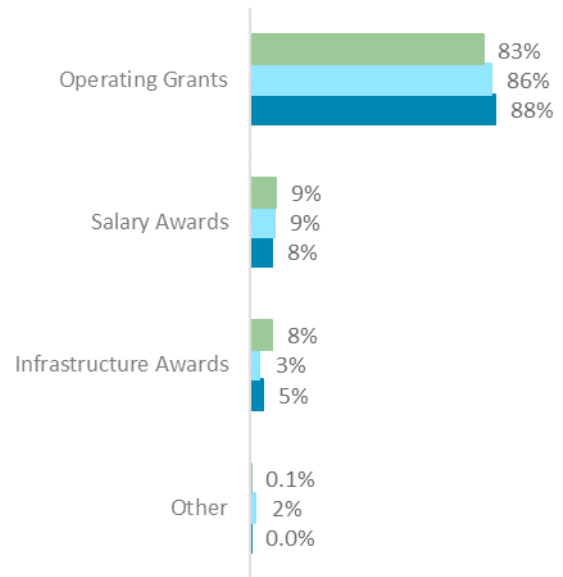
\$219 Million

in TOTAL GRANTS AWARDED in FY 23-24
\$190 Million in FY 22-23

\$ BY SECTOR



\$ BY AWARD TYPE



■ 2023-24 ■ 2022-23 ■ 2021-22

■ 2023-24 ■ 2022-23 ■ 2021-22



PUBLICATIONS

BCCHR	1,338
BCCRI	855
WHRI	1,250
BCCDC	214
BCMHSUS	145



100%

% of CIHR competitions above
National AVG SUCCESS RATE
in FY 23-24
100% in FY 22-23

ECONOMIC BENEFITS & INNOVATION

\$1.4M

of REALIZED REVENUE
in FY 23-24
\$1.8M in FY 22-23



1 new

ACTIVE LICENSES
in FY 23-24
3 new in FY 22-23



17 patents filed
36 patents issued

in FY 23-24
15 Filed / 42 Issued in FY 22-23

21 spin-offs (1 new)

of ACTIVE SPIN-OFFS in FY 23-24
20 (2 new) in FY 22-23

BUILDING RESEARCH CAPACITY

1,049.5

OF RESEARCHERS
in FY 23-24
963 in FY 22-23



2,982

OF TRAINEES
in FY 23-24
3,120 in FY 22-23

\$4 Million

RESEARCH SUPPORT
FUND GRANTS
in FY 23-24
\$4.1 Million in FY 22-23

HEALTH & POLICY BENEFITS



712

OF CLINICAL TRIALS
in FY 23-24
706 in FY 22-23

31,855

TOTAL CUMULATIVE
SUBJECT ENROLLMENT
at the end of FY 23-24
37,266 at the end of FY 22-23



40%

% INDUSTRY FUNDED
TRIALS in FY 23-24
40% in FY 22-23

266 requests
255 approved

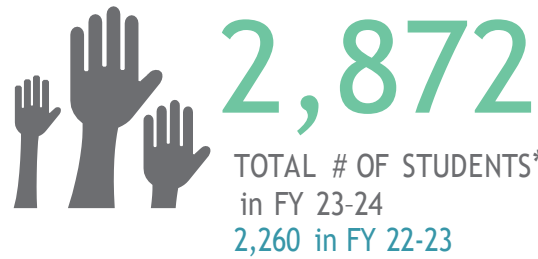
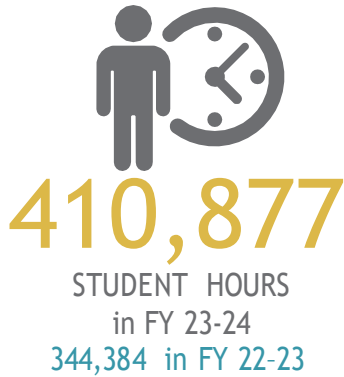
REGISTRY ACCESS REQUESTS/
APPROVALS in FY 23-24
223 requests / 165 approvals in FY 22-23

STUDENT EDUCATION METRICS

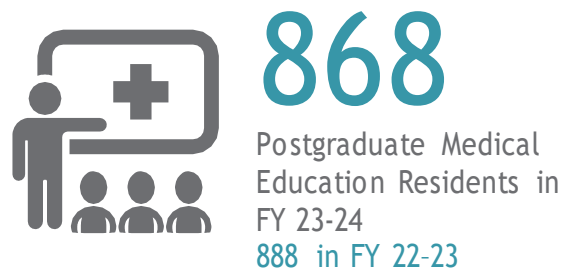
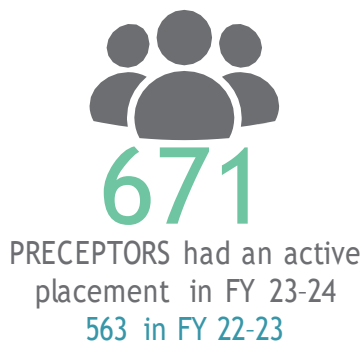
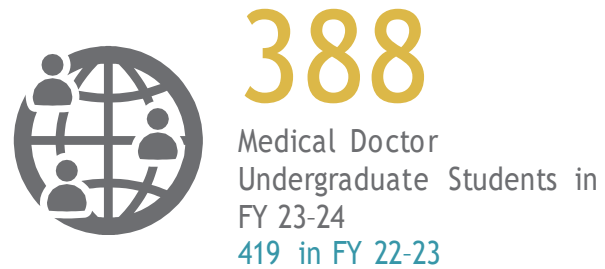
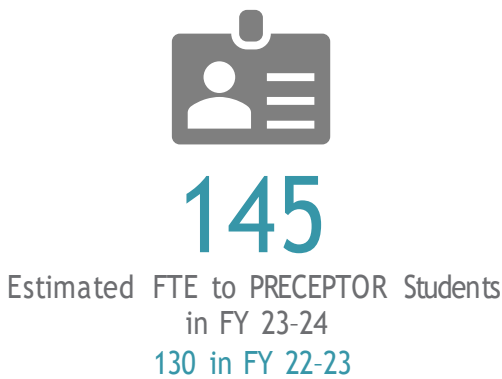
PHSA OVERALL



BUILD PRACTICE EDUCATION CAPACITY



*Excludes undergraduate and postgraduate medical students



BUILD EFFECTIVE PARTNERSHIPS & COLLABORATION TO SUPPORT INNOVATION



EDUCATION INSTITUTIONS BY STUDENT HOURS in FY 23-24

1. University of BC (97,624)
2. BC Institute of Technology (72,021)
3. Justice Institute of BC (51,327)
4. Columbia Paramedic Academy (43,025)
5. Douglas College (25,811)



DISTRITBUTION OF STUDENT HOUR by PRACTICE EDUCATION SETTING in FY 23-24*

*excludes undergraduate and post-graduate medical students

- Hospital (53%)
- On Car (23%)
- Outpatient/Mixed (20%)
- Other (4%)



49

of ACADEMIC PARTNERS WITH AN ACTIVE PLACEMENT in FY 23-24
43 in FY 22-23

QUALITY OF CLINICAL LEARNING ENVIRONMENT & RESULTS

TOP 5

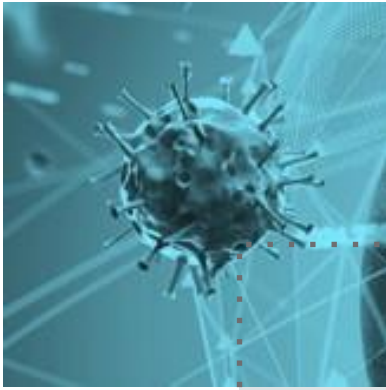
EDUCATION INSTITUTIONS FOR STUDENT PLACEMENT for NEW HIRES in FY 23-24

1. University of BC
2. BC Institute of Technology
3. Justice Institute of BC
4. Other
5. Vancouver Community College



13%

of new hires with a PHS A PLACEMENT in FY 23-24
12% in FY 22-23



BC Cancer Research Institute (BCCRI)

RESEARCH METRICS
STUDENT EDUCATION METRICS

RESEARCH METRICS

BCCRI

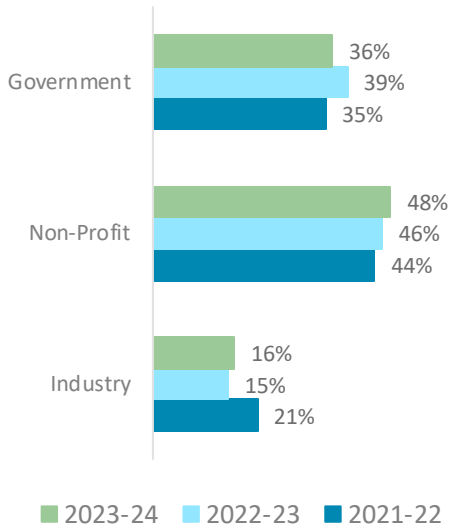


PRODUCING AND ADVANCING KNOWLEDGE

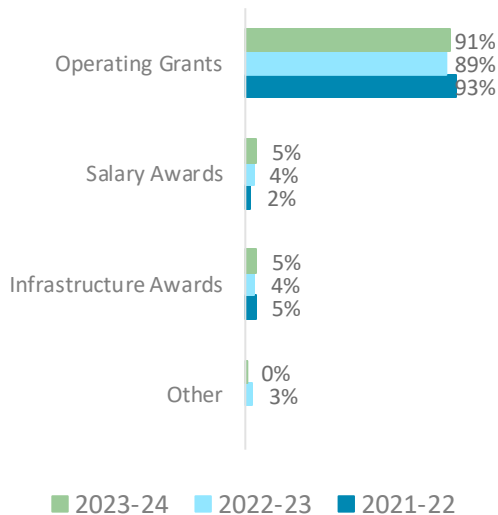
\$113 Million

in TOTAL GRANTS AWARDED in FY 23-24
\$107 Million in FY 22-23

\$ BY SECTOR



\$ BY AWARD TYPE



855 TOTAL
OF PUBLICATIONS
in FY 23-24
940 in FY 22-23

692
JOURNAL ARTICLES
in FY 23-24
772 in FY 22-23

99%
PEER REVIEWED
in FY 23-24
99% in FY 22-23



100%
% of CIHR competitions
above National AVG
SUCCESS RATE
in FY 23-24
50% in FY 22-23

ECONOMIC BENEFITS & INNOVATION

\$394K
of REALIZED REVENUE
in FY 23-24
\$855K in FY 22-23



15 patents filed
26 patents issued
in FY 23-24
10 filed / 36 issued in FY 22-23



52
ACTIVE LICENSES
(1 new) in FY 23-24
7 new in FY 22-23

17 spin-offs (1 new)
of ACTIVE SPIN-OFFS in FY 23-24
16 (2 new) in FY 22-23

BUILDING RESEARCH CAPACITY

399
OF RESEARCHERS*
in FY 23-24
349.5 in FY 22-23



679
OF TRAINEES
in FY 23-24
727 in FY 22-23

\$1.3 Million
RESEARCH SUPPORT
FUND GRANTS
in FY 23-24
\$1.4 Million in FY 22-23

HEALTH & POLICY BENEFITS



388
OF CLINICAL TRIALS
in FY 23-24
378 in FY 22-23

8,762
TOTAL CUMULATIVE
SUBJECT ENROLLMENT
at the end of FY 23-24
8,821 at the end of FY 22-23



52%
% INDUSTRY FUNDED
TRIALS in FY 23-24
52% in FY 22-23



*excluding affiliate investigators

TOP 3 RESEARCH ACHIEVEMENTS BC CANCER



Details available in Supplementary Report

1

BC Government Grant to the BC Cancer Foundation in Support of Increased Clinical Research and Trial Capacity for British Columbians

The BC Government Grant (\$150M) to the BC Cancer Foundation to enhance clinical research and clinical trial capabilities across the province has provided significant improvements to BC Cancer's clinical research programs.

2

Implementation of a Nanostring Lymphoma assay (LExA) in Clinical Pathology

The Centre for Lymphoid Cancers at BC Cancer Research have developed a digital gene expression assay that will now become part of routine pathology diagnostic work-up of aggressive B-cell Lymphomas across the province.

3

A Phase I/II Study of ¹⁷⁷Lu-HTK03170 in Metastatic, Castration Resistant Prostate Cancer Subjects with Prostate specific Membrane Antigen positive disease

¹⁷⁷Lu-HTK03170 is a novel, BC Cancer Research Institute in-house developed, PSMA directed radioligand therapy that delivers beta particle radiation to PSMA expressing cells and the surrounding microenvironment. This is the first BC Cancer Investigator led radiopharmaceutical therapeutic clinical trial to take place at BC Cancer.

