# A report from the Scientific Offices of Alberta's Strategic Clinical Networks: April 1, 2018-March 31, 2019



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September 2019

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#### **Executive Summary**

This report summarizes the scientific activities of the Alberta Health Services (AHS) Strategic Clinical Networks<sup>™</sup> (SCN) during the 2018-2019 fiscal year. This report was created by the Scientific Offices (SOs) of the SCN, including the Scientific Directors (SDs) and Assistant Scientific Directors (ASDs); the expertise, research interests and affiliations of the SDs and ASDs are outlined in Appendix A. The SCN research communities continue to grow and create capacity to develop and implement evidence-based patient-centered care projects that are relevant to Alberta's Health ecosystem. The SOs continue to target their strategies to each SCN's individual needs based on its maturity level. Of particular note, this is the first year that the scientific output of the SCN leadership team beyond the SOs have been included in this report. This includes work of the Senior Medical Director, Senior Provincial Director, Executive Director and Manager of each SCN. The number of successfully funded grant applications increased to 89 in 2018-2019, with 55 of those applications from outside Alberta. The overall success rate for grant applications increased to 67% in 2018-2019 from 51% in 2017-2018, with 37 grants still pending. As well, the SDs, ASDs and Leadership members contributed to the body of research evidence by authoring 211 peer-reviewed publications. Appendix B includes a high-level summary of contributions for each SCN, as well as supporting details listing publications and grants.

It should be noted that this report only highlights the research activities supported by the Strategic Clinical Networks, for further information on all SCN initiatives, please visit their website <u>https://www.albertahealthservices.ca/scns/scn.aspx.</u>

SCNs are engines of innovation, reshaping health care by focusing on patient needs, sharing best practices across the province and using scientific evidence to guide care decisions. The SOs engage the broad academic communities in partnership with clinicians and operational leaders to identify and support scientific rigor, best practice, and advancement of research and innovation priorities within AHS.

This report provides a summary overview of research performance alongside examples of related work. **Appendix C** provides a summary of the research performance indicators utilized by each SCN. Performance indicators are aligned with the Canadian Academy of Health Sciences (CAHS) "Making a Difference" impact framework<sup>1</sup>, which outlines five main impact categories: advancing knowledge; capacity-building; informed decision-making; health impacts; and broad economic and social impacts.

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<sup>&</sup>lt;sup>1</sup> Canadian Academy of Health Sciences. (2009). Making an Impact: A Preferred Framework and Indicators to Measure Returns on Investment in Health Research. Available at <u>http://www.cahs-acss.ca/wp-content/uploads/2011/09/ROI FullReport.pdf</u>

#### Background

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#### Alberta's Strategic Clinical Networks<sup>™</sup>

Clinical networks have been in place in the England, Scotland and parts of Australia for nearly 20 years. Networks are multi-disciplinary groups of clinicians, health system leaders, and patient advisors that aim to improve clinical care and service delivery using a collegial approach to identify and implement a range of strategies. This approach, described as *bottom-up meets top-down*, has been shown to improve quality of care and outcomes.

Alberta launched its version of clinical networks (with a more robust engagement of patients, and commitment to science and evidence-based practice), termed Strategic Clinical Networks<sup>™</sup> in 2012 to support health, innovation, health system research and transformation across the province. There are now 16 of these networks. Alberta is the only Canadian province to implement clinical networks, though many provinces have either recently started networks or are in the planning stages.

![](_page_3_Figure_4.jpeg)

#### Improve care, health outcomes, and value for money

# Mission

#### Improving the health of Albertans by bringing together people, research, and innovation.

#### Strategies

AHS has four foundational strategies, including the Clinical Health Research, Innovation and Analytics Strategy (CHRIA) The overarching objective of AHS' CHRIA Strategy is to foster an environment of continuous improvement in which creativity, knowledge and experience shape the delivery of high-quality patient and family-centered care. The achievement of this overarching objective is based on five strategic directions: building strong partnerships; incenting innovation and health research of the highest value for Albertans; liberating health systems data; applying and spreading knowledge; and innovating to achieve service excellence. Given their position in the health ecosystem, SCNs are seen as a major enabler of the CHRIA's objectives as a means of building a health learning system.

#### Strategic action areas

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Goal	Action
Goal 1: Build Strong Partnerships	Action 1.1: We will facilitate and otherwise promote internal research expertise by providing learning and training opportunities in partnership with academic institutions.
	Action 1.2: We will provide rigorous scientific support and review for AHS research and innovation projects endorsed by the SCNs and other department clinical leaders.
	Action 1.3: We will provide expertise to AHS clinician researchers to strengthen the design of research protocols and the knowledge translation strategies to maximize the probability of success of research grants and publications.
Goal 2: Incent Research and Innovation of Highest Value to Albertans and AHS	Action 2.1: We will provide internal peer-reviewed funding opportunities for health researchers within SCNs to share ideas, develop expertise, and collaborate on new strategic initiatives.
Goal 3: Capture, Transfer and Translate Knowledge.	Action 3.1: We will assist the SCNs to build capacity to conduct, understand and spread research evidence.
Goal 4: Innovation to Achieve Operational	Action 4.1: We will create a high performing team.
Excellence	Action 4.2: We will contribute to Research Process Improvement.
	Action 4.3: We will contribute to Business Process Improvement.

#### **Goal 1: Building Strong Partnerships**

#### Action 1.1: We will facilitate and otherwise promote internal research expertise by providing learning and training opportunities in partnership with academic institutions.

# Learning & Training Opportunities

The SOs of the SCNs have established strong partnerships with academic organizations across Alberta. These partnerships have strengthened the scientific work of the SCNs by building capacity through innovative research training opportunities, allowing trainees to gain insights into how applied health research is done within the context of a health system. Trainees supervised or mentored by the SCN Scientific and Leadership Offices, represented a mixture of clinicians, residents, post-doctoral fellows (MDs and PhDs), PhD students, Master's students and undergraduate students, including summer students.

Trainee Supervision and Mentorship	N	
	2017-2018	2018-2019
Trainees supervised by SD, ASD or Leadership	104	66
Trainees mentored by SD, ASD or Leadership	29	39

Highlights include:

- Stephanie Coward, lead author and PhD trainee (at the time) with the SD of the **Digestive** Health SCN (DH SCN), Dr. Gil Kaplan, undertook a groundbreaking study describing the past and present burden of IBD in Canada<sup>2</sup>. She conducted a retrospective cohort study and applied forecast modelling techniques using population-based administrative health care data from Alberta, British Columbia, Manitoba, Nova Scotia, Ontario, Quebec and Saskatchewan. She determined that, by 2030, the Canadian health care system will be caring for over 400,000 patients with IBD, an increase from current population estimates of 270,000 patients. This represents an increase of 2.86% each year. The DH SCN and AHS are now armed with the necessary information to take a data-driven, proactive (rather than reactive) approach to IBD care in Alberta. Dr. Kaplan has leveraged the results from this study for a successful CIHR Project Scheme grant application to continue studying the future burden of IBD in Alberta regarding incidence, prevalence, mortality, health care utilization, complications, medical management, surgical management and health care costs.
- The **Population, Public and Indigenous Health SCN** (PPIH SCN) provided funding for an Indigenous cohort from across Alberta to undertake Patient and Community Engagement Research (PaCER) training through distance learning with support from PaCER mentors. The PaCER program, offered by the O'Brien Institute for Public Health, University of Calgary, trains patients to develop academic research skills through a year-long internship program to gain experience with co-designed, patient-led health research. Twelve PaCER interns graduated in July 2019, building the research capacity of Indigenous community

<sup>2</sup> Gastroenterol 2019;156(5):1345-1353

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members to help inform culturally appropriate and responsive approaches to cancer prevention and screening for Indigenous Albertans.

- Kiran Pohar Manhas was a CIHR-AHS Health System Impact Fellow supervised by Tracy Wasylak, Chief Program Officer of the SCNs. She used focused ethnography to 1) clarify the experience of shared decision-making in community rehabilitation, and 2) explore the implementation experience of early adopters of the novel AHS Rehabilitation Model of Care. She used longitudinal surveys, interviews, and focus groups to collect data from 24 community rehabilitation sites across the 5 AHS Zones, including rural and regional-urban sites. At sites that had not yet adopted the model, she found that shared decision-making was present but inconsistent; that 19.4% of patients who did not set a rehabilitation goal; and that only 11.4% of patients set a functional goal in language related to their everyday life. At early-adopter sites, she found that shared decision-making was more consistent based on patient and provider experiences. She also determined common challenges to Model-of-Care implementation, and identified traits that were common across the Early-Adopter teams. AHS Community Rehabilitation is integrating the study recommendations into educational strategies to be used to support the spread and scale of the new model. The Alberta Strategies for Patient-Oriented Research (SPOR) Knowledge Translation (KT) Platform wants to build on this work and further evaluate model implementation during spread. The Cardiovascular Health and Stroke SCN (CvHS SCN) wants to leverage this work as it explores cardiac and pulmonary rehabilitation opportunities in Alberta.
- Kaitlvn Wong, BHSc undergraduate student (at the time), completed her Honour's thesis • research project under the co-supervision of Tracy Wasylak, Chief Program Officer, SCNs and Kiran Pohar Manhas CIHR-AHS Health System Impact Fellow. Working with community partners, IMAGINE Citizens and ActionDignity, Kaitlyn conducted focus groups to clarify the cultural appropriateness of HealthCare 101 (HC 101). HC 101 will be a four-module online health information resource stewarded by AHS and these community partners. Kaitlyn worked with community brokers and ActionDignity to facilitate the voice of members of eight ethno-cultural communities in Calgary. Participants gave recommendations to improve the content, form, and framing of HC 101. Participants shared their health care experiences and challenges, and how health information resources could support them. ActionDignity used Kaitlyn's proposal for a quality improvement project with a further four ethno-cultural communities. Kaitlyn and the community partners shared these findings by webinar and inperson with the participating ethno cultural communities, with AHS leadership, and with IMAGINE citizens. ActionDignity will continue these broker-facilitated community conversations to support the health system. Kaitlyn is finalizing a manuscript for submission to a peer-reviewed journal.

The ASDs, in collaboration with the SDs, also funded and supervised research personnel (research assistants, research associates, statisticians, etc.) through grants or other funding mechanisms.

Research Personnel	N	
	2017-2018	2018-2019
Research personnel funded by SCN and supervised by	9	28
SD, ASD or Leadership		

In addition to direct supervision by the ASDs, SDs and Leadership members, the SCNs also offered funding for undergraduate, graduate and medical students to conduct summer research projects in areas of interest to AHS and prioritized by the SCNs. Students are supervised by members of the SCN research communities or directly by the SD or ASD.

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Summer Studentships	20	017-2018	20	018-2019
	Ν	Funds awarded	Ν	Funds awarded
University of Alberta	7	\$30,000	10	\$64,000
University of Calgary	17	\$102,750	15	\$132,500
Other	1	\$6,000	4	\$9,000
Total	25	\$138,750	29	\$205,500

- Maternal, Newborn, Child and Youth SCN (MNCY SCN) studentships provide graduate or medical students with the opportunity to do research related to MNCY SCN priority projects. These studentships have helped create a reputation for the MNCY SCN as a potential source for paid academic work that occurs within Alberta's health care system, as well as an option for students needing to carry out practicum projects for their academic programs (e.g., Master's of Public Health). These practicum students can approach the SOs and are then matched up with projects focused on MNCY SCN priorities. The priority projects students have worked on are diverse and include:
  - Prenatal record and modifiable risk factors;
  - Gestational diabetes decision tree;
  - Telehealth Rounding and Consultation (TRAC): An Alberta Children's Hospital Alberta Regional Centre Virtual Inpatient Collaborative Care Model;
  - Newborn jaundice assessment pathway evaluation;
  - Literature review and environmental scan on maternal health services for marginalized women; and
  - Adapting the AHS post-partum depression screening suite for women in corrections facilities.

*Impact:* Capacity-building is one of the key elements of the CAHS framework and many SCNs identify research capacity-building as a main priority. Funding for summer students, residents, fellows and clinicians is considered a strategic investment to increase the number of researchers working to address knowledge gaps of relevance for AHS. It also supports the ongoing learning health system efforts by generating or using evidence to improve outcomes.

#### ASD-led Workshops

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The ASDs were responsible for delivering a number of workshops related to research, addressing such topics as knowledge translation strategies, fostering a research-and evidence-informed culture within AHS, and access to AHS data.

 The Scientific Office of the Diabetes, Obesity and Nutrition SCN (DON SCN) has demonstrated that developing partnerships with organizations and universities within Alberta is fundamental to advancing knowledge and facilitating engagement. In 2019, in collaboration with academics and clinicians from the University of Alberta and the Albertabased Alliance for Canadian Health Outcomes Research in Diabetes, the DON SCN hosted a one-day Research Summit that focused on current research activities related to diabetes in pregnancy (DIP). The objectives of the Research Summit included 1) bringing Albertabased researchers and clinicians together to share current research activities in DIP; 2) discussion of research challenges related to DIP in Alberta; and 3) to pursue opportunities for future research and collaboration. Attendee feedback indicated that valuable aspects of the summit included networking, understanding the DIP research environment in Alberta, access to data/registries for research, and the diversity of the presentations at the summit.

- As part of its role to build research capacity in the medical and health sciences, the Surgery SCN (SSCN) Scientific Office organized a full-day grant-writing workshop in April 2018 in Calgary, with 59 individuals in attendance. Prior to the workshop, an online needs assessment survey was conducted to gather information from new investigators, postdoctoral fellows and graduate students on specific themes that they wished to have addressed. Based on the feedback, seven speakers delivered presentations; topics included grant-writing, ethics and research support. A post-workshop survey indicated an overall satisfaction rate of 90%. According to the participants, the topics addressed during the workshop were relevant, timely and helpful to navigate the complexities of grant-writing.
- In March 2019 the **Respiratory Health** SCN Scientific Office led the final priority setting workshop for research prioritization. Traditionally research priorities have been set by researchers and research institutions/funding agencies, however there is increasing interest to explore the research priorities of clinicians and patients/families. The purpose of the prioritization was to engage, patients, caregivers, clinicians, researchers, and others in identifying respiratory research priorities for Alberta. A total of 445 stakeholders participated in the first online survey and a total of 595 research questions were submitted. Through a review of the existing literature, 178 'unanswered questions were identified'. The steering committee comprised of patients, caregivers, clinicians, and researchers, were tasked with reducing the final list to the key priorities. The team worked with a consensus approach and created a list of research questions that applied to both sleep and respiratory, with additional topic specific questions. The end result was eight questions. Next steps for this project include dissemination and implementation of these priorities to guide the SO in the upcoming year.

# Action 1.2: We will provide rigorous scientific support and review for AHS research and innovation projects endorsed by the SCNs and other department clinical leaders.

#### Research Endorsement

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The SCN SOs and/or leadership team provided letters of support to members of the research networks for various provincial, national and international grant competitions.

Letters of support	N	
	2017-2018	2018-2019
Letters of support for research provided to the SCN community on behalf of the SCN. This includes Letters of Support written by any member of the SCN Leadership Team	256	183

 Endorsement by the MNCY SCN contributed to lead researchers from the universities of Calgary, Alberta, and Toronto receiving \$750,000 in Partnership for Research and Innovation in the Health System II (PRIHS II) funding. This funding supported Family Integrated Care in level 2 Neonatal Intensive Care Units in Alberta, based on evidence that integrating parents into care earlier, using specific strategies, improves parent and infant outcomes. The MNCY SCN has continued to work closely with the researchers to obtain an additional \$855,000 from the Health Innovation Implementation and Scale (HIIS) fund in 2019 to spread and scale this innovation to all NICUs in the province.

*Impact:* For many grant competitions, letters of support are required, and health authority collaboration is often a factor in appraisal of the feasibility and likely impact of the proposed project. While letters of support do not win a grant by themselves, letters of support provide the review panel with an opportunity to connect the research to front-line impacts in care. Letters of support signify organizational commitment to a project and demonstrate that the engagement of knowledge users and planned collaboration is both appropriate and genuine.

Action 1.3: We will provide expertise to AHS clinician researchers to strengthen the design of research protocols and the knowledge translation strategies to maximize the probability of success of research grants and publications.

#### **Research Facilitation**

ASDs engage in the facilitation of research through expert consultation, mentorship and support. They have provided members of the SCN research communities with expertise in research design, analysis and end-of-grant knowledge translation strategies. Additional services included critical review of grant applications and manuscripts, guidance on submissions to Research Ethics Boards, access to AHS administrative data, examination of research budgets, and assistance in navigating AHS research policies and processes.

- The Addiction and Mental Health SCN (AMH SCN) worked with Alberta Health to administer a funding call aimed at closing gaps in care that were identified in the Valuing Mental Health report<sup>3</sup>. In a novel approach, the Scientific Office incorporated reviews and prioritization of the projects by People with Lived or Living Experience with addiction and/or mental health diagnoses. The call awarded three grants of approximately \$200,000 each to research projects addressing problems specific to under-served populations.
- The Digestive Health SCN (DH SCN) provided strategic support for Alberta clinicianresearchers, resulting in two successful grant applications. DH SCN leadership team members were instrumental in helping to secure this funding through active, engaged support of these applications, providing assistance with grant-writing, provincial stakeholder connection and engagement, and commitment of on-going DH SCN resources for infrastructure development.
  - Kerri Novak and Julia Carter were awarded over \$700,000 from the Health Innovation Implementation and Spread Fund (HIIS) to establish primary care pathways, telephone advice, and electronic advice for patients with low-risk, but high-demand, digestive health conditions.
  - Puneeta Tandon received over \$1M in PRIHS funding to improve liver cirrhosis care in Alberta through implementation of the Cirrhosis Care Alberta Program.

<sup>&</sup>lt;sup>3</sup> <u>https://www.alberta.ca/mental-health-reporting.aspx</u>

*Impact:* Active facilitation of research through the various consultation services provided by the ASDs using their Transformational Road Map (TRM) to guide them, fosters a dynamic and productive research culture within AHS, which focuses and strengthens the quality of the research performed among the network of researchers.

Goal 2: Incent Research and Innovation of Highest Value to Albertans and AHS

Action 2.1: We will provide internal peer-reviewed funding opportunities for health researchers within SCNs to share ideas, develop expertise, and collaborate on new strategic initiatives.

# Supporting Research

Approximately 84% of the budgets available through the SO was directed to peer-reviewed grant funding opportunities for SCN health researcher members in 2018-2019. These funding dollars supported research of importance to AHS. The ASDs developed business cases for these funding opportunities, coordinated review panels, organized the funding of successful proposals, and disseminated information about successful applicants/projects to their respective provincial and national communities. Several ASDs also served as members of the peer-review panels for these various competitions and other, non-SCN peer reviewed grant opportunities, such as the AHS Research Challenge.

Examples of funding opportunities managed by the SCN SOs include seed grants, commissioned research grants, summer research studentships, and large funding calls.

Grants awarded through SCN Scientific Offices (includes seed grants and other grants)	2017-2018 2018-2		2018-2019	
	Ν	Funds Awarded	Ν	Funds Awarded
University of Alberta	15	\$379,081	14	\$ 452,660
University of Calgary	32	\$846,634	18	\$ 535,777
Other	1	\$137,500	2	\$ 21,500
Total	48	\$1,421,455	34	\$1,009,937

- The **Critical Care SCN** (CC SCN) funded three new investigator seed grants in December 2018:
  - Braedon McDonald (University of Calgary): Microbiota-Immune Interactions and Critical Illness Outcomes in the Intensive Care Unit (MicroICU) A Pilot Study.
  - Tanya Mudry (University of Calgary): A Recovery-Oriented Counselling Group: Supporting Physical, Emotional, and Social Recovery Processes of Critical Care Patients in the ICU Recovery Clinic.
  - Danijela Piskulic (University of Calgary): Feasibility of implementing a patientoriented discharge summary in the ICU.
- The **MNCY SCN** carried out the second round of its Health Outcomes Improvement Fund (HOIF) grant competition in 2019. In HOIF II, \$2.8 million was awarded to <u>21 projects</u> (both research and quality improvement), many of which address the priorities included in the MNCY SCN's Transformational Roadmap.

*Impact:* Provision of funding opportunities appropriately serves to build research capacity, a core function of the SCN SOs, while effectively using the Scientific Directors' budgets to support research in prioritized areas. In particular, seed grants are an effective means of generating preliminary results and demonstrating proof-of-concept. This mechanism positions SCN researchers to be successful in applications to external funding agencies, thereby providing a much higher return on the SCN's original investment and no additional needs for funding from AHS.

#### Goal 3: Capture, Transfer and Translate Knowledge

# Action 3.1: We will assist the SCNs to build capacity to conduct, understand and spread research evidence.

#### Identifying Knowledge Gaps

A key factor in SCN research activity is identifying research topics with practical importance, where research results can contribute to filling gaps in knowledge and addressing the questions that stakeholders need to have answered. To contribute to identifying these gaps in knowledge, many SCNs have engaged in consultation with community stakeholders (patients, families, caregivers, advisors, associations).

- The Scientific Office of the Seniors Health SCN (SH SCN) embarked on a broad engagement process to understand and prioritize issues of concern for seniors' health, in collaboration with the James Lind Alliance, UK. The objective of this initiative was to identify patient, caregiver, and clinician-identified priorities for future research on seniors' health in Alberta. The result of the initiative was a "Top 10 List" of the most important questions for future research to address. This patient engagement process will be used to guide future Seniors Health SCN research activities. Beyond SCN activity, we continue to advocate for uptake of research on the identified priorities to meet patient, caregiver, and clinicianidentified knowledge needs.
- The RH SCN conducted a research prioritization exercise in March 2019 with the goal of engaging patients, caregivers, clinicians, researchers and others in identifying respiratory research priorities for Alberta and the RH SCN with respect to both sleep and respiratory health. The exercise involved an initial survey (445 respondents) and a follow-up survey (140 respondents), followed by an in-person workshop. The resulting list of research questions includes priorities for respiratory and sleep research, with additional questions focusing solely on respiratory or sleep research. The results were presented at the American Thoracic Society Meeting in May 2019. Next steps include developing a plan for dissemination and uptake.

*Impact:* Engaging patients and families ensures the link between research questions, projects developed and patient and family needs.

#### Understanding Research

The ASDs played an instrumental role in helping operational, administrative, and clinician leaders understand and integrate research evidence by serving on various AHS and external committees. ASD involvement brought scientific integrity and interpretation, as well as the application of evidence to discussions on clinical, policy, and administrative decisions.

- The **Primary Health Care Integration Network** (PHCIN) commissioned two rapid review literature syntheses, one on the factors contributing to improved transitions of care and patient outcomes, and the other on interventions to improve the efficiency or effectiveness of referrals between primary and specialist care. These reports were used to directly inform two of the PHCIN focus areas: Transitioning from Home to Hospital to Home; and Linking to Specialists and Back.
- The **Cancer SCN** (CSCN) is supporting clinical staff from CancerControl Alberta in conducting research to help them understand information needs. For example, the S O has worked with the Provincial Practices portfolio in developing a survey to inform the adaptation of educational tools to be used by health care providers. In addition, the Cancer SCN and Provincial Practices are working together in conducting an evaluation for a project that pilots a sustainable model of care for community cancer centers.
- The **Kidney Health SCN** (KH SCN), in collaboration with the Interdisciplinary Chronic Disease Collaboration and the Alberta Kidney Disease Network, completed an updated report outlining the prevalence, measurement and status of identified quality indicators in stage 1–4 chronic kidney disease (CKD). This report identifies opportunities to improve unwarranted practice variation and outcomes, enhance targeted screening, and increase the proportion of patients' prescribed guideline-recommended treatment. The report informs long-term program planning for Alberta's renal programs, identified variations in care across the province, and highlights areas for quality improvement and future research.

*Impact:* AHS and the SCNs are committed to being data-driven and evidence-informed. Integration of the ASDs within operational and clinical committees serves as a knowledge translation activity that bridges the gap between researchers and operational decision-makers/knowledge-users. These activities contribute to the *informed decision-making* impact category of the CAHS framework.

# Conducting Research

The SDs and ASDs are serving as principal investigators or co-investigators on a large number of new research grants, attracting a significant amount of external research funding to AHS. SCN SDs or ASDs led or were named team members on 167 grant applications in 2018-2019, with a 67% success rate (as reported by March 31, 2019). Funding obtained by the successful grant applications amounts to a total of **\$58,747,507**. SCN SDs, ASDs or a member of the SCN Leadership team led or were named team members on 180 grant applications in 2017-2018, with a 51% success rate (as reported by Mar. 31, 2018). Funding obtained by the successful grant applications in 2017-2018, amounted to a total of **\$64,015,121**.

SCN-enabled Grants	Ν	
	2017-2018	2018-2019
Submitted external grants	180	167
Successful external grants	76	89
Unsuccessful external grants	72	42
Pending external grants (as at Mar. 31)	32	37

- The **Emergency SCN** (ESCN) and **PPIH SCN** are currently working with First Nations partners on a research project that has received over \$550,000 in CIHR funding. Over the next three years, this project will explore differences in the experience and care of First Nations people in emergency departments (EDs) in Alberta. The goal is to better understand these differences, define quality of care from First Nations' perspectives, and ultimately improve quality of care and the patient experience of First Nations people in EDs. The study is the first large, mixed-methods study addressing emergency care for First Nations patients in Canada. It is unique because it brings together First Nations, academic and health services partners to address gaps in care in a way that no one of these groups would be able to do alone.
- The **AMH SCN** was awarded \$914,000 in PRIHS funding to design and test virtual supervised consumption in Alberta. This innovative and novel intervention has the potential to save lives of those will not access harm reduction through traditional supervised consumption services, or who are unable to do so due to geographic or other barriers. The service will offer the ability for an operator to dispatch emergency services to someone overdosing if they become non-responsive. The project has created many inter-organizational relationships with community partners, such as the Distress Centre, 911 dispatch and Calgary Police Services. During the current overdose crisis, this study has the potential to be of particular practical impact.

SDs, ASDs and Leadership members contributed to the body of research evidence by authoring peer-reviewed publications.

Peer-reviewed Publications	Level of Support	Ν	
		2017-2018	2018-2019
Published peer-reviewed publications	SD, ASD or member of the Leadership team on the author line	256	211

• An article by Shelly Vik et al. (in press, Healthcare Quarterly) of the **PHCIN** examines links between continuity with primary care and utilization of acute care services. The findings provide information regarding expectations for outcomes, and potentially useful measures for monitoring progress and performance.

