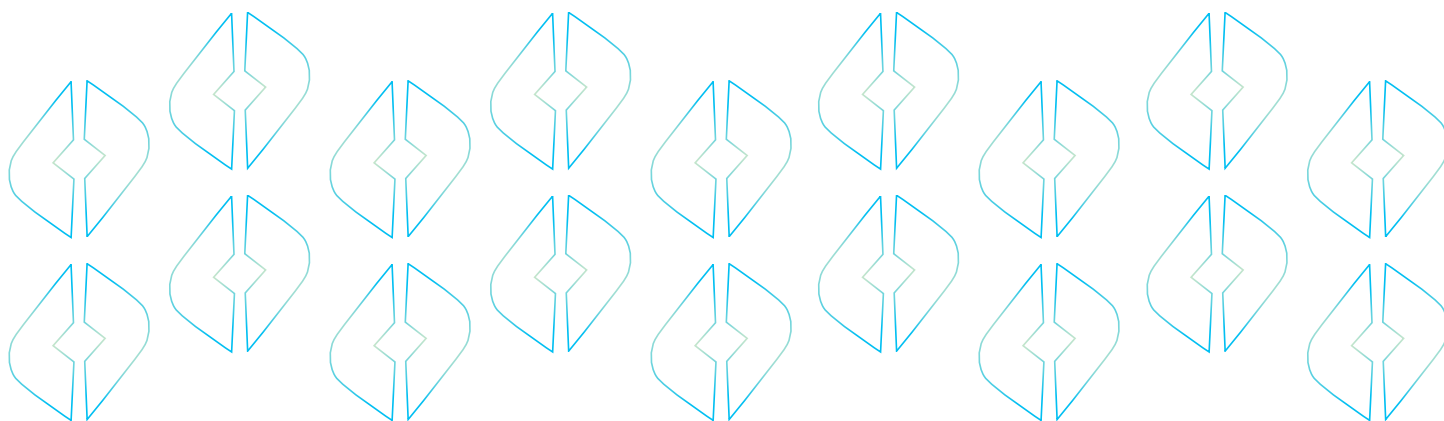


Vancouver Island Research Capacity Building Initiative

SUMMATIVE EVALUATION REPORT

FINAL REPORT: March 2018



Contact: Penny Cooper
pennycooper@shaw.ca

Project Team

Penny Cooper
Carolyn Camman

Contact

Penny Cooper
pennycooper@shaw.ca

Acknowledgement

Penny Cooper & Associates would like to sincerely thank the Research Capacity-Building team for their open-ness, patience and commitment to quality that made this evaluation possible. We would also like to thank all those who provided input to the evaluation for their thoughtful contributions.

Table of Contents

EXECUTIVE SUMMARY	1
I. INTRODUCTION.....	1
1.1 Background	1
1.2 Approach	1
1.3 Limitations	2
1.4 A Note on the Case Studies	2
2. KEY FINDINGS	3
2.1 Short-Term Outcomes	3
2.1.1 Stakeholder satisfaction.....	3
2.1.2 Research Department as the “one stop shop” for research.....	3
2.1.3 Operational and ethics approval processes	4
2.1.4 Quality and security of research data.....	5
2.1.5 Quality management framework for clinical research.....	5
2.1.6 Patient and public engagement.....	5
2.1.7 Meaningful collaboration.....	6
2.2 Medium-Term Outcomes	7
2.2.1 Number of researchers who are either Island Health clinicians or employees.....	7
2.2.2 Research volume	9
2.2.3 Research quality	11
2.2.4 Research dissemination	12
2.2.5 Research uptake.....	13
2.2.6 Research in priority areas	14
2.2.7 Geographic distribution of research activity.....	17
2.2.8 Contributions to quality improvement	18
2.2.9 Provincial initiatives leadership and participation	18
2.3 Long-Term Outcomes	19
2.3.1 Organizational culture change.....	19
2.3.2 Patient, population and health system outcomes.....	20
2.4 Sustainability and Long-Term Impact	20
2.4.1 Sustainability successes.....	20
2.4.2 Sustainability risks and challenges.....	22
2.4.3 Requirements for long-term impact.....	24
3. RECOMMENDATIONS.....	27

ADDENDUM: CASE STUDIES OF RCB IMPACT	29
Case Study 1: Seniors’ Health Research	30
Case Study 2: Mental Health and Substance Use Research	32
Case Study 3: Indigenous Health Research	34
Case Study 4: Quality Improvement	36
Case Study 5: Provincial Initiatives Leadership and Participation	39
APPENDIX A. RCB EVALUATION QUESTIONS	42

Table of Tables and Figures

FIGURE 1. RESEARCH CAPACITY-BUILDING INITIATIVE LOGIC MODEL.....	III
FIGURE 2. PATIENTS IN PERMISSION-TO-CONTACT PROGRAM	6
FIGURE 3. PRINCIPAL INVESTIGATORS AND COLLABORATORS	8
FIGURE 4. STUDENTS ENGAGED IN THE RESEARCH PROCESS.....	8
FIGURE 5. NEW RESEARCH STUDIES	9
FIGURE 6. ACTIVE RESEARCH STUDIES.....	10
FIGURE 7. ACTIVE CLINICAL TRIALS SUPPORTED BY THE RCB	10
FIGURE 8. ATTENDEES AT THE RCB EVENTS	12
FIGURE 9. EXTERNAL COLLABORATIVE GRANT APPLICATION SUBMISSIONS.....	14
FIGURE 10. INTERNAL AWARDS IN PRIORITY AREAS’	15
FIGURE 11. NEW RESEARCH STUDIES IN PRIORITY AREAS.....	16
FIGURE 12. VALUE OF INTERNAL AWARDS FOR RESEARCH IN GEOS 1, 2 & 3 AND ISLAND-WIDE.....	18
FIGURE 13. EXTERNAL FUNDING, 2013–2017.....	22
FIGURE 14: RATE OF SURGICAL SITE INFECTION FOLLOWING CARDIAC PROCEDURES	37

Executive Summary

The vision of the Vancouver Island Research Capacity Building (RCB) initiative¹ was to develop a robust, self-sustaining health research community on Vancouver Island, which supports and contributes to the delivery of health services and improvements in health status and health care for the Island's population. The initiative began in 2012 after the confirmation of a \$4.9M investment from Island Health and the development of a partnership agreement with the Michael Smith Foundation for Health Research (MSFHR).

A Summative (Final) Evaluation of the RCB initiative (2012–2017) was conducted to fulfil contractual arrangements between Island Health and MSFHR, and to inform the next iteration of Island Health's Strategic Research Plan. A mixed methods evaluation approach was used, involving analysis of administrative data and documents (including program metrics) and qualitative data to obtain a rich picture of the initiative's outcomes, successes and challenges.

The evaluation found that the RCB has met or exceeded the majority of its goals.

The RCB met all its anticipated short-term outcomes (defined as those that were expected to occur within the first 2 years of the initiative):

- The RCB service users indicate a high level of satisfaction with RCB services.
- There is increasing awareness and acknowledgement of the RCB (or the “Research Department” or “Research Office”, as it is now known) as the centralized resource for research and knowledge translation (KT) support and advice.
- There has been definite progress in improving efficiency and timeliness of operational / institutional and ethics approval processes.
- The RCB has contributed substantially to increased quality and security of research data generated by, and available to, researchers at Island Health.
- The RCB has established a quality management framework for clinical research that passed the detailed scrutiny of a Health Canada clinical trials inspection.
- There is increased engagement of the public and patient partners in research. The RCB's foundational work in this area was instrumental in the creation of the BC SUPPORT Unit Vancouver Island Regional Centre (a partnership with the University of Victoria (UVic), with funding through the Canadian Institutes of Health Research (CIHR) Strategy for Patient-Oriented Research (SPOR). As a result of the RCB's work, Island Health is recognized as a provincial and national leader in building capacity for patient-oriented research.
- There is a substantial increase in institutional collaboration involving shared funding and research processes between Island Health and partner academic organizations, particularly UVic.

.....
“The impact of the [investment with] Michael Smith was it allowed us to get the tools in place, it really supported the proof of concept that you can sustain research in a health authority of this nature with these types of academic relationships, where it's not joined at the hip with a large medical school.”
.....
[Executive leader, Island Health]
.....

The RCB has achieved the majority of its medium-term goals (defined as those that were anticipated to occur, or begin occurring, in 3 to 5 years following the RCB's inception).

¹ The RCB initiative is referred to throughout the report as “the RCB”.

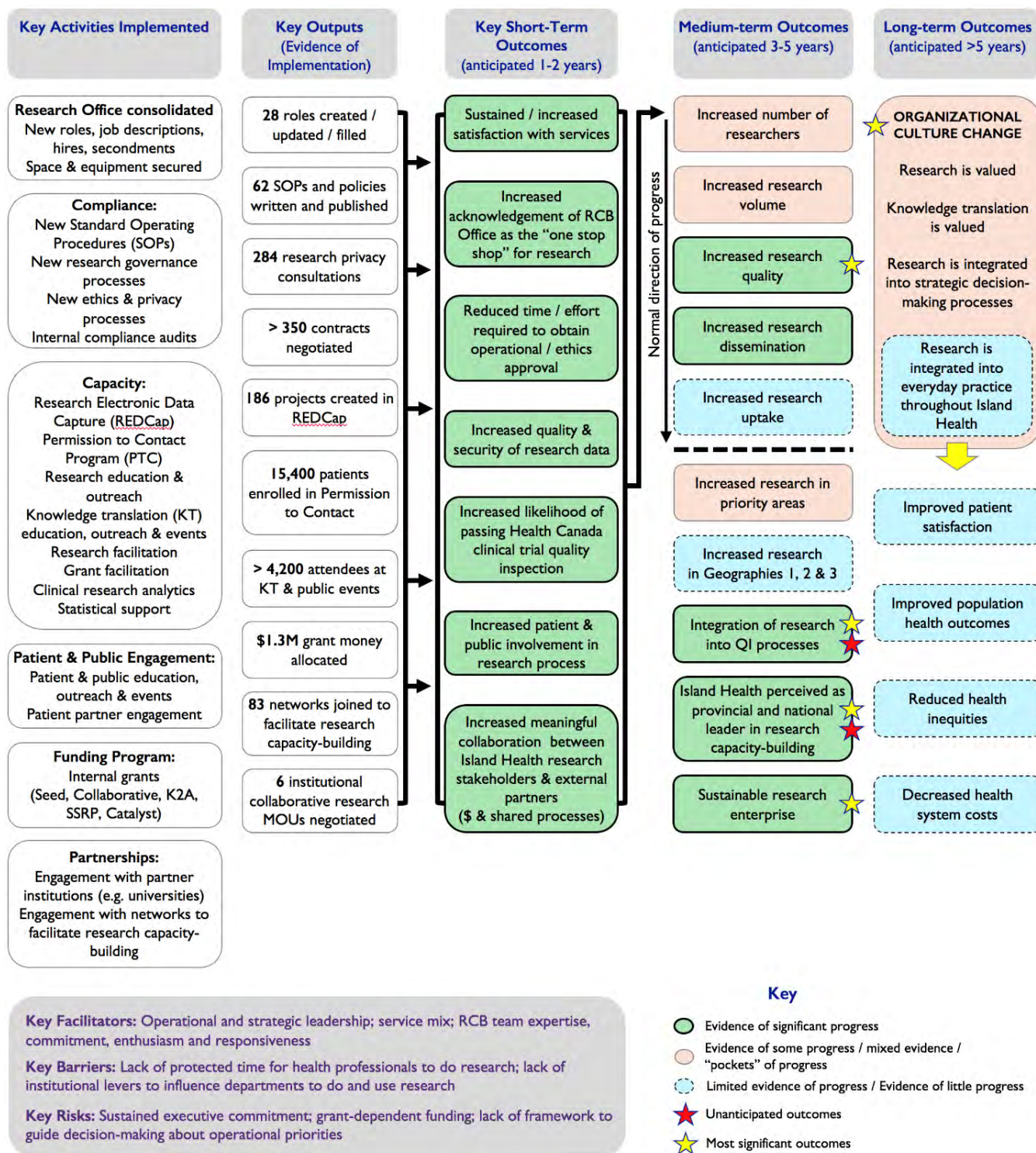
- There has been a modest increase in overall research volume since inception of the RCB.
- There has been a modest increase in the number of researchers at Island Health since the RCB's inception.
- The RCB is perceived by stakeholders as having made a very substantial contribution to improving research quality at Island Health, particularly for clinical trials.
- The RCB has strongly contributed to increased research dissemination. Much of the success is attributed to the RCB's signature event, Five Days in May, as well as Knowledge-to-Action month held in the fall.
- There is little evidence of progress in terms of improving research uptake, in part because of the complexity of obtaining reliable metrics.
- There has been a modest increase in research in seniors' health, and mental health and substance use. Although there is still limited research activity to support Indigenous health, the RCB has made a strong contribution to the foundations that are needed to enable growth of culturally appropriate research activity in this area.
- There have been some important individual research projects in Geographies 1, 2 and 3 during the RCB, and some evidence of interest in research, but there is little evidence of overall increased research activity in these areas.
- The RCB has made a substantial contribution to supporting quality improvement. This was an unanticipated outcome.
- Through robust participation, and in some cases, leadership, the RCB has had an important influence on the development of provincial and national health research capacity-building initiatives. This was also an unanticipated outcome.

A key long-term goal of the RCB was to contribute to the development of an organizational culture in which research and evidence-informed decision-making is integrated into everyday practice throughout Island Health. This was not anticipated to occur within the timeframe of the initial 5-year investment. However, stakeholder consensus is that the RCB has made an important contribution towards that outcome. This represents a significant achievement for the RCB, and for Island Health.

Key stakeholders were overwhelmingly positive about the foundation that the RCB has laid for a sustainable health research enterprise at Island Health and on Vancouver Island more broadly. Infrastructure is embedded, strategic and operational leadership and team function is strong, partnerships have been cemented through shared funding and processes, operational funding provided by Island Health has increased, and some new sources of funding have been secured. However, there are still some identified gaps and risks that will need to be addressed to sustain the gains made. The most critical of these are sustained executive commitment in an environment of senior leadership change, expanding the variety and security of funding, and developing a strategic framework to guide and more deeply integrate the RCB's functions within Island Health. Most stakeholders believe that gains made to date are sustainable within reasonable budget parameters. However, there is considerable doubt about the extent to which research can truly become embedded in everyday business at Island Health unless structural barriers preventing health professionals from engaging in research are addressed. The most critical structural barrier is the lack of protected time for research.