TABLE 1 BCCRI Outcomes







<p>Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.</p>	<p>Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.</p>	<p>Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.</p>
<p>BC Cancer implemented Canada’s first provide-wide lung cancer screening program in all 36 CT screening sites by May 2023, and over 14,000 British Columbians were contacted by the program by the end of the year to determine screening eligibility through low dose screening chest CT scan (LDCT).</p> <p>The results of the recommendation after the first screening LDCT are almost identical to the result from the research pilot study, such as the proportion of participants triaged to biennial or annual routine surveillance screening, or diagnostic workup referral.</p> <p>The BC Program is the only Canadian lung screening program that uses an AI CT reading and risk prediction tool to triage lower risk individuals to biennial instead of annual screening. This provides significant savings in resource utilization, costs and radiation exposure.</p>	<p>Finding and treating lung cancer early allows more options for treatment with curative intent leading to improvement in lung cancer survival and ultimately reduction in lung cancer mortality. Treatment of lung cancer in its early stage also improves the quality of life of patients and avoid expensive, mostly palliative treatment for advanced disease.</p>	<p>System: Improvement in quality of life and survival of patients, improves system costs/ benefits and sustainability</p> <p></p> <p>all 5 BC Health Authorities</p>
<p>The BC Cancer Centre for Lymphoid Cancer team developed a digital gene expression-based platform called Lymph2Cx (a 20-gene assay), which can be applied to routinely produced formalin-fixed paraffin-embedded (FFPE) biopsies to assign cell of origin (COO) in diffuse large B-cell lymphoma (DLBCL) as part of a large team grant funded by Genome Canada.</p> <p>The assay was later modified to include an additional 58 genes to accurately distinguish primary mediastinal large B-cell lymphoma (PMBCL) from DLBCL subtypes based on gene expression and was renamed Lymph3Ex.</p> <p>To further dissect the subtypes of DLBCL, the CLC team has modified this assay to identify a clinically and biologically distinct patient group with double hit, or dark zone signatures, who have inferior outcomes and distinct biology. The assay was named DLBCL90 (a 90-gene assay).</p> <p>In order to incorporate all these subclassification features into one assay with clinical utility, the CLC team successfully completed cross validation of the assay in BC and Ontario last year and named the clinical assay LExA120. In October 2023, the BCC obtained the BC College of Physicians and Surgeons Diagnostic Accreditation Program (DAP) laboratory accreditation, allowing the LExA120 assay to become part of the routine pathology diagnostic work-up of aggressive B-cell lymphomas across the province.</p>	<p>The current lymphoma classifications (ICC and WHO HAEM5) require assignment of cell-of-origin classification and recognize tumours that harbour MYC and BCL2 rearrangements as a separate entity (HGBCL-DH-BCL2). This is typically achieved using immunohistochemistry and fluorescence in situ hybridization, respectively.</p> <p>BC Cancer researchers have shown that HGBCL-DH-BCL2 is the core of a larger group of lymphomas that have poor prognosis (dark zone lymphomas) and have developed a gene expression-based assay that both identifies dark zone lymphomas and more accurately assigns cell-of-origin.</p> <p>The implementation of this new gene-expression based assay in the routine pathology work-up at BC Cancer will facilitate better clinical management of this aggressive disease and lead to improved patient outcomes.</p>	<p>Patient: Access to new treatment/ technology</p>

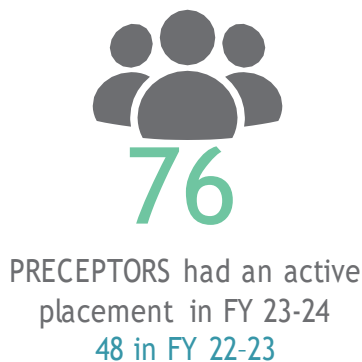
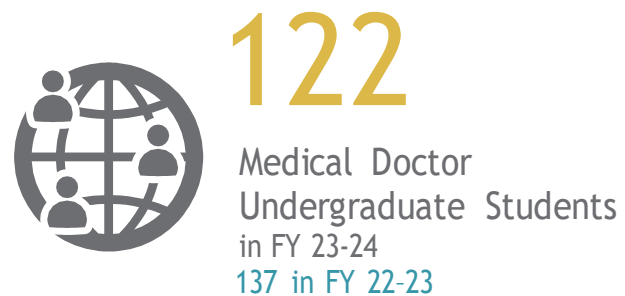
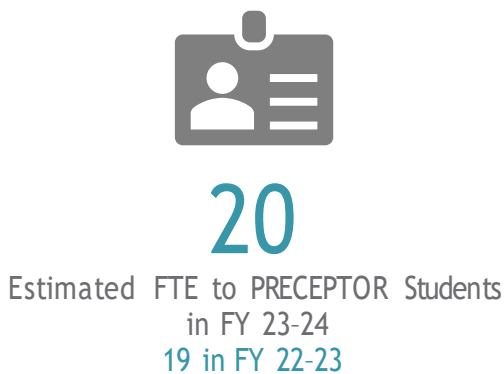
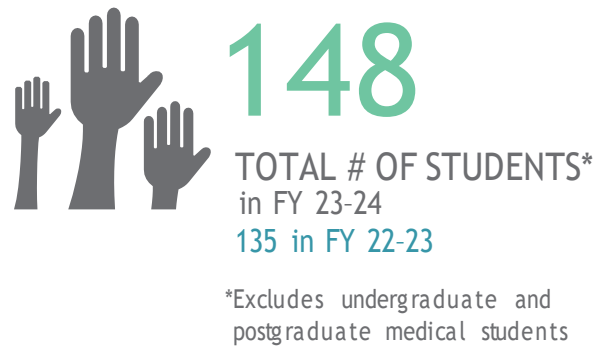
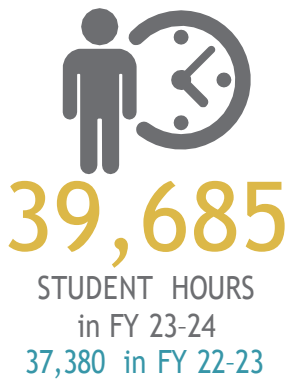
TABLE 1 BCCRI Outcomes (continued)

Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2022-23 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
<p>BC Cancer researchers examined blood samples from 130 patients with triple-negative breast cancer. They found that identifying mutations in DNA found in the bloodstream can reveal the presence of leftover cancer cells. This discovery is especially relevant for patients who underwent chemotherapy before surgery (neoadjuvant chemotherapy) but still have some cancer remaining. For these patients, the detection of such mutations is linked to poorer outcomes.</p>	<p>This finding could help doctors identify patients with triple-negative breast cancer who are at a higher risk of the cancer returning, allowing for adjustments in treatment plans and better management of the disease.</p>	<p>Patient: Access to new treatment/technology</p> <p></p> <p>BC Cancer Centres and Imagia Canexia Health</p>
<p>BC Cancer researchers, along with Massachusetts Institute of Technology (MIT), have introduced a novel method for expansion microscopy for nanoscale imaging. The new reagent simplifies protocols and reduces cost.</p>	<p>The study shows the protocol is effective in preserving and visualizing various biological components. This includes RNA transcripts, proteins within biologically significant ultrastructures, and sets of RNA transcripts in cancer tissues derived from patients (known as patient-derived xenograft or PDX).</p> <p>Moreover, there is potential for this protocol to aid in the visualization of other types of cells and tissues.</p>	<p>Patient: Access to new treatment/technology</p> <p></p> <p>MIT</p>
<p>Researchers at BC Cancer developed ESQmodel, a novel metric to evaluate the quality of the resolved single cells. Spatially resolved single-cell methods are advancing our understanding of relationships between cells in the tissue ecosystem and are emerging as a key technology for the development of digital pathology in clinical practice.</p>	<p>This development advances the field as the pioneer model to make statistical measures biologically informed. This transforms pathologists' efforts from manual labor in annotating cells to curating cell segmentation using an advanced computational metric.</p>	<p>Patient: Access to new treatment/technology</p> <p></p> <p>UBC, BCCHR, CRUK IMAXT Grand Challenge Consortium</p>

STUDENT EDUCATION METRICS

BC CANCER

BUILD PRACTICE EDUCATION CAPACITY



••• BUILD EFFECTIVE PARTNERSHIPS & COLLABORATION TO SUPPORT INNOVATION •••



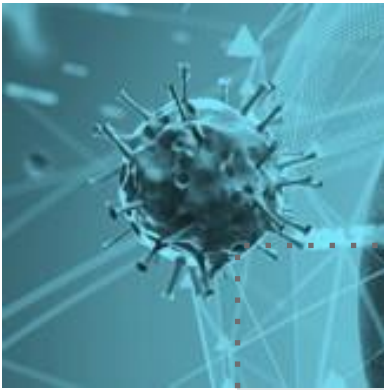
EDUCATION INSTITUTIONS BY
PLACEMENT HOURS in FY 23-24

1. BC Institute of Technology (24,888)
2. University of BC (5,213)
3. Sprott-Shaw College (1,716)
4. UNBC (1,324)
5. CDI College (1,240)



32

of ACADEMIC PARTNERS
WITH AN ACTIVE PLACEMENT
in FY 23-24
20 in FY 22-23



BCCHR/BC Children's Hospital and Sunny Hill Health Centre

RESEARCH METRICS
STUDENT EDUCATION METRICS

RESEARCH METRICS

BC CHILDREN'S HOSPITAL RESEARCH

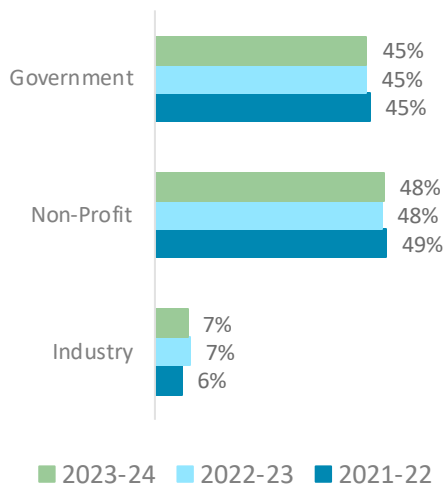


PRODUCING AND ADVANCING KNOWLEDGE

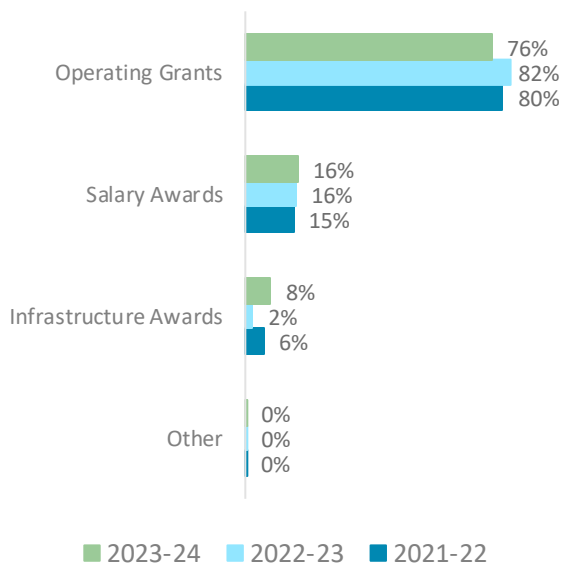
\$76.5 Million

in TOTAL GRANTS AWARDED in FY 23-24
\$68.8 Million in FY 22-23

\$ BY SECTOR



\$ BY AWARD TYPE



1,338 TOTAL
OF PUBLICATIONS
in FY 23-24
1,403 in FY 22-23

1,141
JOURNAL ARTICLES
in FY 23-24
1,247 in FY 22-23

98%

PEER REVIEWED
in FY 23-24
99% in FY 22-23



100%

% of CIHR competitions
above National AVG
SUCCESS RATE
in FY 22-23
100% in FY 22-23

ECONOMIC BENEFITS & INNOVATION

\$991K

of REALIZED REVENUE
 in FY 23-24
 \$912K in FY 22-23



2 patents filed
10 patents issued
 in FY 23-24
 5 filed, 6 issued in FY 22-23



82
 ACTIVE LICENSES
 (1 new) in FY 23-24
 0 new in FY 22-23

5 spin-offs (1 new)
 # of ACTIVE SPIN-OFFS in FY 23-24
 4 (0 new) in FY 22-23

BUILDING RESEARCH CAPACITY

344.5

OF RESEARCHERS*
 in FY 23-24
 331.5 in FY 22-23



911
 # OF TRAINEES
 in FY 23-24
 1,027 in FY 22-23

\$1.9 Million

RESEARCH SUPPORT
 FUND GRANTS
 in FY 23-24
 \$2.1 Million in FY 22-23

HEALTH & POLICY BENEFITS



243
 # OF CLINICAL TRIALS
 in FY 23-24
 248 in FY 22-23

13,980
 TOTAL CUMULATIVE
 SUBJECT ENROLLMENT
 at the end of FY 23-24
 17,667 in FY 22-23



29%
 % INDUSTRY FUNDED
 TRIALS in FY 23-24
 29% in FY 22-23



*Excluding affiliate investigators

TOP 3 RESEARCH ACHIEVEMENTS

BC CHILDREN'S HOSPITAL RESEARCH INSTITUTE



Details available in Supplementary Report

1

Improving treatment for sepsis

In a key publication in *The Lancet*, BCCHR researchers found that for children younger than five with suspected sepsis, substantial mortality can occur after being discharged from the hospital, especially in low-income countries. The team developed improved guidelines for recognizing sepsis and for predicting whether children may be at high risk of post-discharge mortality in Uganda. These guidelines have now been adopted and implemented at several hospitals in Uganda.