*Impact:* Advancing research knowledge is a core function of the SCN SOs and a key aspect captured through the CAHS framework. As principal investigators and co-investigators, the SDs and ASDs conduct research in collaboration with the SCN teams to reduce knowledge gaps in content areas and contribute to safe, evidence-based and cost-effective patient outcomes. Through their many peer-reviewed publications, they contribute research evidence to the existing body of knowledge, which can guide future research questions, contribute directly to the development or enhancement of clinical guidelines or pathways and drive engagement initiatives. This work directly addresses the *informed decision-making* impact category of the CAHS framework.

# Translating Research

ASDs play an important role in the mobilization of research evidence through a number of knowledge translation activities, including strategic involvement in clinical guideline

development, collaborating on the development of clinical pathways, hosting workshops for SCN members, facilitating research sessions and giving presentations at conferences, as well as SCN newsletter contributions and presentations at SCN Core Committee meetings.

- The **Critical Care SCN** hosted a very successful Café Scientifique, focused on challenges associated with Transitions in Care from the ICU to alternate care settings while recovering from life-threatening critical illness. Panel members, including a survivor of critical illness, a family caregiver, a rehabilitation physician, a social worker, an intensivist, and a research scientist, who spoke about what Transitions in Care mean for each of them and the challenges they face during Transitions in Care from the ICU. In turn, audience members shared a spectrum of stories and experiences about their interactions with the health system.
- GLA:D®, Good Life with osteoArthritis (OA) in Denmark, is an education and exercise program that implements guidelines for the treatment of knee and hip OA in clinical practice in order to facilitate evidence-based, high-quality care of patients with OA. Since 2016, the Bone and Joint Health SCN (BJH SCN) has the led the implementation of GLA:D® across Alberta, and is actively engaged in GLA:D evaluation activities at the provincial and national levels. To date, over 130 Alberta clinicians have been trained and 51 clinics are offering the program. The GLA:D® Canada data from 2017 and 2018 show that participants have an average 30% reduction in pain symptoms and 50% were not fearful of damaging their joints with movement at program completion.
- The **Diabetes**, **Obesity and Nutrition SCN** SO has been involved in the implementation and evaluation of the standards and guidelines for a Bariatric Friendly Hospital initiative based on the context of the Medicine Hat Regional Hospital, to improve quality and safety of care for patients living with obesity and safety of hospital staff.
- The Kidney Health SCN decided upon two high-value provincial quality indicators for nephrology care in collaboration with the AMA's Section of Nephrology. The indicators timely initiation of dialysis and use of home dialysis—were selected as they are important to patient care, can be modified by good quality physician care, and can be measured in a valid and accurate fashion. In May 2019, all nephrologists in the province who care for patients on dialysis received individualized reports, as well as regional and provincial averages so they can self-assess their practice and that of their peers.

*Impact:* As a core function of the SCN SOs, knowledge translation is pivotal in the movement of research knowledge from "evidence" to "impact" on the delivery of health services and patient care in AHS. Examples such as these provide support for two of the CAHS impact categories – *health impacts* and *broad economic and social impacts* – as they drive improvements in health status, determinants of health, and the health care system, as well as providing broader health and social benefits.

# **Goal 4: Innovation to Achieve Operational Excellence**

# Action 4.1: We will create a high performing team.

 The Emergency SCN held a quality improvement and innovation forum in February 2019. This forum provided an opportunity for those working on quality improvement in Emergency Medicine (physicians, nurses, nurse educators, pharmacists, administrators and universitybased researchers) to network with one another, share innovative practices, share knowhow and translate promising work to new settings.

- The Addiction and Mental Health SCN supported the implementation of rTMS as a provincial treatment for treatment resistant depression. rTMS is established as an effective treatment in the literature and Alberta Health had commissioned a health technology assessment that determined that it was an appropriate treatment and should be provided with public funding, however, it had not been implemented in Alberta yet. The AMH SCN worked with operational leads from all 5 zones to establish provincial provision of rTMS. This included the Scientific Director providing advice and expertise on equipment requirements, the proposals submitted by companies, the treatment protocol and evaluation standards.
- The Critical Care SCN hosted Delirium Learning Session 5, an initiative with the goals of developing and implementing provincial clinical standards, pathways and best practices for ICU delirium care; developing and disseminating improvement tools for ongoing audit and feedback; and promoting a learning and culture environment of continuous quality improvement. This initiative was recognized with a 2019 AHS President's Excellence Award for Outstanding Achievement in Quality Improvement.

# SCN Research Network Engagement

Through various engagement activities across all SCN SOs, the current membership of the research networks totals 2139, an increase from 1617 in 2017-2018. As SCNs Mature, we expect their provincial research communities will stabilize. We are seeing some of these mature networks creating collaborations with other jurisdictions in Canada. For example, Surgery and BJHSCN are working on a National Choosing Wisely Grant to reduce preoperative testing and imaging for low back pain. SOs meet regularly to discuss emerging issues and work on developing innovative ways to advance the goals and objectives of the SOs. The meetings were also used to share SCN updates and discuss opportunities for pan-SCN collaboration.

SCN Research Network Membership	Ν	
	2017-2018	2018-2019
Number of researchers who self-identify as members of the SCN research community	1617	2139

A new SCN, the **Neurosciences**, **Rehabilitation & Vision SCN** (NRV SCN), was launched in November 2018 and has engaged a diverse group of provincial stakeholders since its inception. The NRV SCN stakeholder team, which includes patient advisors, aims to identify, lead and support evidence-informed improvements in neurosciences, rehabilitation and vision care across Alberta. In consultation with this broad group, the NRV SCN is currently in the process of identifying its strategic priorities leading to the development of the Transformational Roadmap, which will inform its focused work over the next 3-5 years.

*Impact:* A core function of the SCN SOs is to develop and maintain a collaborative network of researchers, which serves to foster engagement and interdisciplinary and innovative research opportunities.

#### Partnerships and Collaborations

ASDs have an important role in brokering partnerships and collaborations with other researchers, programs and entities. These partnerships and collaborations span provincial, national and international boundaries.

- The **PHCIN** recently launched the Virtual Patient Engagement Network (VPEN), a platform that connects patients, families and caregivers with teams working in primary health care. The VPEN allows for patients and family advisors to be matched to primary health care projects and initiatives that best fit with their experiences, interests and availability. These partnerships will model a different way of working one that sees front-line staff, clinicians, leaders, patients and families working alongside one another to co-design health care services.
- The **Cancer SCN** (CSCN) engages with multiple stakeholders to support "research– practice–patient" partnerships that will create and apply knowledge that improves outcomes for people facing cancer in Alberta. One example of this is the Palliative Care, Early and Systematic (PaCES) Advisory Committee and Collaborative, which is working to integrate an early palliative approach into advanced colorectal cancer care.
- The **KH SCN** hosted over 350 nurses, allied health professionals, physicians and researchers in March 2019 at Alberta Kidney Days where the theme was *Partnerships for Quality Kidney Care*. The objective was to provide learning, networking and knowledge translation opportunities that promote collaborative partnerships and improvement in kidney care. Both international and local speakers presented the latest evidence on various aspects of kidney care and showcased a number of Alberta nephrology research projects.
- The Surgery SCN (SSCN) signed a memorandum of understanding (MOU) with the Office
  of Lifelong Learning and Physician Learning Program (L3PLP) on effective implementation
  of the National Surgical Quality Improvement Program (NSQIP). The NSQIP was previously
  piloted NSQIP at five sites in each of the five Health Zones across Alberta. The MOU is an
  agreement for L3PLP to do an in-depth assessment of the implementation of 5 of 11 new
  sites in the current roll-out, as well as high-level support for monitoring at the remaining 6
  sites in the current phase of NSQIP implementation.

*Impact:* Partnerships and collaborations are an important way for SCNs to strengthen their role as a research and innovation engine and to extend their reach across the province. These new, emerging partnerships attest to the growing importance of the SCNs within the province.

# Continuing Education

In order to maintain and enhance their considerable skills, the ASDs have attended and participated in various research conferences, workshops and lectures, including the Quality and Safety Summit (October 2018), the Patient-Oriented Research Summer Institute (May 2018), and the Research and Innovation Impact Assessment Course (May 2018) in Calgary, hosted by Alberta Innovates and focused on building knowledge and skills on performance measurement and evaluation of research and innovation. Many ASDs participated on the review panel and as mentors for the third cohort of the AHS Research Challenge, a provincial initiative to support developing skills in research among front-line care providers.

*Impact:* The ASDs' continuing education activities strengthen their ability to consult and advise SCN members on a broad range of topics, such as ethical conduct of research and quality improvement, knowledge translation best practices, and emerging trends in research methodologies. Collectively, this will increase research capacity at AHS.

#### Action 4.2: We will contribute to Research Process Improvement.

 The RH SCN together with partners in analytics, created dashboards that provide accurate and timely data, such as the prevalence, incidence and all-causes mortality for asthma and COPD in the province. The initiative addresses the growing need in the research and clinical communities for access to respiratory data. The RH SCN is now working with the Sleep Disorders Working Group Data Sub-team to access similar data for sleep-disordered breathing.

#### Research Priority-setting

The ASDs contribute to establishing research priorities within their SCNs through the development of strategic research agendas. Research priority-setting exercises included literature reviews, environmental scans, and interpretation of provincial data, establishing research advisory boards, external evaluations and stakeholder consultation.

• The **Cardiovascular Health and Stroke SCN** (CvHS SCN) established a process to allow the SCN to ensure best fit of researchers within its community for upcoming grant competitions such as PRIHS, which requires SCNs to promptly engage their communities and identify priority research areas. This process resulted in the generation of ideas from both the core committee and the research community regarding research priority areas, and the creation of a list of potential research ideas to enable the SCN to respond quickly to future funding calls.

*Impact:* In the face of limited research resources (personnel and funding), it is important to establish clear research priorities for each SCN SO. This will enable maximization of the impact of SCN resources. Priority-setting exercises have served to set the scope for seed grants/studentships and have determined areas of eligibility for SCN scientific endorsement (e.g., Partnership for Research and Innovation in the Health System [PRIHS] grants).

#### Participating in Wider Research Communities

The ASDs have contributed to improving research processes within AHS in a number of other ways:

- The BJH SCN concluded an engagement process with Alberta-based researchers aimed at identifying research activities across Alberta and exploring strategies for how such research activity can be more directly plugged into and supported by the SCN.
- The **Seniors Health SCN** SO led the development of a provincial dementia strategy. The objectives of this initiative were to position Alberta as a leader in dementia research, promote the development of innovative solutions, and encourage the translation of research into practice, to improve health outcomes for Albertans living with dementia. The process involved extensive consultation with external dementia research stakeholders and individuals with lived experience of dementia. The framework, which was submitted to Alberta Health for review and endorsement, identified five key areas, each with specific aims for dementia research, innovation and translation in Alberta over the next five years.

• Katherine Rittenbach of the **AMH SCN** is a member of the Canadian Research Initiative in Substance Misuse (CRISM) leadership team on take-home naloxone, which recently issued a national evidence review.

*Impact:* ASD participation in external research bodies increase the visibility of SCN SOs in the wider national and international research communities. In addition, these collaborations enhance the skill-sets and knowledge areas of the ASDs and allow them to broaden the research communities of the SCNs.

# Action 4.3: We will contribute to Business Process Improvement.

#### Business Process Tools

Over the past year, the ASDs developed a number of business process tools to facilitate their work:

• The **PPIH SCN** worked together with AHS' Cancer Prevention Legacy Fund and Public Health Surveillance and Infrastructure to launch the new health equity page on the Alberta Community Health Dashboard. This page is an interactive online interface that empowers Alberta communities to understand and take action on factors that determine how healthy people in their communities are. The goal of this initiative is to advance health equity by providing some of the data required to understand risk factors for cancer and related chronic diseases, in the context of social and economic conditions.

*Impact:* These business process tools create consistency across SCN SOs and reduce administrative time for the development and execution of business cases, allowing ASDs to use their time more meaningfully.

#### Conclusion

In conclusion, the examples highlighted in this report demonstrate the 2018-2019 scientific achievements of the SCNs in advancing the AHS Strategy for Clinical Health Research, Innovation and Analytics. The SOs work within the SCNs advances improvements in patient and population health outcomes and experiences, improving health system performance, and increasing research capacity.

# Appendix A – SCN Scientific Leadership and Expertise

SCN	Name	Affiliations	Expertise and Interests
Strategic Clinical	Networks Leadership		
SCN website Associate Chief Medical Officer	Braden Manns, MD, Msc, FRCPC <u>braden.manns@ahs.ca</u>	Alberta Health Services, University of Calgary	<ul> <li>Applied Health Economics</li> <li>Cost effectiveness of strategies and health care policies for managing patients with chronic disease</li> </ul>
Chief Program Officer	Tracy Wasylak, BN, MSc, CHE tracy.wasylak@ahs.ca	Alberta Health Services, University of Calgary	<ul><li>Health policy and system research</li><li>Province-wide health system redesign</li></ul>
Addiction and Mer AMH SCN website	ntal Health SCN		
SD	Frank MacMaster, PhD fmacmast@ucalgary.ca	Alberta Health Services; University of Calgary; Alberta Children's Hospital Research Institute; Mathieson Centre for Mental Health Research & Education; Hotchkiss Brain Institute	Brain imaging studies of brain stimulation as an intervention for pediatric neuropsychiatric disorders
ASD	Katherine Rittenbach, PhD katherine.rittenbach@ahs.ca	Alberta Health Services; University of Alberta	<ul> <li>Clinical Trial design and management:         <ul> <li>Pediatric populations</li> <li>Adult populations</li> <li>Infectious diseases</li> <li>Mental Health disorders</li> <li>Addiction and Mental Health Indicator Development</li> <li>Evaluation of harm reduction strategies</li> </ul> </li> </ul>

SCN	Name	Affiliations	Expertise and Interests		
Bone and Joint Health SCN					
BJH SCN website					
SD	David Hart, PhD hartd@ucalgary.ca	Alberta Health Services; University of Calgary; McCaig Institute for Bone and Joint Health; Centre for Hip Health and Mobility (UBC); Canadian Academy of Health Sciences; Canadian Space Agency	<ul> <li>Regulation of processes leading to pathology</li> <li>Use of stem cells in tissue repair</li> <li>Modulation of inflammation</li> </ul>		
ASD	Ania (Anna) Kania-Richmond,	Alberta Health	Health service research		
	PhD, RMT	Services; University of	Mixed methods approaches		
	anna.kania-richmond@ahs.ca	Calgary	Content knowledge in integration of complementary		
			therapies in treatment of musculoskeletal health issues		
Cancer SCN CSCN website					
SD	Paula Robson, PhD	Alberta Health	Factors that contribute to cancer		
	paula.robson@ahs.ca	Services;	Reducing future burden on cancer on individuals,		
		University of Alberta	families and society		
ASD	Anna Pujadas Botey, MSc,	Alberta Health	Health, interdisciplinary research		
	PND	Services; University of	Cancer prevention and health services		
	anna.pujadaspotey@ans.ca	Alberta	<ul> <li>Knowledge exchange, stakeholder engagement and communication</li> </ul>		
			<ul> <li>Resilience and adaptation to change</li> </ul>		
			Capacity-building, collaboration and decision-making		
Cardiovascular He	alth and Stroke SCN				
SD	Colleen Norris, RN, BScN, MN,	Alberta Health	Health outcomes of patients with coronary artery		
	PhD (Epidemiology)	Services; University of	disease		
	cnorris@ualberta.ca	Alberta	Translation of evidence into action/practice to ensure		
			every Albertan has access to high-quality health care		

SCN	Name	Affiliations	Expertise and Interests
ASD (MLOA)	Christiane Job McIntosh, MA,	Alberta Health	Qualitative and mixed methods research
	PhD	Services; University of	Physical activity and health throughout the life course
	christiane.jobmcintosh@ahs.ca	Calgary	Population and public health
			Narrative Analysis
			Community and stakeholder engagement
			Global Health Partnerships
			Patient-and family-centered care
ASD (Interim)	Danijela Piskulic, PhD	Alberta Health	Quantitative research
	Danijela.pickulic@ahs.ca	Services; University of	Mental health
		Calgary	Clinical trial design and management
			Patient and family-oriented transitions in care
			Patient-oriented research
			Patient partner and stakeholder engagement
Critical Care SCN			
CC SCN website		1	
SD	Sean Bagshaw, MD, MSc, FRCPC <u>bagshaw@ualberta.ca</u>	Alberta Health Services; University of Alberta	<ul> <li>Translational biology, clinical epidemiology, clinical trials and health services research (CIHR pillars I, II, III).</li> </ul>
			Focus on health outcomes evaluation, ICU
			organization and capacity in critically ill patients
			Methodological approaches include systematic
			and randomized trials.
ASD	Samantha Bowker, BA, MSc,	Alberta Health	Clinical epidemiology; epidemiology; health outcome
	PhD	Services; University of	research; health services research
	samantha.bowker@ahs.ca	Alberta;	Diabetes, Gestational diabetes; critical care
		Women & Children's	Methodological approaches including systemic
		Health Research	reviews, observational studies and randomized trials
Diabetes, Obesity	and Nutrition SCN		
SD	Catherine Chan, PhD	Alberta Health	Basic nutrition research on dietary components that
	<u>cbchan@ualberta.ca</u>	Services; University of Alberta	improve glycemic control and insulin secretion

SCN	Name	Affiliations	Expertise and Interests
			<ul> <li>Applied research to develop, implement and evaluate interventions to facilitate healthier diets and higher levels of physical activity</li> </ul>
ASD	Naomi Popeski, MA, PhD naomi.popeski@ahs.ca	Alberta Health Services	<ul> <li>Health researcher</li> <li>Knowledge translation, qualitative and mixed method analysis</li> <li>Expertise in behavioral neuroendocrinology and health research</li> </ul>
Digestive Health S DH SCN website	CN		
SD	Gil Kaplan, BSc MD, MPH, FRCPC ggkaplan@ucalgary.ca	Alberta Health Services; University of Calgary; Snyder Institute for Chronic Diseases; Institute of Public Health	<ul> <li>Inflammatory bowel disease</li> <li>Digestive diseases</li> <li>Epidemiology</li> <li>Global health</li> <li>Environmental health</li> <li>Health services</li> <li>Innovating health care delivery</li> <li>Administrative health care data</li> </ul>
ASD	Susan Jelinski, BSc, MSc, PhD, DVM <u>susan.jelinski@ahs.ca</u>	Alberta Health Services; University of Alberta	<ul> <li>Clinical Epidemiology (i.e., the practice of evidence- based medicine)</li> <li>Use of administrative data for health services research</li> </ul>
Emergency SCN ESCN website			
SD	Eddy Lang, MDCM, CCFP (EM), CSPQ Eddy.lang@ahs.ca	Alberta Health Services; University of Calgary	<ul> <li>Knowledge translation</li> <li>Evidence-based medicine</li> <li>Operations research</li> <li>Development of GRADE-based clinical practice guidelines</li> </ul>
ASD	Patrick McLane, MA, PhD patrick.mclane@ahs.ca	Alberta Health Services; University of Alberta	<ul> <li>Qualitative and mixed methods</li> <li>Policy analysis</li> <li>Health services delivery</li> <li>Transitions in care</li> <li>Social determinants of health</li> </ul>

SCN	Name	Affiliations	Expertise and Interests
Kidney Health SC	N		
KH SCN website			
Co-SD	Scott Klarenbach, MD, MSc,	Alberta Health	Nephrology
	FRCP(C)	Services; University of	Health Economics
	swk@ualberta.ca	Alberta; Department of	Health Services Research
		Medicine	Health Technology Assessments
Co-SD	Neesh Pannu, MD, SM,	Alberta Health	Clinical Epidemiology
	FRCP(C)	Services; University of	Health Services Research
	npannu@ualberta.ca	Alberta; Department of	Quality Improvement
		Medicine	Acute Kidney Injury
ASD (MLOA)	Marni Armstrong, RCEP, PhD	Alberta Health	Chronic disease prevention
	marni.armstrong@ahs.ca	Services, University of	Clinical epidemiology
		Calgary	Behavioural lifestyle interventions
			Administrative data linkage
ASD (Interim)	Loreen Gilmour, PhD, MBA	Alberta Health	Knowledge translation
	loreen.gilmour@ahs.ca	Services; University of	ERAS implementation
		Calgary	Mixed methods research design
			Health system and policy research
Maternal, Newborn, Child & Youth SCN			
MNCY SCN website	3		
SD	Deborah McNeil, MN, PhD	Alberta Health	Epidemiology
	(Epidemiology)	Services; University of	Population health
	debbie.mcneil@ahs.ca	Calgary;	Perinatal depression and anxiety
		Alberta Children's	Measuring health inequities
		Hospital Research	Childhood immunization
		Institute	Group pre- and post-natal care
ASD	Seija Kromm, MA	Alberta Health	Health policy
	(Economics), PhD (Health	Services; University of	Health system reform
	Policy)	Calgary;	Economics and financing of health care
	seija.kromm@ahs.ca	Women and Children's	• Mixed methods research (quantitative and qualitative)
		Health Research	Organizational strategic priorities
		Institute	Health system performance measurement
			Preference elicitation (discrete choice analysis)

SCN	Name	Affiliations	Expertise and Interests
SD Effective 09/2019	Elisabeth Papathanassoglou, PhD, MSc, RN papathan@ualberta.ca	Alberta Health Services; University of Alberta	<ul> <li>Management of acutely ill patients</li> <li>Non-pharmacological, integrative interventions and stress responses in critical care.</li> </ul>
Population, Public	and Indigenous Health SCN		
SD	Melissa Potestio, MSc, PhD melissa.potestio@ahs.ca	Alberta Health Services; University of Calgary; Alberta Cancer Prevention Legacy Fund; O'Brien Institute of Public Health.	<ul> <li>Population and Indigenous health research methodologies</li> <li>Health equity</li> <li>Social determinants of health</li> <li>Knowledge translation and implementation</li> <li>Population health measurement.</li> </ul>
ASD	Kienan Williams, BSc, MPH kienan.williams@ahs.ca	Alberta Health Services	<ul> <li>Research, strategic planning, facilitation, training, program development and assessment/evaluation</li> <li>Qualitative and quantitative research initiatives</li> <li>First Nations values, languages, beliefs and world views</li> </ul>
ASD	Jamie Boyd, BA, MSc jamie.boyd@ahs.ca	Alberta Health Services, University of Calgary	<ul> <li>Health services research</li> <li>Population health</li> <li>Mixed methods</li> <li>Quantitative analyses</li> <li>Administrative data linkages</li> <li>Knowledge translation</li> <li>Quality indicators</li> <li>Health system quality improvement</li> <li>Grant writing</li> <li>Grant management</li> <li>Research ethics</li> </ul>

SCN	Name	Affiliations	Expertise and Interests
Primary Health Car PHCIN SCN website	re Integration Network SCN		
SD	Judy Seidel, BSc (Psychology); MSc Environmental Design), PhD (Epidemiology) judy.seidel@ahs.ca	Alberta Health Services; University of Calgary	<ul> <li>Effective and efficient delivery of primary health care services</li> <li>Development of access standards and guidelines</li> <li>Development of health services planning tools and guidelines using newly developed tools and datasets</li> <li>Transferring research findings into practice and policy</li> </ul>
ASD	Ceara Cunningham, PhD, BPE, MA <u>ceara.cunningham@ahs.ca</u>	Alberta Health Services; University of Calgary	<ul> <li>Health services research</li> <li>Evidence-based research methodologies to help develop, test, and promote methodological advances for the applied use of coded health information, inform health data integration and improve the data-sharing process with the aim of improving methods in health services research in the primary health care setting</li> </ul>
Respiratory Health RH SCN website	SCN		
SD	Michael Stickland, BPE, PhD (Physiology) <u>michael.stickland@ualberta.ca</u>	Alberta Health Services; University of Alberta; Mazankowski Alberta Heart Institute; G.F. MacDonald Centre for Lung Health	<ul> <li>Pulmonary physiology</li> <li>Cardiovascular consequences of chronic lung disease</li> <li>Pulmonary rehabilitation</li> <li>Health outcomes in COPD</li> </ul>
ASD	Heather Sharpe, RN, PhD heather.sharpe@ahs.ca	Alberta Health Services; Department of Medicine, Cumming School of Medicine, University of Calgary	<ul> <li>Respiratory patient education</li> <li>Management of respiratory disease in primary care</li> <li>Behavior change within the context of chronic disease management and tobacco cessation</li> <li>Mixed methods research</li> </ul>

SCN	Name	Affiliations	Expertise and Interests	
Seniors Health SCN				
SH SCN website		I		
SD	Adrian Wagg, MD, FRCP	Alberta Health	Urinary incontinence	
	wagg@ualberta.ca	Services; University of	Clinical effectiveness	
		Alberta	Healthy aging behaviors	
			Knowledge translation	
ASD (MLOA)	Heather Hanson, PhD	Alberta Health	Mobility among older adults	
	heather.hanson@ans.ca	Services; University of	Physical activity and health promotion	
		Calgary	Prevention of falls and fractures	
			Knowledge translation	
			Mixed methods research designs	
ASD (Interim)	Anna Millar MPharm PhD	Alberta Health	<ul> <li>Mixed methods research</li> </ul>	
	Anna.millar2@ahs.ca	Services	Medicine management /ontimization in older adults	
			Pharmacist independent prescribing	
			Continuing care	
			Prescribing appropriateness	
			Health care interfaces	
			Social prescribing	
			Community pharmacy services	
Surgery SCN SSCN website				
SD	Ron Moore, MD, PhD, FRCSC,	Alberta Health	Novel modalities/ therapeutics for treating bladder and	
04 2014 - 04 2019	FACS	Services; University of	prostate cancer	
	ron.moore@ahs.ca	Alberta;	Means of improving survival of transplanted organs	
		Alberta Cancer Board;	including laser surgery, development of laser and light	
		Cross Cancer Institute	delivery/detection equipment, drug development, drug	
			testing, drug delivery, biochemical and biological	
			modifiers, molecular markers, predictive assays and gene therapy	
SD	Mary Brindle, MD, MPH,	Alberta Health	Director of the EQuIS (Efficiency Quality Innovation	
Effective	FRCSC	Services University of	and Safety) research platform -Using quantitative and	
05 2019	mary.brindle@ahs.ca	Calgary	qualitative research methods and implementation	

SCN	Name	Affiliations	Expertise and Interests
			<ul> <li>science to develop tools to improve surgical safety in Alberta, Canada, and internationally.</li> <li>Leading international collaborative work to revise and improve the implementation of the Safe Surgery Checklist.</li> <li>Leading international work in Enhanced Recovery After Surgery (ERAS) to develop standards for all ERAS guidelines, and leading collaborative work to develop pediatric ERAS guidelines.</li> </ul>
ASD	Sanjay Beesoon, BSc, MPH,	Alberta Health	Public health, epidemiology, toxicology, clinical
	PhD	Services	laboratory research
	sanjay.beesoon@ahs.ca		Building research and innovation capacity in Alberta.