The logic model in **Figure I** summarizes the progress of the RCB from implementation to key outcomes, including unanticipated outcomes.

Figure 1. Research Capacity-Building Initiative Logic Model



I. Introduction

I.1 BACKGROUND

The vision of the Vancouver Island Research Capacity Building (RCB) Initiative² was to develop a robust, self-sustaining health research community on Vancouver Island, which plays an essential role in the delivery of health services and improving health status and health care for the Island's population. The initiative began in 2012 after the confirmation of a \$4.9M investment from Island Health and the development of a partnership agreement with the Michael Smith Foundation for Health Research (MSFHR).

Activity within the initiative is organized into six categories: collaboration, capacity, compliance, clinical research analytics, research funding, and patient and public engagement. Guided by an annual business plan, Island Health developed targeted infrastructure to support meaningful progress towards the vision.

An evaluation framework for the initiative was co-developed by RCB staff and MSFHR in 2014, and a mid-term evaluation was conducted in 2015.

A Summative (Final) Evaluation was required to fulfil contractual arrangements between Island Health and MSFHR, and to inform the next iteration of Island Health's Strategic Research Plan. The findings may also be used to inform the design of future research capacity-building initiatives elsewhere in British Columbia.

I.2 APPROACH

The evaluation questions articulated in the Vancouver Island Research Capacity Building Initiative Evaluation Framework (2014) (see *Appendix A*) guided the approach. Building on learnings and recommendations from the mid-term evaluation, a mixed methods evaluation was designed, with a focus on qualitative methods to obtain a rich picture of the initiative's outcomes, successes and challenges.

The approach involved four phases, designed to enable the evaluation team to build on learnings as the evaluation progressed:

1. **Project set-up:** Interviews were conducted with the RCB's senior staff, and an initial review of administrative data was conducted to finalize the scope, approach and data collection plan.
2. **Review and analysis of administrative data:** Annual administrative data relating to 147 indicators were reviewed and analyzed by the evaluation team to identify trends. The review also included a range of administrative background documents, including strategy documents, business plans, researcher satisfaction data³, activity reports and grant data.
3. **Stakeholder interviews:** Thirty-one (31) interviews were conducted with key stakeholders, including the RCB's senior staff, Island Health executive leaders (current and former), Island Health administrators, Island Health researchers, patient partners, academic partners, and health research leaders in organizations with a provincial remit. Interviewees were selected to represent a wide range of perspectives. With one exception, only those with significant and long-term engagement with the initiative were included in the sample⁴.
4. **Case studies:** Case studies were developed to highlight areas where the RCB has achieved significant impacts. RCB staff generated an initial "long-list" of case studies, providing an initial assessment against a set of criteria provided by the evaluation team. The initial assessment was

² The RCB initiative is referred to throughout the report as "the RCB".

³ RCB User Satisfaction Survey (2016).

⁴ A new executive leader assumed responsibility for the RCB in 2017 and was included in the sample.

vetted by the evaluation team, the case studies were ranked, and five were selected for inclusion in the final report (see *Addendum*).

I.3 LIMITATIONS

The RCB was a complex undertaking in a complex, dynamic environment. Activities undertaken as part of the initiative were adjusted in response to changes in the Island Health and broader health system environment. Along the way, new funding opportunities were identified, new partnerships emerged, and new provincial initiatives were identified that required the initiative to be nimble. The dynamic state of the RCB presents some challenges for evaluation.

Very little quantitative baseline data was collected prior to the initiative's launch, including any data about organizational culture with respect to research and evidence use, as there were no existing mechanisms or resources to conduct such activity. Other data that appeared to be important when the evaluation was designed turned out to be less important in light of how the RCB initiative unfolded. We have attempted to address these issues by using multiple methods and data sources and being careful in claims about attribution; the reader should be similarly careful not to over-interpret the results.

There were also limitations in what data could be collected to inform the evaluation. Data that were within the RCB's purview to collect did not always enable comprehensive measurement of the intended outcome. Where this may be an issue, it is noted in the report.

Finally, RCB staff have engaged with a vast number of individuals, units and organizations in pursuing its goals. Many others may have been affected by the RCB's work without knowing about the initiative. It was not possible to engage with all the relevant stakeholders through this evaluation. Although every effort was made to choose a representative sample of interests, some selection bias may have affected the evaluation.

I.4 A NOTE ON THE CASE STUDIES

The purpose of the five case studies is to highlight and "bring to life" some of the RCB's key achievements. Three of the case studies (Seniors' Health Research, Mental Health and Substance Use Research, and Indigenous Health Research) feature activities and outcomes that were envisioned from the outset of the initiative. The other two case studies (Quality Improvement, and Provincial Initiatives Leadership and Participation) feature activities and outcomes that were unanticipated. Although the emphasis in each individual case varies, overall, the case studies are designed to narratively demonstrate how the RCB has contributed to increasing research volume, quality, collaboration, dissemination and uptake, and sustainability of the health research enterprise (particularly in Island Health priority areas), as well as longer-term outcomes such as organizational culture change and patient outcomes. The case studies, contained in the *Addendum*, are intended to complement the detailed reporting for each outcome area that is presented in subsequent sections of this report.

2. Key Findings

At an overall level, the RCB initiative has met or exceeded expectations for success.

The most significant anticipated outcomes of the initiative are improvements to research quality, and sustainability of the research enterprise (although there are still risks to sustainability, as well as barriers to long-term impact). There were also two significant unanticipated outcomes: improved integration of research into quality improvement processes, and leadership and participation in provincial research-capacity-building initiatives.

Key findings are presented in the order in which they appear in the RCB logic model, presented in *Figure 1 in the Executive Summary*.

2.1 SHORT-TERM OUTCOMES

Short-term outcomes are defined as those that were anticipated to occur, or begin occurring, within the first 2 years of the initiative (2012–2014). All the expected short-term outcomes were achieved.

2.1.1 Stakeholder satisfaction

Users indicate a high level of satisfaction with RCB services.

Nearly three quarters (74%) of respondents to the 2016 RCB User Satisfaction Survey indicated that overall, they were satisfied or very satisfied with the services provided by the RCB. Qualitative data collected for this final evaluation suggest that satisfaction continues to be high.

.....
“The Research Capacity-Building folks, they were probably one of the only groups that didn’t look at me like I was nuts, like I was crazy. What I’m feeling is support, and support on so many different fronts. I feel like they really care, as weird as that sounds. There’s no way that I could do this thing on my own. Like, honestly, I would have just quit.”

.....
[Researcher]

2.1.2 Research Department as the “one stop shop” for research

Stakeholders report increasing awareness and acknowledgement of the RCB (or the “Research Department” or “Research Office”, as it is now known) as the centralized resource for research and knowledge translation (KT) support and advice.

A strong theme from the stakeholder interviews is the belief that the Research Department has established a reputation as the “go to” place for research support and advice.

.....
“For anyone wanting to do a research study, there is that centralized place to go. So, it’s a one-stop shop. It has been able to support better the Research Ethics Board, I think. And, it’s also enabled us as Administrators, Directors, Managers to be able to keep account of what studies are happening. And it provides that oversight and governance. If we have concerns and challenges, we can go to them.”

.....
[Island Health administrator]

in 2017, representing a nearly 900% increase (equivalent to more than doubling the number of contacts every year).

2.1.3 Operational and ethics approval processes

While operational / institutional and ethics approval processes are still perceived by some stakeholders as time-consuming and frustrating, there has been definite progress in this area.

The Research Department's role in streamlining internal processes and working with external partners to harmonize processes is seen as instrumental in reducing the amount of time and effort required to get a research proposal approved.

Key changes thought to have led to this outcome include creating a leadership role responsible for management of the ethics board (as well as compliance activities) and moving from a paper-based approval system to an electronic system.

Another important change is the provision of a service that provides advice and guidance before a research team submits their application. The process of applying for approvals was described by respondents as evolving from a "transaction" to a "conversation". By asking good questions and providing expert advice, RCB staff are perceived as decreasing the amount of effort required to get a proposal ready for submission and increasing the chances that it is approved quickly.

Stakeholders also commented on the improvement in the relationship between Island Health and other academic institutions, particularly the University of Victoria (UVic), that has enabled a smoother ethics approval process.

A small minority (n=5) of stakeholders indicated that ethics processes at Island Health remain challenging for researchers to negotiate, although it was acknowledged that the issues are multi-institutional.

Quantitative data are not available to substantiate the qualitative findings that ethics and operational processes have become more efficient.

.....
"There was a preconception that Island Health ethics was very difficult to work with and that was well known through Victoria in particular. There were some very key lead health researchers who would bring their projects to other health authorities because it was "easier" and so I know, from my interactions with the same researchers who now have Island Health ethics, that the turnaround has been quite tremendous." [Island Health administrator]
.....

.....
"We had a situation where one of our researchers had an issue that related to Island Health's interpretation of an ethics [policy], a request for a modification. That happened on a Friday afternoon, and by Monday morning we'd resolved that issue. That would not have happened five years ago. I mean, that was an amazing sea change in the way that we could work together." [Executive leader, academic partner]
.....

2.1.4 Quality and security of research data

The RCB has contributed to substantially increased quality and security of research data generated by, and available to, researchers at Island Health.

A number of factors are perceived to have contributed to this outcome. The most frequently mentioned factors are:

- The installation of the Research Electronic Data Capture (REDCap) platform, along with provision of expert guidance and support for REDCap's wide variety of applications. This has been a critical enabler for improved data quality and security. REDCap has allowed researchers to collect a wider range of data to address research questions, enabled data previously collected and stored in multiple spreadsheets and databases to be stored in an integrated and more secure environment, and increased researchers' ability to collect data and generate reports in real-time.
- The development of new tools and standardized processes for collecting, storing and accessing data. This includes data disclosure processes, standardized data request templates and other safeguards to ensure a secure data environment.
- The development of a number of innovative tools and new statistical methodologies by the clinical research analytics team (formed during the RCB) in collaboration with internal and external partners, working with data collected at the point of care and exported from Island Health's data warehouse. This is enabling linkages between datasets that allow researchers to explore research questions that were previously unanswerable. This represents a significant improvement in the quality of data available to support research.

2.1.5 Quality management framework for clinical research

In 2016, the clinical trials group at Island Health was subject to, and passed, a Health Canada clinical trials inspection.

Stakeholders attribute passing the Health Canada inspection to all the detailed work done by the RCB to create a quality management framework for clinical research, including Standard Operating Procedures (SOPs) and policies, tools, training records, and standards for Good Clinical Practice (GCP) training.

2.1.6 Patient and public engagement

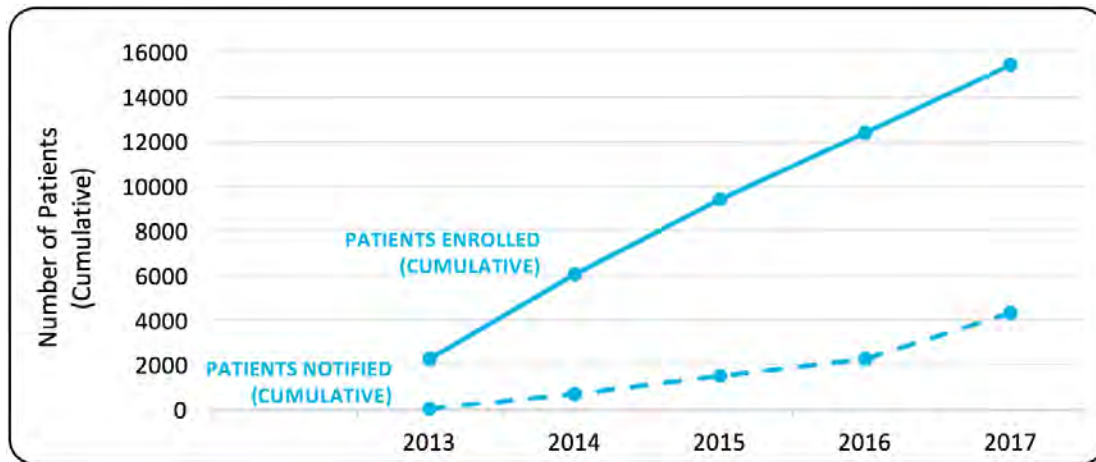
There has been progress towards increased engagement of the public and patient partners in the research process.

The RCB invested considerable resources in building a foundation to support patient-oriented research at Island Health. From 2014 onward, all of the RCB's business plans had specific deliverables that were designed to improve and increase capacity for patient and public engagement in research. Foundational work included creating a management position responsible for patient and public engagement, identifying and building relationships with key partners, creating communications strategies to engage patients and the public in research, working with patient partners to form research teams, and building a Permission-to-Contact (PTC) program.

The growth of the PTC program demonstrates significant evidence of progress:

- Over 15,400 people have enrolled in the PTC program since 2013 (starting from a base of 0 in 2012).
- Over 4,300 people (almost 1/3) enrolled in the PTC program have been notified of study opportunities.

Figure 2. Patients in Permission-to-Contact Program



Enrolment of patients in the Permission-to-Contact program has steadily increased

The growth in the number of patients involved in clinical trials is also evidence of progress in this area: the number involved rose from 115 in 2012 to 223 in 2017.

The foundational work to build the infrastructure to support patient-oriented research is perceived as being critical to Island Health's success in creating the BC SUPPORT Unit Vancouver Island Regional Centre, a partnership with University of Victoria, with funding through the Canadian Institutes of Health Research (CIHR) Strategy for Patient-Oriented Research (SPOR). Through this work, Island Health is also recognized as a provincial and national leader in building capacity for patient-oriented research (see also *Case Study 5: Provincial Initiatives Leadership and Participation*).

2.1.7 Meaningful collaboration

At the institutional level, collaboration between Island Health research stakeholders and stakeholders in partner organizations has increased substantially. Stakeholders particularly highlighted the transformation of Island Health's health research relationship with UVic.

Evidence of increased meaningful collaboration includes:

- Six (6) research Memoranda of Understanding (MOUs) between Island Health and academic partners signed between 2014 and 2015. A review as to whether and how these can be operationalized more robustly will be conducted as part of the new strategic planning process for research at Island Health.
- One (1) researcher affiliation agreement (between Island Health and UVic), developed in 2017 and signed in 2018. This agreement will grant researchers at one institution some privileges that

will make it easier to engage with the other (e.g. ID badge, email address, data sharing privileges, access to library services).