2

Addressing the rising incidence of eating disorders in Canadian youth

During the COVID-19 pandemic, with heightened health measures, there was a substantial increase in eating disorders amongst youth in Canada. Researchers from BCCHR have been at the forefront of determining the extent of the increase, as well as how best to address it and direct more resources towards preventing and treating this growing issue, which is estimated to have cost around \$40 million between the years 2000-2022. To help meet these new needs, BCCHR researchers are providing training in family-based therapy for eating disorders to clinicians across BC and the Yukon to support access to quality, evidence-based treatments for eating disorders, no matter where a family lives.

3

A safer path to overcoming food allergies

BCCHR researchers conducted a study that identified a safe path to overcoming food allergies for older children or building resistance for those who can't risk consuming allergens. Called sublingual immunotherapy (SLIT), the technique involves placing small amounts of food allergens under the tongue.

TABLE 2 BCCHR Outcomes

Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ), and COVID-19 Related if icon appears.
<p>BCCHR researchers put forward a Canadian Paediatric Society Position Statement on Outdoor Risky Play that outlines the benefit of play for children’s development and how to balance this with injury prevention.</p> <p>https://cps.ca/en/documents/position/outdoor-risky-play</p>	<p>The guidelines encouraging pediatricians to add risky play to their clinical toolbox to address some of the most pressing and common issues they are facing in their clinical practice such as behavioural challenges, obesity, anxiety.</p> <p>This guidance will help ensure that families are receiving up to date information on improving children’s development as well as physical, mental and social health.</p>	<p>Patient: Access to new treatment/technology</p>
<p>Publication of reference values for age-specific pediatric non-invasive blood pressure reference values, stratified by anesthetic type, for use during anesthesia and sedation.</p>	<p>In June 2023, the anesthesia department at BC Children’s Hospital upgraded its patient monitoring system and identified appropriate alarm thresholds that balance false and missed alarms.</p> <p>Instead of using reference values for awake children from a pediatric early warning system, their study enabled age-specific historic data to select thresholds relevant to the local patient population, anesthetic techniques, and procedures.</p> <p>Had the hospital used the reference values initially proposed, we estimate that every second patient would have triggered a low blood pressure alarm, significantly increasing the alarm fatigue in the hospital’s operating room.</p>	<p>System: Process of care — standardization</p>
<p>Based on work of BCCHR researchers, delineation of a new KDM2B-related neurodevelopmental disorder and its associated DNA methylation signature.</p>	<p>This collaborative work identifies a novel epigenetic cause of neurodevelopmental disorders (NDDs) including some cases of autism spectrum disorder (ASD) and intellectual disability (ID). It has led to the recognition of a specific methylation pattern or “signature” as a means for earlier recognition of children with NDDs — beyond the usual approach of identifying certain behaviours and functional challenges. Earlier recognition of NDD causes can lead to earlier access to personalized interventions.</p>	<p>Patient: Improvements in timely access to care</p>

TABLE 2 BCCHR Outcomes (continued)



Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ), and COVID-19 Related if icon appears.
<p>A BCCHR researcher co-developed guidelines for comprehensive evaluations of individuals with visual impairments. The guideline is a complete revision of the previous guidelines, for intelligence testing of individuals who are blind or visually impaired.</p>	<p>The study resulted in guidelines that can be used by psychologists and other professionals to conduct the best evidence-based standardized assessments of children with visual impairments. A proper assessment by a competent evaluator can be an essential step in developing educational programming, accessing community services, and clarifying diagnoses.</p>	<p>Patient: Protocols and guidelines</p> <p></p> <p>Sunny Hill</p>
<p>The Pediatric Neurology Program at BC Children's Hospital has adopted DECIDE, an integrated e-learning and decision support tool piloted through a BCCHR research study. With accessible language and education modules, this tool helps families make decisions about whether to have genome-wide sequencing (exome sequencing or genome sequencing).</p>	<p>Incorporating this tool into the Pediatric Neurology Program helps increase patient access to — and efficiency of — genetic counselling.</p>	<p>Patient: Improvements in timely access to care</p>
<p>As a result of a BCCHR pilot study, the Pediatric Neurology Program at BC Children's Hospital has integrated the Genomic Results E-Booklet into their standard of care. This tool was created in collaboration with parent advisors and based on feedback from patient partners. The e-booklet is a customizable and comprehensive resource to complement post-test genetic counselling and helps families understand their testing results, implications, and next steps.</p>	<p>The integration of the Genomics Results E-Booklet into the Pediatric Neurology Program helps increase patient access to — and the efficiency of — genetic counselling, information about genomic results, and resources. The e-booklet is available in simplified Chinese, Punjabi, and Arabic, in addition to English and French.</p>	<p>Patient: Improvements in timely access to care</p>
<p>BCCHR researchers contributed to the development of the Choosing Wisely Canada guidelines Pediatric Sport & Exercise Medicine: Eight Things Clinicians and Patients Should Question.</p>	<p>These pediatric sport and exercise medicine (SEM) guidelines were developed to address tests and treatments commonly used in pediatric musculoskeletal assessments that are not supported by evidence, potentially exposing patients to harm. They were developed in collaboration with professionals from different clinical specialties in Canada and outline eight recommendations, including imaging recommendations for Osgood Schlatter's disease, shoulder and knee injuries, back pain, scoliosis, spondylolysis, distal radial buckle fractures, minor head injury/concussion, and management of chronic pain syndromes. Adopting these pediatric SEM guidelines as part of routine practice can optimize care and minimize unnecessary investigations and treatments for patients.</p>	<p>System: Knowledge dissemination-new policy</p>

TABLE 2 BCCHR Outcomes (continued)



Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
Update to the use of Antenatal Corticosteroids at Late Preterm Gestation.	There is strong evidence to support the use of antenatal corticosteroid at preterm gestation, as this treatment reduces the risk of perinatal morbidity and death. However, recent studies have created some uncertainty regarding the role of this therapy at late preterm gestation. This national guideline aims to address this by providing an overview of the evidence and recommendations regarding antenatal corticosteroid prophylaxis for threatened preterm birth. Specifically, the guideline clarifies the gestational age at which antenatal corticosteroids are strongly recommended for women at risk of preterm birth, as well as the gestational age at which this treatment should be considered based on a discussion of benefits and risks with the patient. This guideline is issued by the Society of Obstetricians and Gynaecologists of Canada (SOGC) and is now the current standard in Canada followed by maternity care providers.	Patient: Protocols and guidelines
Achieved accreditation November 2023 for Primary Ciliary Dyskinesia Foundation-Clinical & Research Center Network (PCDF-CRCN)	A primary ciliary dyskinesia (PCD) expert clinic has been established at BC Children’s Hospital, providing outstanding specialized services for the diagnosis and management of PCD. The clinic allows patients access to specialized tests that aren’t otherwise available, which allow for more accurate diagnosis and timely treatment. The clinic is accredited as a PCD Foundation Clinical and Research Centers Network (PCDF-CRCN) site for pediatrics, allowing for participation in the North American PCD Registry, a prospective multi-site observational cohort study recruiting patients from more than 25 CRCN sites in North America. Membership in the PCDF-CRCN allows the clinic to participate in meaningful research for future generations of patients and clinician researchers, with the goal of improving diagnosis and treatment, and ultimately, finding a cure for PCD.	Patient: Access to new treatment/technology

TABLE 2 BCCHR Outcomes (continued)

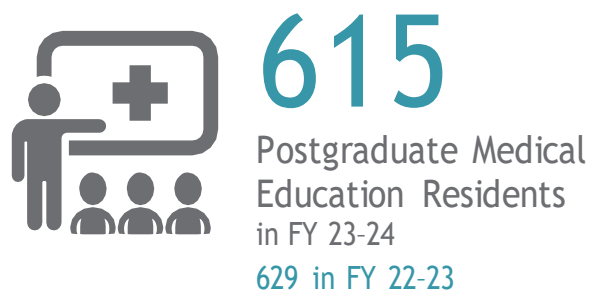
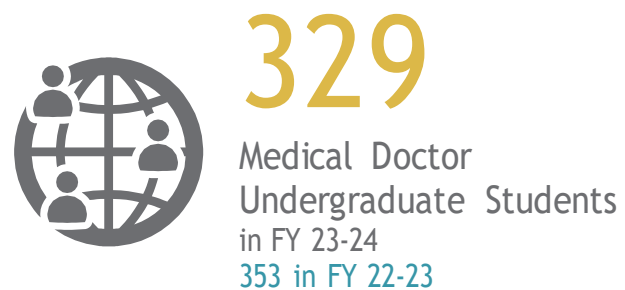
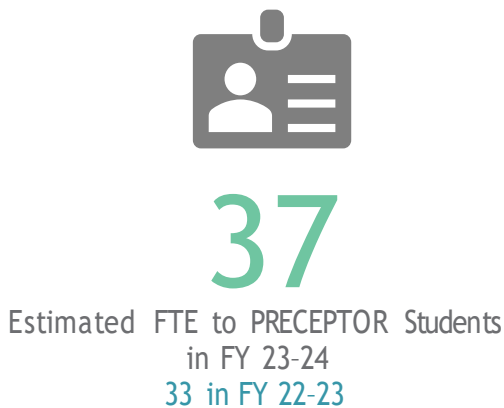
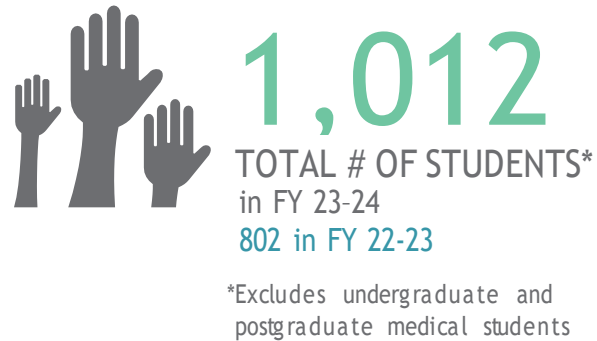
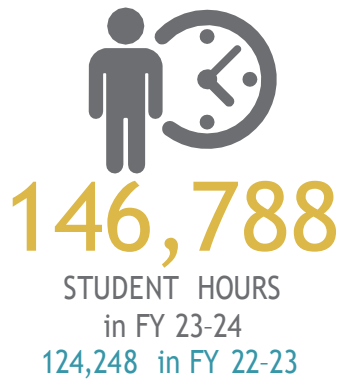
Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
BCCHR researchers discovered a new gene involved in the autoimmune disorder lupus. The gene is linked to mitochondrial DNA repair and mutations can cause systemic inflammation.	This discovery enables clinicians or patient families to be genetically tested for this gene improving diagnostics and potential treatments.	Patient: Access to new treatment/technology
Created guidelines to treat cytomegalovirus (CMV) in pediatric solid organ transplant. These guidelines provide thresholds that determine when to start and end the treatment, and that help monitor the virus. The work also provides guidance on patient-stratified risks.	This research contributes to an improved and more consistent evidence-based management of CMV by preventing unnecessarily long therapy to patients, reducing adverse effects related to treatment medication, decreasing overall costs to the health care system, offering a more patient-centered and patient-tailored care, and providing a quality benchmark for future review and improvement.	Patient: Protocols and guidelines
Implementation of universal health literacy screening for all patients referred to BC Children’s Hospital for solid organ transplant. The screening is the result of a cohort study indicating that the prevalence of limited literacy is high in pediatric patients who need this type of transplant, which leads to increased use of the health care system.	The individualized, tailored education will help identify at-risk families and better tailor the Hospital services to meet the needs of patients who need those transplants. Additionally, the screening will potentially prevent unnecessary visits to the Hospital.	System: Process of care-standardization

STUDENT EDUCATION METRICS

BC CHILDREN'S HOSPITAL



BUILD PRACTICE EDUCATION CAPACITY



••• BUILD EFFECTIVE PARTNERSHIPS & COLLABORATION TO SUPPORT INNOVATION •••



EDUCATION INSTITUTIONS BY
PLACEMENT HOURS in FY 23-24

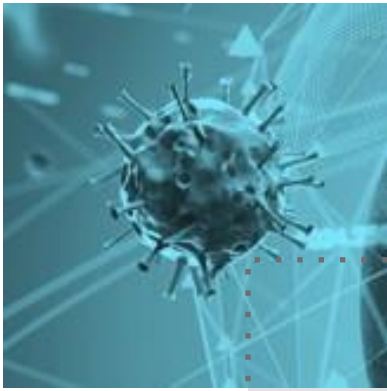
1. University of British Columbia (44,137)
2. BC Institute of Technology (29,719)
3. Thompson Rivers University (21,180)
4. Douglas College (12,252)
5. Langara College (10,986)



