Ontario SPOR SUPPORT Unit



Interim Evaluation

27 April 2017



OSSU: Interim Evaluation

Table of Contents

Interim Evaluation Summary	iii-viii
Interim Evaluation Report	1-79
Appendix	80-110



OVERVIEW: OSSU'S HEALTH RESEARCH IMPACT

With the aim of driving continuous improvement through evidence-based decision-making, the Ontario SPOR SUPPORT Unit (OSSU) commissioned the development of a tailored, enduring evaluation tool and the completion of a mid-term assessment of its performance and impact.

In addition to demonstrating OSSU's notable progress against its three strategic goals (*see Evaluation Highlights* for additional details), the interim evaluation has highlighted the ways in which OSSU has impacted health and patient-oriented research (POR) in Ontario by¹:

Advancing Knowledge OSSU's support has resulted in **14 peer-reviewed articles** and **13 communiqués**; **1 pending patent** (i.e. Patient-Engaged Evaluation Tool); **2 technologies** (including a mobile app for self-harm treatment and an online eLearning tool); and **6 knowledge translation tools/products** (e.g. multi-language newborn pain videos).

Building Capacity Through its tools, resources and programs, OSSU has *empowered stakeholders* with an understanding of the value of patient engagement, and how to conduct **POR** and apply knowledge translation theory to implement change. OSSU's investments in ICES and CTO have also facilitated POR and helped generate meaningful outputs to improve Ontario's health system.

Informing Decision-Making OSSU is *beginning to transform how stakeholders think about, view, conduct and participate in POR*, and is already helping to shape processes, policies and practices across Ontario—including *7 health practice improvements to date* (e.g. youth engagement strategy on access to mental health services) and *5 practices/policy recommendations under development*.

Creating Health, Social and Economic Impacts While it is too early to observe the broader effects of the Province's enhanced POR infrastructure, stakeholders identified **several OSSU-enabled projects that have the potential for future impact**, including **MyTEMP**—personalized dialysis temperatures; **HIP ATTACK**—accelerated post-surgical care, **Patients Canada**—use of patient-reported outcomes in emergency rooms; and **CLEAN Meds**—provision of free medications to improve adherence in individuals of lower socioeconomic status.

"OSSU has generated a different understanding of POR with its course leadership, conferences and annual research days; [OSSU is] really bringing together researchers and stakeholders to enhance POR across Ontario"

Dr. Bob Bell Deputy Minister Ontario Ministry of Health and Long-Term Care OSSU is transforming the way that patient-oriented research is conducted across Ontario and establishing a strong foundation for the translation of evidence-based research into improved health system practices and patient outcomes.

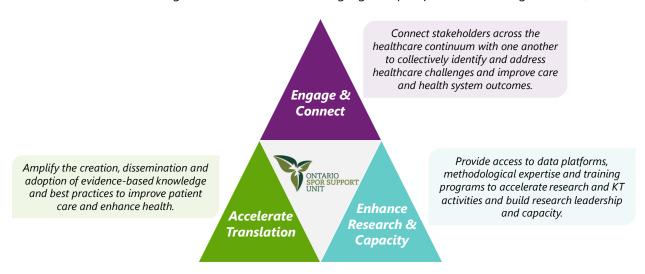
¹ Areas of impact aligned with the Canadian Academy of Health Sciences' (CAHS) framework for measuring returns on investment of health research.



BACKGROUND TO THE INTERIM EVALUATION

The Canadian Institutes of Health Research (CIHR) Strategy for Patient-Oriented Research (SPOR) was established in 2011 to foster a patient-centred approach to research and care that engages patients as research partners; focuses on developing solutions to patient-identified priorities; and aims to improve patient outcomes through evidence-informed healthcare. Central to the execution of this strategy was the creation of provincial and territorial Support for People and Patient-Oriented Research and Trials (SUPPORT) Units—including OSSU in Ontario—to provide local stakeholders with infrastructure, resources and expertise to advance POR and help enhance the translation of high-quality research into real-world impact.

A collaboration of twelve leading health research centres across Ontario, supported by a coordinating centre, OSSU has been designed to achieve three strategic goals (paraphrased in the figure below)²:



Seeking to establish a resource to guide evidence-based decision-making and gain insight into its performance at the midpoint of its initial funding cycle, OSSU engaged Shift Health—a consultancy focused exclusively on the health and life sciences sector—to develop and pilot a tailored evaluation tool. The evaluation tool was developed in such a way to allow individual OSSU-enabled initiatives (e.g. workshops, training programs, consultative services) to be assessed using predetermined metrics—allowing for a granular view of its core activities, and for metrics to be aggregated across broader dimensions (i.e. OSSU's strategic goals, CAHS' health impact)—providing a higher-level view of OSSU's organizational performance.

To pilot the tool, Shift Health collected quantitative and qualitative information through:

- Information request forms distributed to organizers/leads of key OSSU initiatives;
- Online surveys, including one focused on the "Impact of OSSU's Research Funding" (distributed to Principal Investigators receiving IMPACT Award or Demonstration Project funding) and another focused on the "Impact of OSSU's Initiatives" (distributed to a broader network of stakeholders); and
- Done-on-one consultations with OSSU Leadership, patients/community partners, government stakeholders/advisors and researchers/clinicians.

This interim evaluation has enabled OSSU to take stock of its performance to date and generate insights than can inform future decisions on how best to achieve both OSSU-specific and broader SPOR goals.



² For specific details on OSSU and its strategic goals, please refer to OSSU's website (www.ossu.ca).

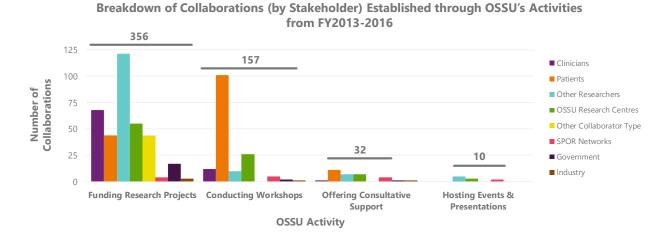
EVALUATION HIGHLIGHTS: PROGRESS AGAINST OSSU'S STRATEGIC GOALS

Key findings from quantitative and qualitative information gathered from 35 information request forms, 61 online surveys and 25 one-on-one consultations are presented below as an assessment of OSSU's progress against its three strategic goals.



OSSU has facilitated multi-sector, multi-disciplinary relationships among stakeholders that otherwise would not have been possible, and has promoted resource and expertise sharing among collaborators to support and enhance research activities.

OSSU has enabled the establishment of 555 collaborations and encouraged sustained relationships among researchers, clinicians, patients and policy-makers. OSSU-funded research projects (64%) and workshops (28%) have provided the best platforms for establishing collaborations around POR.



- Meaningful patient engagement was recognized as a key differentiator of OSSU—28% (156) of the collaborations established through OSSU's initiatives were with patients, including 1 in 12 collaborations formed in support of research activities.
- OSSU's activities are also actively promoting the meaningful integration of Ontario's POR priorities (i.e. Sex & Gender, Indigenous and Francophone issues); 84% of OSSU initiatives incorporated at least one of these priorities, while 25% incorporated all three into their objectives and outputs.

"Since OSSU works with the Federal Government and with the Ministry of Ontario—they are aligned with priorities. They also, unlike any other network I have worked with in my entire career, are very good at actually getting involved and encouraging uptake of these [POR] priorities and creating connections with policy-makers."

Researcher





OSSU's initiatives are viewed as valuable resources for providing the skills necessary for stakeholders to engage in POR, and its direct investments in the health research process—through funding POR and enhancing infrastructure—have increased the Province's capacity to conduct cutting-edge health research.