- A funding arrangement to embed a UVic researcher in Island Health as a Scholar-in-Residence, agreed to by Island Health and UVic⁵.
- The creation of a Health Research Projects Officer position by UVic, which supports UVic health research activity as well as collaborative health research initiatives.
- A partnership between Island Health and UVic to develop and operationalize the BC SUPPORT Unit Vancouver Island Regional Centre to support patient-oriented research (see *Case Study 5: Provincial Initiatives Leadership and Participation*). This includes an agreement for overhead splitting, specific to the funding agreements with the Academic Health Sciences Network.
- A partnership between Island Health, UVic and the University of British Columbia (UBC) to develop the Cognitive Health Initiative (CHI) with \$2.5M funding from the Victoria Hospital Foundation (see *Case Study 1: Seniors' Health Research*).

Three senior stakeholders (one each at UVic, UBC and Island Health) acknowledged that there are still inter-institutional barriers to overcome. New, multi-partner initiatives that involve sharing significant amounts of funding, such as the CHI, require all the partners to work in new ways. However, what seems to have changed is the level of partner trust (see quote from Academic partner).

.....
"I want to emphasize how important, how significant I think this initiative has been ... One of the things that I think is so profound is just the basic trust. Those relationships are personal relationships [where] people feel a high level of trust, of support and honesty that all of the institutional players are working in good faith towards a common objective ... I wouldn't say that this is now 100% problem-free but I would say that we have developed ways of working inter-institutionally around shared objectives and shared practices of research."
[Academic partner]
.....

2.2 MEDIUM-TERM OUTCOMES

Medium-term outcomes are defined as those that were anticipated to occur, or begin occurring, within 3–5 years of the RCB's inception (2015–2017). There is evidence of substantial progress towards two of the anticipated outcomes, as well as evidence of substantial progress in two areas that were not anticipated. There is evidence of some progress towards three other anticipated outcomes, and limited evidence of progress in two areas.

2.2.1 Number of researchers who are either Island Health clinicians or employees

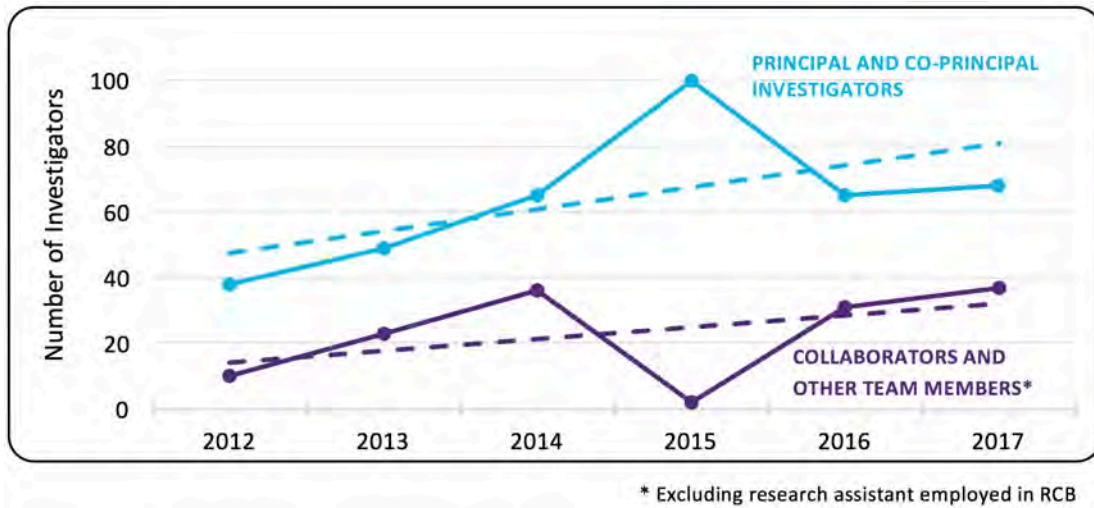
There has been a modest increase in the number of researchers at Island Health since the RCB started.

The number of Island Health clinicians or employees who are Principal Investigators (PIs), Co-Principal Investigators (Co-PIs) or Collaborators⁶ has increased since the inception of the RCB in 2012.

⁵ The RFP competition that led to selection of a Scholar-in-Residence from UVic was not limited to researchers at that institution.

⁶ PIs and Co-PIs are Island Health researchers who are listed as a PI or Co-PI on at least one Island Health ethics application in any given year. Collaborators are Island Health researchers who are listed as a Collaborator on at least one Island Health ethics application in any given year for a project headed by an external PI. Collaborators include those who are involved in a project where a student is listed as PI. The spike in PIs in 2015 corresponds with a drop in Collaborators for that year; this represents an anomaly in the data for that year due to the conversion to an electronic submission platform in 2015 which evened out in 2016.

Figure 3. Principal Investigators and Collaborators

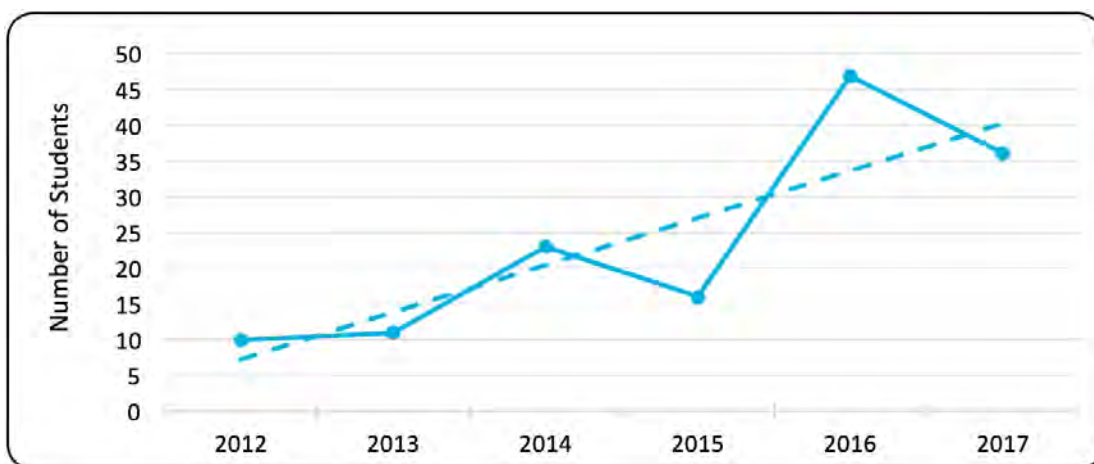


The number of Principal Investigators and Collaborators has increased

The number of Island Health PIs involved in clinical trials has decreased slightly, from 14 in 2013 to 10 in 2017.

Another indicator of growth in the number of researchers at Island Health is the number of students engaged in the research process. Ten (10) students were involved in research in 2012, compared to 36 in 2017.

Figure 4. Students Engaged in the Research Process



The number of students engaged in the research process each year has mostly increased

⁷ This likely represents an undercount of student engagement in research at Island Health, as this figure only includes students who came into contact with the RCB office through the Research Facilitator, as well as UBC Island Medical Program Summer Student Research Program and FLEX students.

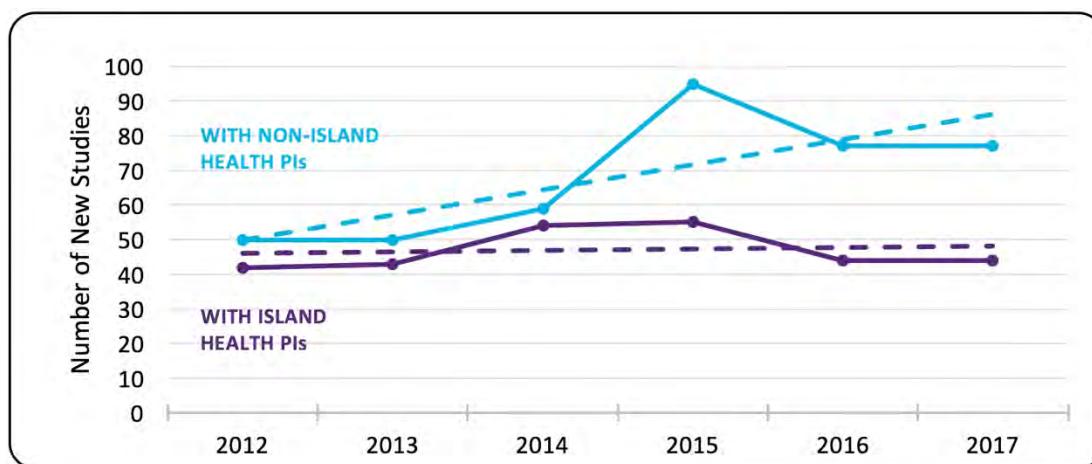
It is important to note that there has also been an increase in the breadth and diversity of students engaged in the research process at Island Health. In the early days of the RCB, Island Health’s primary engagement was with UBC Island Medical Program students, through the UBC Summer Students’ Scholarship Program. Island Health, through the RCB, now supports opportunities for a wider range of students (e.g. nursing, dietetics, pharmacy) and through a variety of opportunities (e.g. funding, training related to curriculum requirements, volunteer opportunities).

2.2.2 Research volume

There has been a modest increase in overall research volume since inception of the RCB in 2012.

The number of new research studies led by an Island Health (i.e. internal) researcher increased slightly in the first 2 years (from 42 in 2012 to 55 in 2015), before falling back to early RCB levels in 2017, with 44 new studies led by an internal researcher. The number of new research studies led by an external PI increased from 50 in 2012 to 77 in 2017, with a peak of 95 in 2015.

Figure 5. New Research Studies



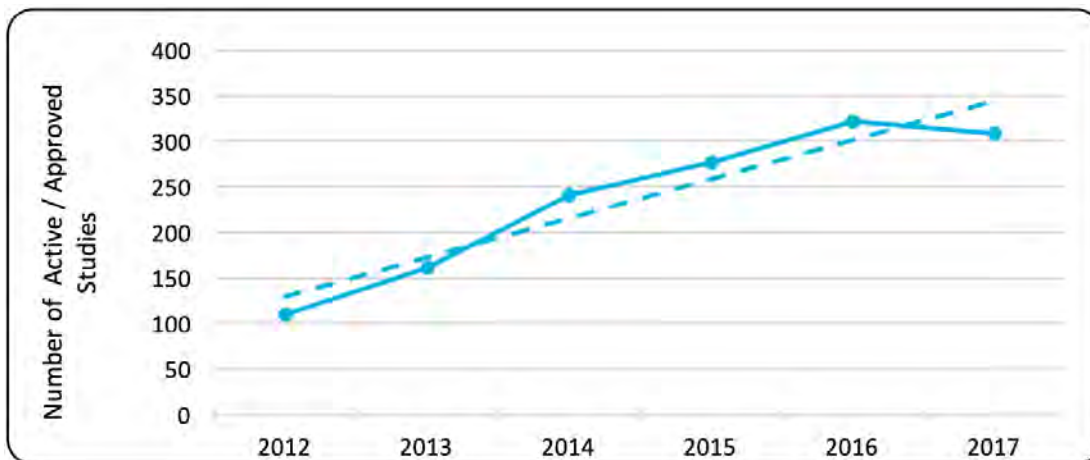
* Excluding industry-sponsored trials

The number of new studies each year led by internal PIs has remained flat, but the number led by external PIs has increased

The number of research studies that were active each year across all Research Ethics Boards⁸ increased every year until 2017.

⁸ Clinical Research Ethics Board and Health Research Ethics Boards.

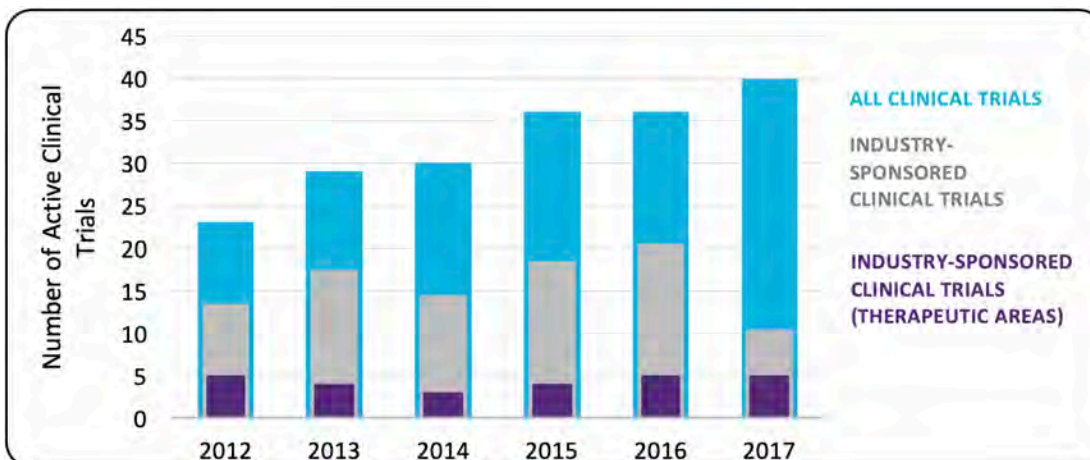
Figure 6. Active Research Studies



The number of active research studies each year has increased

The number of participants in active⁹ clinical trials supported by the RCB¹⁰ at a given point each year has mostly been higher each year, from 23 in 2012 up to a high of 40 in 2017. RCB staff note that some fluctuation in the number of clinical trials is normal and dependent to some extent on factors that are beyond the control of Island Health and the RCB. The breadth of therapeutic areas for clinical trials has also expanded during the RCB, with new studies in cystic fibrosis and gastroenterology, areas which were not active prior to the initiative. Given that a substantial number of clinical trials studies were in the start-up phase in 2017, RCB staff anticipate that the number of active clinical trials will rise again in 2018.

Figure 7. Active Clinical Trials Supported by the RCB



The overall number of active clinical trials per year has increased

⁹ “Active” refers to studies that are actively enrolling or following patients (i.e. not in start-up and not in close-out).

¹⁰ This figure represents only the studies managed by the RCB clinical trial unit, and not all clinical trials that are reviewed by the clinical research ethics board, which includes those conducted by groups outside of Island Health and several conducted within therapeutic units such as pediatrics.

2.2.3 Research quality

There has been an improvement in research quality at Island Health, particularly for clinical trials.