35

of ACADEMIC PARTNERS
WITH AN ACTIVE PLACEMENT

in FY 23-24
19 in FY 22-23



BCMHSUS Research Institute/BC Mental Health & Substance Use Services

RESEARCH METRICS
STUDENT EDUCATION METRICS



RESEARCH METRICS

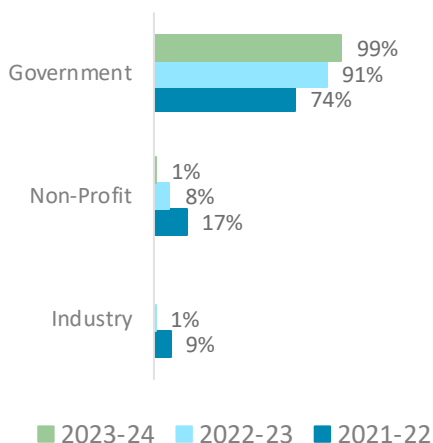
BC MENTAL HEALTH & SUBSTANCE USE SERVICES RESEARCH INSTITUTE

PRODUCING AND ADVANCING KNOWLEDGE

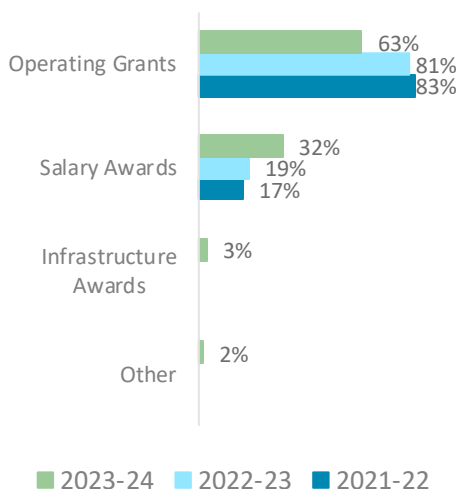
\$900K

in TOTAL GRANTS AWARDED in FY 23-24
\$1.1 Million in FY 22-23

\$ BY SECTOR



BY AWARD TYPE



145

 TOTAL
OF PUBLICATIONS
in FY 23-24
127 in FY 22-23

133

 JOURNAL ARTICLES
in FY 23-24
114 in FY 22-23

99%

PEER REVIEWED
in FY 23-24
97% in FY 22-23



0%

% of CIHR competitions
above National AVG
SUCCESS RATE
in FY 23-24
0% in FY 22-23



BUILDING RESEARCH CAPACITY

14.5

OF RESEARCHERS*
in FY 23-24
13 in FY 22-23



181

OF TRAINEES
in FY 23-24
178 in FY 22-23

\$64K

RESEARCH SUPPORT
FUND GRANTS in FY 23-24
\$86K in FY 22-23

*excluding affiliate investigators

HEALTH & POLICY BENEFITS



8

OF CLINICAL TRIALS
in FY 23-24
8 in FY 22-23

457

TOTAL CUMULATIVE
SUBJECT ENROLLMENT
at the end of FY 23-24
523 at the end of FY 22-23



0%

% INDUSTRY FUNDED
TRIALS in FY 23 24
0% in FY 22-23

ECONOMIC BENEFITS & INNOVATION

No activity in FY 23-24

TOP 3 RESEARCH ACHIEVEMENTS BCMHSUS RESEARCH INSTITUTE



Details available in Supplementary Report

1

BCMHSUS Research Lead of Forensic Psychiatry and UBC Professor, Elected President of International Association of Forensic Mental Health Services

Dr. Tonia Nicholls, BCMHSUS Research Lead in Forensic Psychiatry and UBC Professor, was elected President of the International Association of Forensic Mental Health Services. A forensic psychologist, her work focuses on improving mental health services for marginalized populations, especially those with mental health and substance use issues in the criminal justice system. Dr. Nicholls also joined a national team funded by SSHRC to develop culturally safe services within forensic settings, highlighting her dedication to inclusive, informed approaches.

2

Clinician Researcher Dr. Jehannine Austin Publishes Landmark Study on Pharmacogenomic Testing in CMAJ

Dr. Jehannine Austin, a BCMHSUS clinician researcher, published a study in the Canadian Medical Association Journal showing that pharmacogenomic testing significantly benefits antidepressant use. The research, titled "Cost-effectiveness of pharmacogenomic-guided treatment for major depression," highlights the potential for health gains while reducing costs. These findings suggest that pharmacogenomic testing offers a valuable opportunity for health systems to improve outcomes and efficiency. The full article is available in the November 14, 2023 issue of CMAJ.

3

Dr. Evelyn Stewart Named Holder of New Congdon Family Hospital Chair in Child and Youth Mental Health Research

Dr. Evelyn Stewart, a BCMHSUS clinician scientist, has been named the Congdon Family Hospital Chair in Child and Youth Mental Health Research at BC Children's Hospital. An internationally recognized expert in Obsessive-Compulsive and Related Disorders (OCDs), Dr. Stewart directs the Pediatric OCD Program at Healthy Minds. Her research advances understanding and treatment of OCDs. In 2023, she received UBC's Faculty of Medicine Distinguished Achievement Award, and her work on COVID-19's mental health impacts was a Wiley Top Cited Article.

TABLE 3 BCMHSUS Outcomes



Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
Implementation of retinal imaging technology to assess microvascular integrity in clinical populations (chronic psychosis, post-COVID, poly-morbid addition & psychosis).	Persons with schizophrenia and related disorders experience a disproportionate impact of cardiovascular disease (CVD), likely due to genetic, pharmacological and lifestyle factors. The mortality rate of this population has been shown to be 2-3 times higher than healthy controls, which is mostly attributed to CVD. This project utilizes fundus imaging, and the novel retinal deficit rating scale completed by the team last summer to assess and compare cardiovascular burden in schizophrenia patients with matched healthy controls.	Patient: Access to new treatment/technology
A Practice Resource from the National Society of Genetic Counselors was created to support clinical genetic counseling and translation considerations for polygenic scores in personalized risk assessments.	Clinical genetic counseling and translation considerations for polygenic scores in personalized risk assessments: A Practice Resource from the National Society of Genetic Counselors. Polygenic scores (PGS) are becoming important tools for personalized risk assessments and health screening. While there's growing evidence of their usefulness in certain diseases, there's no agreed-upon method for creating PGS or proven benefits in clinical settings yet. Despite this, people can access PGS through commercial and clinical programs, making it crucial for clinicians to understand them. This guide aims to help genetic counselors and healthcare providers become more comfortable with PGS by covering testing, counseling, and population health applications, while also highlighting the current limitations of the technology.	System: Knowledge dissemination-new policy
A new online genetic counselor training program was developed that offers a novel online genomic counseling and variant interpretation certificate for learning design, learning analytics, and evaluation.	Through a collaborative effort, an innovative online certificate program was created, offering the first continuing education of its kind for genetic counselors worldwide. Multiple experts designed the course, using learning analytics and student feedback to understand what worked and to improve future courses. This process has helped instructors better understand student behavior, ensuring that the program continues to meet the learning goals of health professionals and maintains high-quality genomics education.	System: Knowledge dissemination-new policy

TABLE 3 BCMHSUS Outcomes (continued)

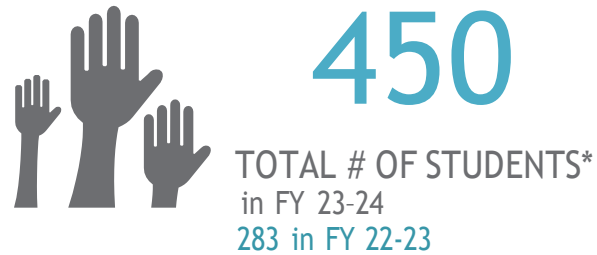
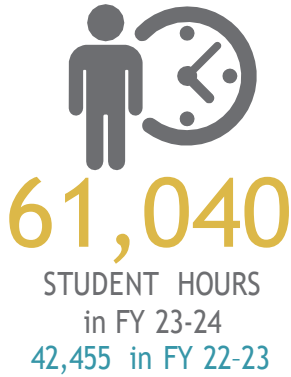
Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
<p>Researcher contributes to the American Congress of Rehabilitation Medicine’s new diagnostic criteria for mild traumatic brain injuries that can be used across the lifespan and applied to sports, civilian trauma and military settings.</p>	<p>New diagnostic criteria for mild traumatic brain injury (TBI) were developed through an evidence review and expert consensus process. Having unified diagnostic criteria for mild TBI can improve the quality and consistency of mild TBI research and clinical care. Criteria were developed for The American Congress of Rehabilitation Medicine Diagnostic Criteria for Mild Traumatic Brain Injury.</p>	<p>Patient: Protocols and guidelines</p>
<p>BCMHSUS researcher contributed to the Treatment Response and Resistance in Psychosis Working Group to develop A Delphi Consensus Guideline for Clozapine Optimization.</p>	<p>There is limited evidence to guide the approaches to clozapine treatment. An international initiative (29 countries involved) was undertaken with the aim of developing consensus recommendations for the optimization of clozapine monotherapy. Given the limited evidence available, this consensus-based series of recommendations and guidance statements supports clinical decision-making to optimize clozapine monotherapy and provides guidance for future research in treatment-resistant schizophrenia.</p>	<p>Patient: Protocols and guidelines</p>



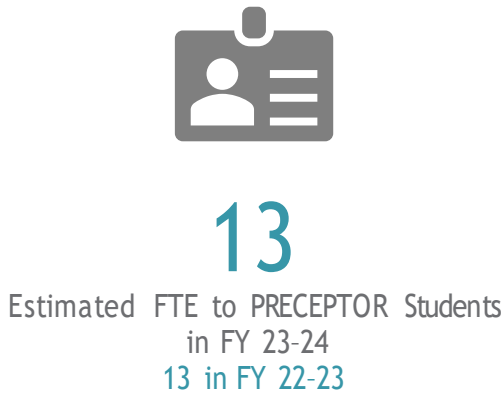
STUDENT EDUCATION METRICS

BC MENTAL HEALTH & SUBSTANCE USE SERVICES

BUILD PRACTICE EDUCATION CAPACITY



*Excludes undergraduate and postgraduate medical students





• BUILD EFFECTIVE PARTNERSHIPS & COLLABORATION TO SUPPORT INNOVATION •



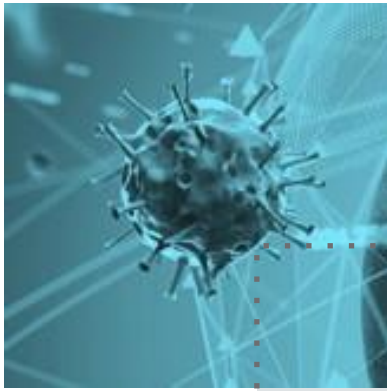
TOP
EDUCATION INSTITUTIONS BY
PLACEMENT HOURS in FY 23-24

1. University of BC (14,837)
2. Douglas College (12,303)
3. Stenberg College (8,928)
4. Kwantlen Polytechnic University (5,976)
5. BCIT (4,416)



33

of ACADEMIC PARTNERS
WITH AN ACTIVE PLACEMENT
in FY 23-24
21 in FY 22-23



BC Centre for Disease Control/UBC CDC

RESEARCH METRICS
STUDENT EDUCATION METRICS

RESEARCH METRICS

BC CENTRE FOR DISEASE CONTROL/UBC CDC



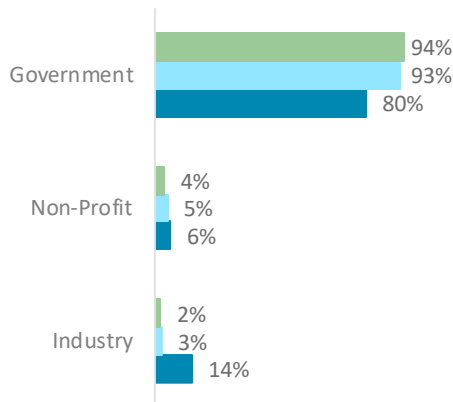
BC Centre for Disease Control
An agency of the Provincial Health Services Authority

PRODUCING AND ADVANCING KNOWLEDGE

\$17.2 Million

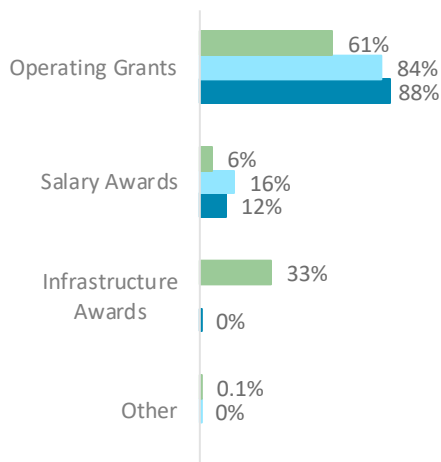
in TOTAL GRANTS AWARDED in FY 23-24
\$6.2 Million in FY 22-23

\$ BY SECTOR



■ 2023-24 ■ 2022-23 ■ 2021-22

BY AWARD TYPE



■ 2023-24 ■ 2022-23 ■ 2021-22



214 TOTAL
OF PUBLICATIONS
in FY 23-24
308 in FY 22-23

115
JOURNAL ARTICLES
in FY 23-24
146 in FY 22-23

99%
PEER REVIEWED
in FY 23-24
90% in FY 22-23



0%
% of CIHR competitions
above National AVG
SUCCESS RATE
in FY 23-24
50% in FY 22-23

BUILDING RESEARCH CAPACITY

53.5

OF RESEARCHERS*
in FY 23-24
48.5 in FY 22-23



129

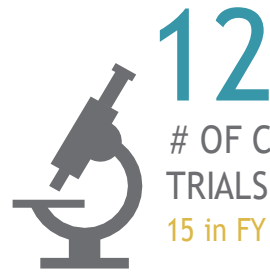
OF TRAINEES
in FY 23-24
167 in FY 22-23

\$ 280K

RESEARCH SUPPORT
FUND GRANTS
in FY 23-24
\$225K in FY 22-23

**Excluding affiliate investigators

HEALTH & POLICY BENEFITS



12

OF CLINICAL
TRIALS in FY 23-24
15 in FY 22-23

2,111

TOTAL SUBJECT
ENROLLMENT
in FY 23-24
5,233 in FY 22-23



0%

% INDUSTRY FUNDED
TRIALS in FY 23-24
0% in FY 22-23

ECONOMIC BENEFITS & INNOVATION

No activity in FY 23-24

TOP 3 RESEARCH ACHIEVEMENTS BCCDC/UBC CDC



Details available in Supplementary Report

1

Kloshe Tillicum, an Indigenous-led CIHR funded research project explores how building relationships with Indigenous communities can increase trust in public health

Kloshe Tillicum (“Good Relations” in Chinook Jargon) is a CIHR funded project utilizing Indigenous methodologies to explore how health information and services could have been improved during the COVID-19 pandemic and how to make health systems more trustworthy for Indigenous people(s) and communities in BC. Four in-person focus groups and four virtual focus groups with rural, remote and underserved Indigenous communities. Being Indigenous co-led, there was a commitment for a community (driven) data gathering process where Indigenous men assisted with the development of the question guide. Focus groups were flexible in length and included a shared meal and the research team held true to the tradition of storytelling while honoring the process of witnessing and collective reflections.