OSSU's initiatives have been accessed/utilized more than 45,000 times over the past three years:

41,387	Times OSSU-enabled tools and resources have been used, including 30,000 hits on the Capacity Building Compendium
1,869	Stakeholders who received training through OSSU's training programs and courses
1,815	Requests for consultative support services
<i>680</i>	Attendees of OSSU-sponsored events and presentations
458	Workshop participants—including 116 participants in the Sex & Gender Workshop
325	Requests for <i>ICES data</i> through Data & Analytic Services (30 completed requests)

Stakeholders feel that the knowledge and skills gained through OSSU's initiatives have greatly enhanced their capacity to advance/participate in POR. The Masterclass in the Conduct and Use of POR—a training course intended to empower stakeholders to champion and support POR and care across Ontario's health system—was lauded as an invaluable resource and was recently translated into a condensed version for Assistant Deputy Ministers across various Provincial Government ministries who requested POR training.

What will you do differently based on what you learned from the Masterclass?

Patients:

- » "Be a champion for POR"
- "Present this information to my own agency and suggest conducting our own research on our population"

Researchers:

- "Provide facilitation and support to show researchers that it is not scary to start [patient engagement]"
- "Reach out to individuals met here for expertise/advice"

Policy-Makers:

- "Seek patient-oriented research in policy development"
- "Try to change the status quo on these issues within my organization"

OSSU funding (\$17M for IMPACT Awards and Demonstration Projects) and infrastructure investments (e.g. ICES' Data & Analytic Services and more than 40 new linked datasets, including health data for Indigenous populations) have unlocked and empowered POR efforts. "The DAS platform from our perspective is a piece that we have the most direct feedback on...we hear about people using it, it has made data analytics available to a wider range of people that has not existed before. It is clearly a strength and central to OSSU's mission."

Government Stakeholder





OSSU has created processes and structures that raise awareness around knowledge translation and will assist researchers in translating evidence into practice.

- OSSU has developed and implemented a number of mechanisms to ensure knowledge translation and dissemination is top-of-mind for stakeholders:
 - ♦ **Knowledge translation requirements for funding support**—in addition to demonstrating collaboration and integration of Ontario's POR priorities, applicants are required to include detailed knowledge translation plans that show how results will be translated into practice.
 - ◆ Tools, programs and services focused on knowledge translation—OSSU has helped create both one-off and enduring resources and services (e.g. training on knowledge translation and implementation science methods, Knowledge Translation & Exchange [KTE] consultative services) that provide stakeholders with support in understanding and conducting knowledge translation activities.
 - Events and presentations on research impact—OSSU organizes various meetings and events (e.g. OSSU/MOHTLC Research Day) to showcase research results that have been implemented and to share best practices among stakeholders.
 - Regular and ad hoc engagement with researchers—OSSU actively engages with researchers
 and facilitates interactions with decision-makers to ensure that the research aligns with
 Provincial health priorities.
- Stakeholders recognize the importance OSSU has placed on ensuring that knowledge translation practices are embedded within ongoing research and training efforts.

"[The] KTE Support Service helped me to apply for a grant [by providing support in] preparing a knowledge translation plan and [identifying the] methodology required to answer [our specific] knowledge translation research question."

Researcher



OPPORTUNITIES FOR OSSU

Moving forward, OSSU has an opportunity to build on its core investments in infrastructure, resources and programs through targeted efforts that will advance its organizational mandate, enhance POR across the Province and, ultimately, achieve health, social and economic impact by:

- Strengthening existing relationships and facilitating new ones to enhance participation and impact, particularly with patients/communities and priority groups (e.g. Indigenous communities, Chiefs of Ontario), SPOR Networks, and the private sector/potential receptors of health innovations.
- Broadening outreach efforts to ensure OSSU is maximizing its impact and helping to build capacity across all of Ontario (e.g. Northern/remote regions) and with as many stakeholders as possible (e.g. other SUPPORT Units, SPOR Networks).
- Building on processes and structures already established to ensure findings are translated and disseminated to achieve health impact—focusing on greater/sustained relationships with policy-makers to ensure that OSSU's early-stage outputs (e.g. new knowledge through publications, patents and technologies) are integrated into health policies and practices, and that broader organizational priorities are aligned.
- Improving communication and dissemination of information to ensure OSSU's goals, objectives and support services are well known, stakeholder expectations are met (e.g. patient partners), and to avoid duplication of patient engagement efforts with other initiatives.

NEXT STEPS

OSSU has established a tailored, useful and enduring evaluation tool that has already identified key insights on the organization's performance and impact to date, as well as uncovered lessons learned to enhance future activities. As OSSU continues to invest in gathering evidence to inform its decision-making processes, it must look to:

- Refine the evaluation tool based on lessons learned from this interim evaluation;
- Establish the infrastructure and methodology within the organization to engage in regular evaluations to understand progress and inform decision-making; and
- Engage in a robust environmental analysis, deeper internal analysis and benchmarking exercise to complement findings from the interim evaluation and support the development of an updated fiveyear strategic plan.



Ontario SPOR Support Unit



Interim Evaluation Report

27 April 2017

Charles Khoury

Engagement Leader

Dr. Adrian Snihur

Senior Consultant

Dr. Marni Williams

Analyst

Ritesh Daya

Analyst



The material contained in this document is strictly confidential and the sole property of Shift Health. Beyond distribution to internal recipients for appraisal, this document may not be reproduced In whole or in part for any purpose without the express written permission of Shift Health.

Table of Contents

	Topic	Slide
1.	Executive Summary	3
2.	Introduction	11
3.	Performance Measurement Framework and Evaluation Tool	15
4.	Interim Evaluation	26
	Introduction to the Approach	27
	Progress Against OSSU's Strategic Goals	31
	Achieving Impact	61
5.	Key Takeaways and Considerations	71
6.	Appendix	80
	Performance Measurement Framework—Additional Details	81
	Complete List of OSSU Initiatives Included in this Evaluation	85
	Evaluation Tool—Additional Details	93
	Information Gathering—Additional Details	104



Executive Summary



The Ontario SPOR Support Unit (OSSU) sought to conduct an interim organizational evaluation to assess performance to date, guide future decision-making and better position OSSU to achieve impact.

Shift Health developed a tailored approach and functional Evaluation Tool to support OSSU in collecting quantitative and qualitative information to assess its performance and impact. The tailored Evaluation Tool is grounded in the following three principles:

- The Evaluation Tool is organized by core Activities that encompass all OSSUrelated Initiatives.
- A **predetermined set of Metrics** associated with each core Activity are used to assess specific Initiatives.
- Metrics and specific Initiatives are mapped across key cross-cutting parameters to enable customizable and cross-Activity evaluation of information gathered.



Shift Health piloted the Evaluation Tool to catalogue a baseline of key metrics and assess OSSU's impact to date.

- Quantitative data and qualitative insights for identified Metrics were gathered through three approaches:
 - **Information request forms** for each Initiative were distributed to identified organizers/leads to gather pre-existing and new information for Initiatives.
 - Online surveys were created to collect in-depth information on the impact of OSSU's research funding and specific Initiatives.
 - Consultations were conducted with OSSU Leadership, government stakeholders and decision-makers, researchers/clinicians and patients to gather narratives/vignettes around OSSU's impact.
- **Key findings** were analyzed and reported as an assessment of OSSU's **progress** against its strategic goals and impact on health research:
 - Strategic goals—engage and connect, enhance research and capacity, and accelerate translation
 - Impact—advancing knowledge, capacity-building, informing decisionmaking, health impacts, and social/economic impacts.



Engage & Connect: Key Findings

OSSU has facilitated the establishment of over 500 multi-stakeholder, multisector collaborations (of which 156 are with patients), and encouraged ongoing relationships among researchers, clinicians, patients and policy-makers.

Collaborations facilitated by OSSU—in particular, via **Strengthening** Workshops—have promoted resource and expertise sharing to increase the Province's **capacity to conduct research**.

While OSSU has successfully encouraged researchers to **integrate** patients/communities into research efforts, an opportunity exists to increase the number and diversity of patients/communities involved.