A key theme emerging from the interviews is that wherever researchers encounter the Research Department, it becomes a starting point for conversations about research quality. For example, a researcher who initially contacts the Research Department to ask a question about ethics processes becomes engaged in a broader conversation that may ultimately lead to an improved design. Through multiple contacts over time, researchers build the skills to improve the quality of their research.

RCB's support has also enabled researchers to develop more sophisticated research projects.

Stakeholders also report that the RCB has enabled Island Health researchers to apply for larger, more competitive grants. For example, the RCB has supported applications for multi-million-dollar national competitive grants such as Genome Canada's Large-Scale Research Competition (see *Case Study 1: Seniors' Health Research*), as well as a number of CIHR competitions for grants between \$100K and \$1M.

A long-term indicator of improved research quality is the success rate in winning these competitive grants. The overall success rate for grant applications supported by the RCB between 2013 and 2017 is 36%, with substantial fluctuations from year to year¹¹. The average success rate for CIHR grant applications during this period is approximately 10%.

The amount of competitive grant funding to Island Health researchers is also an indicator of research quality. Although the total value of external grant funding flowing to Island Health between 2013–2017 exceeds \$8M, just over \$6.6M (82%) of this amount is attributable to a single PI and research team, Dr. Andrew Penn, who was successfully supported by the RCB to win a large grant from Genome Canada to fund the SpecTRA¹² project (see *Case Study 1: Seniors' Health Research*).

.....
"Through the process I've learned how to do this stuff myself. I've learned the type of things to think about, I've learned that it's really important to put KT in, it's really important to write in who your collaborators are, it's really important in your budget to include these things ... I feel like they're teaching people to fish so they'll feed themselves for life, as opposed to doing the fishing for them." [Researcher]
.....

.....
"We have been working with them [an internal research team] for 3 years and what has happened now is that the kind of research projects they are trying to develop are more sophisticated. Because for example in the past they didn't consider collecting some data from patients and adding some survey responses to complete the picture. They have been able to see different opportunities that were not [previously] reachable within the limits of their resources and time." [RCB staff]
.....

¹¹ Some researchers may have submitted grant applications without involving the RCB. Data about the success rate of such researchers is currently unavailable.

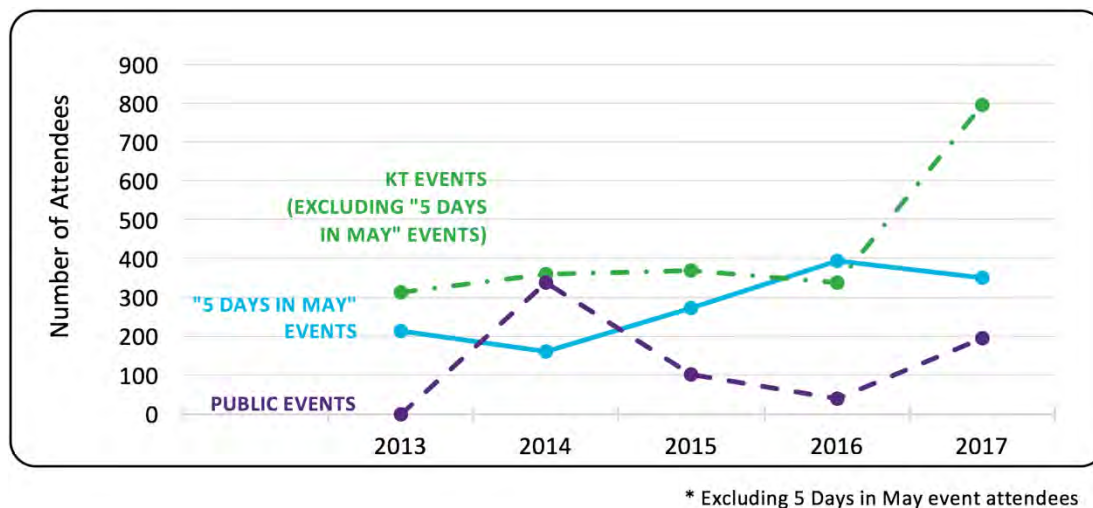
¹² Spectrometry for Transient Ischemic Attack (TIA) Rapid Assessment.

2.2.4 Research dissemination

Research dissemination has increased since the inception of the RCB.

A key area of success for the RCB has been providing high-profile opportunities for researchers to share research findings with potential research users, and for thoughtful discussion between researchers and research users about what the research means and how it can be used, and about new collaborations. Between 2012–2017, 41 Five Days in May events were held, involving 167 speakers, and over 2,100 attendees. Of note, attendance in 2017 was more than double that of any previous year; RCB staff suggest this may reflect, in part, improvements to technological platforms for event delivery. Events targeted to the public were also well-attended: 12 events were held between 2014 and the end of 2017, with an average of over 50 participants. Five Days in May was spontaneously mentioned as a critical enabler of research dissemination by two thirds of all external stakeholders¹³.

Figure 8. Attendees at the RCB Events



The RCB events have been well-attended

There is evidence to suggest that the RCB has had modest success in encouraging researchers to include dissemination plans in their research proposals that refer to specific knowledge users: 142 such plans were submitted between 2015 and 2017¹⁴. However, RCB staff note that there is presently no effective mechanism for follow-up to determine if the plans have been implemented.

¹³ Interviewees who were not staff of the RCB.

¹⁴ To September 30, 2017. Denominator is unknown.

The Research Department has also had a critical role in research replication, through communicating the success of research projects that have had a system impact (also via events such as Five Days in May and K2A Month).

2.2.5 Research uptake

There is limited evidence of an improvement in research uptake at Island Health since the RCB's inception. There are a few notable exceptions to this (see Case Studies on Seniors' Health Research, and Mental Health and Substance Use Research).

"We get groups together where people say, 'Wow, you got funding to do that and you have improved the experience of people coming in through, say, the cystic fibrosis clinic. So, let's see if we can bring that over to nephrology, because I like what it (cystic fibrosis clinic) has done'. That type of thing, it's hard to quantify but that's the type of thing that happens when we bring people together. People get to see how others have actually moved evidence into practice."

[RCB staff]

To date, there is limited documented and consistent evidence that uptake of research generated by Island Health researchers has occurred¹⁵. RCB staff observe that this is in part due to system-wide challenges in tracking the complex processes and actions related to integration of service improvements at the regional level, as well as challenges in following the evidence once a study is closed within the research ethics office.

Since 2015, studies funded by internal grants (most of which are still underway or have been recently completed) have influenced the following:

- 0 policy / decision-making documents
- 1 treatment protocol
- 2 practice guidelines
- 4 care pathways

Additionally, one intellectual property / licensing activity resulting from research at Island Health has been reported.

It should be noted that it is too early for most research that was funded by the internal granting program to be expected to produce downstream research impacts.

The number of research teams that include healthcare providers, decision-makers and patient partners serves as a progress marker for research uptake¹⁶. The RCB has used its internal granting program to influence team composition, with some success:

- 83 healthcare providers were on research teams funded by the RCB's internal granting program between 2015–2017¹⁷
- 15 decision-makers / policy-makers were on research teams funded by the internal granting program between 2015–2017¹⁸

¹⁵ In this context, research is differentiated from quality improvement.

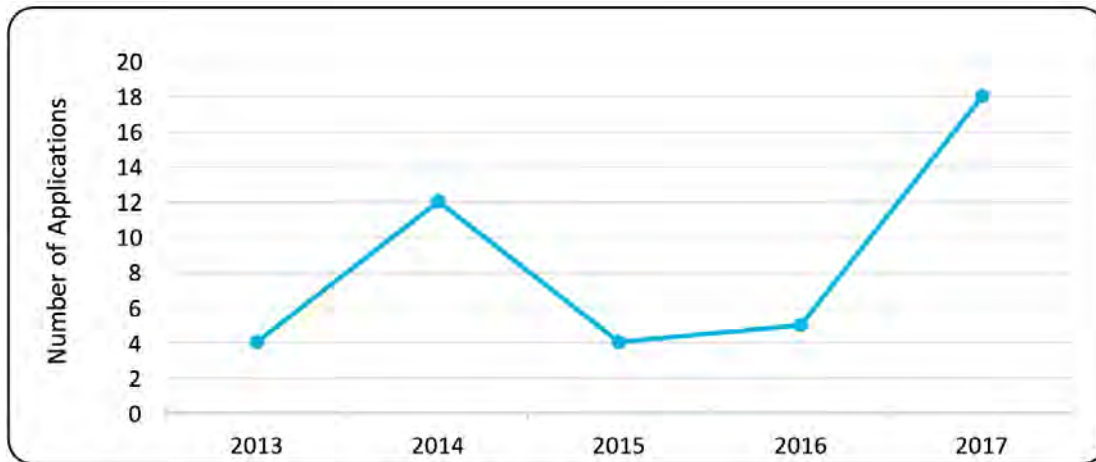
¹⁶ The underlying logic of this is that teams that include healthcare providers, decision-makers and patient partners are more likely to address research questions relevant at the frontline, design methodologies that embrace rather than reject the complexity of the front-line environment and generate evidence that can be integrated into practice.

¹⁷ This is likely an undercount, as additional healthcare providers may have joined the research team after the original application was launched. Data were not available prior to 2015.

¹⁸ Data were not available prior to 2015.

The RCB has also prioritized supporting researchers applying for collaborative external grants (i.e. grants requiring researchers and knowledge users from different institutions to partner), with a noticeable spike in submissions in late 2017. A total of 43 external collaborative grant applications have been recorded between 2014 and December 31, 2017.

Figure 9. External Collaborative Grant Application Submissions



Collaborative grant applications spiked in 2014, and again in 2017

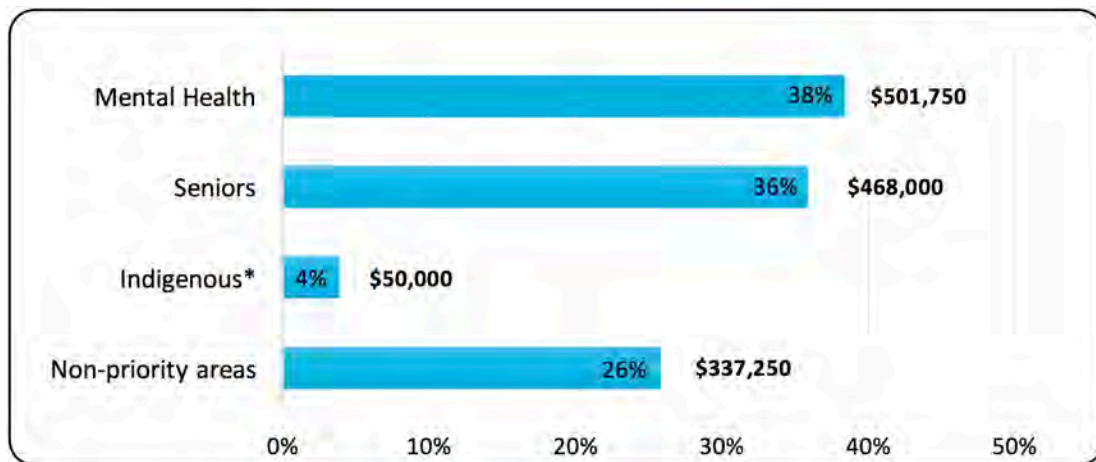
2.2.6 Research in priority areas

There has been a modest increase in research related to seniors' health, and mental health and substance use. Although there is still limited research activity to support Indigenous health, foundations that enable growth of culturally appropriate research activity in this area have been created since the RCB's inception.

Data about the RCB's internal granting program indicates that the grants strongly supported research and KT in priority areas: of the \$1.3M total internal grant funding, \$1.0M (77%) was allocated to research addressing seniors' health, mental health and substance use, or Indigenous health¹⁹. Between 2013–2017, an average of 60% of individual grants went to research in priority areas, primarily seniors' health, and mental health and substance use.

¹⁹ These figures do not take into account returned or partial awards.

Figure 10. Internal Awards in Priority Areas^{20,21}



* The only Indigenous-related award was also categorized as mental health-related and is included in the 38% for the value of mental health awards overall.

Most of the value of internal awards from 2013 to 2017 was for seniors' health, and mental health and substance use projects

Island Health research team applications to external collaborative grants also reflect strong attention to priority areas: of 43 submissions, 24 (56%) were in one or more priority areas.

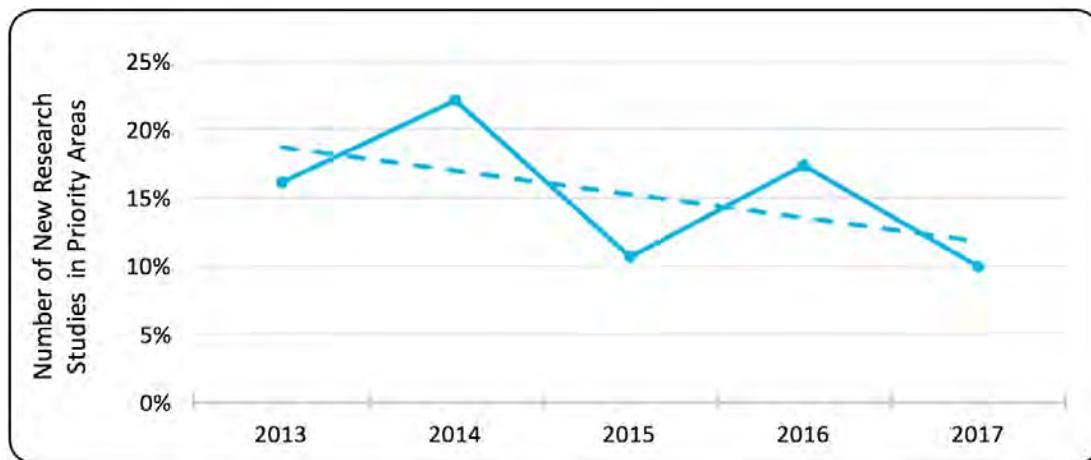
However, research and KT funded by the internal grants program and external grant applications (many of which were not ultimately funded), represent a fraction of the research studies being undertaken at Island Health.

Available administrative data indicate that there may have been a decline in the proportion of new research studies that address one of the priority areas. In 2013, 16% of all new research studies were in priority areas; in 2017 just under 10% were in priority areas. RCB staff noted that the available administrative data in this area may not present a comprehensive picture of research that addresses priority populations and is also not necessarily reflective of the RCB's activity to support research in priority areas.