# Appendix B – SCN Scientific Office Grants and Publications

# SCN Leadership

Our focus in 2018 / 19 was on drafting several key SCN documents, including the SCN Roadmap 2019-2024, which was released as the *Alberta Strategic Clinical Networks, Past Present and Future* report in July 2019<sup>4</sup>. We also completed the *Strategic Clinical Networks Retrospective 2012-2018*, documenting the accomplishments of SCNs over the first seven years. Finally, we began drafting a document on SCN return on investment, an interim version of which will be released in the fall 2019.

In 2019/20 will see several publications arise from the SCN leadership, with these being prepared in early 2019. These include an article that will be released in the fall 2019 in CMAJ entitled "*Clinical Networks: Enablers of Health System Change*", a series of SCN articles to be released as a CMAJ supplement in December 2019, and finally an article in HealthCare Management Forum entitled "*Alberta's Strategic Clinical Networks*™: A Roadmap for the Future". SCN Leadership publications

- White DE, Virt N, Jackson M, Stelfox H, Wasylak T, Ghali W. 2019. Experimenting with Governance: Alberta's Strategic Clinical Networks. Health Quarterly, 21(4): 37–42. DOI: 10.12927/hcq.2019.25742
- Lopatina E, Miller J, Teare S, Marlett N, Patel J, Barber C, Mosher D, Wasylak T, Woodhouse L, Marshall D. 2019. The voice of patients in system redesign: A case study of redesigning a centralized system for intake of referrals from primary care to rheumatologists for patients with suspected rheumatoid arthritis. Health Expectations, 22(3): 348–363. DOI: 10.1111/hex.12855
- Barber T, Sharif B, Teare S, Miller J, Shewchuk B, Green L, Marlett N, Cibere J, Mrklas K, Wasylak T, Li L, Campbell-Scherer D, Marshall D. 2019. Qualitative study to elicit patients' and primary care physicians' perspectives on the use of a self-management mobile health application for knee osteoarthritis. BMJ Open. 2019-9:e024016. DOI: 10.1136/bmjopen-2018-024016
- 4. Marshall D, Patel J, Miller J, Marlett N, Shklarov S, Teares S, **Wasylak T**. 2018. Support for living a meaningful life with osteoarthritis: A patient-to-patient research study. The Patient Patient-Centered Outcomes Research, PTTA-D-16-00025R1
- Zheng Y, Ohinmaa A, Jacobs P, Chuck A, Lehman A, Fang S, Wright J, Vallaire S, O'Neill B, Wasylak T, Jeerakathil T. 2018. Cost Effectiveness of Stroke Unit Equivalent Care Followed by Early Supported Discharge in Rural Areas. Stroke, 2018/020936.

<sup>&</sup>lt;sup>4</sup> https://www.albertahealthservices.ca/scns/Page13670.aspx

 Francis NK, Walker T, Carter F, Hubner M, Balfour A, Hjort Jakobsen D, Burch J, Wasylak T, Demartines N, Lobo D, Addor V, Ljungqvist O. 2018. Consensus on Training and Implementation of Enhanced Recovery After Surgery: A Delphi Study. World Journal of Surgery, 42(7): 1919–1928. DOI: 10.1007/s00268-017-4436-2

#### **SCN Leadership Grants**

PI	Title	Funding Agency	Amount
McBrien K	ENCOMPASS: Enhancing COMmunity health through Patient navigation, Advocacy and Social Support	CIHR	\$1,500,000

# Addiction and Mental Health SCN

# AMH SCN High-level Accomplishments:

The Scientific Office of the Addiction and Mental Health Strategic Clinical Network (AMH SCN) is shifting research in Alberta to being research that is prioritized by people with lived or living experience (PWLE) with addiction and/or mental health diagnoses. This combines the focus of the Scientific Office, to bring research and innovation to practice, and a goal of Alberta Health Services, to provide patient-centered care. The Scientific Office has moved the ideal of PWLE involvement in research and innovation forward in multiple ways, two of which are expanded upon below.

First, the AMH SCN was privileged to work with Alberta Health to administer a funding call to support research in Alberta that will close some of the gaps in care identified in the Valuing Mental Health report<sup>5</sup>. The call awarded three grants of approximately \$200,000 each to research projects in Alberta focused on finding solutions to problems specific to under-served populations. The Scientific Office led a novel component to this funding call by incorporating reviews and prioritization of the projects by PWLE with the addiction and/or mental health care system.

Following best practice, the Assistant Scientific Director, Kay Rittenbach, invited multiple individuals to be full members of the Steering and Review Committee, worked with each individual to support them all, and ensured that the entire team recognized the validity and importance of their contributions. All three PWLE members of the committee felt appreciated and empowered, while also enjoying the process. Two of the PWLE have since been involved in

<sup>&</sup>lt;sup>5</sup> <u>https://www.alberta.ca/mental-health-reporting.aspx</u>

a submitted publication documenting their work, as well as presenting at a conference. This experience was positive and both would enthusiastically volunteer to do similar work again. The other (non-PWLE) steering committee members gained a greater appreciation of the value of working with PWLE in roles beyond that of 'research subject' or 'patient'. For the grant awardees and Albertans, including PWLE, this ensured that the projects would have real-world impact and the support of the community.

The second project that will lead to significant, novel scientific contribution from the Scientific Office of the AMH SCN is the development of a feasibility study of a virtual supervised consumption service that was successful in the PRIHS funding competition (\$914,813). This project addressed a vital need in Alberta, which has seen deaths from apparent opioid overdoses increase dramatically over the last 5 years, doubling every year. The contamination of illicit drugs by ever stronger synthetic opioids has resulted in opioid overdoses and deaths from non-opioids, such as cocaine and crystal meth. One effective intervention that reduces overdose deaths is supervised consumption services. These harm-reduction services are provided in facilities where people can use illicit substances in controlled environments with people and equipment to ensure quick response to overdoses.

Literature on supervised consumption services demonstrates the lives saved through responding to overdoses and also the return on investment due to a marginalized population receiving regular health care. Most locations can provide sterile supplies, connections to other services and wound care to their clients. These sites, like their clients, are stigmatized and protested by many people due to concerns about neighborhood safety, which makes it challenging to open sites where they are needed. Further, geographic issues arise because people are not willing to travel more than 500 meters to visit a site, limiting the area that is helped by each site.

A passionate clinician approached the Scientific Office about addressing these challenges through a technology-based safe consumption service. This idea was inspired directly by the clinician's patients, some of who were using technology such as facetime to protect themselves and their friends. The Assistant Scientific Director, Kay Rittenbach, took on the challenge of designing a feasibility study to determine whether a phone-based service could help address the challenges of the overdose crisis in Alberta.

This project utilizes the skills of the Scientific Office—extensive clinical trial experience, knowledge of and with the Alberta harm reduction ecosystem, strong relationships with researchers and operational experts and research expertise—to investigate a novel intervention that may provide life-saving care. As the principal investigator of a peer-reviewed grant to implement and study the intervention, one of the most challenging and rewarding components of the project is to ensure that the service, study design and messaging is right for the clients, while also coordinating the work with the myriad diverse partners involved. People with lived experience using illicit substances have clearly stated that the operators of the service should be other people with lived experience, not health care professionals or emergency service personnel. However, the connections with emergency service personnel need to be collaborative and positive, as if the client has a negative experience with the response they will choose not to use the service again.

This project centers on what people with lived experience need and want in an effective service and capitalizes upon the skills of the AMH SCN to ensure that the work will be methodologically rigorous and accepted by the health care system.

These two projects highlight the priority that Drs. MacMaster and Rittenbach place on involving PWLE in Addiction and Mental Health research in Alberta, and the diverse ways they are working to increase that research in Alberta.

# AMH SCN Peer-reviewed Publications:

#### Published: SD/ASD/Leadership member as Author

- Breault LJ, Rittenbach K, Hartle K, Babins-Wagner R, deBeaudrap C, Jasaui Y, Ardell E, Purdon SE, Michael A, Sullivan G, Unger SR, Vandall-Walker L, Necyk B, Krawec K, Manafo E, Mason-Lai P. 2018. People with lived experience (PWLE) of depression: describing and reflecting on an explicit patient engagement process within depression research priority setting in Alberta, Canada. Research Involvement and Engagement, 4: 37. DOI: 10.1186/s40900-018-0115-1
- Breault LJ, Rittenbach K, Hartle K, Babins-Wagner R, deBeaudrap C, Jasaui Y, Ardell E, Purdon SE, Michael A, Sullivan G, Unger SR, Vandall-Walker L, Necyk B, Krawec K, Manafo E, Mason-Lai P. 2018. The top research questions asked by people with lived depression experience in Alberta: a survey. Canadian Medical Association Journal Open, 6(3): E398–E405. DOI: 10.9778/cmajo.20180034
- 3. Brown S, **Rittenbach K**, Cheung S, McKean G, **MacMaster FP**, Clement F. 2019. Current and Common Definitions of Treatment Resistant Depression: Findings from a Systematic Review and Qualitative Interviews. Canadian Journal of Psychiatry, 64(6): 380–387. DOI: 10.1177/0706743719828965
- Croarkin P, MacMaster FP. 2019. Transcranial Magnetic Stimulation for Adolescent Depression. Child Adolesc Psychiatr Clin N Am, 28(1): 33–43. DOI: 10.1016/j.chc.2018.07.003
- Deschamps J, Gilbertson J, Straube S, Dong K, MacMaster FP, Korownyk C, Montgomery L, Mahaffey R, Downar J, Clarke H, Muscedere J, Featherston R, Vandermeer B, Lynam D, Magnussen R, Bagshaw SM, Rewa OG. 2019 Association Between Harm Reduction Strategies and Healthcare Utilization in Patients on Long-Term Opioid Therapy Presenting to Acute Healthcare Settings: A protocol for a systematic review and meta-analysis. Systematic Reviews, 8: 88. DOI: 10.1186/s13643-019-0997-5
- Kong, XZ and the ENIGMA Laterality Working Group, incl. MacMaster FP. 2018. Mapping Cortical Brain Asymmetry in 17,141 Healthy Individuals Worldwide via the ENIGMA Consortium. Proceedings of the National Academy of Sciences of the United States of America, 115(22): E5154–E5163. DOI: 10.1073/pnas.1718418115
- 7. Marshall T, Kinnard EN, Hancock M, Jones SK, Olson K, Abba-Aji A, **Rittenbach K**, Vohra S. 2018. Patient Engagement, Treatment Preferences and Shared Decision-Making

(SDM) in the Treatment of Opioid Use Disorder (OUD) in Adults: A Scoping Review Protocol. British Medical Journal Open, 8(10), e022267. DOI: 10.1136/bmjopen-2018-022267

- McLellan Q, Wilkes TC, Swansburg R, Jaworska N, Langevin LM, MacMaster FP. 2018. History of suicide attempt and right superior temporal gyrus volume in youth with treatment-resistant major depressive disorder. J Affect Disord, 239: 291–294. DOI: 10.1016/j.jad.2018.07.030
- Selby B, MacMaster FP, Kirton A, McGirr A. 2019. Cycloserine blunts motor cortex facilitation after intermittent theta burst transcranial magnetic stimulation in healthy individuals: a double-blind randomized placebo-controlled crossover study. Brain Stimulation, 12(4): 1063–1065. DOI: 10.1016/j.brs.2019.03.026

# Accepted/In Press: SD/ASD/Leadership member as Author

 MacMaster FP, Croarkin P, Wilkes TC, McLellan Q, Langevin LM, Jaworska N, Swansburg R, Jasaui Y, Zewdie E, Ciechanski P, Kirton A. Repetitive Transcranial Magnetic Stimulation in Youth with Treatment Resistant Major Depression. Frontiers of Psychiatry - Neuroimaging and Stimulation (In Press).

# Submitted: SD/ASD/Leadership member as Author

- 1. Palay J, Turner S, Afifi T, Taillieu T, Bolton J, Enns M, Smith M, Lesage A, Bakal J, Rush B, Adair C, Vigod S, Clelland S, **Rittenbach K**, Sareen J. Prevalence of mental disorders and suicidality in Canadian provinces. Canadian Journal of Psychiatry. (submitted)
- Rittenbach K, Horne CG, O'Riordan T, Bichel A, Mitchell N, Fernandez AM, MacMaster FP. Engaging people with lived experience in the grant review process. BMC Med Ethics. (submitted)
- 3. Yan C, **Rittenbach K**, Souri S, Silverstone PH. Cost-Effectiveness analysis of a randomized study of depression treatment options in primary care suggests stepped-care treatment may have economic benefits. BMC Psychiatry. (submitted)

#### AMH SCN Grants:

#### Successful Grants:

PI	Title	Funding Agency	Amount
Rittenbach K	Virtual Supervised	Alberta Innovates	\$914,813
	Consumption: Using	Partnership for	
	an evidence-based	Research and	
	approach to impact	Innovation in the	
	more of Alberta's	Health System	
	Communities	(PRIHS) 4	
		Competition	

PI	Title	Funding Agency	Amount
Newton S, Freedman S	An Innovative Model of Acute Pediatric Mental Health and Addictions Care to Increase Value to Children, Youth, and the Healthcare System	Alberta Innovates PRIHS 4 Competition	\$850,746
Milaney K, O'Gorman C	Assessing the Needs of Vulnerable Sub- populations: A Scoping Review of Best Practices in Response to the Opioid Crisis	Canadian Institutes of Health Research (CIHR)	\$108,100
Tandon P	The Alberta cirrhosis care team	Alberta Innovates PRIHS 4 Competition	\$1,099,124
Leung A	Building capacity in pediatric mental health: implementing and spreading CanREACH	Alberta Health and Alberta Health Services	\$1,644,000
AMH SCN	AMH pathways: supporting integration and coordination between services and sectors	Alberta Health	\$2,600,000
Dimitropoulos G	The role of peer support in the emergency department for youth and their families: navigation to community and specialized mental health services	Alberta Health	\$138,850
Johnson D	eMental Health for adolescents and young adults	CIHR – Rewarding Success	\$100,000
Freeman S, Newton M	Implementing innovative models of acute pediatric mental health and addiction care	CIHR – Rewarding Success	\$99,999

# Pending Grants:

PI	Title	Funding Agency	Request
Thombs B	Diagnostic accuracy of the Edinburgh postnatal depression scale for detecting major depression: an updated systematic review and independent participant data meta-analysis	CIHR	\$300,000

# **Bone and Joint Health SCN**

# **BJH SCN High-level Accomplishments:**

Under the leadership of David Hart, the Scientific Office (SO) has moved in a direction that is focused on facilitation and enabling an evidence-based approach to SCN initiatives. The underlying "mantra" of the SO is to match real-world problems with potential solutions. In this vein, several activities were completed by the SO over the 2018-2019 report year.

The SO concluded an engagement processes with Alberta-based researchers. The engagement sessions aimed to bring together researchers from across the province – University of Alberta, University of Calgary, University of Lethbridge, Mount Royal University – conducting research in areas that fall under the "BJH umbrella". The sessions aimed to identify research activities within Alberta and explore potential strategies on how this activity can be more directly plugged into the SCN and supported by the SCN. One of the topics discussed that seemed to resonate with many was exploring the idea of re-activating an Alberta Osteoarthritis (OA) Team.

The SO organized a third in a series of workshops, with a focus on transitions in care for patients who sustained a hip fracture. As with our previous two workshops, the aim was to provide an opportunity for an evidence-informed discussion on the topic within input from the range of stakeholders engaged in this area – patients, clinicians, researchers, administrators, etc. – and their perspectives. In addition to local and national leaders in this area of care, the SO also led the preparation of a white paper<sup>6</sup> that summarized the evidence and thinking on the topic.

<sup>&</sup>lt;sup>6</sup> <u>https://www.albertahealthservices.ca/assets/about/scn/ahs-scn-bjh-hip-white-paper.pdf</u>

Working closely with the communications team, the SO finalized FAQs on stem cells, which were posted to the MyHealthAlberta website in mid-2018. The FAQs provide information to the public regarding use of stem cells in the treatment of osteoarthritis. This is a direct output of the first SO workshop, which took place in October 2016 and was focused on stem cells for osteoarthritis. In addition, the SO continues to work with the research and clinical communities regarding stem cell use in osteoarthritis.

#### **BJH SCN Peer-reviewed Publications:**

#### Published: SD/ASD/ Leadership Member as Author

- Ahmed AS, Gedin P, Hugo A, Bakalkin G, Gladh I, Kanar A, Hart DA, Druid H, Svensson C, Kosek E. 2018. Activation of nuclear factor – kappa B in the synovium from patients with advanced knee osteoarthritis compared to levels in synovium from control individuals: a potential contributor to inflammatory aspects of disease progression. Journal of Immunology, 201(7): 1918–1927. DOI: 10.4049/jimmunol.1800486
- Barton KI, Heard BJ, Sevick JL, Martin CR, Shekarforoush SM, Chung M, Achari Y, Frank CB, Shrive NG, Hart DA. 2018. Post-traumatic osteoarthritis development and progression in an ovine model of partial anterior cruciate ligament transection and effect of repeated intra-articular methylprednisolone injections on early disease. Am J Sports Med, 46(7): 1596–1605. DOI: 10.1177/0363546518765098
- Chijimatsu R, Yano F, Saito T, Kobayashi M, Hamamoto S, Kaito T, Kushioka J, Hart DA, Chung U-I, Tanaka S, Yoshikawa H, Nakamura N. 2019. Effect of small compound TD-198946 on glycosaminoglycan synthesis and chondrogenesis of human synovial derived stem cells in vitro. Tissue Engineering & Regenerative Medicine, 13(3): 446–458. DOI: 10.1002/term.2795
- 4. Collins KH, **Hart DA**, Seerattan RA, Reimer RA, Herzog W. 2018. High-fat high-sucrose diet-induced obesity results in joint-specific development of osteoarthritis-like generation in a rat model. Bone & Joint Research, 7(4): 274–281. DOI: 10.1302/2046-3758.74.BJR-2017-0201.R2.
- Collins KH, Herzog W, MacDonald G, Reimer RA, Rios JL, Smith IC, Zernicke RF, Hart DA. 2018. Obesity, Metabolic Syndrome, and MSK Disease: Common inflammatory pathways suggest a central role for loss of muscle integrity. Frontiers in Physiology, 9: 112. DOI: 10.3389/fphys.2018.00112. eCollection 2018. (Invited review)
- 6. Collins KH, Herzog W, Reimer R, Reno CR, Heard BJ, **Hart DA**. 2018. Pro-inflammatory Vitreous Humour Alterations as a Result of High-Fat/High-sucrose Diet-Induced Obesity in a Rat Model. Inflammation Research, 67(2): 139–146. DOI: 10.1007/s00011-017-1102-y
- Hart DA, Fortuna R, Herzog W. 2018. Messenger RNA Profiling of Rabbit Quadriceps Femoris after Repeat Injections of Botulinum Toxin: Evidence for a dynamic pattern without further structural alterations. Muscle Nerve, 57: 487–493. DOI: 10.1002/mus.25775
- 8. **Hart DA**, Herzog W, Reimer RA, Rios JL, Collins KH. 2019. Obesity and impact on host systems effecting mobility and potentially, on fidelity of navigation through the environment. European Medical Journal, 4(1): 63–70. (Invited Review)
- Hart DA. 2018. Evidence for a potential "knee-eye-brain axis" involved in mobility and navigation control. J Biomedical Science & Engineering, 11(3): 37–44. DOI: 10.4236/jbise.2018.113004
- Ishiguro H, Kaito T, Yarimitsu S, Hashimoto K, Okada R, Kushioka J, Chijimatsu R, Takena S, Makino T, Sakai Y, Moriguchi Y, Otsuru S, **Hart DA**, Fujie H, Nakamura N, Yoshikawa H. 2019. Intervertebral disc regeneration with an adipose mesenchymal stem cell-derived tissue-engineered construct in a rat nucleotomy model. Acta Biomater, 87:118–129. DOI: 10.1016/j.actbio.2019.01.050
- Jorgenson K, Hart DA, Krawetz RJ, Sen A. 2018. Production of Adult Human Synovial Fluid Derived Mesenchymal Stem Cells in Stirred Suspension Culture. Stem Cells International, Article ID: 8431053. DOI: 10.1155/2018/8431053
- Paul HA, Collins KH, Nicolucci AC, Urbanski SJ, Hart DA, Vogel HJ, Reimer RA. 2019. Maternal prebiotic supplementation reduces fatty liver development in offspring through altered microbial and metabolomics profiles in rats. FASEB J, 33(4): 5153–5167. DOI: 10.1096/fj.201801551R
- 13. Rios JL, Boldt K, Mather JW, Seerattan RA, **Hart DA**, Herzog. 2018. Quantifying the Effects of Different Treadmill Training Speeds and Durations on the Health of Rat Knee Joints. Sports Med Open, 4:15. DOI: 10.1186/s40798-018-0127-2
- 14. Rios JL, Bomhof M, Reimer RA, **Hart DA**, Collins KH, Herzog W. 2019. Protective effect of prebiotic and exercise intervention on knee health in a rat model of diet-induced obesity. Science Reports, 9(1): 3893. DOI: 10.1038/s41598-019-40601-x
- 15. Rollick NC, Lemmex DB, Ono Y, Reno CR, **Hart DA**, Lo IKY, Thornton GM. 2018. Gene expression changes in knee-joint tissues with aging and menopause: Implications for the joint as an organ. Clinical Interventions in Aging, 13: 365–375. DOI: 10.2147/CIA.S151453
- 16. Sevick JL, Abusara Z, Andrews SH, Xu M, Khurshid S, Chatha J, **Hart DA**, Shrive NG. 2018. Fibril deformation under load of the rabbit Achilles tendon and medial collateral ligament femoral entheses. J Orthop Res, 36(9): 2506–2515. DOI: 10.1002jor.23912
- 17. Shekarforoush M, Barton KI, Atarod M, Heard BJ, Sevick JL, Martin CR, **Hart DA**, Frank CB, Shrive NG. 2018. An explicit method for analysis of three dimensional linear and angular velocity of a joint, with specific application to the knee joint. J Med Biol Eng, 38(2): 273–283. DOI: 10.1007/s40846-017-0298-1
- Shekarforoush M, Beveridge JE, Hart DA, Frank CB, Shrive NG. 2018. Correlation between translational and kinematic abnormalities and osteoarthritis-like damage in two in vivo sheep injury models. J Biomechanics, 75: 67–76. DOI: 10.1016/jbiomech.2018.04.046
- 19. Shekarforush M, Barton KI, Beveridge JE, Scott M, Martin CR, Muench G, Heard BJ, Sevick JL, **Hart DA**, Frank CB, Shrive NG. 2019. Alterations in joint angular velocity

following traumatic knee injury in ovine models. Annals of Biomedical Engineering, 47(3): 790–801. DOI: 10.1007/s10439-019-02203-6

- 20. Shimomura K, Hamamoto S, **Hart DA**, Yoshikawa H, Nakamura N. 2018. Meniscal repair and regeneration: current strategies and future perspectives. Journal of Clinical Orthopaedics and Trauma, 9(3): 247–253. DOI: 10.1016/j.jcot.2018.07.008
- Shimomura K, Yasui Y, Koizumi K, Chijimatsu R, Hart DA, Yonetani Y, Ando W, Nishii T, Kanamoto T, Horibe S, Yoshikawa H, Sakaue M, Sugita N, Moriguchi Y, Nakamura N. 2018. First-in-Human Pilot Study of Implantation of a Scaffold-Free Tissue-Engineered Construct Generated from Autologus synovial Mesenchymal Stem Cells for Repair of Knee Chondral Lesions. Am J Sports Med, 46(10): 2384–2393. DOI: 10.1177/0363546518781825
- Shinomura K, Ando W, Fujie H, Hart DA, Yoshikawa H, Nakamura N. 2018. Scaffold-free tissue engineering for injured joint surface restoration. J Experimental Orthopaedics, 5(1): 2. DOI: 10.1186/s40634-017=0118-0
- 23. Shinomura K, Rothrauff BB, **Hart DA**, Hamamoto S, Kobayashi M, Yoshikawa H, Tuan RS, Nakamura N. 2018. Enhanced repair of meniscal hoop structure injuries using an aligned electrospun nanofibrous scaffold combined with a mesenchymal stem cell-derived tissue engineered construct. Biomaterials. 192: 246–254. DOI: 10.1016/j.biomaterials.2018.11.009
- 24. Tarzemany R, Jiang G, Jaing JX, Gallant-Behm C, Wiebe C, **Hart DA**, Larjava H, Hakkinen L. 2018. Connexin 43 distinctly regulates the expression of wound healing-related genes in human gingival and skin fibroblasts. Exp Cell Res, 367(2): 150–161. DOI:10.1016/j.yexcr.2018.03031
- Yasui Y, Hart DA, Sugita N, Chijimatsu R, Koizumi K, Ando W, Moriuchi Y, Shimomura K, Myoui A, Yoshikawa H, Nakamura N. 2018. Time-dependent recovery of human synovial membrane mesenchymal stem cell function after high-dose steroid therapy. Am J Sports Med, 46(3): 695–701. DOI: 10.1177/0363546517741307

# Accepted/In Press: SD/ASD/Leadership member as Author

- 1. Collins KH, MacDonald GZ, **Hart DA**, Seerattan RA, Rios JL, Reimer RA, Herzog W. Adult versus weanling exposure to a high fat high sucrose diet leads to differences in development of joint damage: Potential impact of timing on establishment of metabolic and functional set points. J Sport Health Science. In Press (Invited article).
- Hart DA, Herzog W, Rios JL, Reimer RA, Collins KH. Understanding the initiation and progression of diet-induced obesity and associated pathophysiology: Lessons learned from a rat model. In: Pathophysiology of Obesity-Induced Health Complications (Tappia PS, Ramjiawan B, and Dhalla NS, Editors). Advances in Biochemistry in Health and Disease. Springer Nature, In Press, June/2019.
- Heard BJ, Barton KI, Aghojo OM, Chung M, Sevick JL, Bader TJ, Martin CR, Shrive NG, Hart DA. 2019. Molecular response of rabbit menisci to surgically induced hemarthrosis and a single intra-articular dexamethasone treatment. J Orthop Res. DOI: 10.1002/jor.24346 [E-pub ahead of print]

#### Submitted: SD/ASD/Leadership member as Author

 Rios JL, Ko L, Joumaa V, Liu S, Fiefenthaeler F, Sawatsky A, Hart DA, Reimer RA, Herzog W. The mechanical and biochemical properties of the tail tendon in a rat model of obesity: effect of moderate exercise and prebiotic supplementation, J Biomechanics. Revision submitted, March/2019

#### **BJH SCN Grants:**

#### Successful Grants:

PI	Title	Funding Agency	Amount
Grimshaw J	De-implementing low value care: a research program of the Choosing Wisely Canada Implementation Research Network	CIHR SPOR Innovative Clinical Trial Multi-Year Grant	\$750,000

#### Cancer SCN

# **CSCN High-level Accomplishments:**

The Cancer SCN's Scientific Office generates and synthesizes knowledge to support priority initiatives of the Cancer SCN as required. It also supports a broad range of additional cancer research activities that have potential to enhance outcomes and experiences for people in Alberta who are facing cancer.