Enhance Research & Capacity: Key Findings

- **OSSU-enabled Initiatives**—such as workshops, tools & resources, training courses and consultative support services—have been accessed/utilized more than 45,000 times by stakeholders over the past 3 years.
- OSSU Initiatives are viewed as valuable resources for providing skills and training in patient-oriented research—the Masterclass in the Use and Conduct of POR, in particular, has helped stakeholders implement these principles.
- OSSU funding (\$17M for IMPACT Award/Demonstration Projects) and infrastructure investments (e.g. ICES' Data & Analytic Services and more than 40 new linked datasets) have empowered researchers to conduct POR in ways that were not previously possible.
- An opportunity exists to raise awareness and broaden the reach of the available POR resources for use across Ontario (e.g. Northern Ontario) and beyond (e.g. other SUPPORT Units, SPOR Networks).





OSSU has created processes and structures that raise awareness around KT and has provided researchers with the necessary skills to translate evidence into practice and to disseminate knowledge.

Sustained engagement of stakeholders throughout the research and KT process will be critical to maintaining momentum, continuing to build capacity and ensuring that OSSU's early efforts achieve impact across Ontario's health system.



Health Impact Metrics: Key Findings



OSSU's support has resulted in **35 tangible research** outputs (e.g. peer- and non peer-reviewed publications*, new technologies and KT tools), as well as 13 potential outputs in various stages of development (e.g. publications drafts, patents pending); further, OSSU's Initiatives have successfully facilitated knowledge-sharing by bringing together diverse stakeholders around POR.





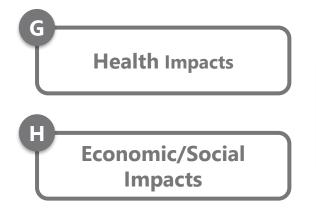
Through its tools, resources and training programs, OSSU has transformed how researchers conduct research, and supported successful POR.



Health Impact Metrics: Key Findings (Cont'd)

Informing Decision-Making

OSSU's reach and hands-on approach is changing the culture of research and setting the stage for informed decision-making by end-users; OSSU-enabled research has generated 7 improvements to health practices to date, with 2 health practice and 3 policy updates/recommendations still being explored.



While OSSU has made significant strides in advancing POR, it is too early to observe broader health, social and economic impacts, though stakeholders identified several potential projects that may have a beneficial **impact in the future** (e.g. MyTEMP, HIP ATTACK, Patients Canada, CLEAN Meds).



Introduction



Impetus

Established as a collaboration among 12 leading health Research Centres supported by a Coordinating Centre, the Ontario SPOR SUPPORT Unit (OSSU) represents **Ontario's** contribution to the national SPOR program to improve health outcomes and enhance patients' healthcare experiences by integrating patient-oriented research (POR) at all levels of the healthcare system.

Appreciating the importance of continuous improvement—particularly at the midpoint of its inaugural funding cycle—OSSU sought to conduct an *interim organizational evaluation*.

Shift Health was engaged to support the development of an enduring Evaluation Tool that will assess performance to date, quide future decision-making and better position OSSU to achieve impact.



Project Approach

October

October – January

February - March

March – April

Kick-Off & **Ongoing Project** Management





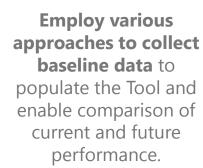
Data Gathering

Final Report Development

Review project objectives, timelines and deliverables, and discuss and refine the preliminary Performance **Measurement Evaluation** framework.

Deliverables

Gather feedback on the evaluation Tool from the OSSU Working **Groups** to refine/finalize, and create an engagement plan to guide data collection.



Develop a report with key findings, insights on OSSU's impact and future considerations, and create a companion **document** to guide the application of the Tool.



- Performance Measurement **Evaluation Tool (framework** and Excel-based)
- Stakeholder Engagement Plan (stakeholder types, number to be engaged and tactics)



- Preliminary Insights Report (key findings from the stakeholder engagement)
- Interim Evaluation of OSSU's *impact* (final report)
- Performance Measurement **Evaluation Tool populated** with baseline data
- Companion Document for the **Evaluation Tool**



The Current Report

The following report describes the general principles driving the interim evaluation of OSSU's activities, presents key findings illustrating OSSU's progress against its strategic goals and impact on POR, and highlights preliminary considerations for OSSU as it continues its evolution and integration into Ontario's health research environment.



Performance Measurement Framework & Evaluation Tool



Overview of the Performance Measurement Framework

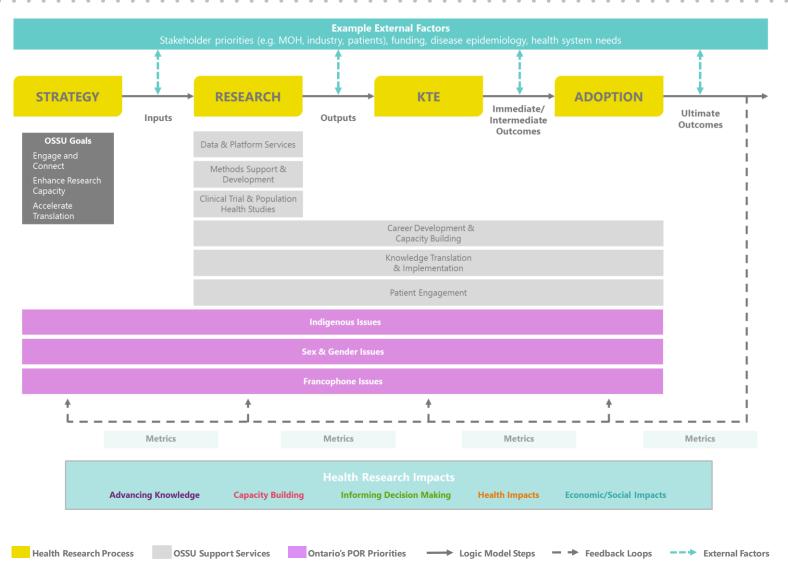
Reflecting on the merits of the theory of change model, and the Payback and Canadian Academy of Health Sciences (CAHS) frameworks, Shift Health created a **Performance Measurement Framework for OSSU that:**

- Presents **key stages** of the health research and knowledge translation (KT) process, and highlights relationships between inputs/outputs across stages and the ultimate outcomes/impact of the process;
- Maps OSSU's core support services to each stage within the health research and KT process; and,
- Defines meaningful **metrics** for measuring impact at the various stages of the health research and KT process.

By mapping the theory of action for OSSU across the health research process, this framework will help OSSU interpret key findings from its interim—and future evaluations and begin to understand the impact of its activities and decisions.



Schematic Representation of the Performance Measurement Framework





While the Performance Measurement Framework provides OSSU with a general understanding of the relationship between its environment and impact—and, ultimately, a framework with which to interpret the impact of its activities—it does not naturally lend itself to an efficient data collection and analysis process.

As such, Shift Health developed a tailored approach and functional Evaluation Tool to support OSSU in collecting quantitative and qualitative information to assess its performance and impact.



Principles of the Evaluation Tool

The tailored Evaluation Tool is grounded in the following three principles:

- The Evaluation Tool is **organized by core Activities** that encompass all OSSUrelated Initiatives.
- A **predetermined set of Metrics** associated with each core Activity will be used to assess **specific Initiatives**.
- Metrics and specific Initiatives will be mapped across key cross-cutting parameters to enable customizable and cross-Activity evaluation of information gathered.

These principles allow for a streamlined, yet robust, Evaluation Tool that will enable repeatable assessments and provide multiple layers of analysis to evaluate OSSU's performance and impact.



The Evaluation Tool will be fundamentally organized by a core set of Activities that reflect OSSU's unique value-add to advancing Ontario's health research environment.

Core Activity

Description

Conducting Workshops

Bringing together stakeholders in an interactive setting to facilitate collaboration, build capacity and advance the POR agenda.

Funding Research Projects

Investing in areas of health research that are aligned with Canada's SPOR and the Ministry of Health and Long-Term Care's priorities.

Creating Tools and Resources

Developing and facilitating access to educational tools and resources to support health research.