²⁰ * The only Indigenous-related award was also categorized as mental health-related and is included in the 38% for the value of mental health awards overall. Hence, the percentages shown in this chart total over 100%.

²¹ RCB grant funding in non-priority areas supported research in a variety of areas, including diabetes, public health, immunotherapy, chronic pain management and organizational culture/education.

Figure 11. New Research Studies in Priority Areas



The proportion of new research studies in priority areas may have declined since 2013

However, it is important to note that there have been valuable pockets of research activity in seniors' health, system-level changes in research activity and uptake of evidence in mental health and substance use, and substantial progress in building the foundations to enable increased culturally appropriate research activity in Indigenous health.

In seniors' health research, successes include:

- A \$9.6M Genome Canada research contract, awarded to Island Health Principal Investigator and stroke neurologist, Dr. Andrew Penn for the SpecTRA project.
- The development of a robust dementia clinical trials program by Island Health.
- A partnership with UVic and UBC to obtain a 5-year \$2.5M donation from the Victoria Hospitals Foundation for the Neil and Susan Manning Cognitive Health Initiative (CHI), the first grant for research the Foundation has ever offered to Island Health or UVic.

Nearly every service offered by the RCB has been involved in these successes. For the SpecTRA project alone, records indicate that the RCB provided over \$350K in in-kind support.

In mental health and substance use research, successes include:

- An overall improvement in mental health and substance use care teams' receptivity to research, and the degree to which it is being incorporated into everyday decision-making among care teams.
- A new Scholar-in-Residence embedded at Island Health, who is a scientist from the Canadian Institute of Substance Use Research, with an academic appointment at UVic. This was enabled through a competitive Request for Proposals (RFP) process developed and managed within the RCB. The Scholar-in-Residence's work is supporting the generation and use of research evidence to reduce harm and improve services for people experiencing homelessness and substance use issues on Vancouver Island, with a significant focus on decreasing morbidity and mortality caused by the opioid crisis. A collaborative research team led by the Scholar-in-Residence was successful in obtaining CIHR funding to conduct patient-oriented research, with the support of the RCB. The Scholar-in-Residence is also providing mentorship to novice researchers to build future capacity.

In Indigenous health research, successes include:

- Recognition by stakeholders that the Research Department is well-trained and knowledgeable on cultural safety and the history and impact of residential schools. This is a critical enabler for development of effective partnerships in this area.
- The inclusion of research as a formal part of the Vancouver Island First Nations Health Authority (FNHA) / Island Health Partnership Accord Work Plan, formalizing a commitment in 2014 to partner with each other and First Nations communities to initiate collaborative research activities.
- Co-chairing of Island Health's Health Research Ethics Board between an Indigenous chair and a non-Indigenous chair, and inclusion of three Indigenous members on the board.
- The provision of valued support for collaborative studies with First Nations communities by the RCB. Examples include a study designed to improve maternal and child care and services in the Kwakwaka'wakw community on North Vancouver Island, and an MSFHR project to improve the quality and safety of the Port Alberni Hospital Emergency Department experience of Indigenous elders.

(For more detail, please refer to the *Case Studies on Seniors' Health Research, Mental Health and Substance Use Research, and Indigenous Health Research*, contained in the *Addendum*).

2.2.7 Geographic distribution of research activity

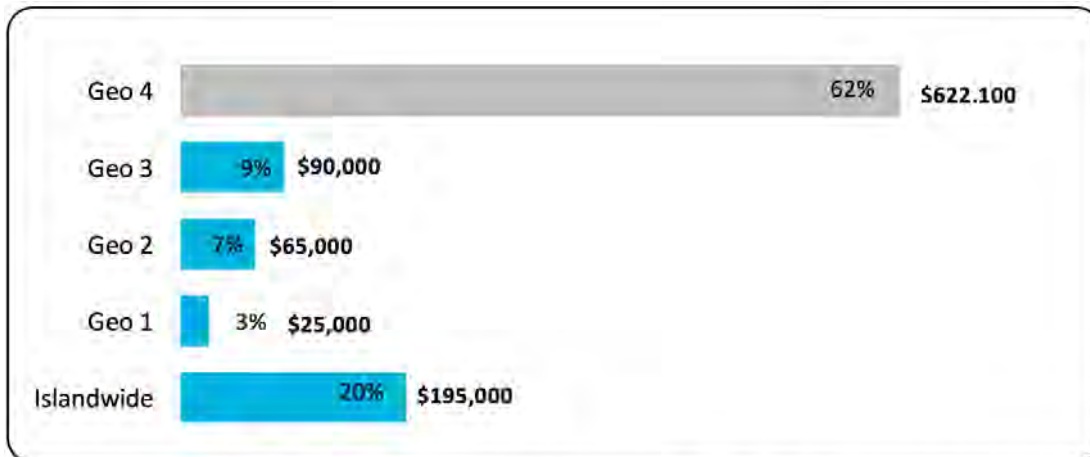
There is little evidence of overall increased research activity in Geographies 1, 2 or 3.

Although there have been some important individual research projects in Geographies (Geos) 1, 2 and 3 during the RCB, and some evidence of interest in research, there is little evidence of overall increased research activity in these areas.

The total internal grant funding awarded to studies in or about Geos 1, 2, and 3 combined over the past 3 years is \$180K (of a total of \$997K). This represents 18% of the total value of all grants awarded over the past 3 years²².

²² Data on this indicator were not collected before 2015.

Figure 12. Value of Internal Awards for Research in Geos 1, 2 & 3 and Island-Wide



NOTE: The breakdown of award funding by project region was not tracked prior to 2015.

More than half the value of internal awards from 2015–2017 was for projects focusing on Geo 4

Administrative data about all new research studies (i.e. not just those funded by the RCB grant) indicates that research is still very much concentrated in the Victoria region. Fifteen (15%) of all new studies in 2017 focused on Geos 1, 2 or 3 or included patients, personnel, data or resources in these Geos.

RCB staff report that efforts were steady throughout the 5-year period to engage leaders and clinical teams in Geos 1, 2 and 3 in research opportunities. However, significant changes have been implemented in these areas during the research capacity-build, including geographic governance restructuring, the building of two new acute care facilities (Geo 1) and the roll-out of the new electronic health record (iHealth) (Geo 2), which likely affected both attention to, and capacity for research.

2.2.8 Contributions to quality improvement

The RCB has made a significant contribution to the quality improvement environment at Island Health. This outcome was not anticipated. (See *Case Study 4: Quality Improvement, in the Addendum*).

2.2.9 Provincial initiatives leadership and participation

The RCB has also made significant contributions to the development of provincial research capacity-building initiatives, including to the Academic Health Sciences Network (AHSN), created in 2016. This includes establishment of the BC SUPPORT Unit, the provincial health data initiative, provincial clinical trials infrastructure, and the BC Ethics Harmonization Initiative. (See *Case Study 5: Provincial Initiatives Leadership and Participation, in the Addendum*).

2.3 LONG-TERM OUTCOMES

Long-term outcomes are defined as those that were anticipated to occur or begin occurring more than 5 years after RCB's inception (i.e. after 2017 and beyond the life of the initial 5-year investment).

2.3.1 Organizational culture change

There has been progress towards an organizational culture in which evidence-informed decision-making is integrated into everyday practice for Island Health.

A key long-term goal of the RCB was to contribute to the development of an organizational culture in which evidence-based decision-making is integrated into everyday practice throughout Island Health. However, it was not necessarily expected that there would be a discernable change within the initial investment's lifetime.

Stakeholders with long-standing interests in research at Island Health described a major shift in how the centralized research function is perceived. The RCB is credited with having broken down siloes and fostered a sense of openness, transparency and genuine partnership.

At the level of individual researchers and research users in the health authority, the new openness, along with events and services that researchers find useful, has served to demystify research.

At the level of clinical units, there is also a sense of increasing open-ness to being involved in research, although stakeholders acknowledge that this may be occurring in "pockets" rather than throughout the organization.

There is also evidence of change at the senior leadership level within Island Health. Research is now explicitly mentioned in Island Health's purpose statement, strategic planning documents as well as its board-approved multi-year plan, annual service plan and priorities documents. Research is also formally embedded in four of Island Health's quality councils, including the Quality Operations Committee, through Research Department representation. Stakeholders also observed a change in the extent to which executive and departmental leaders are pro-actively reaching out to the Research Department for input on strategic initiatives.

.....
"Research at Island Health was [previously] a very secret service, "behind closed doors" activity that was isolated and siloed away from any of the clinical or other administrative activities that went on in the organization. We used it to call it the fortress and could not get a toe in that door. Everything is changed because the fortress has been blown open. And the data that they hold, the work that they do is transparent. They have actively positioned themselves as partners in both clinical and administrative processes."
.....

[Island Health administrator]

.....
"We have promoted having the people see research as not so difficult, not so strange, not so far removed, but more useful and more possible to apply in real life. We are opening options to do something that before seemed to be quite difficult."
.....

[RCB staff]

.....
"It's really obvious when you walk around clinical areas, where back in 2013, [in] the clinical areas people would essentially roll their eyes, saying "We're too busy for this". It feels so different now."
.....

[RCB staff]

To some extent this reflects a shift in government policy; the role of research is now explicitly mentioned in the Ministry of Health mandate letter to Island Health. The combination of the RCB working upwards and Ministry of Health directives working downwards is thought to be influencing formal recognition, at the executive level, of research's important role in improving healthcare delivery.

"I think it's amazing what they have been able to do over five years, to build a culture and build organizational capacity where you've got leadership asking questions about research."

[Researcher]

2.3.2 Patient, population and health system outcomes

To date, there is limited evidence of changes in patient and health system outcomes (e.g. patient satisfaction, patient / population health outcomes, reduced health inequities, decreased system costs), although there are documented cases of this occurring (see case studies in the *Addendum*). However, it should be noted that changes to patient and health system outcomes was by no means an expectation of the RCB within the life of the initial 5-year investment.

2.4 SUSTAINABILITY AND LONG-TERM IMPACT

There has been important progress in terms of sustainability since the mid-term evaluation. Infrastructure has become further embedded, strategic and operational leadership and team function has continued to be strong, partnerships have been cemented through shared funding and processes, operational funding has increased, and some new sources of funding have been secured. However, there are still some gaps and risks that will need to be addressed to sustain the gains made and to create long-term impact.

2.4.1 Sustainability successes

INFRASTRUCTURE

There is ample evidence, in both the quantitative data and interviews, that the RCB has made substantial progress in building the research support infrastructure necessary to sustain the research enterprise:

- **Establishing a robust human resources structure.** Twenty-eight (28) roles have been created or updated and filled. Some of these roles have been established as part of the BC SUPPORT Unit Vancouver Island Regional Centre.
- **Establishing strong strategic and operational leadership for the Research Department.** Outstanding strategic and operational leadership was identified one of the most critical facilitators of the RCB's success to date. The RCB made substantial investments in leadership development training through Island Health programs and the Canadian College of Health Leaders.
- **Staffing the Research Department with a team of highly skilled, committed, enthusiastic and responsive individuals.** Team members are respected for their expertise in a wide range of research infrastructure-related fields, including clinical research, compliance and ethics, privacy, research informatics and statistics, grant facilitation, research finance, research facilitation, knowledge translation, patient engagement, and partnership development. Stakeholders identified this as a key facilitator of the RCB's success.
- **Creating and delivering a service mix that meets the needs of a broad range of stakeholders, both within Island Health and externally.** This has helped establish the RCB as a "one-stop shop" for research at Island Health. Stakeholders also identified this as a key facilitator of the RCB's success to date. One small challenge in the service mix is the Research Liaison role,

which is unclear to some stakeholders. RCB staff observe that the role has evolved over time in directions that were not anticipated originally.

- **Establishing and growing key services and supports:**
 - REDCap platform: 186 projects created
 - PTC program: Over 15,400 enrolments
 - Research privacy consultations: 284 service contacts
 - Contract support: Over 350 contracts negotiated. As of the end of 2017, 50 contracts per month were in active negotiation.
- **Establishing relationships between the Research Department and a wide range of departments and units within Island Health.**
- **Establishing Island Health's presence in a wide range of networks to facilitate research capacity-building.** As of September 2017, Island Health participated in 83 such networks.
- **Developing and improving financial management and accounting policies and procedures and implementing them.** Between 2013–2015, improvements in budgeting processes and study performance resulted in a 50% increase in revenues to support the direct and indirect costs of the clinical research program.
- **Streamlining ethics and operational review processes.** Although there is still some way to go, stakeholders agree that the foundations are in place for continued progress.
- **Establishing a regular program of high profile, well-attended events to promote research, facilitate knowledge translation and inspire engagement.** This includes the RCB's signature Five Days in May event, as well as Knowledge-to-Action month in the fall, and public events.

Notably, the RCB's internal grant funding program is missing from this list, as there was no funding to sustain it beyond the initial 5-year grant through MSFHR. This is further discussed in *Section 2.4.3*.

PARTNERSHIPS

The strengthening of critical internal and external relationships was a dominant theme throughout the interviews, as it was in the mid-term evaluation. Again, the most noteworthy has been the relationship with UVic. Most stakeholders are confident that the gains made in inter-institutional partnerships, especially at the middle level (i.e. between the Research Department and its counterparts at other institutions) are robust, although there are some questions from academic partners about Island Health's long-term commitment at the executive level. (See the section on *Sustained Executive Support* later in the report and refer back to section *2.1.7 Meaningful Collaboration* for more details about partnerships).