2

Applied research to respond to support key provincial policies in the drug toxicity emergency

BCCDC researchers published a BMJ paper showing that Risk Mitigation Guidance (RMG) opioid dispensations were associated with reduced mortality in people with opioid use disorder in the week after dispensation. The RMG provided clinical guidance to physicians and nurse practitioners in prescribing alternatives to the illegal drug supply. BCCDC co-developed, validated, and publicly shared data on people receiving prescribed alternatives to illegal drugs via the Unregulated Drug Poisoning Emergency Dashboard which helps monitor the reach of this intervention. BCCDC also contributed to provincial and national evaluations of the decriminalization of people who use drugs.

3

Using innovative platforms, technologies, and methods to monitor respiratory and other emerging and re-emerging pathogens of pandemic potential

Work includes novel methods for detection and sequencing of pathogens to knowledge translation tools. The REALTIME Project integrated laboratory, genomic and healthcare data on COVID-19 and other respiratory viruses for health system intelligence to improve health outcomes. Researchers also developed sequencing and modeling approaches for respiratory viruses in wastewater. These techniques were expanded for application to monitor antimicrobial resistance, enteric bacteria and avian influenza (H5). BCCDC developed automated data pipelines and interactive dashboards to display and share respiratory illness data with policy makers and the public. In alignment, improvements were made to the public accessibility of surveillance data for various pathogens such as avian influenza. E.g. A tool was developed to help the public understand our respiratory virus surveillance dashboards.

TABLE 4 BCCDC Outcomes

Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related (if icon appears).
BCCDC researchers contributed to a study evaluating prescribing pharmaceutical alternatives at a population level and the effectiveness of Risk Mitigation Guidance. The research led to the development of the first clinical guidance on prescribing pharmaceutical alternatives.	The guideline will provide a standard for physicians and nurse practitioners in prescribing pharmaceutical alternatives to patients at risk of death from the toxic drug supply.	Patient: Protocols and guidelines
Research from the BCCDC Environmental Health Services led to the addition of poverty as a risk factor for extreme heat deaths and a major update to the 2024 BC Provincial Heat Alert and Response System Guidelines.	This major update in the guideline helps increase awareness of populations living below the poverty line during heat events and gathers resources to support those populations during extreme heat events.	Patient: Protocols and guidelines  BCEHS, Health Emergency Management BC
BCCDC researchers led the Test Link Call Project and developed checklists and resources to support people affected by viral hepatitis or HIV after release from provincial corrections.	These resources help the coordination of integrated care for HIV/viral hepatitis affected people released from provincial corrections and support their transition back to the community.	Patient: Access to new treatment/technology  BCMHSUS
Through the Test Link Call Project, BCCDC researchers also produced procedures for programs to prescribe a cell phone to HIV/viral hepatitis affected people released from provincial corrections.	This procedure provides a reference and guideline for programs wanting to provide cell phones to support coordination of integrated care for people affected by viral hepatitis or HIV after release from provincial corrections.	Patient: Protocols and guidelines  BCMHSUS
BCCDC researchers contributed to the development of Canadian Cancer Society (CCS)'s Dry February public education campaign and supported knowledge translation on the CCS' cancer myths page.	The public education campaign and the information on the cancer myths page help raise public awareness on how alcohol causes cancer.	Patient: Other Type: Knowledge Translation
Research from BCCDC's Community Antimicrobial Stewardship Program led to the development of media materials for the public and dentists to raise awareness in antibiotics usage.	These resources informed the public on their shared responsibility in using antibiotics appropriately. The videos created for dentists also provided tips for reducing unnecessary antibiotic prescriptions in their practice.	Patient: Protocols and guidelines
Research from BCCDC led to the implementation of using fingerprick-collected dried blood samples for STBBI diagnostic testing.	This new testing method provided greater accessibility to STBBI testing as samples can be collected in clinics, by peers or oneself. Testing kits and samples can also be mailed to testing sites by post.	Patient: Access to new treatment/technology

STUDENT EDUCATION METRICS

BC CENTRE FOR DISEASE CONTROL



BC Centre for Disease Control
An agency of the Provincial Health Services Authority

BUILD PRACTICE EDUCATION CAPACITY



21

TOTAL # OF STUDENTS*
in FY 23-24
19 in FY 22-23

*Excludes undergraduate and postgraduate medical students



4

Estimated FTE to PRECEPTOR Students
in FY 23-24
4 in FY 22-23



1

Medical Doctor
Undergraduate Students
in FY 23-24
0 in FY 22-23



33

Postgraduate Medical
Education Residents
in FY 23-24
32 in FY 22-23



PRECEPTORS had an active
placement in FY 23-24
8 in FY 22-23

••• BUILD EFFECTIVE PARTNERSHIPS & COLLABORATION TO SUPPORT INNOVATION •••



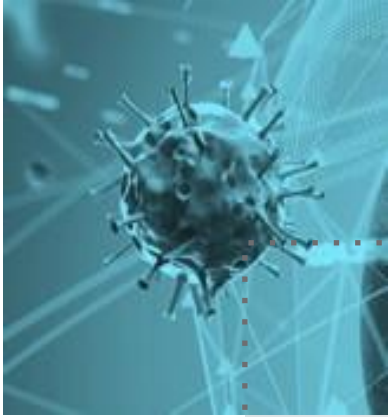
EDUCATION INSTITUTIONS BY
PLACEMENT HOURS in FY 23-24

1. University of BC (2,880)
2. Brock (840)
3. University of Waterloo (820)
4. University of Victoria (450)
5. University of Western Ontario (420)



14

of ACADEMIC PARTNERS
WITH AN ACTIVE PLACEMENT
in FY 23-24
6 in FY 22-23



Women's Health Research Institute / BC Women's Hospital & Health Centre

RESEARCH METRICS
STUDENT EDUCATION METRICS

RESEARCH METRICS

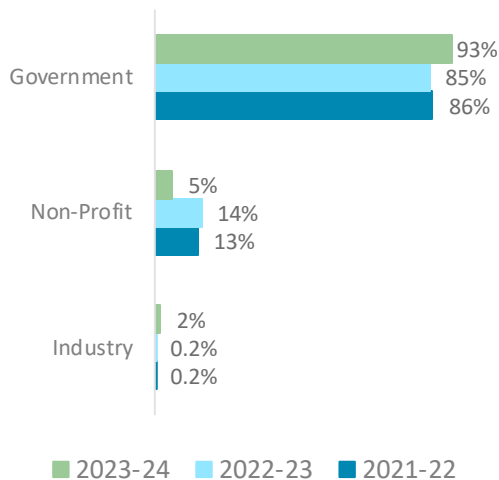
WOMEN'S HEALTH RESEARCH INSTITUTE

..... PRODUCING AND ADVANCING KNOWLEDGE

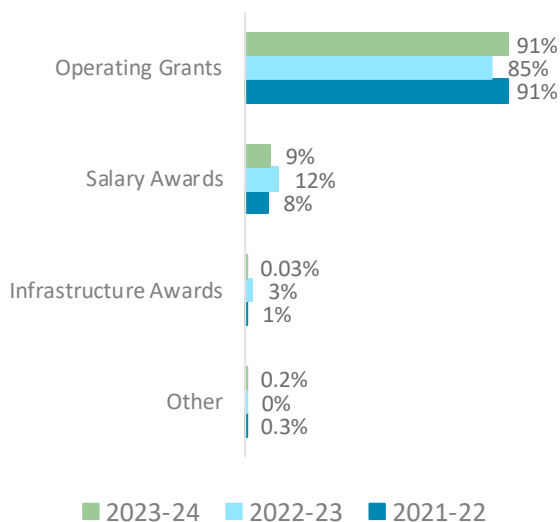
\$10.5 Million

in TOTAL GRANTS AWARDED in FY 23-24
\$7.2 Million in FY 22-23

\$ BY SECTOR



\$ BY AWARD TYPE



1,250

TOTAL
OF PUBLICATIONS in FY 23-24
1,244 in FY 22-23

290

JOURNAL ARTICLES
in FY 23-24
337 in FY 22-23

94%

PEER REVIEWED
in FY 23-24
95% in FY 22-23



100%

% of CIHR competitions
above National AVG
SUCCESS RATE
in FY 23-24
100% in FY 22-23

BUILDING RESEARCH CAPACITY

619

WHRI MEMBERSHIP
in FY 23-24
544 in FY 22-23



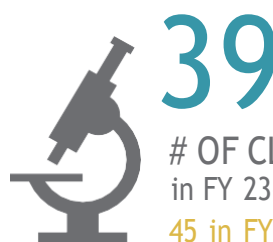
1,082

OF TRAINEES
in FY 23-24
1,021 in FY 22-23

\$481K

RESEARCH SUPPORT
FUND GRANTS
in FY 23-24
\$334K in FY 22-23

HEALTH & POLICY BENEFITS

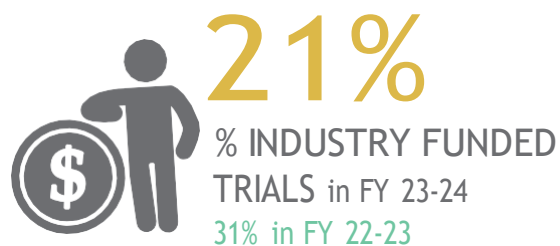


39

OF CLINICAL TRIALS
in FY 23-24
45 in FY 22-23

5,135

TOTAL CUMULATIVE
SUBJECT ENROLLMENT
at the end of FY 23-24
4,309 at the end of FY 22-23



21%

% INDUSTRY FUNDED
TRIALS in FY 23-24
31% in FY 22-23

ECONOMIC BENEFITS & INNOVATION

No activity in FY 23-24

TOP 3 RESEARCH ACHIEVEMENTS WHRI



Details available in Supplementary Report

1

B.C. launches at-home cervical cancer screening program enabled by research by WHRI investigator

Based on a program of research led by WHRI investigator, Dr. Gina Ogilvie, in January 2024, British Columbia launched a new cervix self-screening program which now offers at-home cervical cancer screening - the first of its kind in Canada. This new self-screening program will help detect cervical cancer sooner compared to traditional pap screening. With this new program, women and individuals with a cervix aged 25 to 69 can choose to order a kit to self-screen for the human papillomavirus (HPV), the leading cause of cervical cancer, or have their screening sample collected by a health-care provider. With the launch of this new program, BC has also instituted HPV testing as its primary cervical cancer screening method.

2

Universal free contraception to all people in Canada: Research by WHRI investigator leads to Federal Pharmacare program change

Research evidence and advocacy led by WHRI researcher, Dr. Wendy Norman and her Contraception and Abortion Research Team (CART), in partnership with BC Women's Hospital + Health Centre (BCWH), underpinned a federal policy change to introduce universal contraception for all Canadians. On February 29, 2024, Canada's Pharmacare program announced their plan to provide universal free contraception to all people in Canada. Dr. Norman was a key leader in the BC Universal Contraception policy implementation and her research findings significantly contributed to this recent federal policy announcement that will benefit millions of people across Canada into the future.