Hosting Events & Presentations

Creating forums that assemble members of the health research community to showcase POR, and share best practices, lessons learned and updates on POR topics.

Enhancing POR Infrastructure

Investing in Ontario's health research infrastructure to improve the foundation for POR in the Province.

Providing Training

Enhancing the capacity of stakeholders to successfully engage in POR by transferring knowledge and equipping them with specialized skillsets.

Offering Consultative Support

Providing expert advice and guidance on POR topics to respond to a variety of needs and/or questions from stakeholders throughout Ontario's health system.



The performance and impact of the core Activities will be assessed through specific Initiatives enabled by OSSU—either 'one-off' or ongoing.

Core Activity

Specific Initiatives*

Conducting Workshops

Strengthening Workshops, First Nations Health Research Agenda, Patient Partnership Workshops, Data Methods Workshops

Funding Research Projects

> IMPACT Awards, Demonstration Projects (i.e. Ontario Stroke Network, Patients Canada)

Creating Tools and Resources

Capacity Building Compendium, Online resources for Sex & Gender-based Analysis, Child Health Data Inventory

Hosting Events & Presentations

SSU/MOHLTC Research Day, Best Brains Exchange, OSSU Showcase

Enhancing POR Infrastructure

Data & Analytics Services (DAS), Research Ethics Board (REB) Qualification Program

Providing Training

Masterclass on the Conduct and Use of POR, Patient Engagement in Research Training Series, Drug Policy Training Program

Offering Consultative Support

> Sex & Gender Research Support Service, Methods Development in Patient-Oriented Research, Support in Francophone Research Service



A set of quantitative and qualitative Metrics will be applied to the specific Initiatives within each Activity, enabling OSSU to assess performance within an Activity or understand broader impact across a set of Activities.



EXAMPLE: Performance Metrics for Conducting Workshops

Core Activity

Conducting Workshops

Performance Metrics

Quantitative

- # of participants at the Workshop (by stakeholder type)
- # of formal collaborations created as a *direct* result of the Workshop (with OSSU Research Centres, SPOR Networks, clinicians, patients, policy-makers, industry)
- ◆ # of formal collaborations created *indirectly* through a connection/collaboration established as a result of the Workshop
- Participant satisfaction (score and rationale)—ability to establish valuable relationships, knowledge gained to enhance capacity to advance/participate in POR, skills provided to translate evidence into practice and disseminate knowledge

Qualitative

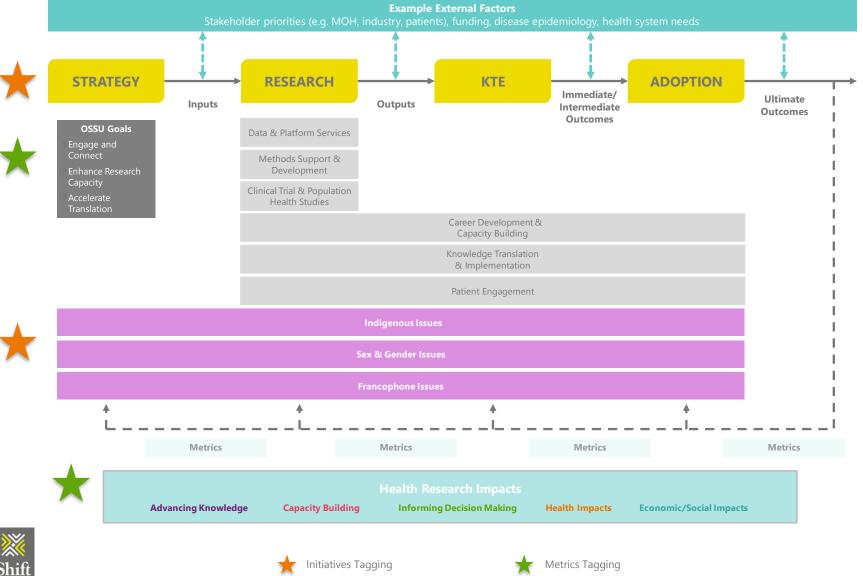
- Description of the objective(s) of the Workshop
- Description of high-impact collaborations created as a direct result of Workshop
- ◆ Description of the ways in which Ontario's POR priorities (i.e. Indigenous, Sex & Gender and Franco[phone issues) have been integrated into the Workshop
- Description of the knowledge/skills gained as a result of the Workshop



In order to offer a comprehensive and customizable view into OSSU's value-add to the patient-oriented research environment, Initiatives and Metrics will be mapped across various components of the performance evaluation framework.



Initiatives were tagged to reflect alignment with stages of the research process and relevance to Ontario POR priorities; Metrics were tagged to reflect alignment with OSSU's strategic goals and health research impacts.



Interim Evaluation



INTRODUCTON TO THE APPROACH



Quantitative data and qualitative insights for identified Metrics were gathered through three approaches.

Approach

Information Request **Forms**

Description

Tailored forms for each Initiative containing key Metrics were distributed to identified organizers/leads to gather pre-existing and new information for Initiatives

Online Surveys

Two online surveys were created to **collect in-depth** information on the impact of specific Initiatives— "Impact of Research Funding" (targeting 18 PIs receiving funding) and "Impact of OSSU's Initiatives" (targeting a broader network of stakeholders)

Consultations

One-on-one consultations were conducted with OSSU Leadership, government stakeholders, researchers/ clinicians and patients to gather narratives/vignettes around OSSU's impact

Data Collected

35 Initiative forms (out of 37)

61 Online surveys— 14 "Research Funding" and 47 "OSSU Initiatives"

25 Stakeholders



Key findings were analyzed and reported as an assessment of OSSU's progress against its strategic goals and impact on health research.

Analysis

- **Quantitative data** from information request forms and online surveys were consolidated into the Excel-based Evaluation.
 - Raw outputs (e.g. graphs, tables) were created for specific Metrics to observe patterns in the data collected.
- **Qualitative insights** gathered through the three approaches were compiled into an interactive Word document, identifying the origin (i.e. stakeholder) of each insight.
 - Insights (along with quantitative data) were used to begin to identify relevant findings.

Synthesis

The **most relevant findings based on Metrics tagging**—OSSU's Strategic Goals and Health Research Impacts—were synthesized and presented.



Caveats

- The findings presented in this report are based on information that has been received up to 7 April 2017.
- In certain instances, information for specific Initiatives and/or Metrics was either not provided or is partial/incomplete.
- Unless otherwise indicated, quantitative findings are reflective of data gathered from FY2013-14 to Q3 of FY2016-17.



PROGRESS AGAINST OSSU'S STRATEGIC GOALS



OSSU's Strategic Goals

Engage & Connect

Connect stakeholders across the healthcare continuum with one another to collectively identify and address healthcare challenges and improve care and health system outcomes. 3

Enhance Research & Capacity

Provide access to data platforms, methodological expertise and training programs to accelerate research and KT activities and build research leadership and capacity.

C

Accelerate Translation

Amplify the creation, dissemination and adoption of evidence-based knowledge and best practices to improve patient care and enhance health.



Engage & Connect: Key Findings

OSSU has facilitated the establishment of multi-stakeholder, multi-sector **A1** collaborations and encouraged ongoing relationships among stakeholders.

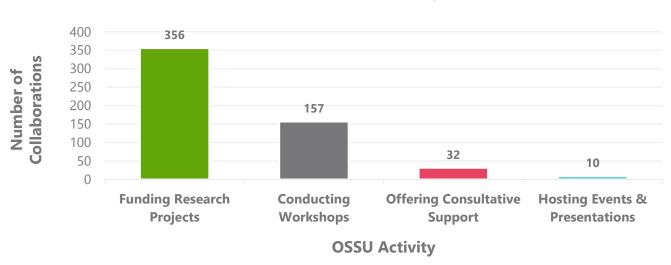
Collaborations facilitated by OSSU have promoted resource and expertise (A2) sharing to increase the Province's capacity to conduct research.

While OSSU has successfully encouraged researchers to integrate patients/communities into research efforts, an opportunity exists to increase the number and diversity of patients/communities involved.