2.4.2 Sustainability risks and challenges

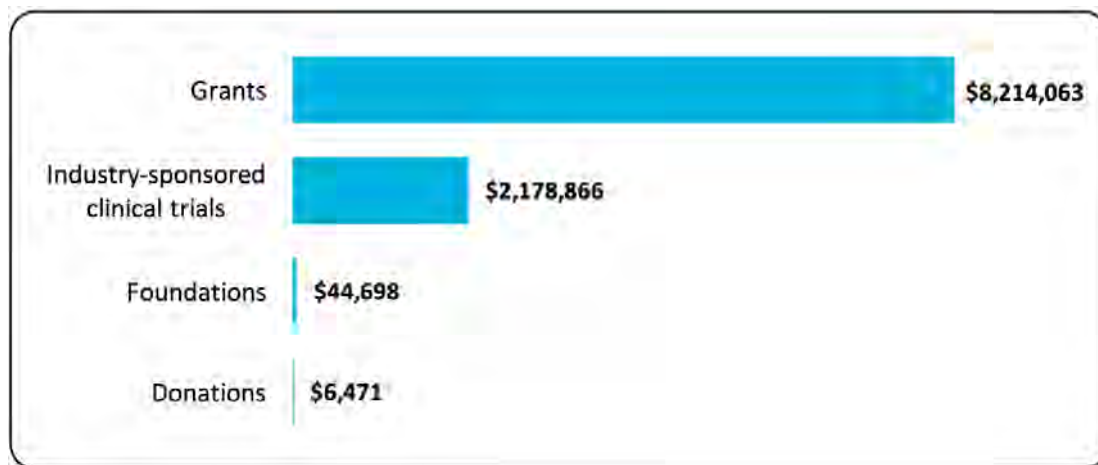
FINANCIAL SUSTAINABILITY

There has been important progress in this area since the mid-term evaluation in 2015:

- Increased operational funding to support core and capacity building roles.
- \$1.9M in time-limited funding for the BC Support Unit Vancouver Island Regional Centre, shared with UVic.
- \$1M in matched partner funding, leveraging Island Health’s investment in developing patient-oriented research capacity and support during the capacity-building initiative.
- Overhead splitting with UVic on the funding from the Academic Health Sciences Network for SPOR (\$68,000 per year over 5 years).
- \$2.5M in time-limited funding from the Victoria Hospital Foundation for the Neil and Susan Manning Cognitive Health Initiative, also shared with UVic.

External funding flowing into Island Health during the initiative itself (i.e. 2012–2017) has been modest, in part because the majority of collaborative research projects are led by academic researchers (therefore the funding is held by the universities). A total of just over \$10.4M was received in external funding, mostly in the form of grants. However, as noted earlier, a substantial proportion of the external grant money to Island Health came to a single research project, which ends in March, 2018.

Figure 13. External Funding, 2013–2017



The largest proportion of external funding between 2013–2017 has come in the form of grants, most of which was for a single PI and project

The value of cost-recovery charges for research support activities²³ has been very modest: just \$41,000 has been recovered over 5 years. A small number of stakeholders (n=2) question the merit of this model, expressing concerns that it may dissuade some potential users from engaging with research. RCB staff note, however, that the Research Department has not denied support to Island Health employees requiring services when they have not been able to find funding.

²³ This includes charges for REDCap data management, statistical consultation and PTC.

Cost-recovery from Research Ethics Board fees has averaged \$110K per year over the duration of the RCB. Additionally, a portion of funding from industry-sponsored clinical trials, approximately \$309K per year, funds portions of the research staff within RCB assigned to work on the studies.

Although stakeholders acknowledge and admire the creativity displayed by the Research Department and partners to maximize funding opportunities, financial sustainability is still an area of substantial long-term concern.

RCB staff observe that engagement with Island Health executive leadership on the issue of financial sustainability continues to be challenging in an environment of fiscal constraint and overall flat budgets, and that dependence on time-limited grant funding for the foreseeable future is a risk.

SUSTAINED EXECUTIVE COMMITMENT

Although the RCB has had two strong champions at the executive level in Dr. Martin Wale and Dr. Malcolm Ogborn, several stakeholders (particularly at the senior levels at academic partner institutions) identified sustained leadership commitment at the executive table as a risk. Under the current structure, the Executive Medical Director (EMD) for Research has responsibility for another busy portfolio. There is no Executive Director role to parallel the leadership structure in other areas. The current structure makes it challenging to effectively promote and protect research, and to increase the institutional levers the Research Department has available to further move the dial towards the integration of research and knowledge translation into everyday practice.

“I think the funding remains vulnerable. What you really need for research is multi-channel funding, some of which is charitable, some of which comes from disease-specific groups, some of which comes from operational funding, health system funding. And some of it comes from provincial priorities, so you need a mixture. And we don’t have that.”

[Former executive leader, Island Health]

“There is this feeling that [the Research Department] is constantly under the hammer, that the funding for the whole enterprise could get pulled someday.”

[Researcher]

“I don’t think we have been robust enough in the organizational assignment of executive level [support], and it’s not the people—the people are good—it’s the amount of time they have because both of them had one day a week, but it never ended up being that. It waxed and waned, and sometimes it has not been there at all.”

[RCB staff]

“I think a clearer organizational accountability for research and not just in words but in practice is going to be key for the work that the RCB does for it to have impact.”

[RCB staff]

2.4.3 Requirements for long-term impact

STRATEGIC FRAMEWORK TO GUIDE PRIORITIES

Stakeholders acknowledge that the RCB's strategy of "creative opportunism" has been extremely effective in stimulating research and knowledge translation activity where they have been able to identify departmental-level research champions, aspiring researchers and favourable structural conditions.

However, senior Island Health stakeholders suggest there is a need for clear strategic direction driven by Island Health priorities going forward.

One of the key issues that needs to be resolved is whether a goal for Research should be to support more Island Health professionals to become Principal Investigators. Some stakeholders feel it may be more appropriate to emphasize growing the pool of highly skilled Collaborators.

A related issue raised by some stakeholders is the need to identify the appropriate balance between supporting knowledge production and supporting knowledge translation. Some stakeholders feel that a shift towards the latter would enhance research uptake. RCB staff observe that this area may need more attention at the strategic level and broader organizational engagement outside of the boundaries of the Research Department.

One senior stakeholder at an academic partner institution questioned whether the research support function at Island Health should focus more on facilitating connections across institutions between researchers and research users with similar interests, rather than on trying to build formal partnerships to produce research.

"Where I think this department needs to go ... is shifting the focus from being essentially a service-oriented department that reacts to whatever researchers bring through the front door to being a department that is not only in service of researchers, but in service of the health authority. I see tremendous potential. But the critical thing is, they do not have a clear set of priorities ... The health authority has to tell the department what it wants done and what it needs done."

[Executive leader, Island Health]

"I keep thinking, is that the role of the health authority, to have more researchers in the health authority? They're a care provider, a service provider, right? And so, you probably do need some researchers who can help them with the research needs of the organization. That makes sense to me. But to think about the production of knowledge, is that really the health authority's role, to be the leaders of that or is their role to be partners in producing knowledge that they then use?"

[Researcher]

"I think that if it [the RCB] was to continue, the philosophy would have to change from partnership to facilitation. And the facilitation would, I think, get more involved in building an interface that would build networks and direct consultations and getting the right people to meet with one another."

[Executive leader, academic partner]

Finally, at a more operational level, RCB staff expressed concern that because the Research Department has now established its reputation as a highly functioning one-stop shop for research, demand for services will outstrip its ability to deliver high quality support.

A small number of stakeholders (n=3) suggested that a guiding framework for research would help the team focus their work to Island Health’s strategic priorities, as well as broaden its impact.

PROTECTED TIME FOR RESEARCH

Several stakeholders indicated that the lack of protected time for health professionals to conduct research is a critical barrier to increasing the number of researchers, the volume of research being produced, and ultimately the potential for research to transform practice throughout the organization. Stakeholders report that most research at Island Health is done “off the side of one’s desk”, even if it is written into the job description.

These stakeholders noted that building financial incentives to do research into service delivery funding models, and removing disincentives, will be necessary for widespread cultural transformation to occur.

.....
“My worry is that the structure and the people in it are at capacity. We’ve got to this point by saying, “Yes, we can help everybody” but my worry is we’re going to make a mistake if we keep spreading ourselves too thin. Our ability to continue to grow additional capacity is restricted because we have to maintain what we’ve built and the quality around what we’ve built, and we can’t keep saying yes to everything.”
[RCB staff]
.....

.....
“For Research and Capacity Building I think the biggest challenge, bar none, is how do you incentivize the people who should be asking those research questions to work within the system? I’m kind of a bit stupid. People look at me and think, why would you do that? And they’re right. I was able to construct a salary through [a grant] so that I essentially had a salary for the last 5 years. But now I don’t and so, really, I probably am not going to be doing this anymore. I’d like to, but I can’t because I have to actually earn a living.”
[Researcher]
.....

.....
“If we can’t actually build research into job descriptions and have dedicated time for that within job descriptions we’re always going to have one-offs. We’re going to have a little pocket [of activity] per year where sure you can get some protected time to do research but that’s not going to create researchers. It’s just going to be oh, a little project here, a little project there and maybe that little project will have great results but it’s not going to increase the number of researchers that we have.”
[RCB staff]
.....

FOUNDATIONAL SKILLS TO DO RESEARCH

One senior stakeholder at an academic partner institution perceived that the RCB model assumes that Island Health clinicians have a base level of research skills that would enable them to engage meaningfully in research.

RCB staff indicated that no assumptions were made about a base level of knowledge in building the infrastructure to support research. However, a small number of other stakeholders (n=2) did note that there were skill deficiencies at the departmental level that would be difficult to address through the current model. One stakeholder's suggestion for addressing this, building on the Scholar-in-Residence model, is to embed researchers with content expertise as well as methodological expertise into departmental structures.

ADDITIONAL RESEARCH SUPPORT SERVICES

Stakeholders observed that a key gap following the end of MSFHR funding is an internal grant funding program. The program largely ended in 2017²⁴, having allocated more than \$1.3M in grants to Island Health researchers²⁵. The RCB was able to use the grant program to support research and KT in priority areas (particularly seniors' health, and mental health and substance use) and stimulate collaborations between Island Health researchers, patients and research users, which is a key mechanism for reducing the gaps between research and application into practice. Stakeholders also observed that although many of the individual grants were modest, it was enough to get some research programs off the ground.

"I think the initiative assumed that physicians had a skill set to, you know, even at the simplistic level, ask questions in a way that they could be answered through research."

[Executive leader, academic partner]

"They [the Research Department] are one sole entity in a very large organisation with very diverse areas of practice and I sort of wonder, because we're at the very beginning stages, if there isn't almost some kind of model where you've got people who are research experts in or aligned with different areas of the health authority. They [the Research Department] are experts in capacity-building in their organization for research but I think they're going to have to grapple with this issue of content-specific knowledge and how that's supported across a really super large organization, as well as methodological knowledge."

[Researcher]

"It's very difficult trying to build research capacity in an environment which is substantially fee-for-service anyway, and so even if you can fund a modest amount of support for a physician to allow them to develop a research idea, that's the difference between allowing them to do it, or them not doing it at all."

[Former executive leader, Island Health]

²⁴ A reduced granting program is being run in 2018–19 using residual funds.

²⁵ Many of these are still underway, but no new funding is being allocated.

3. Recommendations

The independent evaluation found that the RCB has met or exceeded the majority of its goals. Although there are some areas in which the initiative has been less successful, the evaluation did not identify any areas requiring urgent attention.

Most of the key challenges for the RCB concern long-term sustainability and impact. Addressing these issues will require engagement of senior leadership within Island Health.

Recommendation 1: Continue to explore and clarify Island Health’s strategic priorities with respect to research. Clarification may include setting targets. Specific issues requiring clarity include:

- Ongoing commitment to supporting research at Island Health
- Priority given to increasing research volume (i.e. knowledge production) within Island Health
- Priority given to increasing the number of researchers who are Island Health staff members or clinicians, particularly Principal Investigators
- Priority given to increasing research engagement systematically across departments and units
- Priority given to developing funding partnerships with academic institutions for research projects (e.g. Cognitive Health Initiative), as opposed to facilitating connections between academic researchers and Island Health staff and clinicians with similar interests
- Priority given to increasing research uptake, both for research generated within Island Health and research generated outside Island Health
- Priority given to increasing research activity in Geos 1, 2 and 3
- Priority given to increasing research activity in seniors’ health, mental health and substance use, and Indigenous health

Recommendation 2: Continue to explore and clarify how Island Health will support its strategic priorities in research in ways that are beyond the purview of a research department. Specifically:

- If Island Health maintains or increases its commitment to supporting research:
 - How can this be better supported through the executive leadership structure for Island Health? For example, should the executive leadership structure for research mirror the structure in place for other functional areas (e.g. a full-time Executive Medical Director and Executive Director)?
 - To what extent will Island Health support the endeavour with sustained operational funding for the Research Department?
- If increasing research volume or increasing the number of researchers who are Island Health clinicians are identified as priorities, what strategies will be used to address the current lack of protected time for clinicians to do research, in particular physicians who are paid to perform clinical duties on contract?
- If increasing research engagement systematically across departments and units is a priority:
 - What institutional levers will be used to influence engagement?
 - What supports will be used to build foundational skills required for clinicians and staff to meaningfully engage in research and evidence-use?

Recommendation 3: Develop a framework to guide the priorities of the Research Department, based on Island Health’s strategic priorities. Consider strengths identified in the evaluation as inputs to the priorities:

- Robust human resources structure
- Strong strategic and operational leadership
- Team of highly skilled, committed, enthusiastic individuals
- Appropriate service mix
- Annual program of high profile events, particularly Five Days in May and Knowledge-to-Action month
- Established relationships with a wide range of Island Health departments and units
- Success of internal grants program in channeling funding to research in Island Health’s strategic priority areas
- Strong, functional relationship with research at UVic at both strategic and operational levels that has been tested through shared funding and processes
- Developing relationships with other academic institutions, including UBC (primarily through the Island Medical Program), Royal Roads University and Vancouver Island University
- Establishment of the Research Department as a key support to Island Health’s quality improvement structure and processes
- Island Health’s role, through the Research Department, as a provincial and national leader in research capacity-building and patient-oriented research

Recommendation 4: Continue to seek multi-channel funding to support the Research Department, to reduce reliance on time-limited grant funding.

Recommendation 5: Conduct a thorough review of the metrics that will be used to monitor the performance of the research and research support functions at Island Health. Considerations include:

- Defining and documenting how data for each metric in this report were collected and reported, for reproducibility
- Identifying which metrics are most relevant to measuring the Research Department’s performance, as well as the metrics that are most relevant to measuring performance of the overall research function at Island Health
- Identifying the best available data sources for each metric, and documenting their limitations
- Automating systems for capturing data on performance
- Developing a live dashboard of 10–15 key performance indicators

Addendum: Case Studies of RCB Impact

The purpose of the five case studies that follow is to highlight and “bring to life” some of the Vancouver Island Research Capacity Building (RCB) initiative’s key achievements. Three of the case studies (Seniors’ Health Research, Mental Health and Substance Use Research, and Indigenous Health Research) feature activities and outcomes that were envisioned from the outset of the initiative. The other two case studies (Quality Improvement, and Provincial Initiatives Leadership and Participation) feature activities and outcomes that were unanticipated. Although the emphasis in each individual case varies, overall, the case studies are designed to narratively demonstrate how the RCB has contributed to increasing research volume, quality, collaboration, dissemination and uptake, and sustainability of the health research enterprise (particularly in Island Health priority areas), as well as longer-term outcomes such as organizational culture change and patient outcomes. The case studies are intended to complement the detailed reporting for each outcome area contained in the main body of the report.