One example of supporting a priority initiative of the Cancer SCN pertains to the Accelerated Cancer Diagnosis Program, which emerged in early 2018 as a result of engagement sessions with key stakeholders. Patient advisors, researchers, clinical leaders and experts, operational leaders and health care providers agreed on the need for a coordinated, provincial strategy that streamlines cancer diagnosis in Alberta. In response, the Cancer SCN conducted a review of the scientific literature, and worked collaboratively with the Institute of Health Economics to develop an environmental scan of facilitated cancer diagnosis initiatives in other jurisdictions. In addition, the Scientific Office worked in partnership with CancerControl Alberta's Patient and Family Advisory Network and clinical operations groups to conduct a qualitative study and a quantitative survey to fill gaps in knowledge concerning patient and family experiences and perceptions of the diagnostic period. We worked with patient advisors to co-design both studies, and also organized patient engagement sessions to explore the validity of the findings as they became available. This work complements other activities underway in developing the Accelerated Cancer Diagnosis Program, and demonstrates how 'research-practice-patient' partnerships can contribute to addressing 'real-world' challenges.

The research team also engages with multiple stakeholders to support 'research-practicepatient' partnerships that will create and apply knowledge that improves outcomes for people facing cancer in Alberta. As one example of work undertaken in this category, members of the research team participate in the Palliative Care, Early and Systematic (PaCES) Advisory Committee and Collaborative, working to integrate an early palliative approach into advanced colorectal cancer care (www.pacesproject.ca). The research team has also supported the Alberta Cancer Exercise (ACE) Program, which is researching the outcomes and impacts of implementing a provincial clinic-to-community-based model for exercise programming for people who have completed cancer treatment (https://www.albertacancerexercise.com). The Scientific Office of the Cancer SCN also works on research capacity-building and knowledge dissemination. For example, the Assistant Scientific Director is a member of the Steering Committee of the AHS Research Challenge, a capacity-building program for front-line health care providers in AHS. The research team also engages in ongoing collaborations with CancerControl Alberta to assist clinical staff in the development of data collection tools and products to be used by health care providers and patients to improve care delivery. Finally, the Cancer SCN has supported research through awarding seed grants and small grants. The 2017 Cancer SCN / CancerControl Alberta Seed Grant Competition resulted in four projects being funded in early 2018. These are currently underway and are demonstrating successful progress. Projects have typically been led by researchers at the University of Alberta and the University of Calgary, and have covered topics related to precision oncology, supportive care, and cancer screening. The Cancer SCN's seed/small grant program is currently being evaluated, and news about a revised program will be disseminated shortly.

The Scientific Director (SD) of the Cancer SCN also works collaboratively with research teams to support the development of provincial cancer research programs in targeted areas. Examples of these activities include obtaining grants (Alberta Cancer Foundation) to fund project managers to support the creation of research proposals/business cases for 1) a provincial research program in cellular therapy; and 2) positioning Alberta as a 'centre of excellence' in brachytherapy research. In both of these cases, the SD does not lead the development of the research proposals, but works with research team leaders to find resources to support their work.

Additionally, the SD participates in local and national advisory committees that help shape priorities for cancer research. Currently, she is a member of the Board of the Canadian Cancer Research Alliance (CCRA), a national advisory coalition that aims to support the development of pan-Canadian strategic priorities for cancer research and strengthen the cancer research community. On behalf of the Canadian cancer research community, the CCRA is currently leading an initiative to define a Canadian vision for cancer research. The SD is also a member of the Oversight Committee of the Cancer Research Institute of Northern Alberta (a pan-university institute of the University of Alberta; <a href="https://www.ualberta.ca/cancer-institute/about-us/what-is-crina">https://www.ualberta.ca/cancer-institute/about-us/what-is-crina</a>).

#### **CSCN Peer-reviewed Publications:**

#### Published: SD/ASD/Leadership member as Author

1. Bosch M, Akhter A, Chen BE, Mansoor A, Lebrun D, Good D, Crump M, Shepherd L, Scott DW, **Stewart DA**. 2018. A bioclinical prognostic model using MYC and BCL2



predicts outcome in relapsed/refractory diffuse large B-cell lymphoma. Haematologica, 103(2): 288–296. DOI: 10.3324/haematol.2017.179309

- Dang NH, Ogura M, Castaigne S, Fayad LE, Jerkeman M, Radford J, Pezzutto A, Bondarenko I, Stewart DA, Shnaidman M, Sullivan S, Vandendries E, Tobinai K, Ramchandren R, Hamlin PA, Giné E, Ando K. 2018. Randomized, phase 3 trial of inotuzumab ozogamicin plus rituximab versus chemotherapy plus rituximab for relapsed/refractory aggressive B-cell non-Hodgkin lymphoma. Br J Haematol, 182(4): 583–586. DOI: 10.1111/bjh.14820
- 3. Davies GA, Ghosh S, Oh DH, Manna M, Peters AC, Stewart CA, **Stewart DA**. 2018. The Adverse Consequences of Initial Watchful Waiting for Patients With Follicular Lymphoma. Clin Lymphoma Myeloma Leuk,18(12): 829–835. DOI: 10.1016/j.clml.2018.08.015
- Dummer TJB, Awadalla P, Boileau C, Craig C, Fortier I, Goel V, Hicks JMT, Jacquemont S, Knoppers BM, Le N, McDonald T, McLaughlin J, Mes-Masson AM, Nuyt AM, Palmer LJ, Parker L, Purdue M, **Robson PJ**, Spinelli JJ, Thompson D, Vena J, Zawati M, with the CPTP Regional Cohort Consortium. 2018. The Canadian Partnership for Tomorrow Project: A pan-Canadian platform for research on chronic disease prevention. CMAJ, 190(23): E710–E717. DOI: 10.1503/cmaj.170292
- 5. Ha VH, Ghosh S, Leyshon C, Ryan N, Chambers CR, **Stewart DA**. 2018. Incidence of late onset neutropenia associated with rituximab use in B cell lymphoma patients undergoing autologous stem cell transplantation. J Oncol Pharm Pract, 24(5): 323–331. DOI: 10.1177/1078155217702214
- Jarman M, Mathe N, Ramazani F, Pakseresht M, Robson PJ, Johnson ST, Bell RC; for the APrON and ENRICH study teams. 2018. Dietary Patterns Prior to Pregnancy and Associations with Pregnancy Complications. Nutrients, 10(7): 914. DOI: 10.3390/nu10070914
- Kalra A, Roessner C, Jupp J, Williamson T, Tellier R, Chaudhry A, Khan F, Taparia M, Jimenez-Zepeda VH, Stewart DA, Daly A, Storek J. 2018. Risk factors for post-transplant lymphoproliferative disorder after Thymoglobulin-conditioned hematopoietic cell transplantation. Clin Transplant, 32(1). DOI: 10.1111/ctr.13150
- Kalra A, Williamson T, Tellier R, Chaudhry A, Khan F, Jimenez-Zepeda VH, Stewart DA, Daly A, Storek J, Roessner C, Jupp J, Taparia M. 2018. Epstein-barr virus DNAemia monitoring for the management of post-transplant lymphoproliferative disorder. Cytotherapy, 20(5): 706–714. DOI: 10.1016/j.jcyt.2018.02.367
- Palmnäs MSA, Vogel HJ, Shaykhutdinov RA, Kopciuk KA, Csizmadi I, Robson PJ, Mignault D, Rabasa-Lhoret R. 2018. Serum Metabolomics of Activity Energy Expenditure and its Relation to Metabolic Syndrome and Obesity. Scientific Reports, 8(1): 3308. DOI: 10.1038/s41598-018-21585-6
- Stewart DA, Boudreault JS, Maturi B, Boras D, Foley R. 2018. Evaluation of subcutaneous rituximab administration on Canadian systemic therapy suites. Current Oncology, 25(5): 300–306. DOI: 10.3747/co.25.4231

- 11. Xu JY, Vena JE, Whelan HK, **Robson PJ**. Impact of adherence to cancer-specific prevention recommendations on subsequent risk of cancer in participants in Alberta's Tomorrow Project. Public Health Nutr, 22(2): 235–245. DOI: 10.1017/S1368980018002689.
- 12. Ye M, **Robson PJ**, Eurich DT, Vena JE, Xu JY, Johnson JA. 2018. Changes in body mass index and incidence of diabetes: A longitudinal study of Alberta's Tomorrow Project Cohort. Preventive Medicine, 106: 157–163. DOI: 10.1016/j.ypmed.2017.10.036
- Ye M, Robson PJ, Eurich DT, Vena JE, Xu J-Y, Johnson JA. 2018. Systemic use of antibiotics and risk of diabetes in adults: A nested case-control study of Alberta's Tomorrow Project. Diabetes, Obesity and Metabolism, 20(4): 849–857. DOI: 10.1111/dom.13163

# Published: SCN Financial Support

- 1. Lang, M. J., Giese-Davis, J., Patton, S. B., & Campbell, D. J. T. (2018). Does age matter? Comparing post-treatment psychosocial outcomes in young adult and older adult cancer survivors with their cancer-free peers. In (Vol. 27, pp. 1404-1411).
- Marchand, C. R., Farshidfar, F., Rattner, J., & Bathe, O. F. (2018). A Framework for Development of Useful Metabolomic Biomarkers and Their Effective Knowledge Translation. In (Vol. 8).
- Martin, L., Hopkins, J., Malietzis, G., Jenkins, J. T., Sawyer, M. B., Brisebois, R., MacLean, A., Nelson, G., Gramlich, L., & Baracos, V. E. (2018). Assessment of Computed Tomography (CT)-Defined Muscle and Adipose Tissue Features in Relation to Short-Term Outcomes After Elective Surgery for Colorectal Cancer: A Multicenter Approach. In (Vol. 25, pp. 2669-2680).
- Park, J. L., Brandelli, Y., Russell, K. B., Li, Y., Giese-Davis, J., Reynolds, K., & Ruether, D. (2018). Unmet Needs of Adult Survivors of Childhood Cancers: Associations with Developmental Stage at Diagnosis, Cognitive Impairment, and Time from Diagnosis. *Journal of Adolescent and Young Adult Oncology*, 7(1), 61-71. doi:10.1089/jayao.2017.0023
- Stosky, J., Wu, J. S. Y., Fairchild, A. M., & Kerba, M. (2018). Improving radiotherapy quality of care: Examining practice patterns in regional centers. *Journal of Clinical Oncology, 36*(30\_suppl), 53-53. doi:10.1200/JCO.2018.36.30\_suppl.53
- White, J., Park, J., Russell, K. B., Carlson, L. E., Giese-Davis, J., Reynolds, K. A., & Madani, A. (2018). Falling through the cracks. A thematic evaluation of unmet needs of adult survivors of childhood cancers. *Psycho-Oncology*, 27(8), 1979-1986. doi:10.1002/pon.4754

# **CSCN Grants:**

# Successful Grants:

PI	Title	Funding Agency	Amount
Bahler B, Davison S	Implementation and Evaluation of an Innovative Integrated Conservative (Non- Dialysis) Kidney Management (CKM) Pathway by Primary Care Across Alberta	CIHR	\$335,507
Bahler B, Davison S, Kaplan GG, Pearson W	Development, Implementation and Evaluation of an Innovative Integrated Supportive Care Pathway by Primary Care across Alberta	CIHR	\$100,000
Elango R, Prado C, Marques MM	Innovative approaches to the lack of evidence- based dietary energy and protein requirements for patients with cancer	CIHR	\$157,145
Grant A	Physiotherapy Assessment of Post- Mastectomy Pain Syndrome	Physiotherapy Alberta - Clinical Research Innovation Fund (CRIF)	\$15,000
Karim S	Understanding the diagnostic interval in patients with pancreatic cancer in Alberta	Tom Baker Cancer Centre - Oncology Research Office	\$20,000
Robson P, Semel M	Alberta Cancer Clinical Trials	Alberta Cancer Foundation	\$230,000
Robson P	Provincial brachytherapy program – Phase I. Positioning Alberta as a research centre of excellence to optimize patient care and outcomes	Alberta Cancer Foundation	\$115,376
Robson P	Provincial cellular therapy research program – Phase I	Alberta Cancer Foundation	\$247,360

# **Pending Grants:**

PI	Title	Funding Agency	Request
Davison S	Transitions in Care – The Alberta Disease- Agnostic Pathway for Transitions (ADAPT) Project: A Collaborative Pan- Strategic Clinical Network (SCN) Transitions Pathway for Patients with Complex Chronic Diseases	CIHR Team Grant	
Nummi M	Alberta's Stopping Smoking to Optimize Cancer Outcomes Initiative(Scale-up and spread of Tobacco Cessation within Cancer Systems Initiative)	Canadian Partnership Against Cancer (Pan- Canadian Tobacco Cessation and Cancer Care Network)	

# Cardiovascular Health and Stroke SCN

# **CvHS SCN High-level Accomplishments:**

The CvHS SCN's Scientific Office focused on capacity-building, community engagement and the strengthening of partnerships with both internal and external stakeholders over the past year. Significant areas of focus included the following:

- The Heart Failure Pathway (HF Pathway) provincial roll-out and implementation of the HF Pathway;
- The Vascular Risk Reduction Initiative;
- Several stroke initiatives and research programs;
- Continued partnership and knowledge translation support for the CANet network; and
- Establishing a strong foundation for patient- and family-partnered research programs.
- We are also in the preliminary stages of creating a Provincial Women's Heart Health collaborative research portfolio, in partnership with Campus Alberta researchers.

The CvHS SCN's Vascular Risk Reduction initiative originally consisted of six pilot projects designed and implemented to identify individuals at risk for vascular disease, both undiagnosed and diagnosed, whose conditions are not well managed. In 2018, in partnership with Alberta Health and the Institute of Health Economics, the Scientific Office started collaborating on a critical evaluation of the original six projects with the intention of launching a renewed Vascular Risk Reduction initiative. The goals of the renewed initiative are to develop opportunities for scale, spread and introduction of new VRR programs for diverse populations through complex interventions. In addition, through broad stakeholder engagement, our Scientific Office has

connected with existing AHS and PAN SCN programs and initiatives to serve a broader range of populations.

Supporting our stroke community in 2018 has involved continued partnerships on several Provincial Stroke initiatives. Working closely with a team of researchers, front-line providers, Alberta Health and the Institute of Health Economics, we are collaboratively establishing the optimal strategy or set of strategies in the delivery of high-quality and cost-effective stroke rehabilitation care in Alberta, which align with Canadian Stroke Best Practices recommendations for stroke rehabilitation. In addition, we continued to support Endovascular Therapy (EVT) for Acute Ischemic Stroke initiatives. Building on the success of this program, our intention is to support a broad stakeholder network in increasing access to EVT across Alberta strokes within the 6-24 hour time window, while ensuring a return on investment in downstream savings in length of stay and rehabilitation.

The CvHS SCN's Scientific Office invested a great deal in building strong internal and external stakeholder partnerships. Significant time was allocated to grant-writing and ensuring our extended research networks were successful in securing national and provincial funding for research. We supported trainee research days at both the Mazankowski Alberta Heart Institute and the Libin Institute, facilitated new partnerships and collaborations between industry, not-for-profit and research institutes, and maintained and supported knowledge translation of research from large nationally funded research programs (CANet). CANet is a Pan-Canadian multidisciplinary and multi-sectoral research and development network of investigators, well-positioned industry partners, patients, caregivers, and health care providers focused on arrhythmia research, technology development and commercialization, and digital transformation activities. CvHS is supporting four Alberta-based CANet research projects as a knowledge user, helping to translate research findings into practice.

# CvHS SCN Peer-reviewed Publications:

# Published: SD/ASD/Leadership member as Author

- Padwal R, So H, Wood P, McAlister F, Siddiqui M, Norris CM, Jeerakathil T, Stone J, Valaire S, Mann B, Boulanger P, Klarenbach S. 2019. Cost-Effectiveness of Home Blood Pressure Telemonitoring and Case Management in the Secondary prevention of cerebrovascular disease in Canada. 2019. Journal of Clinical Hypertension, 21(2): 159– 168.
- Opgenorth D, Stelfox HT, Gilfoyle E, Gibney RTN, Meier M, Boucher P, McKinlay D, Job McIntosh C, Xiamoming W, Zugun D, Bagshaw S. 2018. Perspectives on strained intensive care unit capacity: A survey of critical care professionals. PLOS ONE, 13(8): e0201524.
- 3. Fiest KM, **McIntosh CJ**, Demiantschuk D, Leigh JP, Stelfox HT. 2018. Translating evidence to Patient Care Through Caregivers: A Systematic Review of Caregiver-Mediated Interventions, BMC Medicine, 16(1): 105–114.

- 4. de Grood C, **Job McIntosh C**, Parsons Leigh J, Boyd J, Zjadewicz K, Stelfox HT. 2019. Identifying essential elements to include in Intensive Care Unit to hospital ward transfer summaries: a consensus methodology. Journal of Critical Care, 49: 27–32.
- Kamal N, Rogers E, Stang J, Mann B, Butcher KS, Rempel J, Jeerakathil T, Shuaib A, Goyal M, Menon BK, Demchuk AM, Hill MD. 2019. 1-Year Healthcare Utilization for Patients that Received Endovascular Treatment Compared to Control. Stroke, 50(7): 1883–1886.
- 6. **Norris CM**, Tannenbaum C, Wong G, Cantor WJ, McMurtry MS. 2019. Systematic incorporation of sex-specific information into clinical practice guidelines for the pre-hospital management of ST-elevation myocardial infarction: feasibility and outcomes. Journal of American Heart Association, 8(7): e011597.
- Wong GC, Welsford M, Ainsworth C, AlBuzeid W, Fordyce C, Greene J, Huynh T, Lambert L, Le May M, Mentah S, Natarajan M, Norris CM, Overgaard C, Perry-Arnesen M, Quereshi A, Tanguay JF, Traboulsi M, van Diepen S, Welch R, Wood D, Cantor WJ. 2018. Canadian Cardiovascular Society/Canadian Association of Interventional Cardiology Guidelines on the Management of ST Elevation Myocardial Infarction: Focused Update on Regionalization and Reperfusion. Can Journal of Cardiology, 35(2): 107–132.
- 8. Wang M, **Norris CM**, Graham MM, Santana M, Liang Z, Awosoga O, Southern DA, James AB, Quan H, Ku M, Ghali W, Knudtson M, Sajobi TT. 2019. Trajectories of perceived social support in acute coronary syndrome. Quality of Life Research, 28(5): 1365–1376.
- 9. Tannenbaum C, **Norris CM**, McMurtry MS. 2019. Sex-specific considerations in guidelines generation and application. Can Journal of Cardiology, 35: 598–605.
- Papathanassoglou E, Skrobik Y, Hegadoren K, Thompson P, Stelfox HR, Norris CM, Rose L, Bagshaw S, Meier M, Lociecero C, Asmore R, Sparrow Brulotte T, Hassan I, Park T, Kutsogiannis DJ. 2019. Relaxation for Critically III Patients Outcomes and Stresscoping Enhancement (REPOSE): A protocol for a pilot randomized trial of an integrative intervention to improve critically ill patients' delirium and related outcomes. BMJ Open, 9(1): e023961.
- 11. Park J, Gross DP, Rayani F, **Norris CM**, Roduta Roberts M, James C, Guptill C, Esmail S. 2019. Model of Human Occupation and Motivational Interviewing Complements Occupational Therapy Practice in Vocational Rehabilitation. Work, 62(4): 629–641.
- van Diepen S, Norris CM, Ma YZ, Nagendran J, Graham MM, Ortega D, Townsend DR, Ezekowitz JA, Bagshaw SM. 2018. Comparison of Angiotensin Converting Enzyme Inhibitor and Angiotensin Receptor Blocker Management Strategies Prior to Cardiac Surgery: a Pilot Randomized Controlled Registry Trial. Journal of American Heart Association, 7(20): e00197.
- 13. Hirani S, **Norris CM**, Van Vliet JK, Van Zanten SV, Karmaliani R, Lasiuk G. 2018. Social Support Intervention to Promote Resilience and Quality of Life in Women Living in Karachi, Pakistan: A Randomized Controlled Trial. International Journal of Public Health, 63(6): 693–702.

- Curtin KD, Berry TR, Courneya KS, McGannon KR, Norris CM, Rodgers WM, Spence JC. 2018. Investigating relationships between ancestry, lifestyle behaviors and perceptions of heart disease and breast cancer among women. European Journal of Cardiovascular Nursing, 17(4): 314–323.
- Berry TR, Curtin KD, Courneya KS, McGannon KR, Norris CM, Rodgers WM, Spence JC. 2018. Believability of messages about preventing breast cancer and heart disease through physical activity. BMC Psychology, 6(1): 2.
- Nagendran J, Bozso SD, Norris CM, McAlister FA, Appoo JJ, Moon MC, Freed DH, Nagendran J. 2018. Coronary Artery Bypass Grafting Provides Improved Outcomes in Patients with Diabetes and Left Ventricular Dysfunction. Journal of the American College of Cardiology, 71(8): 819–827.
- Hirani SS, Lasiuk G, Van Vliet KJ, Van Zanten SV, Karmaliani R, Norris CM. 2018. Comparison of Urdu Versions of the Resilience Scale and the Resilience Scale for Adults. Journal of Nursing Measurement, 26(1): 106–120.
- Kamal N, Shand E, Swanson R, Hill MD, Jeerakathil T, Imoukhuede O, Heinrichs I, Bakker J, Stoyberg C, Fowler L, Duckett S, Holsworth S, Mann B, Valaire S, Bestard J. 2019. Reducing Door-to-Needle Times for Ischaemic Stroke to a Median of 30 Minutes at a Community Hospital. Canadian Journal of Neurological Sciences, 46(1): 51–56.
- 19. Kamal N, **Jeerakathil T**, Mrklas K, Smith EE, **Mann B**, Valaire S, Hill MD. 2019. Improving Door-to-needle Times in the Treatment of Acute Ischemic Stroke Across a Canadian Province: Methodology. Critical Pathways in Cardiology, 18(1): 51–56.

# Accepted/In Press: SD/ASD/Leadership member as Author

- 1. Nesari M, **Norris CM.** Registered Nurses Knowledge of and Experience with Health Literacy. 2019 (accepted). Health Literacy Research and Practice Journal.
- 2. Ortega DG, Papthanassoglou E, **Norris CM.** The lived experience of delirium in intensive care unit patients: A Meta-Ethnography. 2019 (in press). Journal of Critical Care Nursing.
- 3. Senaratne JM, **Norris CM**, Youngson E, McClure RS, Nagendran J, Butler KR, Meyer SR, Anderson TA, Van Diepen S. Cardiac Surgical Waitlist Mortality: Derivation and Validation of Clinical Prediction Model. 2018 (accepted). Canadian Journal of Cardiology.
- 4. Smigorowsky MJ, Sebastianski M, McMurtry MS, Tsuyuki RT, **Norris CM.** A systematic review of the outcomes of care by nurse practitioners in adult inpatients and outpatient cardiovascular care. 2018 (accepted). Journal of Advanced Nursing.
- 5. Wold SL, Punjani NS, Graham MM, **Norris CM.** The frequency of and reasons for hospital readmission post percutaneous coronary intervention. 2018 (accepted). The World of Critical Care Nursing.

# **CvHS SCN Grants:**

#### Successful Grants:

PI	Title	Funding Agency	Amount
Sajobi T	Towards Precision Cardiovascular Medicine: Integration of Patient-Reported Outcomes in Prognostic Tools Development for the Management of Acute Coronary Syndrome	CIHR	\$191,251
Butallia S	Choosing Wisely: Reducing Low-Value Cardiovascular Investigations to Provide Higher Quality Care at Lower Costs	AMA AHS	\$80,000
Humphries K	Optimizing the Diagnosis of Acute Myocardial Infarction/Injury in Women (CODE-MI)	CIHR	\$1,656,226
Bagshaw S	A Pragmatic Cluster, Randomized, Crossover, Registry- Embedded Clinical Trial of Proton Pump Inhibitors vs. Histamine-2 Receptor Blockers for Stress Ulcer Prophylaxis Therapy in the Intensive Care Unit (PEPTIC Study)	CIHR	\$317,475
Papathanassoglou E	Relaxation inducing integrative therapies in critical care: A survey of Canadian Critical care nurses' practices, knowledge and views.	Endowment Fund for the Future: Support for the Advancement of Scholarship (EFF SAS) research fund	\$10,000
Norris C	E-Health Innovation to Support Shared Decision-Making for	CIHR	\$100,000

PI	Title	Funding Agency	Amount
	Acute Coronary		
Norris C	GENDER-Net Meeting/Disseminatio	CIHR	\$10,000
Mudry T	A Recovery-Oriented Counselling Group: Supporting Physical, Emotional, and Social Recovery Processes of Critical Care Patients in the ICU Recovery Clinic	Critical Care SCN Seed Grant	\$10,000
Kaul,P, Roopinder S	The Canadian Syncope Atlas (CANsync) II. CANet Renewal	CANet and SCN SD	\$329,996 and \$32,000
Garrison S	The BedMed Initiative - Making better use of existing therapeutics	CIHR	\$1,420,736
Clarke H, Parry M	Development and Usability Testing of HEARTPA#N: An Integrated Smartphone and Web-Based Intervention for Women with Cardiac Pain	CIHR	\$740,000
Berry T	Affective heart disease and physical activity messages for women	CIHR	\$110,000
Hill M	Quality Improvement and Clinical Research (QuICR- Team Stroke Alberta)	Alberta Innovates	\$4,998,342
Berry T	Heart disease messages for women: information behavior and effects on attitudes	Women and Children's Health Research Institute (WCHRI)	\$49,951
Norris C	Gender Outcomes International Group to Future Well-being in Development (GOING-FWD).	GENDER-NET Plus ERA-Net Cofund: Promoting gender equality in H2020	\$1,154,080

PI	Title	Funding Agency	Amount
Menon B	Alteplase Compared to Tenecteplase: QuICR & OPTIMISE Registry based Randomized Controlled Trial (Short Title: AcT- QuICR & OPTIMISE Treatment)	CIHR	\$1,300,000

# **Critical Care SCN**

# CC SCN High-level Accomplishments:

#### Top scientific/research contributions from the Critical Care SCN (CC SCN):

#### 1. Delirium LS5

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The CC SCN hosted Delirium Learning Session 5 in Calgary on February 11, 2019. The Provincial ICU Delirium Initiative uses an Innovative Learning Collaborative (ILC) methodology, which includes a Learning Session followed by an Action Period. The overarching goals of the CC SCN Provincial ICU Delirium Initiative were to 1) develop and implement provincial clinical standards (i.e., ABCDEF bundle), pathways, and best practices for ICU delirium care; 2) develop and disseminate improvement tools for ongoing audit and feedback; and 3) promote a learning environment and culture of continuous quality improvement. An important element of the initiative was the integration of the experiences and expertise of patients and families. Each ICU had a multi-disciplinary implementation team with front-line, physician and operational staff. Implementation was supported by the CC SCN, conference calls, provincial and local metrics and targets and monthly audit and feedback. The focus of LS5 was on Sustainability of the Provincial Delirium Initiative. The impact of the CC SCN Provincial ICU Delirium Initiative on patient care was recognized with a 2019 AHS President's Excellence Award for Outstanding Achievement in Quality Improvement (https://ahspea2019.tumblr.com/post/184230485797/provincial-intensive-care-unit-icudelirium).