A number of collaborations have been established as a result of OSSU's **Activities**.

Collaborations Established through OSSU Activities



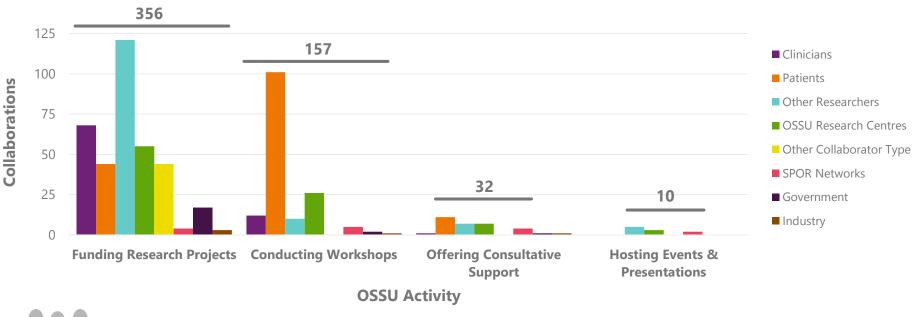
- 555 collaborations have been established as a direct result of OSSU's Activities.
- Funded Research Projects (64%) and Workshops (28%) have provided the best platforms for establishing new collaborations related to health and POR research.
- The **sustained impact** of OSSU's role in facilitating collaborations is evident by the **24** collaborations established as an indirect* result of its Workshops.



Number of

OSSU's Activities have enabled stakeholders to establish collaborations with individuals across sectors and stakeholder types, including patients, government stakeholders, clinicians and other researchers.

Breakdown of Collaborations (by Stakeholder) Established through OSSU's Activities





"Research teams are working together in ways we have not seen before. That is definitely because of OSSU—they have done a great job connecting the research community."

"OSSU has managed to get a lot of organizations to work together, typically they would be doing their own things, but with OSSU there is a push to collaborate, a lot of cross-organization interactions [which has] allowed for the formation of new relationships."





Real-World Example: OSSU-funded research projects, in particular, are effective in establishing collaborations that span multiple stakeholder types.1

	Research Centres	Other Researchers	Patients	Government	Clinicians	Other ²	SPOR Networks	Industry
Project #1	✓	✓	Working with parents of children aged 0-5		✓			
Project #2	✓	✓	✓		✓			
Project #3	✓	✓	✓		✓	✓		
Project #4	✓		✓	✓			✓	
Project #5	✓	✓	✓	✓	✓			
Project #6	✓	✓	Working with a patient advisory group through COO	✓		✓	✓	
Project #7	✓	✓	✓		✓	✓		✓
Project #8	✓		✓	✓	✓	✓		✓
Project #9	✓	✓	✓	✓			✓	
Project #10	✓	✓	Working with First Nations youth and community leaders	✓	✓	✓		
Project #11	✓	✓	✓	✓				
Project #12	✓	✓	✓	✓	✓	✓	✓	
Project #13	✓		✓	✓	✓			✓



¹ Data based on 13 responses received from Principal Investigators to the "Impact on Research Funding" survey.

² "Other" collaborations include community health organizations, national charities advocacy groups and non-patient partners.

OSSU's role in funding research and providing ongoing research support is critical for driving and sustaining meaningful collaborations.



"OSSU [has been effective] in getting organizations/individuals that weren't previously familiar with one another to become familiar and start working together; a cultural change."

"It feels like OSSU has become an essential service! The quality of collaborations like this can't be done without a network like OSSU."

"Doing POR is inevitable—without OSSU it would be hard."



Researchers

"OSSU plays a significant role in ensuring high-frequency, meaningful contact between the research team and policymakers to ensure the research addresses. and finds actionable solutions to, pressing health challenges."



(1=strongly disagree, 5=strongly agree)

Survey respondents **agree** that the OSSU's workshops and training programs increase the ability to **establish valuable** relationships.*



Despite recognized strengths in engaging and connecting stakeholders, there is an opportunity for OSSU to strengthen connections in certain areas.

- Integration of industry and other private sector players (potential receptors of **innovations)** as participants in OSSU-enabled Initiatives is **generally lower** than other identified stakeholder types.
- Stakeholders noted that while **OSSU's funding selection process** was **effective in** encouraging researchers to collaborate with decision-makers, it can be expanded to enable deeper integration of decision-makers.
- Several stakeholders noted an opportunity for greater collaboration with and integration of SPOR Networks into OSSU's Activities to avoid duplication of efforts (e.g. development of patient engagement and KT plans) and ensure OSSU's impact is being felt across the broader health research community.
- An opportunity was also identified for OSSU to ensure continued engagement of stakeholders once an initial connection has been established (e.g. by actively engaging unsuccessful funding applicants after the Strengthening Workshop).



Through established collaborations, researchers have gained access to invaluable resources and expertise to advance their research activities.*

OSSU Research Centres

- Access to linked datasets
- Expedited ethics review/approval process for clinical trials
- Expertise in research/data analytics methodologies
- Access to Northern Ontario and Francophone communities, expertise in Indigenous-, Sex & Gender- and Francophone issues
- Expertise/support in preparing manuscripts and policy briefs
- Access to research infrastructure

Other Researchers

- Context/subject-matter expertise (e.g. disease area, community, policy)
- Support in data management and analytics
- Expertise in KT and implementation science (including *Provincial policy implementation)*

Clinicians

- Real-world clinical expertise
- · Access to real-world patient data
- Knowledge of and expertise in the implementation and evaluation of healthcare practices

Patients

- Advisory expertise as Steering Committee members
- Hands-on project design/execution support as co-investigators
- Support in designing patient engagement activities
- Access/connections to community networks
- Support in preparing lay summaries/documents

Government Stakeholders

- Advisory expertise as Steering Committee members
- Expertise in implementation and adoption of best practices (e.g. decision-making, health planning)
- Support in disseminating study results

Industry

- *Private sector perspectives (Steering Committee members)*
- Expertise in technology development

SPOR Networks

- Additional funding to support project activities
- Access to an expanded network of stakeholders and potential receptors
- Expertise in strategies for patient engagement



A2

Collaborations established through some of OSSU's Workshops were similarly identified as beneficial in **transferring relevant expertise and skills** to support ongoing health research activities.

Strengthening Workshop



"Collaboration with ICES...significantly decreased the operational costs of the study. Will likely lead to future collaborative efforts and publications. CTO helped [this research project] be the first CTO-approved project in Ottawa and facilitated other institutions joining."

"...collaborations [through the Strengthening Workshop brought] expertise in paediatric psychiatry ... Child Health and Methods ... expertise in the economic impact."

Pragmatic Trials Workshop



"Gained access to an expanded network of ... methodological experts."



Meaningful patient engagement and partnership is recognized by various stakeholders as a key differentiator of OSSU.



28% (156) of the collaborations established through OSSU's **Initiatives** were with patients.



1 in 12 collaborations established through **OSSU's Research Projects** was with a patient.



"From all of the other SPOR units I am aware of that are engaging patient support, OSSU was able to recognize that it was a valuable contribution to add patient partnership in research, this is a major merit. [OSSU] is taking a risk with patient partners and it speaks to the innovation and broad thinking of and OSSU, it's amazing." ... "[OSSU is] genuine about their support exploration of patient engagement."

"OSSU [has] played a big part in navigating patient engagement [across the] research landscape—figuring out how to optimally engage patients at all phases of the research process...how we engage patients, not should we."



Researcher



Real-World Example: Men-at-risk—and potential end-users of the envisioned technology—are being engaged as partners across the entire research and KT process in the Suicide Prevention in Men IMPACT Award research project.*



Concept **Development**

Proposal Development



Project Execution



Partners were involved in the generation and review of the study hypotheses to ensure that research questions and outcomes measured were meaningful and reflective of their own (real-world) experiences.

Partners reviewed the funding proposal and provided feedback.