CASE STUDY I: SENIORS' HEALTH RESEARCH

Building Island Health's capacity for research to address seniors' health issues was a priority for the Vancouver Island Research Capacity Building (RCB) initiative. Prior to the initiative, only a small number of researchers had active projects in areas relevant to seniors' health, including stroke, dementia and cardiac care and there was very little structured support for research and knowledge translation (KT) in this area.

In the early days of the initiative, there was a significant focus on building relationships and collaborations with a wide range of stakeholders with interests in seniors' health research, both within Island Health and with external partners. Over time, the RCB has played an instrumental role in helping Island Health researchers initiate and expand research programs in stroke, dementia, cardiac, chronic disease and frailty, and end-of-life care.

The RCB's support has led to the following key outcomes to date:

- **A \$9.6M Genome Canada research contract**, awarded to Island Health Principal Investigator and stroke neurologist, Dr. Andrew Penn for the SpecTRA²⁶ project. Stroke is one of the leading causes of disability in Canada. However, many people experience transient ischemic attacks (or TIAs), which, while less serious, can lead to strokes. The problem is that many conditions, including migraines, can present as TIAs, leading to expensive neuroimaging testing. Dr. Penn and his team aimed to develop a quick, inexpensive test that would differentiate TIAs from other conditions²⁷. Through the SpecTRA grant, Dr. Penn and his team have successfully developed a validated TIA biomarker panel as well as a clinical decision-support tool that enables Emergency Department physicians to increase diagnostic accuracy, improve outpatient referral processes, and deliver guideline-based care in hyper-acute stroke settings.
- Development of a **robust dementia clinical trials program Island Health**. In 2013, only one clinical trial in this area was underway. Since 2014, seven clinical research trials focusing on dementia have been completed or are underway.
- Successful partnering between Island Health, the University of Victoria (UVic), and the University of British Columbia (UBC) to obtain a 5-year **\$2.5M donation from the Victoria Hospitals Foundation for the Neil and Susan Manning Cognitive Health Initiative (CHI)**. This was the first grant for research the Foundation has ever offered to Island Health or UVic. A key factor in Island Health's capacity to obtain funding through this partnership was the foundational work to build a robust dementia clinical trials program. The CHI is a collaborative clinical research project, which aims to develop state-of-the-art digital tools that will eventually be available for use by family physicians to assist with early diagnosis of dementia and dementia care across Vancouver Island. The initiative also aims to expand clinical trial opportunities for patients with dementia, including studies of new drugs that would not be otherwise available to patients in the region. Through partner contributions, the total funding is expected to grow to \$5M.
- **Representation of the RCB in the Seniors Quality Council and the Brain Health Quality Council**. The RCB's presence ensures that evidence is more systematically used to support policy implementation, that appropriate KT supports can be accessed as needs are identified, and that research opportunities to fill gaps in evidence are identified and promoted.

²⁶ Spectrometry for Transient Ischemic Attack (TIA) Rapid Assessment.

²⁷ Genome Canada and the Canadian Institutes of Health Research (2012). *Backgrounder: Results of the Genome Canada-CIHR 2012 Large-Scale Applied Research Project Competition in Genomics and Personalized Health*.

The dementia research program and SpecTRA have already produced results that directly benefit patients. Since the infusion of Genome Canada funds into the SpecTRA project in 2014, Island Health has achieved a substantial reduction in the admission rate for stroke. With support from the RCB, the SpecTRA research project has fundamentally affected the interface at the point of care.

Although the dementia research has yet to produce a positive result, there is evidence that involvement in the research process is itself a benefit to patients and their families.

Nearly every service offered by the RCB has been involved in these successes. An abridged list includes compliance activity (to ensure clinical trials meet regulatory requirements), budget negotiation, financial management and reporting, contract negotiation, preparing documents for research ethics, dissemination events targeting research users as well as the public, and internal grants to support dissemination. For the SpecTRA project alone, records indicate that the RCB provided over \$350K in in-kind support.

In describing the outcomes achieved to date, stakeholders refer to the “ripple effect” of the RCB. For example, initial support for a clinician’s research program in dementia provided the foundation for a larger collaboration (the CHI). Extensive groundwork to build relationships enabled Island Health and UVic to envision a collaborative partnership for research in dementia. The RCB’s lead role in nurturing a relationship with the Victoria Hospitals Foundation created the opportunity for UVic to become involved with the Foundation, which was a first for the university and for research at Island Health. Finally, although there are certainly many challenges still to be overcome to implement the CHI, it is expected that the process of working together on a significant grant will lay the foundation for future collaborations.

The case study presented here reflects only a partial picture of RCB-supported research and knowledge translation activity currently underway at Island Health to address seniors’ health issues. Stakeholders in this area expect the Research Department to continue to play a strong role in developing research capacity in seniors’ health.

.....
“The conventional emergency room team would see someone with a complaint come in, treat them “business as usual” and park them in the back. Then the research team would come in, and our research nurse with stroke training, would say, “No, that’s stroke. That’s not something unimportant”. And then our research fellow would come in, confirm it, initiate treatment and the patient’s whole course would be changed. I’ve seen that happen many times.”
..... [Researcher]

.....
“The conditions that we’re studying are conditions for which there are no cures and ineffective treatments. When there are no existing treatments it’s really nice to be able to offer some hope to patients, that they may at least contribute to the next people down the line and who knows? If potentially the patients that we’re studying do end up being successful, then they’re the ones first in line to have access to the treatment.”
..... [Researcher]

.....
“I think these are enormously important initiatives because they’ve broken the ice, they’re starting to build things that now are more and more easily worked through because we understand what we’re trying to achieve together.”
..... [Executive leader, academic partner]

CASE STUDY 2: MENTAL HEALTH AND SUBSTANCE USE RESEARCH

Another key area of focus for the Vancouver Island Research Capacity Building (RCB) initiative was to support research capacity-building in mental health and substance use (MHSU).

Early in the RCB initiative, the focus was on building relationships and collaborations with a wide range of stakeholders in the MHSU community, including people with lived experience, university and community-based researchers, municipalities, not-for-profit organizations and Divisions of Family Practice.

By 2015, the RCB was aligned and working in partnership with Island Health's MHSU program, supporting a wide range of activities, including facilitating connections between Island Health and academic collaborators, providing funding through the granting program, and participating in MHSU service and research planning activities. Using a stepping stone approach, the RCB has become an integral part of Island Health's organizational capacity to address the priorities of prevention, health services, and population health in mental health and substance use.

The RCB's support has led to the following key outcomes to date:

- **Overall improvement in MHSU care teams' receptivity to research**, and the degree to which it is being incorporated into everyday decision-making among care teams.
- **Representation of the RCB in the MHSU Quality Council**, ensuring that the appropriate knowledge translation supports can be accessed as needs are identified, and that research opportunities to fill gaps in evidence are identified and promoted.
- **A new Scholar-in-Residence embedded at Island Health**, who is a scientist from the Canadian Institute of Substance Use Research, with an academic appointment at the University of Victoria (UVic). This was enabled through a competitive Request for Proposals (RFP) process developed and managed within the RCB. The Scholar-in Residence's work is supporting the generation and use of research evidence to reduce harm and improve services for people experiencing homelessness and substance use issues on Vancouver Island, with a significant focus on decreasing morbidity and mortality caused by the opioid crisis. This work has led to the publication of the Public Health Guide to Developing a Community Overdose Response Plan²⁸, which has attracted national and international attention.
- **Funding obtained by a collaborative research team led by the Scholar-in-Residence from CIHR to conduct patient-oriented research**. The RCB played a critical role in bringing the partners together to generate the focus for the research, as well as providing practical support and technical expertise for the grant application itself.
- **Improvement in the quality of data** available to support MHSU research in the Controlled Data Disclosure Environment. The Clinical Research Analytics Unit has developed innovative tools and statistical methodologies working with data collected at the point of care exported from Island Health's data warehouse. This is enabling linkages between datasets that allow researchers to explore research questions that were previously unanswerable.

²⁸ uvic.ca/research/centres/cisur/assets/docs/resource-community-overdose-response-plan.pdf

- **A modest increase in the number of MHSU researchers (3–4 people)**, due to active mentorship by the Scholar-in-Residence.
- **Improvement in the dissemination of research in MHSU** through provision of forums for regional researchers to present outcomes and results of research, establish new relationships and stimulate future research directions. The RCB’s flagship event Five Days in May, as well as Knowledge to Action month (held in the fall) have played a vital role.

One key MHSU stakeholder described a substantial change in organizational culture within MHSU units because of the RCB.

This change in organizational culture is attributed in large part to the RCB’s critical role in brokering relationships between researchers, research users and other stakeholders.

There is some early evidence of improvements to patient satisfaction and health outcomes, which are both desired long-term outcomes for the RCB. For example, patient-oriented research to address stigma towards people who use illicit substances is underway. This research, which is at the level of primary care, has actively engaged people with lived experience from several community-based partners as peer researchers. Peer researchers have already reported a positive relationship between participating in research and their recovery journeys.

Many of the MHSU research studies that have been supported through the RCB are still underway. However, the environment for sustainable collaborations has been established to support both current and future growth of research and health system change in this important area.

“I see a receptivity in the healthcare organization that I’ve not experienced before, where people are interested in learning about research. Pre-RCB, there wasn’t the systematic approach or recognition of research as part of the culture. Now, markedly, there’s such a different orientation. I frequently get the question, “What are the best practices in this area? What are the innovations? You know, what’s the evidence telling us?” Those questions are indicative of a research-based culture.”

[Researcher]

“The RCB played a significant role in Mental Health Substance Use, you know, they brought them [MHSU] to the table, which was wonderful, and they remained at the table. They clearly helped to not just broker the relationships but facilitate the ongoing relationships.”

[Researcher]

“Working with community agencies you get a lot of feedback about how clients are being treated, about clients’ perceptions of whether or not they think anybody cares, in the healthcare organization. And I definitely hear, in the non-profits that work with us, that it’s huge to them [the clients] to be working on the same grant, to be at the same table as whoever is there from the health authority whether it’s the RCB or care providers. Their perception of that is that someone actually cares about this topic, just because they’re there and that someone is listening to them.”

[Researcher]

CASE STUDY 3: INDIGENOUS HEALTH RESEARCH

A key area of focus for the Vancouver Island Research Capacity Building (RCB) initiative was to support research capacity-building in Indigenous health, in line with Island Health's strategic priorities. From the outset, this was viewed as a long-term project requiring meticulous attention to building foundational relationships and trust with Indigenous community members and other stakeholders. It was also critical to recognize the importance of Indigenous communities choosing to invite researchers to collaborate, practise cultural safety with respect to health services delivery, and understand the many factors impacting the social determinants of health for Indigenous communities on the Island.

Over time, the RCB initiative has helped to create an environment of collaboration, learning, engagement and trust with members from Indigenous communities, within Island Health (Aboriginal Health Department) and with the First Nations Health Authority (FNHA). This was a multi-faceted, iterative learning process and approach that is still underway and developing.

The RCB's support has led to the following key outcomes to date:

- Recognition by stakeholders that the **Research Department is well-trained and knowledgeable on cultural safety** and the history and impact of residential schools. This is a critical enabler for development of effective partnerships in this area.
- **The inclusion of research as a formal part of the Vancouver Island FNHA / Island Health Partnership Accord Work Plan**, formalizing a commitment in 2014 to partner with each other and First Nations communities to initiate collaborative research activities.
- **Funding forwarded by Island Health's Aboriginal Health Department** (relatively small but significant in principle) to support research capacity building initiatives aligned with the Accord.
- **Co-chairing of Island Health's Health Research Ethics Board between an Indigenous chair and a non-Indigenous chair, and inclusion of three Indigenous members on the board.** This ensures that the cultural perspectives of Indigenous community members are reflected in research conducted under the jurisdiction of the board.
- **Collaboration between the RCB and FNHA to inform the development of wellness indicators for Indigenous communities.**

By 2017, the RCB was able to provide valued support for collaborative studies with First Nations communities:

- The RCB is supporting a **study designed to improve maternal and child care and services in the Kwakwaka'wakw community on North Vancouver Island.** The project aims to increase understanding of social risk in discussions about reproduction, to enhance knowledge of traditional reproductive practices in the community, and to optimize the provision of care as close to home as possible. This suite of projects is led by Island Health's Aboriginal Health team, the Centre of Excellence in Aboriginal Maternal Health, the Campbell River Maternity Clinic, and the Kwakwaka'wakw Maternal Child and Family Health Collaborative Project. The RCB has helped by identifying and connecting stakeholders with different perspectives and expertise, providing technical and content expertise to increase the study rigour, identifying funding opportunities and facilitating grant applications, and providing a platform for the research team to share their work through Five Days in May.

- **A project to improve the quality and cultural safety of the Port Alberni hospital Emergency Department experience of Indigenous elders** is underway. FNHA and Island Health collaborated on a successful MSFHR grant to bring elders, community members, Emergency Department staff, the Site Director of the West Coast General Hospital and Island Health RCB members together for a facilitated session to gather knowledge from elders that will improve their experience in the Emergency Department. The RCB was instrumental in stimulating the initial contacts between stakeholders (through a Five Days in May event) as well as building the team of stakeholders that needed to be involved in the discussion in order to facilitate rapid application of learnings into practice. There is some evidence that this was successful.

.....
“One of the elders, the next morning, said, ‘I had to take my daughter or friend or someone to the Emergency Department’. And she said, ‘It was like the doctor was sitting here in the room listening to us yesterday’. She said, ‘It’s the first time in my life I felt respected’. And I thought, there is rapid knowledge translation.”
..... [RCB staff]

Stakeholders acknowledge that there is a long way to go to overcome some of the institutional barriers to building research capacity in Indigenous health. Just two new research studies relating to Indigenous health were recorded for all of 2017 across Island Health. However, the RCB has laid strong foundations for continued development in this area.