3

The WHRI launched the Beyond the Binary in BC Guide: a guidance document for the research community to support the conduct of gender equitable health research for women, trans, and non-binary people setting

Beyond the Binary in BC project, which takes a patient-oriented and trauma-informed approach to incorporating gender equity into women's health research, resulted in a guidance document to support inclusive women's health research. In February 2024, the WHRI launched the Beyond the Binary in BC Guide, a comprehensive, community-informed resource to support the research community through various approaches to language use in a health research context. This project has now been scaled up pan-Canadian. For Beyond the Binary Canada, our goal is to develop a nationally relevant, and feasible guidance and resource package to support health researchers and health research institutions in their commitments to conducting gender equitable health research for women, trans, and non-binary people.

TABLE 5 WHRI Outcomes

Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
<p>Research evidence and advocacy by a WHRI investigator and their research team was used as justification for a federal policy change by Canada's Pharmacare program (announcement released on February 29, 2024) to provide universal free contraception to all people in Canada.</p>	<p>This federal announcement comes in the wake of a policy change introduced in British Columbia in April 2023, based on research and advocacy led by this WHRI investigator and BC Women's Hospital + Health Centre leaders.</p> <p>This announcement to provide universal free contraception to all Canadians via the federal Pharmacare program aims to advance equity for women and people across Canada. Pregnancy planning achieved through both the availability and affordability of birth control benefits individuals by improving health outcomes and enables people to access both education and economic opportunities. At the societal level, it has been shown to reduce health disparities for underserved populations, addresses child poverty, and lowers public spending, including the medical costs and societal impacts associated with unplanned pregnancies.</p>	<p>Patient: Access to new treatment/technology; Delay of disease progression/survival; improvements in timely access to care</p> <p>System: Efficiency, cost/benefits or sustainability</p>
<p>Based on a program of research led by WHRI investigator, the province of British Columbia launched a new cervix self-screening program in of January 2024 that includes the option of at-home cervical cancer screening – the first of its kind in Canada.</p>	<p>This new self-screening program will help detect cervical cancer sooner compared to traditional pap screening – findings that were demonstrated via the WHRI investigator's program of research. With this new self-screening program, women and individuals from 25 to 69 with a cervix can choose to order a kit to self-screen for the human papillomavirus (HPV), the leading cause of cervical cancer, or have their screening sample collected by a health-care provider. This more accurate and convenient test will encourage more women across the province to get screened, including those from vulnerable populations and those in more rural and remote communities. With the launch of the cervix self-screening program, BC has also instituted HPV testing as its primary cervical cancer screening method.</p>	<p>Patient: Access to new treatment/technology; Delay of disease progression/survival</p> <p>System: Efficiency, cost/benefits or sustainability</p>
<p>Four WHRI researchers were co-authors of a national clinical technical update: Society for Obstetricians and Gynaecologists of Canada's Antenatal Corticosteroids at Late Preterm Gestation</p>	<p>Improved outcomes for fetal health through the use of evidence-based recommendations to optimize the administration of antenatal corticosteroids in the late preterm period and to reduce neonatal morbidity (respiratory distress, hypoglycemia) and improve long-term neurodevelopment, and other long-term outcomes (growth, cardiac/metabolic, respiratory).</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>
<p>WHRI researcher was co-author of a national clinical practice guideline: Society for Obstetricians and Gynaecologists of Canada's Antenatal Fetal Health Surveillance</p>	<p>Improved outcomes for maternal and fetal health through the use of evidence-based recommendations for antenatal fetal health surveillance to detect perinatal risk factors and potential fetal decompensation in the antenatal period and to allow for timely intervention to prevent perinatal morbidity and/or mortality.</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>

TABLE 5 WHRI Outcomes (continued)



Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
<p>Research evidence from a WHRI investigator was included in the province’s action plan for gender-based violence: Safe and Supported: British Columbia’s Gender-Based Violence Action Plan</p>	<p>This provincial action plan is focused on four priorities: 1) increasing safety and supports for survivors; 2) lifting up Indigenous-led approaches; 3) breaking cycles of violence through prevention, healing and accountability; and 4) learning from and monitoring progress. In alignment with findings from the WHRI researcher, the action plan includes specific mention of training for frontline staff on brain injury from intimate partner violence.</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>
<p>WHRI researcher was one of the lead authors on a provincial clinical practice guideline developed in partnership with the BC Reproductive Mental Health Program, the Provincial Perinatal Substance Use Program and Perinatal Services BC: Best Practice Guideline for Mental Health Disorders in the Perinatal Period: Substance Use Disorders</p>	<p>Improved maternal, fetal and newborn health through the use of evidence-based guidance for clinical providers on best practices for the care of birthing individuals with substance use disorders in the perinatal period (preconception through to one year postpartum). In this guidance, healthcare providers are encouraged to integrate a set of overarching principles into care that inform a collaborative, equitable, and effective therapeutic relationship with patients and their relevant family members affected by substance use.</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>
<p>Two WHRI researchers were co-authors of a national clinical practice guideline: Society for Obstetricians and Gynaecologists of Canada’s Management of Chronic Pelvic Pain</p>	<p>Improved outcomes for adolescent and adult women living with chronic pelvic pain through the use of an evidence-based approach to pelvic pain management, including recommended access to certain interventions such as physiotherapy and psychological treatments, and to interdisciplinary care overall.</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>
<p>A start-up company, Sonic Incytes, co-created by a WHRI researcher has brought a new medical device, Velacur™, to market for use in diagnosing fatty liver disease.</p>	<p>Velacur™ is an AI guided 3D S-WAVE ultrasound elastography device that measures liver stiffness and attenuation, the two key indicators of fatty liver disease. This past year, Sonic Incytes received US Food and Drug Administration clearance for new Organ Guide and Wave Quality Detector features for Velacur™, the company’s liver diagnostic tool. These new AI-based tools will improve the accuracy and performance of the device and enable less experienced medical personnel to conduct liver scans with similar accuracy and proficiency as experienced sonographers.</p>	<p>Patient: Access to new treatment/technology</p> <p>System: Efficiency, cost/benefits or sustainability</p>

TABLE 5 WHRI Outcomes (continued)

Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
<p>A WHRI researcher was co-authors of an international clinical practice statement: Treatment and Outcomes of Cervical Artery Dissection in Adults: A Scientific Statement from the American Heart Association</p>	<p>Cervical artery dissection is an important cause of stroke, particularly in young adults. Data conflict on the diagnostic evaluation and treatment of patients with suspected cervical artery dissection, leading to variability in practice.</p> <p>The clinical adoption of this practice recommendation will lead to improved outcomes for patients with cervical artery dissection through the use of optimized treatment (i.e., individualized antithrombotic therapy which should be continued for at least 3 to 6 months).</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>
<p>Research findings from a WHRI investigator was included in international clinical practice guidelines: European Association of Urology's Guidelines on Sexual and Reproductive Health</p>	<p>Improved health outcomes for men experiencing medical issues related to sexual and reproductive health through the promotion of evidence-based care guidelines for clinicians.</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>
<p>WHRI researcher developed five education modules on lactation which have been incorporated into Perinatal Services BC's Perinatal and Newborn Health Hub for clinicians across health authorities in BC.</p>	<p>Improved maternal and newborn health through access to online evidence-based lactation educational resources aimed at teaching health professionals and students' foundational knowledge and skills for promoting, supporting, and advocating for parents in their infant feeding decision-making and journey.</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>
<p>WHRI researcher was co-author of a national clinical practice guideline: Society for Obstetricians and Gynaecologists of Canada's Fetal Growth Restriction: Screening, Diagnosis, and Management in Singleton Pregnancies</p>	<p>Fetal growth restriction is a common obstetrical complication that affects up to 10% of pregnancies in the general population and is most commonly due to underlying placental diseases.</p> <p>Improved outcomes for maternal and fetal health using evidence-based recommendations to support effective screening, diagnosis, and management of pregnancies that are either at risk of or affected by fetal growth restriction.</p>	<p>Patient: Protocols and guidelines</p> <p>System: Knowledge dissemination-new policy</p>

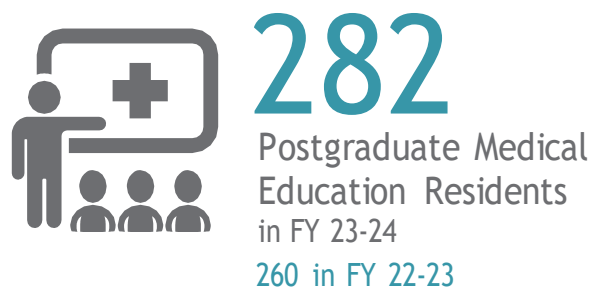
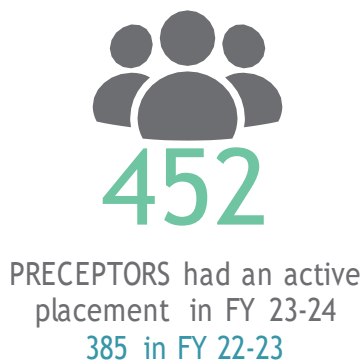
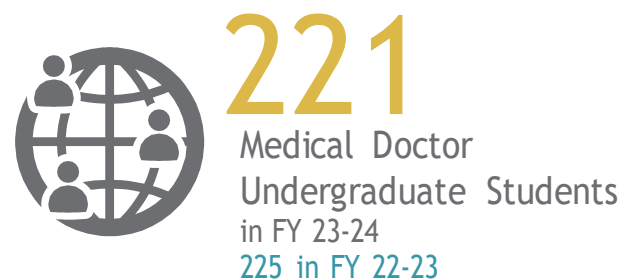
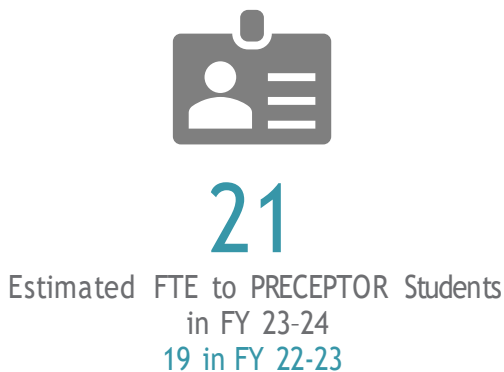
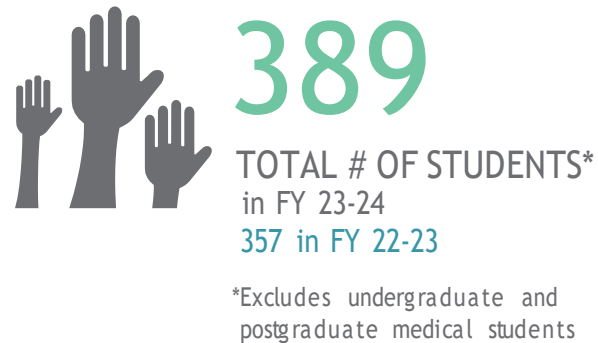
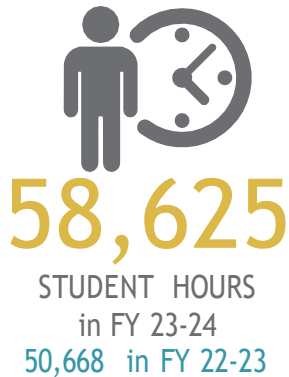
TABLE 5 WHRI Outcomes (continued)

Description of any guideline, drug, diagnostic agent, device or novel and transformational research design or methodology adopted or approved in FY 2023-24 as a result of research driven by PHSA researchers.	Please describe the benefits to patients, population health, and/or health system sustainability of the items identified.	Type of Benefit, Result of Internal Collaboration (if Yes ) , and COVID-19 Related if icon appears.
<p>Based on findings from a WHRI researcher demonstrating medication abortions had no adverse impact to safety of abortion rates, the Australian regulations for medication abortion changed as of August 2023 to follow similar regulations recently implemented in Canada.</p>	<p>Improved access to medical abortions for women in Australia due to regulatory changes allowing doctors and pharmacists without specialist certification to prescribe medical abortion pills. This medication is now able to be prescribed by any healthcare practitioner with appropriate qualifications and training, including nurse practitioners and pharmacists. According to the president of the Royal Australian College of General Practitioners this change will improve access to the service for those living in rural and remote communities.</p>	<p>Patient: Protocols and guidelines; Improvements in timely access to care</p> <p>System: Knowledge dissemination- new policy</p>

STUDENT EDUCATION METRICS

BC WOMEN'S HOSPITAL & HEALTH CENTRE

BUILD PRACTICE EDUCATION CAPACITY



••• BUILD EFFECTIVE PARTNERSHIPS & COLLABORATION TO SUPPORT INNOVATION •••



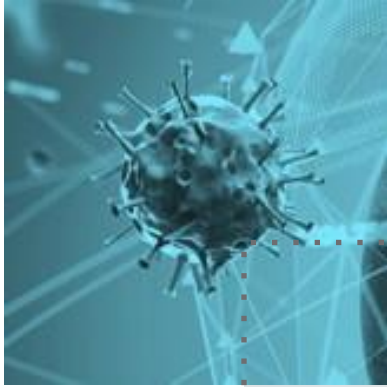
EDUCATION INSTITUTIONS BY
PLACEMENT HOURS in FY 23-24

1. University of BC (29,274)
2. BC Institute of Technology (12,999)
3. Langara College (6,072)
4. Kwantlen College (2,970)
5. Vancouver Community College (2,376)



27

of ACADEMIC PARTNERS
WITH AN ACTIVE PLACEMENT
in FY 23-24
29 in FY 22-23



BC Emergency Health Services

STUDENT EDUCATION METRICS

STUDENT EDUCATION METRICS

BC EMERGENCY HEALTH SERVICES

• BUILD PRACTICE EDUCATION CAPACITY •



94,160

STUDENT HOURS
in FY 23-24
80,162 in FY 22-23



823

TOTAL # OF STUDENTS
in FY 23-24
645 in FY 22-23



48

cost of STUDENT SUPERVISION
in FY 23-24
41 in FY 22-23



106

of PRECEPTORS
in FY 23-24
208 in FY 22-23

• BUILD EFFECTIVE PARTNERSHIPS & COLLABORATION TO SUPPORT INNOVATION •



TOP

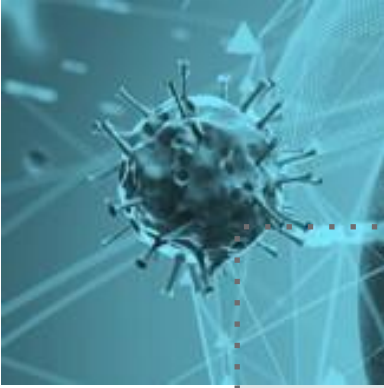
EDUCATION INSTITUTIONS BY
PLACEMENT HOURS in FY 23-24

1. Justice Institute of BC (51,135)
2. Columbia (43,025)



2

of ACADEMIC PARTNERS
WITH AN ACTIVE PLACEMENT
in FY 23-24
2 in FY 22-23



PHSA Registries & Datasets

RESEARCH METRICS

RESEARCH METRICS

REGISTRIES & DATASETS

Registries 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.