Two partners have been embedded within the research team as coinvestigators; as such, they attend research team meetings and will beta test the application that will be used in the study.

Partners have been asked to participate in various KT activities. including authoring articles and blog posts, and presenting their experiences as coinvestigators in a large multicentre trial.



"We have also formed the Service User and Caregivers Research Interest Group (SUCRIG) in Suicide Prevention which encourages service users to be instigators of research and to provide input and advice to researchers that ensures the voice of clients."



Real-World Example: OSSU is funding a patient-led research project to create and implement patient engagement guidelines and tools.

Overview



OSSU funded a 5-year Demonstration Project with Patients Canada to advance POR and develop planning and evaluation tools for patient engagement.



Process



Patients participated in 11 projects as patient partners, performed an observational study to catalogue their experiences as research partners and drafted 5 POR engagement tools to support patients and researchers.

Outcomes



- > The patient engagement tools and resources were **published online** and have been **piloted** as part of a grant application with great success.
- > The guidelines have been adapted by other SUPPORT Units for use in patient engagement training programs for researchers.
- > Tools have been accessed over 100 times, and team members have shared them with more than 30 researchers across Canada, the US and UK.
- > The group is in the process of **developing an elearning tool**.



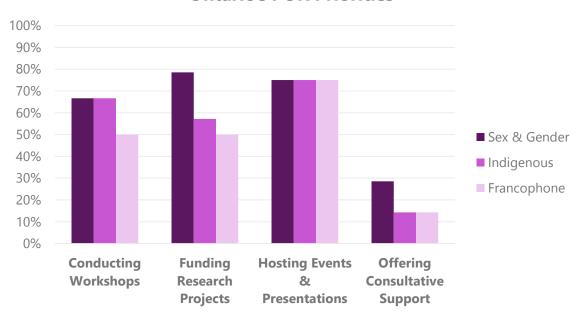
Patient

"What is unique about us is that we seem to be the only ones looking at the issue of partnering with patients for research from the patient perspective—I don't know anyone else who has done this except for OSSU."



OSSU's Activities are also actively promoting the meaningful integration of **Ontario's POR priorities.***

Percentage of OSSU Initiatives (by Activity) Integrating **Ontario's POR Priorities**



84% of OSSU's Initiatives incorporated at least **one** of the priorities, 34% incorporated two priorities, while 25% integrated all three.



"Since OSSU works with the Federal Government and with the Ministry of Ontario they are aligned with priorities. They also, unlike any other network I have worked with in my entire career, are very good at actually getting involved and encouraging the uptake of these priorities and creating connections with policy-makers."



^{*} Based on the descriptions of the objectives for Initiatives provided by organizers/leads of OSSU's Initiatives as well as responses to the Research Funding survey.

Real-World Examples: How OSSU-funded researchers and Initiative Leads are integrating Ontario's POR priorities into their efforts.

Sex & Gender

Data and clinical trial results are stratified by sex and gender to determine if there is an impact on the delivery and outcomes of the study intervention.

Clinical and socio-economic outcomes of hip fractures are expected to be impacted by the sex and gender of the patient.

Indigenous

Trial sites in Northern Ontario are included in studies; health records are analyzed to evaluate the outcomes of health practices in Indigenous communities.

> 12 Dialysis centres in Northern Ontario that care for a large population of Indigenous patients are part of the MyTEMP study.

Francophone

Studies identify the barriers that limit access to primary care and social services for Francophones; materials/ health practice guidelines are bilingual.

The C-Spine study is analyzing the impact of language barriers on the implementation and outcomes of the study.





Patients and community leaders identified several hurdles that OSSU must consider in order to ensure sustainability of its collaborations with and engagement of patients and priority communities.

- The **number and diversity** of patients that can be engaged in research **needs to be increased** to overcome patient fatigue.
 - Patient partners noted that they are often part of multiple OSSU-related activities—either as advisors or research team members—as well as other initiatives outside of OSSU, which sometimes puts a strain on their ability to contribute to their fullest capabilities.
- One patient noted a potential need for **greater transparency around and alignment** of expectations throughout the research process (e.g. expectations to review abstracts, attend meetings) to ensure patients are meaningfully engaged and to prevent burn-out.
- There is appetite for the strengthening of connections with the Chiefs of Ontario and other communities across Ontario and Canada to ensure that the research is for the benefit of these communities.



Enhance Research & Capacity: Key Findings

OSSU Initiatives are highly accessed/utilized by stakeholders.

- OSSU Initiatives are viewed as valuable resources for providing the **B2** skills necessary for stakeholders to engage in POR.
- OSSU's research funding and infrastructure have empowered **B3** researchers to conduct POR in ways that were not previously possible.
- An opportunity exists to raise awareness and broaden the reach of **B4** available POR resources for use across Ontario and beyond.



Stakeholders have participated in/accessed OSSU's Initiatives more than 45,000 times over the past 3 years.

41,387	Times OSSU-enabled Tools & Resources have been used—including 30,000 hits on the Capacity Building Compendium
1,869	Stakeholders received training through OSSU's Training Programs and Courses
1,815	Requests for Consultative Support Services
680	Attendees of OSSU-sponsored Events & Presentations
458	Workshop participants—including 116 participants in the Sex & Gender Workshop
325	Requests for ICES data through DAS—including 30 completed requests



OSSU Research Centres, other researchers and clinicians participate in/utilize OSSU-enabled Initiatives to the greatest extent.

Breakdown of Participation in/Use of OSSU Activities by Stakeholder Type

Stakeholder Type	Creating Tools & Resources	Hosting Events & Presentations	Conducting Workshops	Provide Training	Total ¹
OSSU Research Centres	30,792	0	0	3	30,795
Clinicians	15,687	124	51	40	15,902
Other ²	8,866	48	16	37	8,967
Researchers	7,729	345	189	86	8,349
Government	1,185	107	19	10	1,321
Patients	1,111	66	75	21	1,273
Industry	24	31	0	0	55
SPOR Networks	3	0	0	18	21
Other SUPPORT Units	4	0	0	0	4



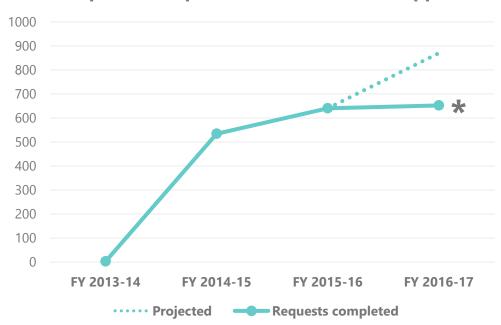
¹ Total counts are not mutually exclusive across stakeholder types (e.g. an individual may have been double-counted as part of OSSU Research Centres and Researchers).

² "Other" stakeholders include graduate students and trainees, community and health system organizations, and family health associations.

B1

The number of requests for consultative support services have increased yearon-year, with the majority focusing on methods support.

Number of Requests Completed for Consultative Support Services



The majority of the requests for consultative support are focused on **primary healthcare** research methods (80%) and methods support for child health studies (11%).



OSSU provides resources that span the research and KT continuum.





Stakeholders feel that the knowledge and skills gained through OSSU's Initiatives have enhanced their capacity to advance/participate in POR.

Examples of skills identified include:



- Expertise in trial management, support in developing a methods paper, and design advice regarding repeated measures designs from the Methods Support for Child **Health Studies** Consultative Support Service.
- Patient engagement, terminology and data gathering techniques, and concepts required in gender based-data gathering and analyses from the **Online Resources** for Sex & Gender-Based Analysis Resource.

On the Drug Policy Training Program: "I gained more insight into the terms that I will encounter later on while reading documents and research... I feel I can apply what I know about knowledge translation in other fields to this experience. I learned how valuable the patient experience is and I understand how important it is now to disseminate this information to have patients' voices heard."





(1=strongly disagree, 5=strongly agree)

Survey respondents agree that the knowledge gained through OSSU's workshops and training programs has enhanced their capacity to advance/participate in POR.*



Real-World Example: Stakeholders have especially noted the value of the Masterclass in the Conduct and Use of POR in helping to implement—and champion the value of—POR best practices in everyday research activities.