# 2. CIHR Funding and Completion of the PEPTIC Study

Sean Bagshaw was awarded a CIHR Project Grant for \$317,000 for the PEPTIC Study. The PEPTIC Study is a pragmatic cluster, randomized, cross-over, registry-embedded clinical trial of proton pump inhibitors vs. histamine-2-receptor blockers for stress ulcer prophylaxis therapy in the intensive care unit. This project has also now been successfully completed with knowledge translation activities currently underway (i.e., manuscript preparation and publication, presentation at national and international conferences).

3. CIHR Funding for Creating a Living Knowledge Translation Agenda Dan Niven (Sean Bagshaw, Co-Investigator) was awarded a three-year CIHR Project Grant for \$394,000 for his Living Knowledge Translation Agenda to improve the delivery



of evidence-based care in critical care medicine. The objective of this line of research is to implement a process for "real-time" evaluation of new evidence and re-evaluation of exiting practices in critical care medicine.

# 4. SEED grant awards

To build capacity, the CC SCN awarded three new investigator seed grants in December 2018:

- Dr. Braedon McDonald from the University of Calgary for "Microbiota-Immune Interactions and Critical Illness Outcomes in the Intensive Care Unit (MicroICU) – A Pilot Study";
- 2. Tanya Mudry from the University of Calgary for "A Recovery-Oriented Counselling Group: Supporting Physical, Emotional, and Social Recovery Processes of Critical Care Patients in the ICU Recovery Clinic"; and
- 3. Danijela Piskulic from the University of Calgary for "Feasibility of implementing a patient-oriented discharge summary in the ICU".

# **CC SCN Peer-reviewed Publications:**

# Published: SD/ASD/Leadership member as Author

- 1. Al Saadon A, Katulka R, Sebastianski M, Featherstone R, Vandermeer B, Gibney RTN, Rewa OG, **Bagshaw SM**. 2018. Determining the optimal time for liberation from renal replacement therapy in critically ill patients: protocol for a systematic review and meta-analysis (DOnE RRT). BMJ Open, 8(11): e023306. DOI: 10.1136/bmjopen-2018-023306
- Al-Dorzi HM, Aldawood AS, Tamim H, Haddad SH, Jones G, McIntyre L, Solaiman O, Sakhija M, Sadat M, Afesh L, Kumar A, **Bagshaw SM**, Mehta S, M Arabi Y. 2019. Caloric intake and the fat-to-carbohydrate ratio in hypercapnic acute respiratory failure: Post-hoc analysis of the PermiT trial. *Clin Nutr ESPEN*, 29: 175–182. DOI: 10.1016/j.clnesp.2018.10.012
- Arabi YM, Al-Dorzi HM, Mehta S, Tamim HM, Haddad SH, Jones G, McIntyre L, Solaiman O, Sakkijha MH, Sadat M, Afesh L, Kumar A, **Bagshaw SM**, Aldawood AS; PermiT Trial Group. 2018. Association of protein intake with the outcomes of critically ill patients: a post hoc analysis of the PermiT trial. Am J Clin Nutr, 108(5): 988–996. DOI: 10.1093/ajcn/nqy189
- 4. Au SS, Roze des Ordons AL, Parsons Leigh J, Soo A, Guienguere S, **Bagshaw SM**, Stelfox HT. 2018. A Multicenter Observational Study of Family Participation in ICU Rounds. Crit Care Med, 46(8): 1255–1262. DOI: 10.1097/CCM.00000000003193
- Bagshaw SM, Adhikari NKJ, Burns KEA, Friedrich JO, Bouchard J, Lamontagne F, McIntrye LA, Cailhier JF, Dodek P, Stelfox HT, Herridge M, Lapinsky S, Muscedere J, Barton J, Griesdale D, Soth M, Ambosta A, Lobovic G, Wald R for the Canadian Critical Care Trials Group. 2019. Selection and Receipt of Kidney Replacement in Critically III Older Patients with AKI. Clin J Am Soc Nephrol, 14(4): 496–505. DOI: 10.2215/CJN.05530518
- 6. **Bagshaw SM**, Stelfox HT, Iwashyna TJ, Bellomo R, Zuege D, Wang X. 2018. Timing of onset of persistent critical illness: a multi-centre retrospective cohort study. Intensive Care

Med, 44(12): 2134–2144. DOI: 10.1007/s00134-018-5440-1

- 7. **Bagshaw SM**, Wald R. 2018. Indications and Timing of Continuous Renal Replacement Therapy Application. Contrib Nephrol, 194: 25–37. DOI: 10.1159/000485598
- Bove T, Belletti A, Putzu A, Pappacena S, Denaro G, Landoni G, Bagshaw SM, Zangrillo A. 2018. Intermittent furosemide administration in patients with or at risk for acute kidney injury: Meta-analysis of randomized trials. PLoS One, 13(4): e0196088. DOI: 10.1371/journal.pone.0196088
- Brundin-Mather R, Soo A, Zuege DJ, Niven DJ, Fiest K, Doig CJ, Zygun D, Boyd JM, Parsons Leigh J, Bagshaw SM, Stelfox HT. 2018. Secondary EMR data for quality improvement and research: A comparison of manual and electronic data collection from an integrated critical care electronic medical record system. J Crit Care, 47: 295–301. DOI: 10.1016/j.jcrc.2018.07.021
- de Grood C, Leigh JP, Bagshaw SM, Dodek PM, Fowler RA, Forster AJ, Boyd JM, Stelfox HT. 2018. Patient, family and provider experiences with transfers from intensive care unit to hospital ward: a multicentre qualitative study. CMAJ, 190(22): E669–E676. DOI: 10.1503/cmaj.170588
- Dellinger RP, Bagshaw SM, Antonelli M, Foster DM, Klein DJ, Marshall JC, Palevsky PM, Weisberg LS, Schorr CA, Trzeciak S, Walker PM. 2018. Effect of targeted polymyxin B hemoperfusion on 28-day mortality in patients with septic shock and elevated endotoxin levels: The EUPHRATES randomized clinical trial. JAMA, 320(14): 1455–1463. DOI: 10.1001/jama.2018.14618
- Deschamps J, Webber J, Featherstone R, Sebastianski M, Vandermeer B, Senaratne J, Bagshaw SM. 2019. Brain natriuretic peptide to predict successful liberation from mechanical ventilation in critically ill patients: protocol for systematic review and metaanalysis. BMJ Open, 9(2): e022600. DOI: 10.1136/bmjopen-2018-022600
- 13. Fernando SM, **Bagshaw SM**, Rochwerg B, McIsaac DI, Thavorn K, Forster AJ, Tran A, Reardon PM, Rosenberg E, Tanuseputro P, Kyeremanteng K. 2018. Comparison of outcomes and costs between adult diabetic ketoacidosis patients admitted to the ICU and step-down unit. J Crit Care, 50: 257–261. DOI: 10.1016/j.jcrc.2018.12.014
- 14. Galm BP, **Bagshaw SM**, Senior PA. 2019. Acute management of diabetic ketoacidosis in adults at three teaching hospitals in Canada: a multi-centre retrospective cohort study. Can J Diabetes, 43(5): 309–315.e2. DOI: 10.1016/j.jcjd.2018.11.003
- Hall AM, Stelfox HT, Wang X, Chen G, Zuege DJ, Dodek P, Garland A, Scales DC, Berthiaume L, Zygun DA, Bagshaw SM. 2018. Association between afterhours admission to the intensive care unit, strained capacity, and mortality: a retrospective cohort study. Crit Care, 22(1): 97. DOI: 10.1186/s13054-018-2027-8
- Hoste EAJ, Kellum JA, Selby NM, Zarbock A, Palevsky PM, Bagshaw SM, Goldstein SL, Cerdá J, Chawla LS. 2018. Global epidemiology and outcomes of acute kidney injury. Nat Rev Nephrol, 14(10): 607–625. DOI: 10.1038/s41581-018-0052-0
- 17. Klein DJ, Foster D, Walker PM, Bagshaw SM, Mekonnen H, Antonelli M. 2018. Polymyxin

B hemoperfusion in endotoxemic septic shock patients without extreme endotoxemia: a post hoc analysis of the EUPHRATES trial. Intensive Care Med, 44(12): 2205–2212. DOI: 10.1007/s00134-018-5463-7

- Mazer CD, Whitlock RP, Fergusson DA, Belley-Cote E, Connolly K, Khanykin B, Gregory AJ, de Médicis É, Carrier FM, McGuinness S, Young PJ, Byrne K, Villar JC, Royse A, Grocott HP, Seeberger MD, Mehta C, Lellouche F, Hare GMT, Painter TW, Fremes S, Syed S, **Bagshaw SM**, Hwang NC, Royse C, Hall J, Dai D, Mistry N, Thorpe K, Verma S, Jüni P, Shehata N; TRICS Investigators and Perioperative Anesthesia Clinical Trials Group. 2018. Six-Month Outcomes after Restrictive or Liberal Transfusion for Cardiac Surgery. N Engl J Med, 379(13): 1224–1233. DOI: 10.1056/NEJMoa1808561
- Montgomery CL, Rolfson DB, Bagshaw SM. 2018. Frailty and the association between long-term recovery after intensive care unit admission. Crit Care Clin, 34(4): 527–547. DOI: 10.1016/j.ccc.2018.06.007
- Opgenorth D, Stelfox HT, Gilfoyle E, Gibney RTN, Meier M, Boucher P, McKinlay D, Job McIntosh CN, Wang X, Zygun DA, **Bagshaw SM**. 2018. Perspectives on strained intensive care unit capacity: A survey of critical care professionals. PLoS One, 13(8): e0201524. DOI: 10.1371/journal.pone.0201524
- Papathanassoglou EDE, Skrobik Y, Hegadoren K, Thompson P, Stelfox HT, Norris C, Rose L, Bagshaw SM, Meier M, LoCicero C, Ashmore R, Sparrow Brulotte T, Hassan I, Park T, Kutsogiannis DJ. 2019. Relaxation for critically ill patient outcomes and stresscoping enhancement (REPOSE): a protocol for a pilot randomized trial of an integrative intervention to improve critically ill patients' delirium and related outcomes. BMJ Open, 9(1) :e023961. DOI: 10.1136/bmjopen-2018-023961
- 22. Rewa OG, Eurish DT, Gibney RTN, **Bagshaw SM**. 2018. A modified Delphi process to identify, rank, and prioritize quality indicators for continuous renal replacement therapy (CRRT) care in critically ill patients. J Crit Care, 47: 145–152. DOI: 10.1016/j.jcrc.2018.06.023
- Rewa OG, Stelfox HT, Ingolfsson A, Zygun DA, Featherstone R, Opgenorth D, Bagshaw SM. 2018. Indicators of intensive care unit capacity strain: a systematic review. Crit Care, 22(1): 86. DOI: 10.1186/s13054-018-1975-3
- 24. Rickstein SE, **Bagshaw SM**. 2019. Atrial natriureticpeptide for treatment of acute kidney injury (AKI) initiate an optimal dose early. J Crit Care, 51: 236–237. DOI: 10.1016/j.jcrc.2018.12.013
- 25. Rolfson DB, Heckman GA, **Bagshaw SM**, Robertson D, Hirdes JP. 2018. Implementing frailty measures in the Canadian healthcare system. J Frailty Aging, 7(4): 208–216. DOI: 10.14283/jfa.2018.29
- 26. Sauro K, **Bagshaw SM**, Niven D, Soo A, Brundin-Mather R, Parsons-Leigh J, Cook DJ, AStelfox HT. 2019. Barriers and facilitators to adopting high-value practices and deadopting low-value practices in Canadian intensive care units: a multimethod study. BMJ Open, 9(3): e024159. DOI: 10.1136/bmjopen-2018-024159
- 27. Sauro KM, Brundin-Mather R, Parsons Leigh J, Niven DJ, Kushner B, Soo A, Cook DJ,

Straus S, Doig CJ, **Bagshaw SM**, Stelfox HT. 2018. Improving the adoption of optimal venous thromboembolism prophylaxis in critically ill patients: A process evaluation of a complex quality improvement initiative. J Crit Care, 50: 111–117. DOI: 10.1016/j.jcrc.2018.11.023

- Sauro KM, Soo A, Kramer A, Couillard P, Kromm J, Zygun D, Niven DJ, Bagshaw SM, Stelfox HT. 2019. Venous thromboembolism prophylaxis in neurocritical care patients: Are current practices, best practices? Neurocrit Care. 2019, 30(2): 355–363. DOI: 10.1007/s12028-018-0614-9
- 29. Shaw AD, **Bagshaw SM**. 2018. Fluid Therapy in the Critically III. Crit Care Clin, 34(2): xiii– xiv. DOI: 10.1016/j.ccc.2018.01.002
- Shears M, Takaoka A, Rochwerg B, Bagshaw SM, Johnstone J, Holding A, Tharmalingam S, Millen T, Clarke F, Rockwood K, Li G, Thabane L, Muscedere J, Stelfox HT, Cook DJ; Canadian Critical Care Trials Group. 2018. Assessing frailty in the intensive care unit: A reliability and validity study. J Crit Care, 45: 197–203. DOI: 10.1016/j.jcrc.2018.02.004
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- Van Diepen S, Norris CM, Zhung Y, Nagendran J, Graham MM, Gaete Ortega D, Townsend DR, Ezekowitz JA, Bagshaw SM. 2018. Comparison of angiotensin-converting enzyme inhibitor and angiotensin receptor blocker management strategies before cardiac surgery: a pilot randomized controlled registry trial. J Am Heart Assoc, 7(20): e009917. DOI: 10.1161/JAHA.118.009917
- 35. Young PJ, **Bagshaw SM**, Forbes A, Nichol A, Wright SE, Bellomo R, Bailey MJ, Beasley RW, Eastwood GM, Festa M, Gattas D, van Haren F, Litton E, Mouncey PR, Navarra L, Pilcher D, Mackle DM, McArthur CJ, McGuinness SP, Saxena MK, Webb S, Rowan KM; Australian and New Zealand Intensive Care Society Clinical Trials Group on behalf of the PEPTIC investigators. 2018. A cluster randomised, crossover, registry-embedded clinical trial of proton pump inhibitors versus histamine-2 receptor blockers for ulcer prophylaxis therapy in the intensive care unit (PEPTIC study): study protocol. Crit Care Resusc, 20(3): 182–189.

# Accepted/In Press: SD/ASD/Leadership as Author

 Montgomery C, Zuege DJ, Roldson DB, Opgenorth D, Hudson D, Stelfox HT, Bagshaw SM. 2019 in press. Implementation of Population-Level Screening for Frailty Among Patients Admitted to Adult Intensive Care in Alberta, Canada. Canadian Journal of Anesthesia. DOI: 10.1007/s12630-019-01414-8. [Epub ahead of print]

# CC SCN Grants:

# Successful Grants:

PI	Title	Funding Agency	Amount
Bagshaw SM	Standard versus Accelerated Initiation of Renal Replacement Therapy in Acute Kidney Injury (STARRT-AKI)	CIHR	\$1,556,776
Bagshaw SM	A pragmatic, cluster, randomized, crossover, registry- embedded clinical trial of proton pump inhibitors vs. histamine-2 receptor blockers for stress ulcer prophylaxis therapy in the intensive care unit (PEPTIC Study)	CIHR	\$317,475
Marshall J	Canadian Adaptive Platform Trial in Intensive Care (CAPTIC) Program	CIHR	\$1,783,487
Fiest KM	Family identification of delirium in critically ill patients living with frailty	Canadian Frailty Network	\$100,000
Parshuram C	The intensive care unit resident scheduling (INCuRS) trial: a cluster RCT of 16 and 24 hour schedules in Canadian ICUs	CIHR	\$3,048,525
iviarsnali J	KADAK		\$380,000

PI	Title	Funding Agency	Amount
Niven D	Living KT Agenda to Improve the Delivery of Evidence-Based Care in Critical Care Medicine	CIHR	\$393,974
Niven D	Developing a provincial learning healthcare system: An innovative clinical trial to optimize safe and effective use of human albumin solutions	CIHR	\$98,312
Niven D	Creating a living knowledge translation agenda to improve the delivery of evidence-based care in adult critical care medicine	CIHR	\$393,974
Rewa O	Development of a continuous renal replacement therapy (CRRT) quality dashboard	Baxter Healthcare Inc.	\$300,000
Fiest KM	Co-designing a patient and family caregiver-oriented transition in care bundle	CIHR	\$1,040,000

# Pending Grants:

PI	Title	Funding Agency	Request
Parhar K	Minimizing Variation in Care Among Critically III Patients With Respiratory Failure Through Implementation Of An Evidence Informed Care Pathway	CIHR	\$725,000
Stelfox HT	Reengineering transitions in care for critically ill patients	CIHR Foundation Program Stage 2	\$2,030,000

# DON SCN High-level Accomplishments:

The Scientific Office of the Diabetes Obesity & Nutrition SCN made significant contributions in 2018-2019 in supporting various priority project initiatives of the network. The Scientific Office has been involved in the implementation and evaluation of the standards and guidelines for a Bariatric Friendly Hospital initiative based on the context of the Medicine Hat Regional Hospital to improve quality and safety of care for patients living with obesity and safety of hospital staff. An environmental scan has also been implemented to map out existing services across Alberta for diabetes patients who are at risk or who have already developed foot ulcers/complex foot problems. This is a component of evaluating the utilization of the diabetic foot care clinical pathway.

Leading research projects to create and advance knowledge is a priority for the Scientific Office of the DON SCN. Partnering with Nutrition and Food Services at AHS and the Safe Works harm reduction program at the Sheldon Chumir Health Centre, a study is currently being conducted to investigate the impact of having a registered dietician at the supervised consumption site. In addition, in collaboration with a primary care health network and the Southern Alberta Renal Program, a study has been conducted to validate the foot care screening tool that has been developed by the DON SCN.

Building capacity for research has been demonstrated and facilitated by the Scientific Office through funding seed grants, research assistants, and summer undergraduate studentships. The Scientific Office was also involved in organizing and developing a research summit meeting in diabetes in pregnancy that brought Alberta-based researchers and clinicians together to share current research activities and to explore potential opportunities for future research and collaboration.

# DON SCN Peer-reviewed Publications:

#### Published: SCN Financial Support

- Canadian Celiac Association response to Food Guide Release: <u>https://www.celiac.ca/canada-food-guide-what-it-means-if-you-are-gluten-free/</u>.This posting was to address the specialized concerns of the gluten free diet for Canadians with celiac disease and new Food Guide recommendations.
- Mager DR. (2019). Diet patterns in an ethnically diverse pediatric population with celiac disease and chronic gastrointestinal complaints. Clin Nutr ESPEN, 30: 73–80. DOI: 10.1016/j.clnesp.2019.02.004
- 3. Myre M, Berry T. (2018). Motivated, fit, and strong: Using non-weight stigmatizing images and positive physical activity words in an implicit retraining task to reduce internalized weight bias in women living with obesity. Proceedings of the SCAPPS 2018 Annual Conference, Journal of Exercise, Movement, and Sport. 50(1).

# **DON SCN Grants:**

#### Successful Grants:

PI	Title	Funding Agency	Amount
McBrien K	Encompass: Enhancing Community health through patient navigation: Advocacy and Social Support	Alberta Innovates (PRIHS 4)	\$1,491,078
Chan C	Malnutrition Innovation Learning Collaborative	CIHR	\$16,130
Kaul P	Examining social and clinical determinants of childhood obesity at the population- level	Novo Nordisk Alberta Diabetes Fund	\$300,000
Kaul P	Diabetes in pregnancy	Alberta Innovates Campus Alberta Health Outcomes and Public Health grant	\$3,000
Campbell-Scherer D	Addressing clinical and social determinants of health to advance obesity and diabetes prevention and management in vulnerable newcomer ethno-cultural communities	Novo Nordisk Alberta Diabetes Fund	\$300,000
Olson D	Interventions to enhance resiliency and improve pregnancy/developm ental outcomes of women and their children of women and their families in Fort McMurray	CIHR Operating Grant	\$100,000
Tandon P	Alberta Cirrhosis Care Team (ACCT)	Alberta Innovates (PRIHS 4)	\$1,099,124

# Pending Grants:

PI	Title	Funding Agency	Request
Butalia S	Aiming for Something Sweeter: Evaluating a Transition Program for Youth with Diabetes	CIHR Evaluation Grant	\$167,405
Davidson S	The Alberta Disease- Agnostic Pathway for Transitions in Care (ADAPT) Project	CIHR Transitions in Care Team Grant	\$960,000

# **Digestive Health SCN**

#### **DH SCN High-level Accomplishments:**

#### The Epidemiology of Inflammatory Bowel Disease in Canada

The DH SCN Scientific Office (SO) specializes in analyzing health care administrative databases for health services research. Using the DH SCN SO's privileged access to AHS health care databases as well as administrative health care data from other Canadian provinces, Dr. Gil Kaplan and his PhD student, Dr. Stephanie Coward, forecasted the rising prevalence of IBD in Canada. The intention of this research is to aid health policy-makers in developing timely, proactive and effective health services for patients with IBD. Armed with these data, the DH SCN is now positioned to take a data-driven approach in achieving two of our Transformational Road Map (TRM) strategic goals for patients with IBD: 1) deliver high quality, standardized digestive health care; and 2) provide clinically appropriate and efficient care.

#### Research Facilitation by the DH SCN Resulting in Successful Grant Applications

The DH SCN is committed to building strong partnerships with academic researchers in order to advance health services research and innovation in digestive health care. The DH SCN has provided strategic support for Alberta clinician-researchers, which has resulted in two successful grant applications. Dr. Kerri Novak and Dr. Julia Carter were awarded over \$700,000 from the Health Innovation Implementation and Spread Fund (HIIS) to establish primary care pathways, telephone advice, and electronic advice for patients with low-risk, but high-demand, digestive health conditions. The intention of this project is to strengthen primary and specialty care integration, improve referral appropriateness and reduce wait times. DH SCN leadership team members, notably Leanne Reeb and Louise Morrin, were instrumental in helping to secure this funding through active, engaged support of this application, providing assistance with grant-writing, provincial stakeholder connection and engagement, and commitment of on-going DH SCN resources for infrastructure development. This project is aligned with the DH SCN strategic goal of developing and implementing provincial clinical pathways for patients to improve disease prevention, management and continuity of care.

Puneeta Tandon was successful with her Partnership for Research and Innovation in the Health System (PRIHS) grant application, receiving over \$1M to improve liver cirrhosis care in Alberta through implementation of the Cirrhosis Care Alberta Program. Dr. Tandon's research study will

address the current fragmented nature of cirrhosis care and implement innovative standardized care processes across primary, specialty and community health sectors. DH SCN leadership team members played a pivotal role in the success of this grant application. Dr. Susan Jelinski analyzed administrative health care data to determine the current burden of cirrhosis care in Alberta, determining the number of hospital admissions, readmissions, lengths of stay and associated costs. From this analysis, Dr. Tandon successfully demonstrated that 1) hospitalized patients with cirrhosis meet all three criteria for high-cost, high-needs patients; and 2) current cirrhosis care costs rival those of pulmonary disease (COPD), a health condition that is already considered a priority area for AHS due to its high costs. Leanne Reeb, Sander Van Zanten and Louise Morrin provided significant contributions through establishing and facilitating key provincial stakeholder connections, as well as grant review and budget development assistance. This research project addresses the DH SCN strategic goal of preventing chronic liver disease through better identification and management of preventable causes of this disease.

Susan Jelinski, Sander van Zanten, and Louise Morrin were all co-applicants on Gil Kaplan's successful CIHR Project Scheme grant, entitled "Predicting the Future Burden of the Inflammatory Bowel Diseases: A Study of the Canadian Gastro-Intestinal Epidemiology Consortium (CanGIEC)." With research funding of over \$845,000, Dr. Kaplan will expand his investigation of the burden of IBD in Alberta and Canada, focusing on health care utilization, complications, medical management, surgical management and health care costs. The information generated from Dr. Kaplan's research grant is critical in supporting DH SCN activities addressing the current and future landscape of IBD in Alberta. Because of Dr. Kaplan's role as Scientific Director for the DH SCN, Dr. Kaplan is also funded by a CIHR Embedded Clinician Researcher Award.

#### Transformational Road Map (TRM) Quality Indicator Development

The DH SCN TRM outlines a number of important strategic goals and priorities for digestive health care in Alberta. Key stakeholders have been engaged as chairs, co-chairs and members of working groups tasked with addressing these strategic goals and priorities through co-design of projects and initiatives. It is important that we measure the progress of these projects and initiatives in order to answer the question, "How well are we doing what we set out to do?" As such all SCNs have been asked to develop a process to determine our TRM quality indicators. The DH SCN created and actioned a rigorous protocol in response to this request. This protocol involved environmental scans/literature reviews for relevant indicators, review of the comprehensive indicator list by the working groups, voting/ranking by stakeholder groups, and development of technical definitions for the selected indictors.

# Potential Cost-Savings: Implementation of the C-GRS in Alberta

An important TRM strategic goal for the DH SCN is to address unwarranted clinical variation and improve quality of care for GI-related endoscopy procedures. There are 50 sites in Alberta where endoscopy procedures are performed. However, there is no systematic provincial process currently in place to assess endoscopy quality. The Canada-Global Rating Scale© (C-GRS©) is a tool that sites can use to assess themselves against best practices and to identify opportunities to improve the quality of their service. The DH SCN developed a business case for AHS to endorse a policy requiring all endoscopy sites to participate in the C-GRS©. In support of the return on investment portion of the business case, Susan Jelinski analyzed administrative health care data to determine GI-related endoscopy procedure volume by fiscal year and to conduct subsequent costing analyses. This analysis revealed that, in fiscal year 2017/18, the total estimated cost for all out-patient GI-related endoscopies was \$118M (not including physician fees). Implementation of the C-GRS© is expected to improve inefficiencies related to endoscopy procedures, such as reduction in the number of secondary endoscopies due to

inadequate bowel preparations and reductions in the number of "no-show" endoscopy appointments. The DH SCN SO determined that a 1% reduction in the number of inadequate bowel preparations would save ~\$857,000 per year, while a 1% reduction in no-show visits would save ~\$1M per year.