REGISTRY/DATASET DESCRIBED



13
REGISTRIES &
DATASETS
representing



12
PHSA PROGRAMS

REGISTRY/DATASET USES



85 % (11)
USED FOR RESEARCH

TOP3 RESEARCH SUPPORT ACT

1. Managing & Linking Data
2. Identifying Knowledge Gaps & Improvement Needs
3. Ensuring Studies Meet Regulatory Requirements



10 of 13
REGISTRY/DATASETS
submit to Provincial, Federal or
International datasets for
purposed of research

NATURE OF RESEARCH ACTIVITIES



266/255
DATA ACCESS requests/approvals
in FY 23-24



9/13
registries ranked
CLINICAL & HEALTH SERVICES
RESEARCH as predominant types of
research in FY 23-24

TABLE 6 Examples of FY 23-24 research question types posed by investigators using data from PHSA registries and datasets

BCCH's Biobank	Functional workup of a pediatric patient with a novel ZBTB7B variant
	The Rare Disease Discovery Hub: A research investigation into understanding rare disease.
	Mechanistic understanding of Fontan associated liver disease using single-cell multiomics.
	Evaluating the Utility of Adult-Defined Prognostic Biomarkers in Childhood Onset Primary Chronic Vasculitis.
	Age-related differences in metabolome composition in a pediatric cohort.
	Healthy Adult Control Samples for Immunological Assay Optimization.
	Generation of humanized SC mice.
	Human Innate Sensing Mechanisms of RNA formulations using human tonsil tissues as a model system.
	The genomics of aging in humans: Functional regulation of age-related genes.
Development of a human multi-cellular engineered living culture system.	
BC Cardiac Registry	Cardiac arrest in patients with psychiatric disorders
	The BC Glomerulonephritis Registry: the justification for a provincial registry of patients with glomerulonephritis
EPPIC	What is the most appropriate factor structure for the DSDQ?
	Is pain outcome different in patients with non-surgical diagnosis and treatment compared with surgical?
	What is the prevalence of caesarean section endometriosis in the chronic pelvic pain population?
	To describe the health experiences and behaviours of midlife women (aged 39-55).
	Is the Pain Sensitivity Questionnaire (PSQ) a subjective proxy of central sensitization in people with endometriosis?
	To assess the economic impact of the interdisciplinary model of care for endometriosis and chronic pelvic pain.
	To identify factors associated with reoperation and other markers of health care system utilization in endometriosis patients
	To compare a pre-pandemic cohort to a pandemic cohort of subjects with endometriosis (and/or chronic pelvic pain), in terms of health care system utilization, and to evaluate health care system utilization outcomes.
BCCDC – COVID-19 Dataset	Is SARS-CoV-2 infection associated with post-acute incident major adverse cardiovascular events?
	What is the effectiveness of the COVID-19 vaccine in people living with HIV (PLWH) and who inject drugs (PWID)?
	What is the increased risk of adverse events of special interest (AESI) following COVID-19 vaccination?
	What is the risk of hospitalization COVID-19 infection among people living with HIV (PLWH) and HIV-negative individuals?
	Determine the long-term impacts of COVID-19 infection and its variants on healthcare and healthcare utilization.
	What are the unintended consequences/impacts if COVID-19 on Hepatitis treatment?
PROMIS – Renal	What is the prevalence of hyperkalemia in outpt CKD clinics (defined using different cut offs), and can we develop an algorithm to help identify clinically important cut offs to inform MD actions?
	What is the value of using KFRE vs absolute GFR thresholds for planning of vascular access?
	What is the impact of changing the equation used to calculate eGFR on current categories of pts?
	What is the environment impact (carbon footprint) of different types of kidney care?
	What is the frequency of virtual visits vs in person visits for kidney care clinics, and does this vary provincially?
	What are the drivers of different uptake of peritoneal dialysis / home therapies in the different health authorities?
	Can we develop and use risk scores to facilitate timing of decisions in CKD care?
	What are the drivers of different rates of transplantation in the different HA? (referral patterns, vs pt characteristics vs?)

TABLE 6 Example Research Questions by Registry/Dataset (continued)

PROMIS – Transplant Registry	Does prednisone avoidance or tapering significantly increase MPA plasma exposure by reducing MPA metabolism clearance in adult kidney transplant recipients on concurrent tacrolimus? Can a model-based dosing strategy can improve the attainments of MPA therapeutic targets in adult kidney transplant patients?
	Do donated livers from MAiD donors show equivalent graft and patient survival to those from DCD donors?
	Does an oral vitamin called Nicotinamide can help to prevent skin cancer in 396 high-risk kidney, liver, heart and lung transplant recipients followed for up to 208 weeks?
	What are the clinical risk factors for developing CMV retinitis in patients who underwent solid organ transplantation?
	Do patients who undergo lung transplant from MAID donation have equivalent short-term and long-term outcomes to that of other lung transplant recipients from both neurological determination of death (NDD) and donation after cardiac death (DCD) donors?
	Is eplet mismatch associated with acute rejection and is this relationship modified by induction type, where the more potent induction (i.e. ATG) attenuates this risk and the milder induction (i.e. BAS) increases this risk. Does acute rejection vary across cPRA categories?
	What is the carbon footprint of patient travel associated with receiving kidney care services?
	Are informal referrals becoming increasingly commonplace to enable liver transplantations at centers with more liberal parameters?
	Do liver transplant recipients who received a DCD organ have worse clinical outcomes including death, graft loss, and ischemic complications than those who have received organs from NDD donors? Does the length of ischemia time correlate with worse clinical outcomes?
	Are socioeconomic factors (such as gender, ethnicity, area of residence) and distance from transplant site barriers to timely liver transplant listing for patients residing in BC, and does this result in greater time between referral for liver transplant and transplant listing?
Perinatal Services BC	1) To determine the association between pre-pregnancy BMI and gestational age-specific rates of stillbirth, neonatal death (within 28 days after birth), and serious neonatal morbidity in Canada. 2) To determine the optimal timing of delivery for overweight and obese (class I, II, and III) women at term gestation (addressing modification of risk by advanced maternal age, assisted conception, hypertension, and diabetes). - We hypothesize that women with higher BMI have higher adverse perinatal outcomes (stillbirth and neonatal death) due to earlier gestational age at delivery or time of fetal death. To assess this, we will conduct a causal mediation analysis to estimate the indirect effect of pre-pregnancy BMI on perinatal death. Our second hypothesis is that women with higher BMI and other important risk factors (e.g. hypertension or diabetes) may have a higher risk than women without and that their gestational age-specific risk may accelerate faster than women of lower BMI and/or without these other risk factors. To assess this, we will use a survival analysis within a fetuses-at-risk paradigm to quantify these risks and help inform the optimal time of delivery in various risk strata.
	By investigating healthcare utilization outcomes of RPL, changes in perinatal outcomes and potential risk factors, we will be able to propose improved Knowledge-to-Action (KTA) guidance for RPL management by professional reproductive health organizations, hospital leaders and clinicians. - We hypothesize that: 1) the pandemic cohort will have unique demographic characteristics of those accessing care, delays in the investigations and surgical care, and poorer health care utilization outcomes, compared to the pre-pandemic cohort; 2) The virtual care only group will be proportionally less likely to have live birth, compared to the in-person group; 3) People with RPL from low SES and rural regions will be more likely to experience preterm birth, stillbirth and congenital anomalies compared to those with high SES and from urban regions.
	1-Evaluate patterns of perinatal arthritis med use among female patients with rheumatic diseases; Objective 2- Evaluate perinatal impacts of conventional synthetic disease modifying anti-rheumatic drugs (csDMARDs) and biologic originator disease modifying anti-rheumatic drugs (boDMARDs) on: a) maternal; b) fetal/neonatal; and, c) childhood outcomes 3- Evaluate the perinatal impacts of targeted synthetic disease modifying anti-rheumatic drugs (tsDMARDs) and biosimilar disease modifying anti-rheumatic drugs (bsDMARDs) on: a) maternal/fetal/neonatal outcomes.

TABLE 6 Example Research Questions by Registry/Dataset (continued)

Perinatal Services BC (continued)	Describe all prescribed medications and patterns of use in the year before, during and after pregnancy. The most recent description of prescription drugs in pregnancy in BC is ten years out of date. It is time to update our understanding of prescription drug use during pregnancy in BC. & Examine prevalence of pregnancy outcomes based on use of specific drugs and drug classes. These outcomes include stillbirths, preterm birth, small for gestational age birth, congenital malformations, as well as some childhood chronic conditions that may be more likely following exposure to medications in utero (e.g. asthma, ADHD) & examine the relationship between psychotropic medications during pregnancy and mental health conditions in children, including anxiety, ADHD, depression, etc. Hypothesis: Describe all prescribed medications and patterns of use in the year before, during and in the year after pregnancy. The most recent description of prescription drugs in pregnancy in BC is 10 years out of date.
	This is a cross-provincial, parallel mixed-methods research study with two objectives: 1. Describe differences between Pre-Pandemic (05/2019-12/2019 births), Early-Pandemic (05/2020-12/2020 births), and Late-Pandemic (05/2021-12/2021 births) pregnancy cohorts in British Columbia (BC) and Ontario relative to key outcomes and quality of care indicators related to vaccination, prenatal care, and mental health. Examine the differential impacts on racialized and low-income pregnant people. (Quantitative strand) 2. Understand how pregnant people's perceptions of COVID-19 risk and pandemic circumstances influenced their decision-making about key elements of pregnancy, including vaccination, prenatal care, social support, and mental health. (Qualitative strand)
	1. To assess the cost-effectiveness of an interdisciplinary model of care for endometriosis 2. To identify clinical and biomarker predictors of health care system utilization after surgery 3. To determine the impact of the COVID-19 pandemic on health care system utilization by patients with endometriosis 4. To understand the overall impact of endometriosis on health care use, including with respect to pregnancy and pregnancy outcomes. Hypothesis: 1. We hypothesize that health care costs for patients being cared for in our clinic will be higher in the three years preceding their time with us than the years following their discharge. We hypothesize that the overall cost of the interdisciplinary clinic, including physiotherapist, counsellor and nurse salaries and administrative support, will be less than overall cost savings to the system from reduced utilization of health care resources after discharge. 2. We hypothesize that comorbidities associated with central nervous system sensitization and biomarkers including somatic mutations and local neurogenesis/neuroinflammation are linked to persistent pain and disease recurrence after endometriosis surgery, which results in increased risk of re-operation and health care utilization after surgery. 3. The pandemic cohort will have increased health care system utilization, and also poorer health system outcomes after care the centre, compared to the pre-pandemic cohort. 4. People with endometriosis, utilizing different case definitions, will experience higher health care use and worse pregnancy outcomes, compared to people without endometriosis.
	1. Update and expand the CAYACS I cohorts to include all cancer survivors who were diagnosed aged 0-39 years old in BC from 1970-2020. New treatment and outcomes data for cancer survivors to include follow up to December 31, 2020 2. Examine physical and psychological long-term and late effects among CAYA cancer survivors, including risk of second cancer, late mortality and morbidity, impact of cancer and its treatment on fertility, education, employment, income and psychosocial well-being (Project 1) 3. Examine the extent and patterns of health care utilization, including physician, hospital, mental health services, ambulatory care, perinatal services, and utilization of pharmaceutical drug use (Project 2) Hypothesis: Our hypotheses is that AYA cancer is associated with adverse reproductive health outcomes, as suggested by findings from our systematic review to date.
	To create prediction models to identify individual factors that place infants (born at preterm & term gestation) at lower or higher risk of morbidity and mortality later in life (i.e. that predict good/poor outcomes) using machine learning techniques & To assess confounding, effect modification & mediation effects using rigorous designs & analyses that strengthen internal & external validity, including: a) Using time-to-event analyses including time-dependent covariates to quantify the contribution of complex neonatal conditions and childhood morbidity to the risk of psychiatric disorders; b) Stratified analyses with respect to: i) child's sex: girls & boys differ in their risk of neonatal complications and subsequent adverse health outcomes; and ii) geography: BC vs. Sweden; c) Sibling-controlled analyses that control for shared environmental & genetic factors; and d) Formal causal mediation analyses to quantify pathways through which individual risk factors are associates with the outcomes.