Objective

To prepare patients and families/caregivers, researchers, policy-makers and clinicians to champion and support the conduct and use of POR across Ontario's health system.

Approach

Curriculum and course material were developed with input from researchers, patients, clinicians and decision-makers, and is delivered by Faculty members (including patients) through a combination of plenary, mixed-group and group-specific sessions.

What will you do differently based on what you learned from the Masterclass?*

Patients:

- "Be a champion for POR"
- "Present this information to my own agency and suggest conducting our own research on our population"

Researchers:

- "Provide facilitation and support to show researchers that it is not scary to start [patient engagement]"
- "Reach out to individuals met here for expertise/advice"

Policy-Makers:

- "Seek patient-oriented research in policy development"
- "Try to change the status quo on these issues within my organization"

Building on this training resource, a condensed version of the curriculum was developed and recently presented to government stakeholders requesting training on POR and an understanding of how it could be used to inform policy decisions.



OSSU's funding of infrastructure has increased the Province's capacity to conduct cutting-edge health and patient-oriented research.

OSSU's investments in ICES' DAS have:

- Resulted in **more than 40 new linked datasets** in ICES' data repository;
- Facilitated access to health data for **Indigenous populations***; and,
- Unlocked capacity to **provide data and analytical expertise** to researchers (external to ICES).



"The DAS platform from our perspective is a piece that we have the most direct feedback on...we hear about people using it, it has made data analytics available to a wider range of people that has not existed before. It is clearly a strength and central to OSSU's mission"

Government **Stakeholders**

"DAS at ICES is something that we use a lot; it provides Ministry with answers to policy questions."

"[The work we are doing with the First Nations diabetes project] is all new...working with ICES, OSSU and the Chiefs of Ontario...we can make something significant happen."





- OSSU's financial support for POR has directly advanced research efforts and enabled institutions to leverage additional funding to support their research activities.
- Over the past 2 years, OSSU has provided ~\$17M in funding to support 16 IMPACT Awards and 2 Demonstration Projects in order to conduct research in alignment with the Ministry's health priorities.
- OSSU has also provided an **additional** ~**\$1M** in direct funding to various institutions across the Province to advance their POR activities; given their participation in POR, these institutions have also been able to:
 - **Directly leverage** an **additional \$40K** in funding to support their POR activities; and,
 - Support fellowships for 25 students (post-doctoral, medical, graduate and undergraduate students) who have received \$500K in scholarship funding from various sources.



"[OSSU has] some of the best researchers that are fundamentally engaged and funded to lead OSSU projects—it is a sign of face validity, credibility."



Despite the recognized value of OSSU's Initiatives in building capacity for POR, there is an opportunity for OSSU to more broadly communicate the availability of these resources.

- While stakeholders admire the fact that OSSU's Initiatives are publicly-available resources, they identified an opportunity for OSSU to further raise awareness around its resources to reach the wider health research community, including:
 - Regions across Ontario,
 - Other SUPPORT Units; and
 - SPOR Networks.
- An opportunity was also identified for OSSU to clearly articulate the objectives and **expected outcomes** of its Initiatives in order to make sure that stakeholders' expectations are set and met.





Accelerate Translation: Key Findings

OSSU has created processes and structures that raise awareness around KT and will assist researchers in translating evidence into practice.

Sustained engagement of stakeholders will be critical to maintaining momentum, continuing to build capacity and ensuring that OSSU's early efforts achieve impact across Ontario's health system.



OSSU has developed and implemented a number of mechanisms to ensure KT and dissemination is top-of-mind for stakeholders.

Mechanism

KT Requirements for Funding **Support**

Description

In addition to demonstrating collaboration and integration of Ontario's POR priorities, applicants are required to include detailed KT plans that show how results will be translated into practice.

Examples*

- **KT & Implementation** Working Group
- **Upcoming KT Workshop**
- **KTE Support Services**

Tools, Programs and Services focused on KT

OSSU has helped create both one-off and enduring resources and services that provide stakeholders with support on understanding and conducting KT activities.

- KTE Network Training on KT & Implementation Science Methods
- **KTE Support Services**

Events & Presentations on **Research Impact**

OSSU organizes various meetings and events to showcase research results that have been implemented and to share best practices between stakeholders.

OSSU/MOHLTC Research Day

Regular and Ad Hoc Engagement with Researchers

OSSU actively engages with researchers and facilitates interactions with decision-makers to ensure that the research aligns with Provincial health priorities.

OSSU Coordinating Centre communication



C1

Stakeholders recognize the importance OSSU has placed on ensuring that **KT** practices are embedded within ongoing research and training efforts.



"KTE Support Service helped me to apply for a grant [by providing support in] preparing a knowledge translation plan and [identifying the] methodology required to answer [our specific] knowledge translation research question."

"We are going to be very opportunistic, we cant wait to do evidence-building or evidence translation work. We have a workshop where all the KT leads will develop a streamlined plan that is standardized and consistent...they will run their projects through, and if it isn't streamlined they will lose its impact."





(1=strongly disagree, 5=strongly agree)

Survey respondents **agree** that OSSU's workshops and training programs are providing them with the necessary skills to translate evidence into practice and to disseminate knowledge.*



Moving forward, OSSU will need to continue to support stakeholders to ensure that investments—particularly in research—achieve health impact.

- The majority of OSSU-enabled outputs (completed and in progress) are upstream in the research and KT process (~80%), including publications and communications, patents, new technologies and KT tools.
- Stakeholders noted that it will be important for OSSU to continue to support **researchers** as projects move from knowledge creation to implementation to ensure that POR objectives are fulfilled and results translate into impact.



"The IMPACT Awards are still underway, so in a year or two we will have results and I am convinced those results will be implemented into routine care"

"...it is tough time for the research community and it will be important for OSSU to support researchers during this time. As funding becomes more competitive it will be nice for OSSU to create a foundation for researchers to lean on...OSSU has created a balance between innovation, systems, and funding."





ACHIEVING IMPACT



Health Research Impacts*



Research quality, activity, outreach and structure



OSSU has enabled research outputs as well as facilitated knowledge-sharing through its networking activities.



Personnel, additional researchcapacity and infrastructure



OSSU has transformed how researchers conduct research and supported successful POR.



Pathways from research to outcomes in health, wealth and well-being



OSSU's reach and hands-on approach changing the culture of research and setting the stage for informed decisionmaking by end-users in the future.



Health status, determinants of health and health-system changes



While OSSU has made significant strides in advancing POR, it is too early to observe broader impacts.

Economic/Social Impacts

Commercialization, implementation and social-benefit



OSSU is already observing tangible outputs from its research funding investments and strategic support that is advancing knowledge across **Ontario's health research community**.

Number of Outputs (Completed/Pending)





14 Peer-reviewed publications 10 pending

- Article on an assessment tool to evaluate the quality of sex & gender integration
- Article on the barriers and facilitators to the implementation of the MyTEMP study



13 Non-peer reviewed communications

Conference proceedings, infographics, reports on the outcomes of citizen panels



1 Patent pending

Patient Engaged Evaluation Framework measurement tool



2 New technologies developed

- Mobile apps tailored to self-harm treatment
- Online eLearning Tool



- **6** KT tools/products created 2 pending
- Videos published in several languages to reduce newborn pain
- Research team presented a 2-day workshop on Patient and Public Engagement*



Real-World Example: A multi-sector team of stakeholders are working closely together to develop a world-class program in patient-oriented quality improvement.

Objective

Health Quality Ontario (HQO) is interested in studying the impact of quality-based procedures (QBP) on the healthcare system.

Approach

A team comprised of healthcare providers, patients, researchers from Ontario and members from HQO was established to evaluate the impact of the QBP programs on the healthcare system and ways in which they can be improved.