#### DH SCN Peer-reviewed Publications:

#### Published: SD/ASD/Leadership member as Author

- Aubin JM, Bressan AK, Grondin SC, Dixon E, MacLean AR, Gregg S, Tang P, Kaplan GG, Martel G, Ball CG. 2018. Assessing resectability of colorectal liver metastases: How do different subspecialties interpret the same data? Can J Surg, 61(4): 251–256.
- Barnabe C, Crane L, White T, Hemmelgarn B, Kaplan GG, Martin L, Maksymowych WP. 2018. Patient-reported Outcomes, Resource Use, and Social Participation of Patients with Rheumatoid Arthritis Treated with Biologics in Alberta: Experience of Indigenous and Nonindigenous Patients. J Rheumatol, 45(6): 760–765. DOI: 10.3899/jrheum.170778
- Barnabe C, Zheng Y, Ohinmaa A, Crane L, White T, Hemmelgarn B, Kaplan GG, Martin L, Maksymowych WP. 2018. Effectiveness, Complications, and Costs of Rheumatoid Arthritis Treatment with Biologics in Alberta: Experience of Indigenous and Non-indigenous Patients. J Rheumatol, 45(10): 1344–1352. DOI: 10.3899/jrheum.170779
- Benchimol EI, Bernstein CN, Bitton A, Murthy SK, Nguyen GC, Lee K, Cooke-Lauder J, Windsor JW, Carroll MW, Coward S, El-Matary W, Griffiths AM, Jones JL, Kuenzig ME, Lee L, Mack DR, Mawani M, Otley AR, Singh H, Targownik LE, Weizman AV, **Kaplan GG**. 2018. The Impact of Inflammatory Bowel Disease in Canada 2018: A Scientific Report from the Canadian Gastro-Intestinal Epidemiology Consortium to Crohn's and Colitis Canada. J Can Assoc Gastroenterol, 2(Suppl 1): S1–S5. DOI: 10.1093/jcag/gwy052
- Benchimol EI, Kuenzig ME, Bernstein CN, Nguyen GC, Guttmann A, Jones JL, Potter BK, Targownik LE, Catley CA, Nugent ZJ, Tanyingoh D, Mojaverian N, Underwood FE, Siddiq S, Otley AR, Bitton A, Carroll MW, deBruyn JC, Dummer TJ, El-Matary W, Griffiths AM, Jacobson K, Leddin D, Lix LM, Mack DR, Murthy SK, Peña-Sánchez JN, Singh H, **Kaplan GG**; Canadian Gastro-Intestinal Epidemiology Consortium. 2018. Rural and urban disparities in the care of Canadian patients with inflammatory bowel disease: a populationbased study. Clin Epidemiol, 10: 1613–1626. DOI: 10.2147/CLEP.S178056
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- 7. Carroll MW, Kuenzig ME, Mack DR, Otley AR, Griffiths AM, **Kaplan GG**, Bernstein CN, Bitton A, Murthy SK, Nguyen GC, Lee K, Cooke-Lauder J, Benchimol EI. 2019. The Impact of Inflammatory Bowel Disease in Canada 2018: Children and Adolescents with IBD. J Can Assoc Gastroenterol, 2(Suppl 1): S49–S67. DOI: 10.1093/jcag/gwy056

- Coward S, Clement F, Benchimol EI, Bernstein CN, Avina-Zubieta A, Bitton A, Carroll MW, Hazlewood G, Jacobson K, Jelinski S, Deardon R, Jones JL, Kuenzig ME, Leddin D, McBrien KA, Murthy SK, Nguyen GC, Otley AR, Panaccione R, Rezaie A, Rosenfeld G, Peña-Sánchez JN, Singh H, Targownik LE, Kaplan GG. 2019. Past and Future Burden of Inflammatory Bowel Diseases Based on Modeling of Population-based Data. Gastroenterology, 156(5): 1345–1353.e4. DOI: 10.1053/j.gastro.2019.01.002
- 9. Gu P, Kuenzig ME, **Kaplan GG**, Pimentel M, Rezaie A. 2018. Fecal Incontinence in Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis. Inflamm Bowel Dis, 24(6): 1280–1290. DOI: 10.1093/ibd/izx109
- Jones JL, Nguyen GC, Benchimol EI, Bernstein CN, Bitton A, Kaplan GG, Murthy SK, Lee K, Cooke-Lauder J, Otley AR. 2019. The Impact of Inflammatory Bowel Disease in Canada 2018: Quality of Life. J Can Assoc Gastroenterol, 2(Suppl 1): S42–S48. DOI: 10.1093/jcag/gwy048
- Kaplan GG, Bernstein CN, Coward S, Bitton A, Murthy SK, Nguyen GC, Lee K, Cooke-Lauder J, Benchimol EI. 2019. The Impact of Inflammatory Bowel Disease in Canada 2018: Epidemiology. J Can Assoc Gastroenterol, 2(Suppl 1): S6–S16. DOI: 10.1093/jcag/gwy054
- 12. King JA, **Kaplan GG**, Godley J. 2019. Experiences of coeliac disease in a changing gluten-free landscape. J Hum Nutr Diet, 32(1): 72–79. DOI: 10.1111/jhn.12597
- King JA, Underwood FE, Panaccione N, Quan J, Windsor JW, Kotze PG, Ng SC, Ghosh S, Lakatos PL, Jess T, Panaccione R, Seow CH, Ben-Horin S, Burisch J, Colombel JF, Loftus EV, Gearry R, Halfvarson J, **Kaplan GG**. 2019. Trends in hospitalization rates for the inflammatory bowel diseases between the Western world and newly industrialized countries: A population-based study of the Organisation for Economic Co-operation and Development. Lancet Gastroenterol Hepatol, 4(4): 287–295. DOI: 10.1016/S2468-1253(19)30013-5
- Kotze PG, Ma C, Almutairdi A, Al-Darmaki A, Devlin SM, Kaplan GG, Seow CH, Novak KL, Lu C, Ferraz JGP, Stewart MJ, Buresi M, Jijon H, Mathivanan M, Heatherington J, Martin ML, Panaccione R. 2018. Real-world clinical, endoscopic and radiographic efficacy of vedolizumab for the treatment of inflammatory bowel disease. Aliment Pharmacol Ther, 48(6): 626–637. DOI: 10.1111/apt.14919
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- Kuenzig ME, Benchimol EI, Lee L, Targownik LE, Singh H, Kaplan GG, Bernstein CN, Bitton A, Nguyen GC, Lee K, Cooke-Lauder J, Murthy SK. 2019. The Impact of Inflammatory Bowel Disease in Canada 2018: Direct Costs & Health Services Utilization. J Can Assoc Gastroentero, 2(Suppl 1): S17–S33. DOI: 10.1093/jcag/gwy055
- 17. Kuenzig ME, Bishay K, Leigh R, **Kaplan GG**, Benchimol EI; Crowdscreen SR Review Team. 2018. Co-occurrence of Asthma and the Inflammatory Bowel Diseases: A



Systematic Review and Meta-analysis. Clin Transl Gastroenterol, 9(9): 188. DOI: 10.1038/s41424-018-0054-z

- Kuenzig ME, Lee L, El-Matary W, Weizman AV, Benchimol El, Kaplan GG, Nguyen GC, Bernstein CN, Bitton A, Lee K, Cooke-Lauder J, Murthy SK. 2019. The Impact of Inflammatory Bowel Disease in Canada 2018: Indirect Costs of IBD Care. J Can Assoc Gastroenterol, 2(Suppl 1): S34–S41. DOI: 10.1093/jcag/gwy050
- Kuenzig ME, Rezaie A, Kaplan GG, Otley AR, Steinhart AH, Griffiths AM, Benchimol EI, Seow CH. 2018. Budesonide for the Induction and Maintenance of Remission in Crohn's Disease: Systematic Review and Meta-Analysis for the Cochrane Collaboration. J Can Assoc Gastroenterol, 1(4): 159–173. DOI: 10.1093/jcag/gwy018
- Kuenzig ME, Sadatsafavi M, Aviña-Zubieta JA, Burne RM, Abrahamowicz M, Beauchamp ME, Kaplan GG, Benchimol EI. 2018. Asthma is not associated with the need for surgery in Crohn's disease when controlling for smoking status: a population-based cohort study. Clin Epidemiol, 10: 831–840. DOI: 10.2147/CLEP.S156772
- Laffin MR, Perry T, Park H, Gillevet P, Sikaroodi M, Kaplan GG, Fedorak RN, Kroeker K, Dieleman LA, Dicken B, Madsen KL. 2018. Endospore forming bacteria may be associated with maintenance of surgically-induced remission in Crohn's disease. Sci Rep, 8(1): 9734. DOI: 10.1038/s41598-018-28071-z
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- 24. Mathias H, **Veldhuyzen van Zanten SJO**, Kits O, Heisler C, Jones J. 2018. Patient-ly Waiting: A Review of Patient-Centered Access to Inflammatory Bowel Disease Care in Canada. J Can Assoc Gastroenterol, 1(1): 26–32. DOI: 10.1093/jcag/gwy001
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- 29. Ng SC, Kaplan GG, Tang W, Banerjee R, Adigopula B, Underwood FE, Tanyingoh D, Wei SC, Lin WC, Lin HH, Li J, Bell S, Niewiadomski O, Kamm MA, Zeng Z, Chen M, Hu P, Ong D, Ooi CJ, Ling KL, Miao Y, Miao J, de Silva HJ, Niriella M, Aniwan S, Limsrivilai J, Pisespongsa P, Wu K, Yang H, Ng KK, Yu HH, Wang Y, Ouyang Q, Abdullah M, Simadibrata M, Gunawan J, Hilmi I, Goh KL, Cao Q, Sheng H, Ong-Go A, Chong VH, Ching JYL, Wu JCY, Chan FKL, Sung JJY. 2019. Population Density and Risk of Inflammatory Bowel Disease: A Prospective Population-Based Study in 13 Countries or Regions in Asia-Pacific. Am J Gastroenterol, 114(1): 107–115. DOI: 10.1038/s41395-018-0233-2
- Nguyen GC, Targownik LE, Singh H, Benchimol EI, Bitton A, Murthy SK, Bernstein CN, Lee K, Cooke-Lauder J, Kaplan GG. 2019. The Impact of Inflammatory Bowel Disease in Canada 2018: IBD in Seniors. J Can Assoc Gastroenterol, 2(Suppl 1):S68–S72. DOI: 10.1093/jcag/gwy051
- 31. Rezaie A, Gu P, **Kaplan GG**, Pimentel M, Al-Darmaki AK. 2018. Dyssynergic Defecation in Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis. Inflamm Bowel Dis, 24(5): 1065–1073. DOI: 10.1093/ibd/izx095
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#### Accepted/In Press: SD/ASD/Leadership member as Author

- Frolkis AD, Vallerand I, Shaheen A, Lowerison M, Swain MG, Barnabe C, Patten S, Kaplan GG. 2018. Depression increases the risk of inflammatory bowel disease, which may be mitigated by the use of antidepressants in the treatment of depression. *Gut.* 2018 Oct 18. DOI: 10.1136/gutjnl-2018-317182 [Epub ahead of print]
- Moe J, Camargo CA, Davis RB, Jelinski S, Rowe BH. 2019. Frequent emergency department use and mortality in patients with substance and opioid use in Alberta: A population-based retrospective cohort study. CJEM. 2019 Apr 15:1-10. doi: 10.1017/cem.2019.15 [Epub ahead of print]

#### **DH SCN Grants:**

#### Successful Grants:

PI	Title	Funding Agency	Amount
Kaplan GG	Predicting the Future Burden of the Inflammatory Bowel Diseases: A Study of the Canadian Gastro- Intestinal Epidemiology Consortium (CanGIEC)	CIHR Project Scheme	\$845,325
Kaplan GG	Preventable Acute Care Spending Among High System Users	CIHR Operating Grant Secondary Data Analysis	\$75,000



#### **ESCN High-level Accomplishments:**

#### Implementing Innovative Models of Acute Pediatric Mental Health and Addiction Care

This project is based on previous ESCN and Addictions and Mental Health SCN patient engagement, and funded by Alberta Innovates. The project will implement and evaluate a novel, integrated model of acute mental health and addiction care that connects children/families with resources, and promotes the delivery of efficient, effective care, matched to patient/family needs, thereby maximizing the benefits to Albertans.

#### Improving Acute Care for Long-Term Care (LTC) Residents

Funded by Alberta Innovates, this partnership between Emergency Medicine, Seniors Health, Mobile Integrated Healthcare (MIH), and Referral, Access, Advice, Placement, Information & Destination (RAAPID) will implement an evidence-informed and standardized care process for LTC residents experiencing an acute change in health status. RAAPID will facilitate a consultation between an Emergency Department (ED) physician and the resident's LTC physician to identify cases suitable to be treated by MIH within the resident's care home. When transfer is deemed necessary, RAAPID will mediate the completion of a standardized transfer checklist in an effort to decrease errors that can occur in care transitions and to improve continuity of care.

#### **Opioid Use Disorder Treatment in Emergency Departments**

Funded by Alberta Health, this quality improvement project engages clinicians to identify opioid use disorder among emergency department patients, initiate evidence-based treatment with buprenorphine/naloxone for eligible patients, and provide rapid next business day walk-in referrals to addiction clinics in the community. The Scientific Office oversees evaluation of this initiative.

#### **Quality Improvement and Innovation Forum**

This forum was held February 28, 2019. It provided an opportunity for those working on quality improvement in emergency medicine (physicians, nurses, nurse educators, pharmacists, administrators and university-based researchers) to network with one another, share innovative practices, share know-how and translate promising work to new settings. Thirty-two teams presented their work to over 90 attendees. Twenty-five attendees noted in evaluation surveys that they would attempt to bring an innovation they learned about at the day to their local ED.

#### **Research Advisory Board**

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The Emergency Strategic Clinical Network engages seven researchers based at the University of Alberta and the University of Calgary to act in an advisory capacity. They provide strategic advice to the Scientific Director and the Assistant Scientific Director of the ESCN Scientific Office regarding establishing and implementing research priorities, planning, and knowledge translation. The board also helps to provide two-way communication between the ESCN and the wider research community.

#### Systematic Review Grants and Studentships

The provision of peer-reviewed competitive research funding supports completion of high-quality projects, builds research capacity, advances research knowledge and supports implementation

of evidence into practice. In addition, these funds also serve to engage the network of academic researchers established by the ESCN Scientific Office.

#### **ESCN Peer-reviewed Publications:**

#### Published: SD/ASD/Leadership as Author

- 1. Arrotta N, Hill J, Villa-Roel C, Dennett E, **Rowe BH**. 2019. Factors associated with hospital admission in adult patients with asthma exacerbations: A systematic review. J Asthma, 56(1): 34–41. DOI: 10.1080/02770903.2018.1424189
- Atkinson P, Lang E, Mackenzie M, et al. CJEM Debate Series: #ChoosingWisely The choosing wisely campaign will not impact physician behaviour and choices. *CJEM*, 20(2): 170–175. DOI: 10.1017/cem.2017.402
- 3. Berg L, **McLane P**, Eshkakogan N, Mantha J, Lee T, Crowshoe C, Phillips A. 2019. Perspectives on Indigenous cultural competency and safety in Canadian hospital emergency departments: A scoping review. Int Emerg Nurs, 43: 133–140. DOI: 10.1016/j.ienj.2019.01.004
- 4. de Wit K, Curran J, Thoma B, Dowling S, Lang E, Kuljic N, Perry JJ, Morrison L. 2018. Review of implementation strategies to change healthcare provider behaviour in the emergency department. CJEM, 20(3): 453–460. DOI: 10.1017/cem.2017.432
- 5. Hiranandani R, Mackenzie MJ, Wang D, Fung T, **Lang E**. 2018. Emergency physicians choose wisely when ordering plain radiographs for low back pain patients. Cureus, 10(8): e3126. DOI: 10.7759/cureus.3126
- Klil-Drori AJ, Prajapati D, Liang Z, Wang M, Toupin D, Alothman L, Lang E, Suryanarayan D, Tagalakis V. 2019. External validation of ASPECT (Algorithm for Suspected Pulmonary Embolism Confirmation and Treatment). Med Care, 57(8): e47–e52. DOI: 10.1097/MLR.0000000001055
- Lim W, Le Gal G, Bates SM, Righini M, Haramati LB, Lang E, Kline JA, Chasteen S, Snyder M, Patel P, Bhatt M, Patel P, Braun C, Begum H, Wiercioch W, Schünemann HJ, Mustafa RA. 2018. American Society of Hematology 2018 guidelines for management of venous thromboembolism: diagnosis of venous thromboembolism. Blood Adv, 2(22): 3226–3256. DOI: 10.1182/bloodadvances.2018024828
- Moe J, Camargo CA Jr, Jelinski S, Erdelyi S, Brubacher J, Rowe BH. 2018. Epidemiologic trends in substance and opioid misuse-related emergency department visits in Alberta: A cross-sectional time-series analysis. Can J Public Health, 109(2): 164–173. DOI: 10.17269/s41997-018-0053-6
- 9. Ospina MB, Michas M, Duecher L, Leigh R, Bhutani M, **Rowe BH,** Marciniuk D, Goodridge D, Dechman G, Bourbeau J, Balter M, Camp P, Hernandez P, Goldstein RS, Stickland MK; for the COPD PRIHS-2 Group. 2018. Development of a patient-centred, evidence-based and consensus-based discharge care bundle for patients with acute

exacerbation of chronic obstructive pulmonary disease. *BMJ Open Respir Re* 5: e000265. DOI: 10.1136/bmjresp-2017-000265

- Senior K, Burles K, Wang D, Grigat D, Innes GD, Andruchow JE, Lang E, McRae AD. 2018. Age-adjusted D-dimer thresholds in the investigation of suspected pulmonary embolism: a retrospective evaluation in patients ages 50 and older using administrative data. CJEM, 20(5): 725–731. DOI: 10.1017/cem.2018.389
- Sinclair A, Peprah K, Quay T, McInnis M, Lang E, Severn M, Mulla S, Weeks L, Tsoi B, Herrington E, Manogaran M, Garland S, Petropaganos A, Peprah K, Polisena J. 2018. Optimal strategies for the diagnosis of acute pulmonary embolism: a health technology assessment [Internet]. Ottawa (ON): Canadian Agency for Drugs and Technologies in Health; 2018 Jan. CADTH Optimal Use Reports.
- Tate K, Hewko S, McLane P, Baxter P, Perry K, Armijo-Olivo S, Estabrooks C, Gordon D, Cummings G. 2019. Learning to lead: A review and synthesis of literature examining health care managers' use of knowledge. J Health Serv Res Policy, 24(1): 57–70. DOI: 10.1177/1355819618786764
- Villa-Roel C, Ospina M, Majumdar SR, Couperthwaite S, Rawe E, Nikel T, Rowe BH. 2018. Engaging patients and primary care providers in the design of novel opinion leader based interventions for acute asthma in the emergency department: A mixed methods study. BMC Health Serv Res, 18(1): 789. DOI: 10.1186/s12913-018-3587-7

# Published: SCN Financial Support

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- Kirkland SW, Soleimani A, Rowe BH, Newton AS. 2019. A systematic review examining the impact of redirecting low-acuity patients seeking emergency department care: is the juice worth the squeeze? Emerg Med J, 36(2): 97–106. DOI: 10.1136/emermed-2017-207045
- 2. Michaud A, Parker S, Ganshorn H, Ezekowitz J, McRae A. 2018. Prediction of Early Adverse Events in Emergency Department Patients With Acute Heart Failure: A Systematic Review. Can J Cardio, 34(2): 168–179. DOI: 10.1016/j.cjca.2017.09.004
- Tarr G, Yang C, Lorenzeti D, Chui L, Tarr P, Hartling L, Vandermeer B, Freedman S. 2019. Performance of commercial tests for molecular detection of Shiga toxin producing escherichia coli (STEC): a systematic review and meta-analysis protocol. BMJ Open. 9(3): e025950. DOI: 10.1136/bmjopen-2018-025950

# Accepted/In Press: SD/ASD/ Leadership Member as Author

 Cummings GG, McLane P, Reid RC, Tate K, Cooper SL, Rowe BH, Estabrooks CA, Cummings GE, Abel SL, Lee JS, Robinson CA, Wagg A. 2018. Fractured care: A window into emergency transitions in care for long term care residents with complex health needs. J Aging Health. 2018 Nov 15:898264318808908. DOI: 10.1177/0898264318808908. [Epub ahead of print]

# **ESCN Grants:**

#### Successful Grants:

PI	Title	Funding Agency	Amount
Hair H	Improving Acute Care for Long-Term Care Residents: A Better Way to Care for the Frail Elderly in Times of Medical Urgency.	PRIHS: Partnership for Research and Innovation in the Health System. Alberta Innovates	\$1,200,000
Alberta First Nations Information Governance Centre (Nominated PI – As an Organization)	Building Partnerships to Address First Nations Members' Emergency Medical Services Transitions in Care Operating Grant: Transitions in Care - Best and Wise Practices Grants	CIHR	\$100,000
McCaughey D	Value Based Care in Emergency Medicine	Campus Alberta Public Health Meeting Grant.	\$4,000
Nugus P	Understanding organizational culture to improve admission-discharge processes: A systems approach to healthcare performance, evaluation and education	CIHR	\$170,000

# Kidney Health SCN

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# KH SCN High-level Accomplishments:

#### Provincial Indicators for High-Value Nephrology Care in Alberta

Knowledge translation theory indicates that one element of successful change management is to provide physicians with audit and feedback on their practice. The Kidney Health SCN, in collaboration with the AMA's Section of Nephrology and the nephrology programs in Alberta, developed some high-value provincial quality indicators based on the literature and a modified Delphi process.

The Section of Nephrology approved two indicators after several meetings of nephrologists across the province who agreed that these indicators were important to patient care, could be modified by good quality physician care, and could be measured in a valid and accurate fashion. Furthermore, given the significant impact on patient quality-of-life, it is necessary to match the dialysis modality to patients' needs and preferences. Offering home therapies to those who are eligible can improve patients' quality-of-life, reduce patient-incurred travel expenses, and reduce cost to the health care system.

The indicators reported are as follows: 1) timely initiation of dialysis and 2) use of home dialysis. In May 2019, all nephrologists in the province who are caring for patients on dialysis received their individualized reports, which list these patients and whether the guidelines have been met. The regional and provincial averages are also reported so that physicians can self-assess their practice and how their peers are practicing. Each report is sent to the physician's Divisional Head, although patient names are blinded for confidentiality purposes. The expectation is that physicians and Divisional Heads can use these reports for meaningful discussion and that this supports physician ongoing care of patients with kidney disease.

# Alberta 2019 Report on the Prevalence and Quality of Care in Chronic Kidney Disease

This report provides information on prevalence and the findings on established quality indicators for early stages (Stage 1–4) of chronic kidney disease (CKD) across the province and updates the previous 2014 report. It identifies opportunities to improve unwarranted practice variation and outcomes, enhance targeted screening, and increase the proportion of patients appropriately prescribed guideline-recommended treatment. To read the report please visit <a href="https://www.albertahealthservices.ca/assets/about/scn/ahs-scn-kh-ckd-report-2019.pdf">https://www.albertahealthservices.ca/assets/about/scn/ahs-scn-kh-ckd-report-2019.pdf</a>

The Kidney Health Strategic Clinical Network<sup>™</sup>, in collaboration with the Interdisciplinary Chronic Disease Collaboration and the Alberta Kidney Disease Network, completed this updated report outlining the prevalence, measurement, and status of identified quality indicators in CKD. These findings were based on routine laboratory and administrative data for adults in Alberta for the fiscal year of 2015/2016, with follow up until March 31, 2017. This report informs long-term program planning for Alberta's renal programs, identifies variations in care and outcomes across the province, and highlights areas for quality improvement and future research.

# Key Findings

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- The number of people affected by CKD is increasing in Alberta, with close to 191,000 Albertans identified with Stage 1–4 CKD based on laboratory measurement. However, geographical variation exists across the province.
- The prevalence of Stage 3 and 4 CKD has increased by 7.1% over 2 years. This appears to be largely attributable to the growth in the aging population, where CKD is much more prevalent.
- Practice guidelines suggest annual screening for the presence of diabetes-related kidney disease, yet overall albuminuria measurement in people with diabetes was found to be low, at 43%, with some geographical variation across the province.
- The appropriate use of angiotensin-converting enzyme inhibitor (ACEi) and angiotensin receptor blocker (ARBs) therapy has been shown to delay the progression of CKD associated with proteinuria, and reduce the risk of cardiovascular events. The use of ACEi/ARBs is lower than expected in non-diabetic individuals with CKD, with only 64% of those with albuminuria and only 32% of those with eGFR ≥60 and severe albuminuria (> 300mg/g) filling a prescription for an ACEi or ARB.

• Despite evidence that statins are effective at reducing cardiovascular and kidney risk, the use of statins is also low in non-diabetic individuals with CKD over the age of 50, with only 33-39% filing a prescription.

The prevalence of early CKD in Alberta is continuing to grow and demonstrates an increasing care burden for both primary care and nephrology specialty care. Working to improve targeted screening for CKD and increasing the proportion of patients appropriately prescribed guideline-recommended treatment (e.g., ACEi/ARBs and statins) are important. Maximizing these key strategies will help to prevent the progression to end-stage renal disease and reduce the risk of morbidity and mortality for people with CKD. Future work into understanding the associated barriers is warranted.