CASE STUDY 4: QUALITY IMPROVEMENT

When the research capacity-build was first envisioned, the Research Department was embedded in a portfolio called “Quality, Research and Patient Safety”. Island Health was, at that time, exploring ways in which research could be aligned with its not yet defined quality framework. The integration of research into the evolving quality framework planned in the 2012 was conceptually difficult in the absence of a strategic research business plan. The Vancouver Island Research Capacity Building (RCB) initiative resulted in the addition of both expertise and practical tools and supports that have since become an integral enabler of various facets of quality within the organization. This has been an unexpected yet very welcome outcome from the RCB.

At an overall level, stakeholders spoke about the RCB’s role in **bringing research rigor into quality improvement (QI) processes** at Island Health.

Stakeholders observed that projects that may have started out as quality improvement projects have been able to transition into research projects that will ultimately have broader impacts.

One of the areas where the RCB has made an important contribution to QI is Pharmacy. For example, one project was designed to investigate whether point-of-care blood testing for patients on blood thinners could decrease patient wait times. The RCB helped design the protocol, provided guidance on ethics and privacy, and provided support for implementation, including bio-statistics support. The project also used the RCB’s REDCap secure data platform to collect, manage, and extract research data.

The research indicated that point-of-care testing decreased the time that patients spent in the clinic from several hours to half an hour. The new protocol has subsequently been implemented at the Royal Jubilee Hospital Anticoagulation Therapy Clinic in Victoria.

Another area that has used the RCB extensively to support quality improvement is Cardiac Care. Cardiac Care has implemented a wide range of programs to monitor, evaluate and improve the quality of their services, including Ambulance Services response, Code Blue, ST-Elevation Myocardial Infarction (STEMI) and Critical Care Outreach Team (CCOT). Prior to the RCB, staff responsible for surveillance were not able to generate sufficiently granular data to inform quality improvement decisions for front-line clinical care. They were also using out-dated database technology that was insecure and which did not enable them to monitor or extract their own data. This frequently meant lengthy delays in generating

“Where I’ve seen the value of our Research and Capacity [Department] is that, you know, it provides the latest scientific methodologies and tools that we can use too. It does provide some of that oversight and it helps bring those two components together, quality improvement and research.” [Island Health administrator]

“What I think is fantastic, is now a lot of quality improvement initiatives here are being done in a way that they’re research grade. So even if the intention is only to make local improvements and changes, it’s being done in a way where the data’s collected in a standardized way such that it’s been able to serve as a launch pad for something that becomes a research initiative.” [RCB staff]

“They were instrumental throughout from an ethics perspective, and a design perspective. They consult with us, you know, “Maybe you should do this better, have you thought about that, what about that outcome”. They’re a fresh set of eyes. They ask questions where sometimes we get stuck, when we don’t see through the forest for the trees ... There’s no way that I would have got this through without them.” [QI Investigator / Researcher]

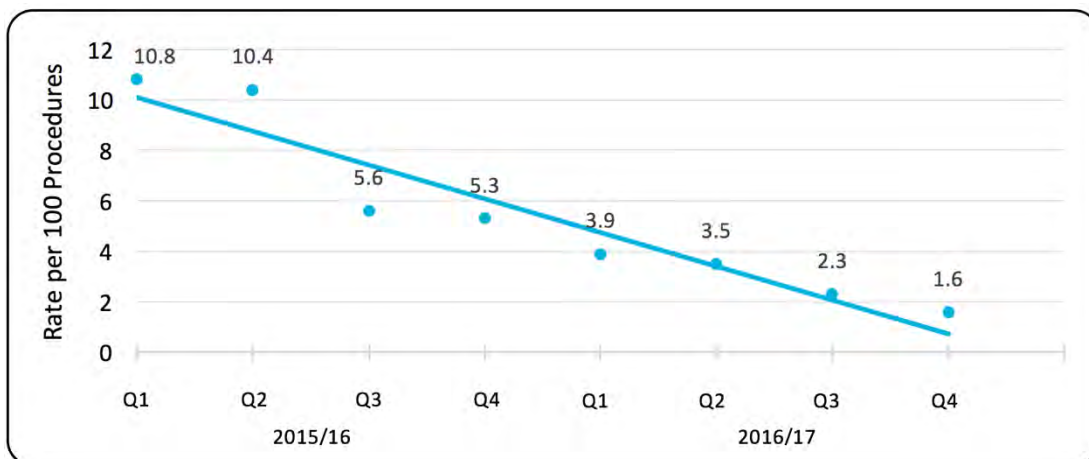
reports, which in any case were insufficiently detailed, such that it was not possible to ascertain whether the quality issue identified was relevant and what action, if any, was required.

With the introduction of the RCB’s REDCap database, staff can collect the specific data they need for QI decision-making, as well as access data in real-time. This has two significant quality improvement effects. Firstly, just delivering the data back to the direct care providers has been an intervention, as one stakeholder explained (see Island Health administrator quote).

“Within forty-eight hours of the patient having the heart attack and coming off the table, the direct care providers are getting the results of their care and they say, “I didn’t realize I was actually taking X, Y, Z length of time” so they automatically speed it up, and we didn’t do anything.” [Island Health administrator]

The ability to deliver high quality surveillance data in real-time also provides the opportunity to more confidently investigate the impact of a specific QI intervention. Examples of impact on patient care resulting from the RCB’s contribution to Cardiac QI include reductions in the number of unnecessary Code Blues, and reductions in the open heart surgical infection rates.

Figure 14: Rate of Surgical Site Infection Following Cardiac Procedures



The rate of surgical site infection following cardiac procedures has declined

A key enabler for improved integration of research and quality improvement across the board has been the RCB’s REDCap database platform. Since 2013, 44 QI projects have been created in REDCap (24% of all REDCap projects), along with 99 health services management projects (54% of all REDCap projects). Robust utilization of REDCap for data collection and reporting of QI and health services management projects has supported improvements in patient safety and care, and cost of care. Other important uses of REDCap for QI include:

- Enabling the organization to gain an understanding of the scope and breadth of QI projects underway across programs and areas through an Island Health-wide QI project tracker
- Implementing a tool and created a process, with the Quality Portfolio, to clearly differentiate research from QI and clarify ethics considerations related to QI projects²⁹
- Channeling requests to Decision Support for access to data holdings

²⁹ The RCB embedded the ARECCI (A pRoject Ethics Community Consensus Initiative, created by Alberta Innovates) tool into REDCap and developed collaborative processes to integrate the innovation into Island Health.

As a result of ongoing efforts to strategically align research supports to support quality on a broader level within the organization, members of the Research Department have become functionally embedded in the evolving quality framework. Members of the team currently sit on the Quality Operations Committee, and Child, Family and Youth, Mental Health and Substance Use, Seniors' Health, and Brain Health program quality councils. This facilitates knowledge transfer in several ways. Research Department members bring emerging research evidence to the attention of quality councils, provide information on research opportunities and services, and stimulate connections that facilitate the committees' goals. Research Department members also bring knowledge back from quality councils to share with other team members and researchers as to what research and research supports are needed.

These developments suggest that the RCB has strongly contributed to a robust foundation for QI at Island Health.

CASE STUDY 5: PROVINCIAL INITIATIVES LEADERSHIP AND PARTICIPATION

One of the most significant, yet unanticipated achievements of the Vancouver Island Research Capacity Building (RCB) initiative, was its robust participation and in some cases leadership and influence on the development of provincial research capacity-building initiatives, most of which now fall under the Academic Health Sciences Network (AHSN) umbrella.

At the time of the RCB's inception in 2012, discussions about a provincial AHSN were just starting to take shape. Several parallel initiatives, which are now incorporated within the AHSN, were also just starting to take shape. These included the BC SUPPORT Unit (part of the Canadian Institutes of Health Research (CIHR) Strategy for Patient-Oriented Research (SPOR)), a provincial health data platform, a new provincial framework to support clinical trials, and ethics harmonization. The RCB played a critical role in operationalizing each of these component parts at the provincial level, as well as establishing the BC SUPPORT Unit Vancouver Island Regional Centre.

Firstly, the operational strategy to develop the BC SUPPORT Unit entity with the University of Victoria (UVic) was based on the relationships forged and collaborative capacity developed during the capacity build. The operational plan for the Vancouver Island Regional Centre (the "Centre") was a collaborative process which leveraged existing infrastructure at Island Health, such as a leadership role specific to building patient-oriented research capacity as well as UVic's excellence and expertise in patient-oriented research.

"They [Island Health Research Department] were primed and ready to go by the time the BC SUPPORT Unit was being talked about and developed and the regional centre was being developed. I mean, they were just so well positioned. They really do stand out. Our other regional centers are not as far along."

[Provincial stakeholder / patient partner]

It also established "first in class" contracts, including for the first time sharing of "in-directs", or revenue received to offset administrative costs of the research office, which is critical for sustainability. The Centre was one of the first "out of the gate" for CIHR funding in British Columbia and has brought in \$450K of funding to date to support patient-oriented research. Stakeholders described the integration of the Centre as a "natural fit" because of the strategic relationships and infrastructure that the RCB had put in place. Island Health was also identified as a provincial leader in this context.

The RCB program also directly enabled Island Health to be a funding partner in the BC SUPPORT Unit Business Plan. The contribution received from the BC SUPPORT Unit, through a contract with the AHSN, is contributing to the financial sustainability of the Research Department at Island Health while at the same time providing important contributions to support the goals of the BC SUPPORT Unit.

Just as importantly, the infrastructure set up by the RCB, as well as the experience and expertise of the RCB staff, helped to inform the models being developed provincially. Stakeholders described how Island Health is often leading the way because they are the first to arrive at new questions.

"There's definitely several examples where the regional group on the island was kind of asking questions and then having to lead the way because there wasn't an answer. 'We want to do this, how do we do it?' 'Oh, we don't know.' 'Okay. Well, here's how we're going to do it.' 'Oh, thank you.'"

[Executive leader, academic partner]

The RCB also played a leadership role in the transition of the former BC Clinical Research Infrastructure Network to Clinical Trials BC, a part of the BC AHSN. Because of the RCB's acquisition of expertise in clinical trials, RCB staff were invited to join the steering committee developing the Clinical Trials BC strategic direction, as well as various subcommittees addressing operational, quality and contractual issues over the 5-year capacity build.

Another key area where the RCB has made an important contribution is the BC SUPPORT Unit's work within the provincial health data initiative. This initiative, which is broader than the BC SUPPORT Unit and AHSN, aims to enable shared, secure and understandable access to a wide breadth of data holdings, including those at health authorities. Like its role in the development of other provincial initiatives, the RCB's contribution began with bringing expertise, through the newly developed Clinical Research Analytics Unit, to the table. This includes new tools and processes for secure data access and advanced innovations in analytics and statistics, made possible through collaborations with UVic, in particular the Institute on Aging and Lifelong Health.

The Clinical Research Analytics Unit is working closely with the Ministry of Health, through the Executive Director responsible for the health data platform initiative, who is currently supporting the salary and benefits of an Island Health employee involved in this work, through a secondment.

The RCB's Manager of Informatics and Biostatistics also sits on the provincial health data initiative's REDCap Working Group and has provided leadership to implement and support the AHSN's REDCap platform as a matched partner contribution.

The RCB has also contributed to provincial committees and processes aimed at improving privacy and ethics harmonization. In recognition of the RCB's extensive experience developing compliance and ethics processes on behalf of Island Health and its partners, an RCB senior staff member was asked and is currently serving as chair of the Advisory Committee of the BC Ethics Harmonization Initiative. This, too, was not intended; however, the RCB's work created a natural opportunity to synergize. Although stakeholders recognize there is still some way to go with provincial ethics harmonization, a considerable amount of progress has been achieved.

.....
"We didn't have that [collaborative structure] in the province before. We had a few little pockets here and there of community researchers that had a loose liaison with academia and with industry but not anything solid. So now we have got provincial membership for all of the province including industry, community, university and health authorities. And that was based on the initiatives that Island Health did under Cindy Trytten's capacity model. It kind of united research so that it wasn't just all these silos. It's been a great thing."

.....
[Provincial stakeholder]
.....

.....
"It helps us to not start from A, meaning we're able to leverage the work [they have already done] and they have been very generous in sharing that work because they feel that the solutions have to be provincial."

.....
[Provincial stakeholder]
.....

.....
"With ethics harmonization, I just kind of fell into it [a provincial leadership role] because it was logical. And we've been very successful. We have a model for minimal risk studies. We have one for above minimal risk studies. And they're working very well. The last thing is for us to get them on an electronic platform. We're getting ready to launch our provincial platform. And when we do that I think it will put a nice, neat little bow on a lot of provincial stuff that we've been working on." [RCB staff]

The RCB's Research Privacy Specialist also sits on a provincial committee focusing on research privacy (the Privacy and Research Advisory Working Group³⁰).

Overall, the collaboration between Island Health and UVic on SPOR because of the RCB is seen to have served a larger purpose in terms of demonstrating “proof of concept” of regional centres to support research.

Although the RCB's influence has been most visible and concrete in the development of provincial research capacity-building initiatives, its work has helped to position Island Health as a leader that extends beyond provincial boundaries in several areas, including permission-to-contact and ethics harmonization. Stakeholders fully expect that Island Health will continue to play a strong leadership role in ongoing provincial and national research capacity-building initiatives.

.....
“Part of our relationship helped to create a provincial conversation about what this SPOR could be. It was not going to be something that was entirely focused on the Lower Mainland and run by all of the usual suspects. Our regional entities helped to create a sense that this was a provincial initiative and we were not going to be successful unless people saw it as a provincial initiative.”
.....

[Executive leader, academic partner]

³⁰ This is a subgroup of an existing provincial committee, the Health Information and Privacy and Security Operations Council.

Appendix A. RCB Evaluation Questions

1. Has the RCB increased the number of excellent researchers in the Vancouver Island Health research enterprise?
2. To what extent has the RCB increased the volume and quality of research produced on Vancouver Island?
3. To what extent has the RCB strengthened the dissemination and uptake of health research evidence on Vancouver Island?
4. To what extent has the RCB addressed strategic priorities identified in the Business Plan?
 - a). Has priority research in Seniors' Health, Aboriginal Health, and Mental Health and Substance Use occurred?
 - b). Has the distribution of health research activity become more equitable across Vancouver Island?
5. Has the RCB contributed to the self-sustainability of the Vancouver Island health research enterprise?
6. What unanticipated outcomes have been realised as a result of the RCB?
7. What high impact research or research support activity has the RCB funded and/or facilitated?
8. Which elements of the initiative contributed most to the expected outcomes?
9. What have been the barriers and facilitators to progress towards the goals/outcomes of the RCB?