TABLE 6 Example Research Questions by Registry/Dataset (continued)

<p>Perinatal Services BC (continued)</p>	<p>Epidemiological Trends in Childhood Diabetes in BC Aim 1: To describe the ongoing epidemiological trends of childhood diabetes in BC using our previously established (and refreshed) 'T1D Admin Cohort' and 'T2D Admin Cohort'. Using a linked clinical-administrative dataset, to further characterize the T1D and T2D Admin Cohorts. 1A. & 1 B. What are the epidemiological trends of childhood onset (age <20 years) type 1 and type 2 diabetes in BC? 1C. What is the prevalence of diabetes-related complications (i.e., micro- and macrovascular disease, obesity-related complications) in the T1D and T2D administrative cohorts? 1D. Are there differences in the epidemiological trends of childhood onset T1D and T2D based on demographic (i.e., sex, age, ethnic background, deprivation index) and clinical (i.e., presence of obesity) characteristics? Relationship Between Adherence to CPGs and Outcomes Across the Lifespan Aim 2: To describe the relationship between healthcare utilization (i.e., adherence to CPGs) and clinical and patient reported outcomes (i.e., A1C, DKA, prevalence of complications, PROM/PREMs), stratified by clinical and demographic characteristics in people living with diabetes since childhood. 2A. What is the relationship between adherence to CPGs (i.e., number of diabetes related visits, A1C tests, complications screening) and clinical outcomes such as: A1C, time in range (TIR), DKA at diagnosis, DKA/recurrent DKA after diagnosis, and diabetes-related complications? Specifically, what are the clinical and demographic characteristics of patients with different patterns of healthcare utilization (i.e., <2, 2-4, or >4 diabetes-related visits per year) and do their health outcomes differ? 2B. What is the relationship between health care utilization and PROM/PREMs such as quality of life, satisfaction with care, diabetes distress, etc.? 2C. Are there differences in clinical and patient reported outcomes across demographic groups (i.e., by deprivation index, ethnicity, rural vs. urban, etc.) clinical groups (i.e., sensor, pump users versus non-users), healthcare utilization groups (i.e., shared care versus care with a specialist only, patients who have transitioned to adult care, etc.)? 2D. What is the healthcare utilization and clinical profile of patients who experience poor outcomes (i.e., DKA hospitalization, diabetes related complications)? For example, what clinical and demographic features are associated with poor outcomes after transition to adult care.</p>
	<p>"Amongst women of childbearing age, does kidney donation (compared with no kidney donation) increase the risk of hypertensive disorders and adverse fetal and maternal outcomes in subsequent pregnancies?"</p>
<p>BC Trauma Registry</p>	<p>To describe the characteristics of trauma intubations and, in particular, to determine the first-pass success rate of endotracheal intubation in trauma patients who presented to the Royal Columbian, Vancouver General and St. Paul's Hospital in the period from January 1st, 2017, to March 31st, 2022. Trauma patients requiring intubation in the emergency department often have anatomical and physiological features that make intubation more challenging. The adverse events resulting from repeated attempts to secure an airway can impact patient morbidity and some, such as post intubation hypotension (PIH) or hypoxemia during intubation, may increase mortality. Our literature review on this topic revealed that no study has looked specifically at trauma patient intubations in British Columbia or in a comprehensive manner across Canada. Understanding the first pass success rate and other peri-intubation characteristics of trauma patients in the ED will allow practitioners to adjust clinical practices to safely intubate trauma patients.</p> <p>Assessment of the quality of the Metro Vancouver cycle route network, a variety of variables that influence cycling must be assessed on their own and in relation to each other. To provide unique research-based information about the Metro Vancouver cycle route network to inform government decision-makers in the development and implementation of their respective active transportation plans so cycling is more accessible to all people. To educate stakeholders and increase public knowledge about progress in the regional cycle route network, and the benefits of developing cycling facilities which are complete and comfortable for regular use by most people. To provide a model for cycle route network benchmarking that can be applied to other Canadian urban regions.</p> <p>Based on the substantial patient groups presenting with PEs without DVTs, bimodal timing of PEs, and the de novo PE post-blunt chest trauma in animal models, we hypothesize that there is a subgroup of patients with traumatic PEs have an underlying pathophysiology distinct from the classic paradigm of VTE, and likely secondary to blunt thoracic trauma. However, precise delineation of this subgroup remains unclear, as is the natural history of PE associated with thoracic trauma. This study aims to establish the incidence of clot in the pulmonary arterial system following traumatic injury in the absence of DVT, investigate risk factors and interrogate blunt chest trauma as a possible mechanism for this unique complication.</p>

TABLE 6 Example Research Questions by Registry/Dataset (continued)

Tumour Tissue Repository	Performance Evaluation of Novel NMT-IHC Tests as Predictive and Prognostic Tests for Breast Cancer
	CLIC-1901 for the Treatment of Patients with Relapsed/Refractory CD19 Positive Hematologic Malignancies (CLIC-01)
	SABR-COMET-3: A Randomized Phase III Trial of Stereotactic Ablative Radiotherapy for the Comprehensive Treatment of 1-3 Oligometastatic Tumors
	Metabolic tracing of tumour and T cells in the ascites of ovarian cancer patients
	SCION: SABR and Checkpoint Inhibition Of NSCLC
	Novel Predictive and Prognostic Markers for Neuroendocrine Tumors
	Tumor Tissue Repository/Immune Response to Ovarian Cancer and other gynecological Cancers (BCCA-TTR-IROC) Project and The Ovarian Cancer Immune Epitope Database
	Integrated genomics and spatial heterogeneity to enhance personalized therapies for rare metaplastic breast carcinomas
	Understanding the role of B cells in anti-tumor immune responses
BC Cancer Registry	An Extended Local Canal Resection for Management of T2 Non-melanoma Cutaneous Temporal Bone Malignancies
	Evaluating Cardiac Risk in Breast Cancer Patients using Artificial Intelligence
	Evaluation of the BC HPV vaccine program by data linkage of the HPV vaccination registries and the Cervical Screening program: 2023
	Using predictive analytics in colorectal cancer screening using decision tree algorithm on epidemiological data to reduce patient wait times and increase quality of care
	The CADTH Post Marketing Drug Evaluation Program and the Canadian Cancer Real-world Evaluation (CCRE) Platform
Lung Cancer Screening Program	Addressing Inequity in Spatial Access to Lung Cancer Screening
Breast Cancer Screening Database	Identify gaps in breast cancer care delivery when comparing rural populations to urban populations in BC.
	The study will determine the upgrade rate of percutaneously diagnosed pure ADH. The management of ADH is still debated since there is a risk of underdiagnosis/overdiagnosis.
Cervical Cancer Screening Program	Cervix screening history and outcomes for HPV vaccinated people.
	Cervix screening outcomes post treatment.

APPENDIX 1

RESEARCH METRICS WORKING GROUP MEMBERSHIP*

Aasta Thielke

Manager, Research Services, PHSA

Isabelle Linden

Director, Research Services, BCCHR

Vicki Chiu

Executive Director, Research Administration and Operations, BC Children's Hospital Research Institute

Kathryn Dewar, PhD

Senior Research Manager, Women's Health Research Institute (WHRI)

Rhonda Ellwyn

Manager, Research Operation, BCMHSUS

Karen Lemmen

Executive Director, Research Administration and Operations, BC Cancer

Beth Palacios

Consultant

Deborah Ross

Director, Research and Knowledge Exchange
BC Mental Health & Substance Use Services

Priscilla Vuong

Research Development Unit Manager, BC/UBC Centre for Disease Control

*As of September 2024

APPENDIX 2

FRAMEWORK FOR PHSA RESEARCH METRICS

1. Indicator: Producing and Advancing Knowledge

This category includes measures reflecting discoveries/new knowledge, and contributions to scientific literature.

- a. Total annual grant awards by agency/research entity and PHSA
- b. Total annual external grant awards by agency/research entity, identified by major funding categories
(e.g., tri-council, provincial, Genome Canada/BC, international, private sector, etc.)
- c. Annual grant application success rate by agency/research entity and PHSA
- d. Total # Publications
- e. Citations

2. Indicator: Building Research Capacity

This category includes measures reflecting enhancements to both human resource and infrastructure capacity.

- a. Total # trainees by agency/research entity
- b. Scholarships/fellowships by agency/research entity
- c. Total # researchers by agency/research entity
- d. Infrastructure investments
 - i. E.g. – hospital research fund, BCCHR, capital projects etc.
 - ii. Databases (patient, tissue) etc
- e. Research Support Fund grants

3. Indicator: Achieving Economic Benefits and Innovation

This category includes measures reflecting commercialization of discoveries, revenues and other economic benefits resulting from discoveries, and general impacts on the BC economy.

- a. # Intellectual property disclosures, patents by agency/research entity
- b. Licenses, royalty income, spin-off companies
- c. New research hires to agency/research entity - job creation
- d. Policy initiatives

4. Indicator: Advancing Health and Policy Benefits

This category includes measures reflecting individual and population health impacts of research in prevention, diagnosis and treatment.

- a. Clinical trials (translational research)/patient outcome data
- b. New clinical guidelines/patient outcome data
- c. New drugs funded/patient outcome data
- d. Policy initiatives/patient outcome data

APPENDIX 3

FRAMEWORK FOR PHSA

STUDENT EDUCATION METRICS

1. Indicator: Build Practice Education Capacity

This category includes measures that demonstrate level of commitment to students, preceptors, and post-secondary institutions as part of mandate to provide excellence in education and training.

- a. # of Students, Placement Hours by Discipline & Sub-Discipline
- b. # of Medical Students (Under-grads and Post-grads) by Specialty
- c. Estimated FTE of Staff Time in Direct Supervision of Students
- d. # of Confirmed Placement Requests by Month
- e. # of Confirmed and Declined Placements by Educational Institution for Priority Professions
- f. # of Declines by Reason (Most Frequent)
- g. # of Staff Participants in Preceptor/Educator Training
- h. # of Preceptors in HSPnet With and Without a Placement

2. Indicator: Build Effective Partnerships and Collaborations that Support Innovation

This category includes quantitative measures of PHSA's relationships with academic partners.

- a. # of Affiliation Agreements by Region and Sector
- b. Top % of Education Institutions by Student Hours
- c. Distribution of Student Hours by Practice Education Setting

3. Monitor the Quality of the Clinical Learning Environment and Results

This category includes measures for monitoring quality and outcomes.

- a. # of hires at PHSA with a previous placement
- b. # of Placements by Educational Institution for New Hires

APPENDIX 4

STUDENT EDUCATION COORDINATING COMMITTEE

Current Membership

Ellen Chesney ¹	Chief Administrative Officer – Research & Academic Services, Executive Sponsor
Christie Diamond ¹	Co-chair, Corporate Director, Academic Education
Andrea Acosta ³	Clinical Nurse Educator, Inter-professional Practice
Miranda Barnas ²	Clinical Nurse Educator, Inter-professional
Michelle de Jaray ^{4,5}	Coordinator, Academic Practice, New Knowledge & Innovation
Fairouz Devji ¹	Clinical Education Consultant, Professional Practice
Sandra Harris ^{4,5,6}	Senior Leader, Clinical Education, New Knowledge & Innovation
Becky Hynes ²	Director, Inter-professional Practice, Red Fish Healing Centre
Simmie Kalan ¹	Senior Director, Clinical Education
Shaila Jiwa ⁷	Director, Professional Practice
Neeta Nagra ²	Director, Professional Practice, Forensic Hospital
Terri-Lee Seeley ²	Director, Inter-professional Practice, Correctional Health Services
Alexandra Shemko ⁷	Director of Learning, BCEHS
Sandy Tatla ^{4,5}	Director, New Knowledge & Innovation
Sarah Titcomb ¹	Coordinator - Academic Development
Heena Vadgama ³	Education Coordinator
Sylvia Wu ⁴	Manager, Education, UBC Dept. of Pediatrics

1. PHSA corporate services
2. BC Mental Health and Substance Use Services
3. BC Cancer Agency
4. BC Children's Hospital
5. BC Women's Hospital and Health Centre
6. Sunny Hill Health Centre for Children
7. BC Emergency Health Services
8. BC Centre for Disease Control
9. Lower Mainland Pathology and Laboratory Medicine