# KH SCN Peer-reviewed Publications:

#### Published: SD/ASD/Leadership member as Author

- Barbour S, Lo C, Espino-Hernandez G, Sajjadi S, Feehally J, Klarenbach S, Gill J. 2018. The population-level costs of immunosuppression medications for the treatment of glomerulonephritis are increasing over time due to changing patterns of practice. Nephrol Dial Transplant, 33(4): 626–634. DOI: 10.1093/ndt/gfx185
- Barnieh L, Kanellis J, McDonald S, Arnold J, Sontrop JM, Cuerden M, Klarenbach S, Garg AX, Boudville N; Donor Nephrectomy Outcomes Research (DONOR) Network.
  2018. Direct and indirect costs incurred by Australian living kidney donors. Nephrology (Carlton), 23(12): 1145–1151. DOI: 10.1111/nep.13205
- 3. Brar S, Ye F, James MT, Hemmelgarn B, **Klarenbach S**, **Pannu N**; Interdisciplinary Chronic Disease Collaboration. 2018. Association of Angiotensin-Converting Enzyme Inhibitor or Angiotensin Receptor Blocker Use With Outcomes After Acute Kidney Injury. JAMA Intern Med, 178(12): 1681–1690. DOI: 10.1001/jamainternmed.2018.4749
- 4. Habbous S, Arnold J, Begen MA, Boudville N, Cooper M, Dipchand C, Dixon SN, Feldman LS, Goździk D, Karpinski M, Klarenbach S, Knoll GA, Lam NN, Lentine KL, Lok C, McArthur E, McKenzie S, Miller M, Monroy-Cuadros M, Nguan C, Prasad GVR, Przech S, Sarma S, Segev DL, Storsley L, Garg AX; Donor Nephrectomy Outcomes Research (DONOR) Network. 2018. Duration of Living Kidney Transplant Donor Evaluations: Findings From 2 Multicenter Cohort Studies. Am J Kidney Dis, 72(4): 483–498. DOI: 10.1053/j.ajkd.2018.01.036
- Habbous S, Sarma S, Barnieh LJ, McArthur E, Klarenbach S, Manns B, Begen MA, Lentine KL, Garg AX; Donor Nephrectomy Outcomes Research (DONOR) Network. 2018. Healthcare Costs for the Evaluation, Surgery, and Follow-Up Care of Living Kidney Donors. Transplantation, 102(8): 1367–1374. DOI: 10.1097/TP.00000000002222
- 6. Kadatz M, **Klarenbach S**, Gill J, Gill JS. 2018. Cost-effectiveness of using kidneys from hepatitis C nucleic acid test-positive donors for transplantation in hepatitis C-negative recipients. Am J Transplant, 18(10): 2457–2464. DOI: 10.1111/ajt.14929

- Klarenbach S, Sims-Jones N, Lewin G, Singh H, Thériault G, Tonelli M, Doull M, Courage S, Garcia AJ, Thombs BD; Canadian Task Force on Preventive Health Care. 2018. Recommendations on screening for breast cancer in women aged 40-74 years who are not at increased risk for breast cancer. CMAJ, 190(49): E1441–E1451. DOI: 10.1503/cmaj.180463
- Klarenbach SW, So H, Tsoi B. 2019. Optimal Use of Minimally Invasive Glaucoma Surgery: A Health Technology Assessment – Economic Report. Ottawa: CADTH; 2019 Mar 14. (CADTH optimal use report; vol.8, no.1b).
- Lam NN, Klarenbach S, Quinn RR, Hemmelgarn B, Tonelli M, Ye F, Ravani P, Bello AK, Brennan DC, Lentine KL. 2018. Renal Function, Albuminuria, and the Risk of Cardiovascular Events After Kidney Transplantation. Transplant Direct, 4(10): e389. DOI: 10.1097/TXD.00000000000828
- Lam NN, Lentine KL, Hemmelgarn B, Klarenbach S, Quinn RR, Lloyd A, Gourishankar S, Garg AX. 2018. Follow-up Care of Living Kidney Donors in Alberta, Canada. Can J Kidney Health Dis, 5: 2054358118789366. DOI: 10.1177/2054358118789366
- Lam NN, Lentine KL, Klarenbach S, Sood MM, Kuwornu PJ, Naylor KL, Knoll GA, Kim SJ, Young A, Garg AX. 2018. Validation of Living Donor Nephrectomy Codes. Can J Kidney Health Dis, 5: 2054358118760833. DOI: 10.1177/2054358118760833
- Molnar AO, Moist L, Klarenbach S, Lafrance JP, Kim SJ, Tennankore K, Perl J, Kappel J, Terner M, Gill J, Sood MM. 2018. Hospitalizations in Dialysis Patients in Canada: A National Cohort Study. Can J Kidney Health Dis, 5: 2054358118780372. DOI: 10.1177/2054358118780372
- Nadim MK, Forni LG, Bihorac A, Hobson C, Koyner JL, Shaw A, Arnaoutakis GJ, Ding X, Engelman DT, Gasparovic H, Gasparovic V, Herzog CA, Kashani K, Katz N, Liu KD, Mehta RL, Ostermann M, **Pannu N**, Pickkers P, Price S, Ricci Z, Rich JB, Sajja LR, Weaver FA, Zarbock A, Ronco C, Kellum JA. 2018. Cardiac and Vascular Surgery-Associated Acute Kidney Injury: The 20th International Consensus Conference of the ADQI (Acute Disease Quality Initiative) Group. J Am Heart Assoc, 7(11). DOI: 10.1161/JAHA.118.008834
- Osman MA, Schick-Makaroff K, Thompson S, Featherstone R, Bialy L, Kurzawa J, Okpechi IG, Habib S, Shojai S, Jindal K, **Klarenbach S**, Bello AK. 2018. Barriers and facilitators for implementation of electronic consultations (eConsult) to enhance specialist access to care: a scoping review protocol. BMJ Open, 8(9): e022733. DOI: 10.1136/bmjopen-2018-022733
- Padwal RS, So H, Wood PW, Mcalister FA, Siddiqui M, Norris CM, Jeerakathil T, Stone J, Valaire S, Mann B, Boulanger P, **Klarenbach SW**. 2019. Cost-effectiveness of home blood pressure telemonitoring and case management in the secondary prevention of cerebrovascular disease in Canada. J Clin Hypertens (Greenwich), 21(2): 159–168. DOI: 10.1111/jch.13459
- 16. Przech S, Garg AX, Arnold JB, Barnieh L, Cuerden MS, Dipchand C, Feldman L, Gill JS, Karpinski M, Knoll G, Lok C, Miller M, Monroy M, Nguan C, Prasad GVR, Sarma S, Sontrop JM, Storsley L, **Klarenbach S**; Donor Nephrectomy Outcomes Research
(DONOR) Network. 2018. Financial Costs Incurred by Living Kidney Donors: A Prospective Cohort Study. J Am Soc Nephrol, 29(12): 2847–2857. DOI: 10.1681/ASN.2018040398

- Schick-Makaroff K, Thummapol O, Thompson S, Flynn R, Karimi-Dehkordi M, Klarenbach S, Sawatzky R, Greenhalgh J. 2019. Strategies for incorporating patientreported outcomes in the care of people with chronic kidney disease (PRO kidney): a protocol for a realist synthesis. Syst Rev, 8(1): 20. DOI: 10.1186/s13643-018-0911-6
- Spackman E, Clement F, Allan GM, Bell CM, Bjerre LM, Blackburn DF, Blais R, Hazlewood G, Klarenbach S, Nicolle LE, Persaud N, Alessi-Severini S, Tierney M, Wijeysundera HC, Manns B. 2019. Developing key performance indicators for prescription medication systems. PLoS One, 14(1): e0210794. DOI: 10.1371/journal.pone.0210794
- Thombs BD, Straus SE, Moore AE; Canadian Task Force on Preventive Health Care; Collaborating Members of the Canadian Task Force for Preventive Health Care (incl. **Klarenbach S**). 2019. Update on task force terminology and outreach activities: Advancing guideline usability for the Canadian primary care context. Can Fam Physician, 65(1):12-13.
- 20. Thompson RB, Raggi P, Wiebe N, Ugander M, Nickander J, **Klarenbach SW**, Thompson S, Tonelli M; Alberta Kidney Disease Network. 2019. A cardiac magnetic resonance imaging study of long-term and incident hemodialysis patients. J Nephrol, 32(4): 615–626. DOI: 10.1007/s40620-019-00593-3
- 21. Tonelli M, Lloyd AM, Bello AK, James MT, **Klarenbach SW**, McAlister FA, Manns BJ, Tsuyuki RT, Hemmelgarn BR; Alberta Kidney Disease Network. 2019. Statin use and the risk of acute kidney injury in older adults. BMC Nephrol, 20(1): 103. DOI: 10.1186/s12882-019-1280-7
- Tonelli M, Wiebe N, Bello A, Field CJ, Gill JS, Hemmelgarn BR, Holmes DT, Jindal K, Klarenbach SW, Manns BJ, Thadhani R, Kinniburgh D; Alberta Kidney Disease Network. 2018. Concentrations of Trace Elements and Clinical Outcomes in Hemodialysis Patients: A Prospective Cohort Study. Clin J Am Soc Nephrol, 13(6): 907–915. DOI: 10.2215/CJN.11451017
- 23. Tonelli M, Wiebe N, James MT, **Klarenbach SW**, Manns BJ, Ravani P, Strippoli GFM, Hemmelgarn BR; Alberta Kidney Disease Network. 2018. A population-based cohort study defines prognoses in severe chronic kidney disease. Kidney Int, 93(5): 1217–1226. DOI: 10.1016/j.kint.2017.12.013
- 24. Tonelli M, Wiebe N, James MT, Naugler C, Manns BJ, **Klarenbach SW**, Hemmelgarn BR. 2019. Red cell distribution width associations with clinical outcomes: A population-based cohort study. PLoS One, 14(3): e0212374. DOI: 10.1371/journal.pone.0212374
- Tonelli M, Wiebe N, Manns BJ, Klarenbach SW, James MT, Ravani P, Pannu N, Himmelfarb J, Hemmelgarn BR. 2018. Comparison of the Complexity of Patients Seen by Different Medical Subspecialists in a Universal Health Care System. JAMA Netw Open, 1(7): e184852. DOI: 10.1001/jamanetworkopen.2018.4852. Erratum in: JAMA Netw Open. 2019 Mar 1;2(3): e190147

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 Wilson BJ, Courage S, Bacchus M, Dickinson JA, Klarenbach S, Jaramillo Garcia A, Sims-Jones N, Thombs BD; Canadian Task Force on Preventive Health Care. 2018. Screening for impaired vision in community-dwelling adults aged 65 years and older in primary care settings. CMAJ, 190(19): E588–E594. DOI: 10.1503/cmaj.171430

## Accepted/In Press: SD/ASD/Leadership as member Author

 Barnieh L, Klarenbach S, Arnold J, Cuerden M, Knoll G, Lok C, Sontrop JM, Miller M, Prasad GVR, Przech S, Garg AX; Donor Nephrectomy Outcomes Research (DONOR) Network. 2019. Non-reimbursed costs incurred by living kidney donors: A case study from Ontario, Canada. Transplantation. 2019 Mar 1. DOI: 10.1097/TP.000000000002685. [Epub ahead of print]

## KH SCN Grants:

PI	Title	Funding Agency	Amount
Clement F	Models of Assisted Peritoneal Dialysis for the treatment of end stage renal disease	Alberta Health	\$100,000
Manns B	Indicators for High Value Nephrology Care in Alberta – Physician Audit & Feedback Reporting	AMA Section of Nephrology	\$5,000
Davison S	Development, Implementation and Evaluation of an Innovative Integrated Supportive Care Pathway by Primary Care across Alberta	CIHR Rewarding Success Grant: SPOR	\$4,800,000
Davison S	Implementation and Evaluation of an Innovative Integrated Conservative (Non- Dialysis) Kidney Management (CKM) Pathway by Primary Care Across Alberta	CIHR Project Grant	\$671,000
Ronksley P	Predicting Emergency Department Use Among Patients Receiving Hemodialysis Care	CIHR	\$100,000

PI	Title	Funding Agency	Amount
Ronksley P	Preventable Acute Care Spending among High System Users: Operating Grant: Secondary Data Analysis	CIHR	\$69,000

## Maternal Newborn Child & Youth SCN

## **MNCY SCN High-level Accomplishments:**

The Maternal Newborn Child & Youth SCN continues to support innovation and bring improvements to Alberta's health care system through funding calls, making care more appropriate, and working alongside Indigenous communities to improve maternal and child health outcomes.

## Funding innovation and improvement:

We have carried out the second round of our funding call, the "Health Outcomes Improvement Fund" (HOIF), to support work focused on our priorities using valued-added funds from Nutrition and Food Services at Alberta Health Services (AHS). In HOIF I (2017), \$2.1 million was awarded to 19 projects addressing a number of our priorities, as outlined in our Transformational Roadmap (TRM). Projects were led by teams composed of researchers, clinicians, patient advisors, and other stakeholders, with many of the larger funded projects being provincial in scope. Some examples of what has resulted from these projects are the creation of electronic supports for maternal mental health; implementation and evaluation of the Alberta concussion pathway; and identification of parent priorities for child health topics and knowledge translation tools. In HOIF II (2019) \$2.8 million was awarded to 21 projects, all focused on our population and many focused on our TRM priorities. Learning from HOIF I, we worked to ensure quality improvement (QI) projects were solicited and reviewed appropriately, leading to an increased number of high-quality QI projects being funded. We are looking forward to seeing the research and QI projects move forward, bringing improvements to Albertans and Alberta's health care system.

## Community-led initiatives:

This fiscal year has seen significant developments in the three projects funded by Merck for Mothers (a global funding opportunity in which the MNCY SCN was successful). These projects used community-based approaches to overcome barriers to prenatal care in Edmonton and two Indigenous communities in Alberta to improve maternal/newborn health outcomes in the province. These initiatives arose from existing community relationships and will improve access to culturally safe perinatal care and related services close to home:

- Maskwacis: implement a gardening project for mothers and families, develop strengthsbased images and videos of healthy Cree pregnancies, and enhance the maternal health skills of health care staff;
- Inner-city Edmonton: contribute to the Pregnancy Pathways initiative that provides safe housing and support services for pregnant homeless women in Edmonton (many of whom are Indigenous); and

• Little Red River: local community members hired to provide a community-based support model that will add to current maternal health resources, engage women early in pregnancy, raise awareness related to healthy pregnancies, strengthen collaborations, enhance prenatal education and post-natal follow-up care, and facilitate health promotion activities.

## Appropriate and efficient care:

Finally, the MNCY SCN works to bring evidence-informed and appropriate care to Alberta's health care system. When a 2015 report evaluating the use of rapid fetal fibronectin (fFN) testing for preterm labour showed that introduction of the test did not lead to changes in transfers from rural to urban settings, the value of investing in the test was questioned. After comprehensive consultations, the fFN test was removed from the list of available tests in 2016. Evaluation of rural preterm labour outcomes this fiscal year showed that five more women per year were transferred from rural to urban sites after the fFN test was no longer available. The cost of these five additional transfers is a fraction of the \$5 million/year saved by discontinuing the fFN test. More importantly, health outcomes of mothers and babies have remained the same over this time.

## Improving health outcomes through research:

Endorsement by our SCN contributed to lead researchers from the Universities of Calgary, Alberta, and Toronto receiving \$750,000 in funding during the second round of the Partnership for Research and Innovation in the Health System (PRIHS). This funding was for Family Integrated Care (FICare) in the Neonatal Intensive Care Unit (NICU) in Alberta. FICare demonstrated that integrating parents into care earlier using specific strategies improved parent and infant outcomes. The MNCY SCN has continued to work closely with the researchers to obtain an additional \$855,000 from the Health Innovation Implementation and Scale (HIIS) fund to spread and scale this innovation to all NICUs in the province.

Deborah McNeil is the health system supervisor to two CIHR-AHS Health System Impact Fellows, Cynthia Weijs and Catherine Ringham. Dr. Cynthia Weijs (who received three years of funding) on a project researching the feasibility of implementing oral health screening in children living in domestic violence shelters. The research team also includes an individual with lived experience of domestic violence, who is involved in analysis of the data. Dr. Catherine Ringham (who received two years of funding) to research the social organization of Family Integrated Care (FICare) in the Neonatal Intensive Care Unit (NICU). She is using institutional ethnography to examine barriers and facilitators of FICare and to identify strategies for implementation as FICare spreads across the province.

The (MNCY SCN) collaborated with Rhonda Bell (University of Alberta) and her ENRICH Research Team to host a successful conference at the University of Calgary. This provincially developed conference was entitled "Research and Practice: Inspiring Innovation in Maternal Care Together" and brought together researchers from across the globe, operational leaders in Alberta, and front-line AHS clinicians. Attendees learned about and shared research and practices focused on improving care for women and their children. This conference highlighted the MNCY SCN and the innovative work being done by ENRICH and others.

## **MNCY SCN Peer-reviewed Publications:**

## Published: MNCY SCN Leadership member as author

- 1. Bele S, Cassidy C, Curran J, **Johnson DW**, Saunders C, Bailey JAM. 2019. Barriers and enablers to implementing a virtual tertiary-regional Telemedicine Rounding and Consultation (TRAC) model of inpatient pediatric care using the Theoretical Domains Framework (TDF) approach: a study protocol. BMC Health Services Research, 19: 29. DOI: 10.1186/s12913-018-3859-2
- Benzies KM, Yates MT, Patel AB, Afzal AR, Kurlinova J, McNeil DA. 2018. Association between obesity in 4-7 year old children and eight types of crimes: a hierarchical linear modeling approach. Journal of Obesity Science and Practice, 5(2): 159–167. DOI: 10.1002/osp4.322
- Hetherington H, Tough S, McNeil D, Bayrampour H, Metcalf A. 2018. Vulnerable women's perceptions of group prenatal care: Results of a cross sectional study. Maternal and Child Health Journal, 22(11): 1632–1638. DOI 10.1007/s10995-018-2559-1
- 4. Kemp KA, Ahmed S, Quan H, **Johnson D**, Santana MJ. 2018. Family Experiences of Pediatric Inpatient Care in Alberta, Canada: Results From the Child HCAHPS Survey. Hospital Pediatrics, 8(6): 338–344. DOI: 10.1542/hpeds.2017-0191
- 5. **McNeil DA**, Mueller M, MacDonald S, McDonald S, Saini V, Kellner JD, and Tough S. 2019. Maternal perceptions of childhood vaccination: explanations of reasons for and against vaccination. BMC Public Health, 19(1): 49; DOI: 10.1186/s12889-018-6338-0
- Rafferty E, Hetherington E, Tough E, Aujla S, McNeil D, Saini V, McDonald S, MacDonald SE. 2018. The impact of time since vaccination and study design on validity in parental recall of childhood vaccination status in the All Our Families cohort. Vaccine, 36(21): 2953–2959. DOI: 10.1016/j.vaccine.2018.04.045

## Published: SCN Financial Support

- Gates M, Pillay J, Featherstone R, Hartling L, Wilson RD. 2019. Effectiveness and Accuracy of Tests for Preterm Delivery in Symptomatic Women: A Systematic Review. J Obstet Gynaecol Can, 41(3): 348–362. DOI: 10.1016/j.jogc.2018.06.019
- Wingert A, Johnson C, Featherstone R, Sebastianski M, Hartling L, Wilson RD. 2018. Adjunct clinical interventions that influence vaginal birth after cesarean rates: Systematic review. BMC Pregnancy Childbirth, 18(1): 452. DOI: 10.1186/s12884-018-2065-x
  Accepted/In Press: SD/ASD/Leadership member as Author
- 1. Schraeder K, Nettel-Aguirre A, Mackie A, Barrett O, **Johnson D**, Ryan A, Dimitropolous G, Samuel S. Cohort Profiles: Identifying a retrospective cohort of adolescents with chronic health conditions from a pediatric hospital prior to transfer to adult care The Calgary Transition Cohort. BMJ Open, (In Press).

## **MNCY SCN Grants:**

## Successful Grants:

PI	Title	Funding Agency	Amount
Johnson D	E-Mental Health for	CIHR Rewarding	\$100,000
	Youth and Young	Success- Business	
	Adults in Alberta	Case Development	
Benzies K, McNeil D	Reducing NICU	Health Innovation	\$855,163
	Length of Stay in	Implementation and	
	Alberta:	Spread (HIIS) Fund	
	Scale and Spread of		
	Alberta Family		
	Integrated Care		
	(FICare)		

## Pending Grants:

PI	Title	Funding Agency	Request
Johnson D	E-Mental Health for Youth and Young Adults in Alberta	CIHR Rewarding Success	\$2,400,000
Zwicker J	Improving Health Outcomes and Coordinating Care for Children with Complex Health and Social Needs	CIHR Transitions in Care Evaluation Grant	
Chaput K	Prevalence of cannabis use in pregnancy in Alberta and development of a standardized measurement tool for cannabis use in pregnancy	MSI Foundation Grant	

## Population, Public and Indigenous Health SCN

## **PPIH SCN High-level Accomplishments:**

## 1. Prevention of Cancer among Indigenous Peoples & Vulnerable Populations

The Government of Alberta, through the Minister of Health, awarded \$7,500,000 from the Alberta Cancer Prevention Legacy Fund to the PPIH SCN in March 2016, to support the advancement of meaningful contributions to improving health outcomes for Indigenous people and vulnerable populations (Grant #006735). This program is well underway and consists of four approved projects:

- Healthy Innovation and Cancer Prevention Grant Program for Indigenous Communities and Organizations;
- Alberta Screening and Prevention for Indigenous Primary Care Settings (ASaP);
- Indigenous Patient and Community Engagement Research Internship Program (PaCER); and
- Reducing the Impact of Financial Strain: A Population and Public Health Partnership with Primary Care to Reduce the Risk of Cancer and Chronic Disease (RIFS).

## 2. ECHO+ : Extension for Community Health care Outcomes (ECHO) Plus

The PPIH SCN's ECHO+ application was successful in the Health Innovation and Spread (HIS) Fund competition for \$1.0M over two years. The ECHO+ "Hub and Spoke" model for sexually transmitted and blood-borne infection (STBBI) screening and treatment was adopted in Alberta three years ago to support primary care providers using telehealth for rural, remote and Indigenous communities. ECHO+ intends to spread this approach across the province to more Indigenous communities, and to scale the model to additionally provide expert stigma reduction, community mobilization and retention in care support to local providers.

## 3. PRIHS 4 – South Zone Indigenous Patient Navigation Model: A Novel Approach

The PPIH SCN and AHS South Zone were successful in the PRIHS IV competition and awarded \$1.4M to fund the South Zone Indigenous Patient Navigation Model. This work aims to develop replicable engagement and navigation models with Indigenous communities throughout Alberta to effectively partner on reducing Indigenous health inequities. This PRIHS project will rigorously test and evaluating the implementation and impact of our Indigenous engagement process and navigation model in the South Zone using mixed-methods research design.

## 4. New Health Equity Page – Alberta Community Health Dashboard

Recently, AHS' Alberta Cancer Prevention Legacy Fund, Public Health Surveillance & Infrastructure and PPIH SCN worked in partnership to launch the new <u>health equity page</u> on the Alberta Community Health Dashboard. This is an interactive online interface that empowers Alberta communities to understand and take action on factors that determine how healthy people are in their communities. The new page aims to advance health equity by providing some of the data required to understand risk factors for cancer and related chronic diseases in the context of associated social and economic conditions.

## **PPIH SCN Grants:**

## Successful Grants:

PI	Title	Funding Agency	Amount
Chubbs K, Potestio M	South Zone Indigenous Patient Navigation Model: A Novel Approach	Alberta Innovates PRIHS 4	1,436,500
Potestio M	ECHO-Plus: Extension for Community Healthcare Outcomes (ECHO)	Alberta Health – Health Innovation Implementation & Spread Fund	1,000,000

## Primary Health Care Integration Network SCN

## **PHCIN SCN High-level Accomplishments:**

The Scientific Office of the Primary Health Care Integration Network promotes and supports the creation and application of knowledge and evidence to inform decisions and innovations at the patient, practice, policy and health system levels. This year marked an eventful and productive year for the network and Scientific Office. A few of our significant activities are highlighted here:

- 1. Montesanti S & Quon J. April 2018. Identifying the Factors Contributing to Improved Transitions of Care and Patient Outcomes: A Rapid Review. This rapid review literature synthesis was commissioned by the Scientific Office of the Primary Health Care Integration Network (PHCIN). This report assists in identifying what types of factors contribute to better patient outcomes when patients are discharged from hospital. The findings from this report were used to directly inform the *Transitioning from Home to Hospital to Home* focus area for the PHCIN.
- 2. Lunney M, Osman MA, Bello AK & Ronksley PE. March 2019. Interventions to improve the efficiency or effectiveness of referrals between primary and specialist care: A Rapid Review. This rapid review literature synthesis was commissioned by the Scientific Office of the Primary Health Care Integration Network (PHCIN). This rapid review provides a high-level summary of the evidence on the interventions affecting the nexus between primary and specialist care with a focus on the referral pathway from primary to specialist care and back. The findings from this report were used to directly inform the *Linking to Specialists and Back* focus area for the PHCIN.
- 3. Canadian Institutes of Health Research. Operating Grant; SPOR Innovative Clinical Trials Rewarding Success. June 2019. Development, Implementation and Evaluation of an Innovative Integrated Supportive Care Pathway by Primary Care across Alberta. Leads Drs. Sara Davison and Brad Bahler and team were successful in obtaining funding (\$4.4 million) for a co-designed project between primary care and specialty. This research will adapt, implement and evaluate an innovative Supportive Care Pathway for

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Albertans with advanced organ failure and metastatic cancer, who are unlikely to benefit from curative or life-prolonging treatments. It includes a focus on shifting care to community-based settings across Alberta to improve patient outcomes while providing better value for money.

- 4. Vik S et al. Healthcare Quarterly, July 2019 (in press). Informing Primary Care Changes in Alberta: Continuity and Potential Impacts on Acute Care. This analysis examines links between continuity with primary care and utilization of acute care services. The findings provide information regarding expectations for outcomes, and potentially useful (and not so useful) measures for monitoring progress and performance.
- 5. Home to Hospital to Home Transition in Care Provincial Guidelines. 2020 (Anticipated completion January 2020). The Primary Health Care Integration Network has been working with a diverse group of stakeholders, including primary care providers, community health service providers, specialists, and patients, families and caregivers, to identify key processes that are foundational to transitioning patients across care settings. This work has been supplemented with an environmental scan, literature review, learning collaborative, and additional stakeholder interviews. The proposed solution is to co-design provincial home to hospital to home transition in care guidelines. These are multicomponent provincial guidelines that target simultaneous points in a patient's transition journey, in keeping with a patient-centred provincial approach to transitions in care.

## PHCIN SCN Peer-reviewed Publications:

## Published: SD/ASD/Leadership member as Author

 Marshall D, Liu X, Shahid R, Bertazzon S, Seidel J, Patel A, Nasr M, Barber C, McDonald T, Sharma R, Briggs T, Faris P, Waters N. 2019. Geographic Variation in Osteoarthritis Prevalence in Alberta: A spatial analysis approach. Applied Geography, 103: 112-121. DOI: 10.1016/j.apgeog.2019.01.004

## Accepted/In Press: SD/ASD/Leadership member as Author

- 1. Leslie M, Khayatzadeh-Mahani A, Forest PG, Birdsell J, Henderson RI, Gray RP, Schraeder K, **Seidel J**, Green L. Implementing Performance Indicators for the Patient Medical Home: A Deliberative Consensus Approach to Metrics in Primary Care. BMC Family Medicine (In Press).
- 2. Vik S, Weaver C, **Cunningham CT**, Walker R, Lewanczuk R, Bahler B, Skrypnek R, Smekel M, Winfield L, **Seidel J**. Informing primary care changes in Alberta: continuity and potential impacts on acute care. Healthcare Quarterly (In Press).

## **PHCIN SCN Grants:**

PI	Title	Funding Agency	Amount
Samuel S	CIHR Operating Grant: Transitions in Care – Evaluation Grants- Evaluating the Impact of Primary Care Patient- Provider Relationships on Emergency Department Utilization by Adolescents and Young Adults with Chronic Conditions	CIHR	\$163,144
Davison S	CIHR Rewarding Success SPOR iCT Trial- Implementation and Evaluation of an Innovative Integrated Conservative (Non- Dialysis) Kidney Management (CKM) Pathway by Primary Care	CIHR	\$4,800,000
McBrien K	CIHR SPOR iCT Clinical Multi-trial ENCOMPASS- Community Health Navigator	CIHR	\$1,497,736
Samuel S	Department of Pediatrics Innovation Award, UofC- Evaluating the impact of primary care patient-provider relationships on emergency department utilization by adolescents and	University of Calgary, Pediatrics Department	\$22,000

PI	Title	Funding Agency	Amount
	young adults with chronic conditions and Health Outcomes		
McBrien K	PRIHS 4 ENCOMPASS- Community Health Navigator	Alberta Innovates	\$1,491,078
McDonald T	MSI Foundation- Association between General Practitioner Patient Volumes and Health Outcomes	MSI Foundation	\$88,000
Seidel J	Alberta Cancer Legacy Fund- Population Health Needs Framework for Health Service Planning	Alberta Cancer Legacy Fund	\$375,000
Gerlier-Forest P	CIHR SPOR PIHCI Network- Knowledge Synthesis Grant- Scoping review of literature on different models of allocating funds to facilitate integrated care	CIHR	\$25,000

## **Respiratory Health SCN**

## **RH SCN High-level Accomplishments:**

## **Research Prioritization**

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Working with a steering committee of patient/caregiver advisors and clinicians/scientists, we completed the research prioritization process of the RH SCN in March 2019. The steering committee embarked on a rigorous process to engage a broad group of stakeholders to identify their priorities for research related to respiratory and sleep in Alberta. A total of 445 stakeholders completed the initial survey, with 595 research questions submitted. Following a review of the literature and combination of like questions, 178 unique questions remained. A total of 140 stakeholders completed the second survey, and the steering committee completed the final priority-setting exercise at an in-person workshop. The resulting list includes priorities for respiratory and sleep research, with a set of additional questions focusing specifically on sleep research, and another set focusing specifically on respiratory research. The results were

presented at the American Thoracic Society Meeting in Dallas, TX, in May of 2019, and next steps include developing a plan for dissemination.

## Data Management Working Group

The RH SCN Data Management Working Group began to address the growing need in the research and clinical community to access respiratory data and create a mechanism for accurately telling the story of respiratory health concerns such as Chronic Obstructive Pulmonary Disease (COPD) and asthma in Alberta. Working with our partners in analytics, the working group has created dashboards that provide accurate and timely data, such as the prevalence, incidence and all-causes mortality for asthma and COPD in the province. Additionally, we are working with the Sleep Disorders Working Group Data Sub-team to access similar data for sleep-disordered breathing, data that is typically not well-captured in existing data sets. In addition, in March of 2019 the Scientific Office was able to hire a new member of our team, a 0.5 FTE biostatistician. She was hired to meet a significant unmet need in our research community: access to high-quality, affordable biostatistics support for junior investigators. This resource has already proven to be very popular and we have established an intake process to ensure her time is used most effectively.

## **Capacity Building**

Similar to previous years, the RH SCN remains committed to building research capacity in clinical respiratory research in the province. In 2018-2019, we have done this in several ways, including 1) seed grants: we funded three \$10,000 research grants with a focus on new investigators; 2) undergraduate summer studentships: we have funded two summer students to pursue a project in respiratory research; and 3) graduate student fellowship: in partnership with The Lung Association of Alberta and NWT, we have funded one graduate studentship in clinical respiratory research. Building research capacity continues to be a main focus of the RH SCN Scientific Office.

## **PRIHS Projects**

The RH SCN Scientific Office has been heavily engaged in the two funded PRIHS projects. Our ASD meets weekly with the Primary Care Asthma Paediatric Pathway project team. The study is in the final phase of data collection (quantitative and qualitative) and is expected to complete the study by early 2020. Our SD is the principal investigator of the COPD Discharge Bundle work, which is now completing its final patient enrolment, with a completion date of early 2020. The approach of the RH SCN has been to be actively involved in our PRIHS projects, which has resulted in a strong connection to the implementation and a stronger understanding of the needs for scale and spread.

## **RH SCN Peer-reviewed Publications:**

## Published: SD/ASD/Leadership member as Author

- MacDonald S, Russel M, Liu X, Simmonds K, Lorenzetti D, Sharpe H, Svenson J, Svenson L. 2019. Are we speaking the same language? an argument for the consistent use of terminology and definitions for childhood vaccination indicators. Human Vaccine & Immunotherapeutics, 15(3): 740–747. DOI: 10.1080/21645515.2018.1546526
- 2. Ospina MB, Michas M, Deuchar L, Leigh R., Bhutani M, Rowe BH, Marciniuk D, Goodridge D, Dechman G, Bourbeau J, Balter M, Camp P, Hernandez P, Goldstein RS,

**Stickland MK** for the COPD PRIHS-2 Group. 2018. Development of a Patient-Centered, Evidence- and Consensus-Based Discharge Care Bundle for Patients with Acute Exacerbation of Chronic Obstructive Pulmonary Disease. BMJ Open Respiratory Research, 5(1): e000265. DOI: 10.1136/bmjresp-2017-000265

- Pendharkar SR, Ospina MB, Southern DA, Hirani N, Graham J, Faris P, Bhutani M, Leigh R, Mody CH, Stickland MK. 2018. Effectiveness of a standardized electronic admission order set for acute exacerbation of chronic obstructive pulmonary disease. BMC Pulm Med, 18(1): 93. DOI: 10.1186/s12890-018-0657-x
- Selzler AM, Wald J, Sedeno M, Jourdain T, Janaudis-Ferreira T, Goldstein R, Bourbeau J, Stickland MK. 2018. Telehealth Pulmonary Rehabilitation: A Review of the Literature and an Example of a Nationwide Initiative to Improve the Accessibility of Pulmonary Rehabilitation. Chron Respir Dis, 15(1): 41–47. DOI: 10.1177/1479972317724570
- 5. Yamada J, Potestio M, Cave A, **Sharpe H**, Johnson D, Patey A, Presseau J, Grimshaw J. 2018. Using the Theoretical Domains Framework to identify barriers and enablers to paediatric asthma management in primary care settings. J Asthma, 55(11): 1223–1236. DOI: 10.1080/02770903.2017.1408820

## **RH SCN Grants:**

PI	Title	Funding Agency	Amount
Pendharkar S	Evaluating the impact of rural residency on continuous positive airway pressure usage in patients with obstructive sleep apnea	The Lung Association of Alberta and Northwest Territories National Grant Review	\$30,000

## Pending Grants:

PI	Title	Funding Agency	Request
Stickland MK, Sharpe H	Identifying early COPD using health administrative data	2019 Alberta Boehringer Ingelheim Collaboration (ABIC) Competition	\$100,000
Stickland MK	Breathe Easy Pulmonary Rehabilitation: Scale, Spread and Sustain	2019 Alberta Boehringer Ingelheim Collaboration (ABIC) Competition	\$260,000
Pendharkar S	Integrating primary and specialty care: development and evaluation of an innovative patient- centered model of care for sleep- disordered breathing	American Academy of Sleep Medicine Foundation 2019 Strategic Research Award	Up to \$250,000

## **Seniors Health SCN**

## SH SCN High-level Accomplishments:

The Scientific Office of the Seniors Health SCN continues to support activities to advance knowledge related to the health and well-being of seniors in Alberta. Activities within the Scientific Office pillars of "Research Capacity Building and Training" and "Engaging and Building Partnerships for Research and Innovation" are profiled below.

## Building Capacity for Research on Seniors' Health in Alberta

The Scientific Office creates research capacity-building opportunities by offering studentship competitions to the Alberta research community. The objective of this area of activity is to increase the number and ability of individuals undertaking high-quality research related to the Seniors Health SCN platform areas. The Scientific Office again offered an undergraduate summer studentship competition. Twenty-seven applicants from across the province applied, with projects addressing a diverse range of topics related to seniors' health; five high-quality applications were successful in the competition. In a newly developed opportunity, we offered a pilot post-secondary studentship competition. The objective of this competition was to expand the support offered to trainees in the province, extending beyond traditional baccalaureate programs. This competition strongly aligns with the Anticipating an Aging Alberta platform, engaging the future workforce in research or quality improvement projects related to seniors' health. Both the undergraduate and post-secondary studentship competitions serve to build research capacity among trainees and support research aligned with the SCNs platform areas.

## Alberta Dementia Research Futures (ADRF)

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The Scientific Office led the development of a provincial dementia research strategy to position Alberta as a leader in dementia research, promote the development of innovative solutions, and encourage the translation of research into practice to improve health outcomes for Albertans living with dementia. In a multi-method approach, a steering committee, informed by horizonscanning activities, guided the content of the framework. Consultation on the draft framework was then sought from an external reference group of dementia research stakeholders, as well as individuals with the lived experience of dementia. Their feedback was used to refine the current and future states and critical success factors crucial to the strategy's success. Broader stakeholders were consulted to discuss the most immediate action steps, which were outlined and included with the submission of the framework to Alberta Health for review and endorsement. The framework identified five key areas, each with specific aims for dementia research, innovation, and translation in Alberta over the next five years.

## SH SCN Peer-reviewed Publications:

## Published: SD/ASD/Leadership member as Author

- 1. Esmail R, **Hanson H**, Holroyd-Leduc J, Niven DJ, Clement F. 2018. Knowledge translation and health technology reassessment: identifying synergy. BMC Health Serv Res, 18(1): Article 674.
- Goodarzi Z, Hanson HM, Jette N, Patten S, Pringsheim T, Holroyd-Leduc J. 2018. Barriers and facilitators for guidelines with depression and anxiety in Parkinson's disease or dementia. Canadian Journal on Aging, 37(2):185–199. DOI: 10.1017/S0714980818000053

## Accepted/In Press: SD/ASD/Leadership member as Author

1. Mele B, Goodarzi Z, **Hanson HM**, Holroyd-Leduc J. 2019. Barriers and Facilitators to Diagnosing and Managing Apathy in Parkinson's Disease: A Qualitative Study. BMC Neurology, 19, Article 101.

## SH SCN Grants:

PI	Title	Funding Agency	Amount
Hair H, Holroyd- Leduc J	Improving Acute Care for Long-Term Care Residents: A Better Way to Care for the Frail Elderly in Times of Medical Urgency	Alberta Innovates PRIHS	\$1,232,755
Parmar J	Health Workforce Education and Training Resources to Recognize and Support Family Caregivers of Seniors in Care	CIHR Meetings, Planning and Dissemination Grants	\$18,000

PI	Title	Funding Agency	Amount
Holroyd-Leduc J	Improving supportive end-of-life care in long-term care: Exploring the changing role of family physicians in care teams	Canadian Frailty Network	\$51,190

## Surgery SCN

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## SSCN High-level Accomplishments:

## Evidence review on Improving Access to Surgery

The Surgery SCN submitted an application following the 2018-2019 call for proposals from Alberta Health. After relevant reviews and consultation process, the submission from Surgery SCN was accepted and the Health Technology Assessment group from the University of Alberta School of Public Health was commissioned to conduct an evidence review on improving access to surgery. The funding allocated for the review is \$370,635.

Findings from the review were presented to Alberta Health Services and the Alberta Health leadership team during the Surgery SCN core committee meeting in May 2019. Recommendations from their review have been incorporated in the new policy document (co-sponsored by AHS and AH), the **Alberta Surgery Initiative**, that will inform the Provincial Government's target to ensure that Albertans needing surgery will be able to receive it within four months by 2023 and marked reductions in wait times for patients will be evident by 2022.

# Surgery SCN and Physician Learning Program Research Collaboration on effective implementation of the National Surgical Quality Improvement Program

The Office of Lifelong Learning and Physician Learning Program (L3PLP) and the Surgery SCN have signed a memorandum of understanding to articulate a cooperative relationship regarding the National Surgical Quality Improvement Program (NSQIP) previously implemented at five pilot roll-out sites in each of the five Health Zones across Alberta, and for a detailed study of the roll-out to 5 of the additional 11 sites in the current phase of NSQIP implementation.

The Surgery SCN approached L3PLP for its expertise in implementation science, with a request that L3PLP support the evaluation of the Surgery SCN's implementation process for NSQIP. The project undertaken as part of this agreement will include an in-depth assessment of the implementation process of NSQIP at 5 of 11 sites in the current roll-out; with high-level support for monitoring at the remainder of the 11 sites.

Funds have been secured for this project, with the major contribution comings from L3PLP. A PhD-qualified Research Associate has been recruited and ethics approval has been granted by the University of Alberta Health Research Ethics Board. The project is underway with the following expected deliverables:

- 1. A detailed assessment of the common and unique facilitators and barriers to NSQIP implementation across five Alberta sites;
- 2. A description of effective (and ineffective) implementation processes (e.g.,

communication strategies, educational approaches, and team composition) for NSQIP across different sites, as they emerge in the data; Key findings will illuminate transferable principles to inform how and why implementation processes work best under which circumstances for which individuals; and

3. An assessment of the CFIR framework for NSQIP implementation in Alberta with an assessment of novel findings that may inform nuanced application of CFIR for this application.

## 2018-2019 Seed Grant Competition

Following a call for applications, the Surgery SCN received 29 applications. After a comprehensive review process, the top nine teams were selected to pitch their research proposals to the Surgery SCN Core committee in June 2018. The three finalists were as follows:

- Project Title: Refining Appropriateness of care using a novel prognostic biomarker for papillary thyroid cancer
  Principal Investigator: Oliver Bathe, Professor of Surgery and Oncology, Cumming School of Medicine, University of Calgary. Also affiliated with Arnie Charbonneau Cancer Institute and Tom Baker Cancer Centre, Alberta Health Services.
- Project Title: Pediatric hand fractures requiring specialist referral- Derivation and Validation of a clinical prediction rule
  Principal Investigator: Frankie Fraulin is currently the Site Chief of Surgery at the Alberta Children's Hospital and the Section Head of Pediatric Surgery in the Department of Surgery, University of Calgary Cumming School of Medicine and Alberta Health Services.
- Project Title: Enhanced Recovery in Cardiac Surgery: Initiation and Evaluation of Clinical Pathway Implementation
  Principal Investigator: Alexander Gregory is an Assistant Professor in the Department of University of Calgary Cumming School of Medicine and Alberta Health Services.

## **SSCN Peer-reviewed Publications:**

## Published: SD/ASD/Leadership member as Author

- Kumar A, Jovel J, Lopez-Orozco J, Limonta D, Airo A, Hou S, Stryapunina I, Fibke C, Moore RB, Hobman T. 2018. Human Sertoli cells support high levels of Zika virus replication and persistence. Scientific Reports, 8(1): Article 5477. DOI: 10.1038/s41598-018-23899-x
- 2. Sun B, Chapman DW, Gupta N, Mak A, Xiao Z, **Moore RB**. 2018. Bid Cleavage and TRAIL Sensitivity in Urothelial Cell Carcinoma of the Bladder. J Urol Nephrol, 5(1): 5.
- Brindle ME, Heiss K, Scott MJ, Herndon AC, Ljungqvist O, Koyle M. 2019. Embracing the Change- The Era for ERAS is Here. Pediatr Surg Int, 35(6): 631–634. DOI: 10.1007/s00383-019-04476-3
- 4. **Brindle ME**, Henrich N, Foster A, Marks S, Rose M, Welsh R, Berry W. 2018. Implementation of Surgical Debriefing Programs in Large Health Systems: An Exploratory Qualitative Analysis, BMC Health Serv Res, 18(1): 210. DOI: 10.1186/s12913-018-3003-3
- 5. Gibb A, Crosby MA, McDiarmid C, Urban D, Lam JYK, Wales PW, Brockel M, Raval M, Offringa M, Skarsgard E, Wester T, Wong K, de Beer D, Nelson G, **Brindle ME.** 2018. Creation of an Enhanced Recovery After Surgery (ERAS) Guideline for Neonatal Intestinal

Surgery Patients: A Knowledge Synthesis and Consensus Generation Approach and Protocol Study. BMJ Open, 8(12): e023651. DOI: 10.1136/bmjopen-2018-023651

- Gimon T, Almosallam O, Lopushinsky S, Brindle M, Yanchar NL. 2019. Optimizing Post-Operative Follow-up in Pediatric Surgery. Journal of Pediatric Surgery, 54(5); 1013–1018. DOI: 10.1016/j.jpedsurg.2019.01.045
- Harting MT, Hollinger L, Tsao K, Putnam LR, Wilson JM, Hirschl RB, Skarsgard ED, Tibboel D, Brindle ME, Lally PA, Miller CC, Kally KP. 2018. Aggressive surgical management of congenital diaphragmatic hernia - worth the effort? A multi-center, prospective, cohort study. Ann Surg, 267(5): 977–982. DOI: 10.1097/SLA.00000000002144
- Jancelewicz T, Brindle ME, Guner YS, Lally PA, Lally KP, Harting MT, Congenital Diaphragmatic Hernia Study Group, Pediatric Surgery Research Collaborative. 2019. Towards Standardized Management of Congenital Diaphragmatic Hernia: An Analysis of Practice Guidelines. J Surg Res, 243: 229–235. DOI: 10.1016/j.jss.2019.05.007
- Jancelewicz T, Brindle ME, Harting MT, Tolley EA, Langham MR, Lally PA, Gosain A, Storgian SA, Kays DW. 2018. Extracorporeal Membrane Oxygenation (ECMO) risk stratification in newborns with Congenital Diaphragmatic Hernia (CDH). J Pediatr Surg, 53(10): 1890–1895. DOI: 10.1016/j.jpedsurg.2018.04.014
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## **SSCN Grants:**

PI	Title	Funding Agency	Amount
Campbell-Scherer D	SCN – Life Long Learning Physician Learning Program U of A collaboration	University of Alberta	\$69,000
Menon D, Stafinski T	Evidence Review on Surgery Wait Times	Alberta Health	\$370,635
Nelson G	C-Section (ERAS Grant)	University of Calgary	\$25,000
Nelson G, Gramlich L	Enhancing Patients' Recovery After Surgery (ERAS) Strategy to Transform Care and Maximize Value	Alberta Innovates	\$750,000

## Strategic Clinical Network Research Performance Measurement Indicator Definitions

#### Operational Definitions of SCN Research Performance Measurement Indicators

The SCN Research Performance Measurement framework builds on the Canadian Academy of Health Sciences (CAHS) impact framework that demonstrates how research activity informs decision making, and ultimately results in changes in health and economic and social prosperity. The framework allows tracking health research impacts in five main categories: 1) advancing knowledge, 2) building capacity, 3) informing decision-making, 4) health impacts, and 5) broad socio-economic impacts. The work of the SCNs will primarily affect the first two domains. Indicators for domain 4, health impact, will be covered by the individual SCNs as these impacts vary depending on the SCN work and population focus. Indicators for domains 3 and 5 are challenging to identify and require ongoing discussion with the broader SCN community.

This document describes the definition of each indicator and sub-count to ensure consistent measurement across SCNs and time.

#### Domain: Advancing Knowledge

## **Indicator: Grant Applications**

Counts of any grants supported by the SCN submitted to a single competition (LOIs included). For funding calls that have an LOI stage and full application stage this will only be counted once: LOI submitted and not successful = unsuccessful. LOI submitted and successful but full proposal submitted and not successful = unsuccessful. LOI submitted but outcome unknown = pending. LOI submitted and successful and full proposal submitted but outcome unknown = pending. LOI submitted and successful and full proposal submitted and successful = successful. If an LOI comes with funding, this is considered a separate grant (i.e., rate the LOI as unsuccessful, pending or successful AND rate the full application as unsuccessful, pending or successful).

Provide a final count for each row (any grants, successful, unsuccessful, and pending), as well as sub-counts for those in which a) the SD/ASD/Leadership have been named role on the grant application, and b) any grants for which the SD/ASD/Leadership is not a named team member but has provided support (funds or in-kind support such as data liberation, content expertise, methods support). Letters of Support are not included as in-kind support.

## Indicator: Letters of Support

Count of Letters of Support provided to the SCN community on behalf of the SCN. This includes Letters of Support written by any member of the SCN Leadership team. Letters of Support are mutually exclusive from in-kind support in Grant Application Indicators (i.e., the count of letters of support is separate from and not included in in-kind support in Grant Application indicators).

## Indicator: SCN Research Network Membership

Count of researchers who self-identify as members of the SCN research community. This can include researchers on working groups, SCN projects, or part of the core committee; co-investigators of external competitions; and/or those researchers who self-identify as members of the SCN research community. Knowledge users on research grants are not included – the focus is on researchers and not the broader network community. Unless researchers request to be removed from database, they will continue to be counted as members even if the grant/project/WG is over.

## Indicator: CIHR Themes Representation

Count of researchers across the CIHR themes (I-IV) as self-identified by the researcher. Researchers are free to select as many themes as they feel are applicable to their work. If researchers don't self-identify themes, the ASD will assign. Note: the number of reported pillars will be higher than the number of research members because researchers can select more than one theme.

Provide a total count for each pillar (Biomedical, Clinical, Health Services, and Public, Population, and Community Health Research themes), as well as a sub-count by researcher affiliation for University of Alberta, University of Calgary, University of Lethbridge, Alberta Health Services, and Other using the researcher's primary affiliation.

## Indicator: Peer Reviewed Publications

Count of peer-reviewed publications aligned with the subject matter and/or priorities of the SCN, assigned by current publication status (published, in-press/accepted, and submitted).

Provide a total count for each publication status, as well as a sub-count of publications a) with the SD, ASD, or Leadership on the author line, b) generated with financial support from SCN (e.g. seed grants, commissioned work, workshops), and c)with significant in-kind contributions from SCN (e.g. data pull, data analysis).

## **Domain: Building Research Capacity**

#### Indicator: Trainee supervision

Count of trainees supervised by the SD, ASD or Leadership related to an SCN priority project. Supervision refers to trainees that are supervised as part of a formal academic program.

Provide a total count as well as a sub-count for trainees at each of the following levels: a) Undergraduate – Summer Student Project Only, b) Undergraduate, c) Master's, d) PhD, e) Resident Research Project, f) Post-Doctoral (PhD) Fellowship, g) Post-Doctoral (MD) Fellowship, and h) Clinicians.

## Indicator: Trainee mentorship

Count of trainees mentored by the SD, ASD or Leadership related to an SCN priority project. Mentoring refers to trainees that are not supervised as part of a formal academic program.

Provide a total count as well as a sub-count for trainees at each of the following levels: a) Undergraduate – Summer Student Project Only, b) Undergraduate, c) Master's, d) PhD, e) Resident Research Project, f) Post-Doctoral (PhD) Fellowship, g) Post-Doctoral (MD) Fellowship, and h) Clinicians.

## Indicator: Trainee funded

Count of trainees funded by the SCN but not supervised by the SD/ASD/Leadership (e.g., SCN Studentship Competitions, SD Budget, PRIHS, other SCN-related funding mechanisms) and related to an SCN priority project.

Provide a total count as well as a sub-count for trainees at each of the following levels: a) Undergraduate – Summer Student Project Only, b) Undergraduate, c) Master's, d) PhD, e) Resident Research Project, f) Post-Doctoral (PhD) Fellowship, g) Post-Doctoral (MD) Fellowship, and h) Clinicians.

## Indicator: Research personnel

Count of research personnel funded by the SCN by grant dollars or other SCN funding mechanisms <u>and</u> supervised by the SD, ASD or Leadership.

#### Indicator: Summer studentships

Count of summer studentships awarded (not launched) in this fiscal year.

Provide a total count as well as a sub-count by university affiliation to which the dollars were awarded (for University of Alberta, University of Calgary, and Other).

Sum of total dollar amount awarded to summer studentships in this fiscal year. List matching funds in brackets.

Provided a total dollar amount as well as a sub-count by university affiliation to which the dollars were awarded (for University of Alberta, University of Calgary, and Other).

#### Indicator: Seed grants

Count of seed grants awarded (not launched) in this fiscal year.

Provide a total count as well as a sub-count by university affiliation to which the dollars were awarded (for University of Alberta, University of Calgary, and Other).

Sum of total dollar amount awarded to seed grants in this fiscal year. List matching funds in brackets.

Provided a total dollar amount as well as a sub-count by university affiliation to which the dollars were awarded (for University of Alberta, University of Calgary, and Other).

#### Indicator: Other grants

Count of other grants (such as commissioned research) awarded (not launched) in this fiscal year.

Provide a total count as well as a sub-count by university affiliation to which the dollars were awarded (for University of Alberta, University of Calgary, and Other).

Sum of total dollar amount awarded to other grants in this fiscal year. List matching funds in brackets.

Provided a total dollar amount as well as a sub-count by university affiliation to which the dollars were awarded (for University of Alberta, University of Calgary, and Other).

**Domain: Informing Decision Making** 

#### Indicator: Evidence to inform decision-making

[No indicators can be measured at this time; further consultation required]



## **Domain: Health Impacts**

#### Indicator: Impacts on health system and/or health outcomes

[No indicators can be measured at this time; further consultation required]

## **Domain: Broad Economic and Social Impacts**

#### Indicator: Impacts on economic and/or social constructs

[No indicators can be measured at this time; further consultation required]

#### Attachments:

The following will be reported as an appendix accompanying the performance measurement indicators:

1) Publication list: complete citations of all published and in-press/accepted publications (do not include publications that were done outside of the official ASD role).

**Format for citation**: Langevin LM, MacMaster FP, Crawford S and Dewey. 2015. Distinct patterns of cortical thinning in children with concurrent motor attention disorders. Dev Med Child Neurol, 57(3):257-64.

2) Grant list: complete citations (PI, title, funding agency, duration of grant, amount) of all successful and pending grants

**Format for citation:** Doe J. Implementing an evidence-based approach to practice change. CIHR, March 2017 – February 2019, \$570,000.