Value



"[The collaboration with the researchers] is pretty productive actually—we have spent a lot of time together establishing how we were going to work together and that involved getting together groups of decision-makers, our team at HQO and the researchers...had retreats to plan our goals properly and to figure out where we are headed provincially, who were all the stakeholders and partners we needed to engage, and what do we know about what the Ministry was trying to accomplish?"



Many stakeholders noted the capacity to conduct POR has been built through exposure to OSSU's tools, resources and training programs, as well as connections established with other thought-leaders.

Leadership

Stakeholders—including patients, researchers and decision-makers—have gained the confidence to educate and mentor the health community in the value/importance of patient engagement and POR.

"I have a better idea of how to lead a group of patients with very different levels of knowledge and experience."

> Patient instructor at the **Masterclass**

POR Methodology

Participants have developed the necessary competencies to conduct and use POR. including familiarity with processes, enhanced ability to disseminate knowledge around best practices, and self-evaluation of efforts.

"It was a good opportunity to network and to discuss practical strategies to bolster meaningful patient engagement."

> **Participant at the Patient** Partnership Workshop*

Knowledge Translation

Trainees have learned about the best practices to apply KT theory to implement change, including the basics of KT, barriers and facilitators to change and implementation strategies.

"Forced us to rethink many aspects of our project...a better understanding of how KT applies to our project and we can utilize KT tools to maximize the potential of our project."

> Participant at the KT Basics Course*



OSSU's investments to enhance POR infrastructure in Ontario have increased the capacity for researchers to engage in real-world, patient-oriented studies and generate meaningful outputs to improve Ontario's health system.

Data & **Analytics Services**

- 8 IMPACT Projects are collaborating with ICES scientists to incorporate realworld health data in research
- > To date, DAS has received 325 requests for data and completed 30



In close partnership with Chiefs of Ontario, an IMPACT Award research project is using **newly linked Indigenous data** to study the impact of diabetes and novel interventions in First Nations communities.

Research **Ethics Board**

- At least 3 IMPACT Award Projects have worked with CTO to obtain streamlined access approval for their clinical trials.
- 3 of the IMPACT Projects recently received CIHR/SPOR Innovative **Clinical Trials Initiative Grants**



CTO's REB approval process has enabled the first CTO-approved multicentre trial in Ottawa to study the benefits of selective cervical immobilization by paramedics.



Although early in its evolution, OSSU's Activities and research support services are already helping to shape processes, policies and practices across Ontario.

Number of Outputs (Completed/Pending)

Examples



3 policy updates/ recommendations pending First policy specific analysis for First Nations diabetes health practices to be completed in March 2017



Improvements in health system processes/practices

2 pending

- Newborn pain data element in BORN and improved practices in neonatal pain care
- New youth engagement strategy on access to mental health services.
- Patient-reported outcome measures to capture systematic feedback from patients after visiting the Emergency Department





OSSU has forged close relationships with policymakers, decision-makers and end-users on a project-by-project basis to ensure efforts are relevant to health system needs and identify a path to adoption.



"OSSU plays a significant role in ensuring high-frequency, meaningful contact between the research team and policy-makers to ensure the research addresses, and finds actionable solutions to, pressing health challenges."

"We had specific sub-groups that would break up and work more in detail, for example members of my team that are involved in QBP adoption had direct interactions with the researchers to design the research questions and who to talk to...They would come back with preliminary data and we would work with them to frame the data, and to make it relevant to the Ministry."







OSSU is beginning to transform how stakeholders think about, view, conduct and participate in health- and patient-oriented research.



"The IMPACT Awards are superb for accelerating health system POR... and facilitating the culture of patient engagement. And promoting it across the Province...OSSU has created this patient engagement culture by bringing people together."

"I don't expect things to change overnight...change in healthcare does not happen quickly, there is still stuff that needs to be done, but given the timeframe...and the magnitude of the undertaking, OSSU has done as good a job as can be done!



Patients

"Getting organizations that were not previously familiar with one another to become familiar and starting to work together... a culture change."



"This is a strategy for patient oriented research...not a program...with the ultimate objective of culture change."

"We are seeing a shift where researchers are getting the end knowledge user involved early on rather than just research collaborators...researchers are learning this skill."









While it is still too early to observe health, social and economic impacts, stakeholders identified several potential projects that may have a beneficial impact on the health system and Ontario's citizens in the future.*

MyTEMP

An approach to personalizing dialysis temperatures (i.e. cooler temperatures for circulation) could improve health outcomes without impacting health costs.

HIP ATTACK

Accelerated surgical care after a hip fracture may have a positive impact on patient outcomes, including a reduction in the 30-day mortality rate.

Patients Canada

The utilization of patient-reported outcome measures may improve patient visits to the Emergency Department.

CLEAN Meds

Adherence rates for medication use may be improved through the provision of freely accessible medications for chronic conditions to individuals of lower SES.



"With the IMPACT Awards I hope to directly influence the health system... There are many outcomes that we can talk about. We are hoping that all these Awards we have set up have actual impact on the clinical practice, research and process and it will be patient-focused."



Key Takeaways and Considerations



The interim evaluation of OSSU has uncovered a number of key takeaways illustrating OSSU's value-add in advancing the patient-oriented research agenda and embedding these principles into health research.



OSSU has mobilized the health research community around patient-oriented research and facilitated multi-sector, multi-disciplinary relationships that otherwise would not have been possible.



OSSU has formalized collaborations across 12 leading health Research **Centres** in Ontario



OSSU has facilitated **555 new** multi-stakeholder collaborations (including 156 with patients) and decision-makers have observed an uptake in collaborative efforts across the research community



The OSSU-led **Strengthening** Workshops have been particularly successful in facilitating new connections between researchers

"OSSU has managed to get a lot of organizations to work together, typically they would be doing their own things, but with OSSU there is a push to collaborate, a lot of crossorganization interactions [which has] allowed for the formation of new relationships."



Through its diverse Initiatives, OSSU has begun to engender a culture focused on patient engagement in research and helped stakeholders to more effectively implement POR into their research efforts.



OSSU has enabled over 50 Initiatives—workshops, research, tools, events, training courses, support services—that are focused on enhancing and supporting POR



OSSU's initiatives have been accessed/used **45,000** times over the past 3 years



~2000 researchers, clinicians, patients and government/ policy-makers have obtained training in POR through OSSU-enabled programs and resources



The Masterclass in the **Conduct and Use of POR is** has been quite effective in

helping stakeholders to operationalize patient engagement in their research

"OSSU has generated a different understanding of POR with its courses, leadership conferences, annual research days; [OSSU is] bringing together researchers to enhance POR."



OSSU's direct investments in the health research process—through funding POR and enhancing infrastructure—have had a significant impact on the research across the Province.



OSSU has invested ~\$17M to support research projects that incorporate patients and elements of Ontario's **POR** priorities



OSSU's investment in ICES' Data & Analytic Services has facilitated access to more than 40 new linked health datasets (including **Indigenous data**)



OSSU-enabled research has generated 35 upstream outputs to date (e.g. publications, technologies, tools), with 13 additional outputs pending (e.g. publication drafts, patents)

"The DAS platform from our perspective is a piece that we have the most direct feedback on...we hear about people using it, it has made data analytics available to a wider range of people that has not existed before. It is clearly a strength and central to OSSU's mission."



OSSU is helping to advance knowledge, build capacity and inform decisionmaking across Ontario, and its efforts are expected to have a measurable health, social and economic impact in the future.



OSSU-funded research projects have generated 7 improvements to health practices to date, with 2 health practice and 3 policy updates still being explored.



Stakeholders are learning skills in **POR methodology** and KT to ensure research results are translated into health impact



It is anticipated that the IMPACT Projects (e.g. MyTEMP, HIP ATTACK, CLEAN Meds) will result in significant health, social & economic impact

"With the IMPACT Awards I hope to directly influence the health system... There are many outcomes that we can talk about. We are hoping that all these Awards we have set up have actual impact on the clinical practice, research and process and it will be patient-focused."



Moving forward, there is an opportunity for OSSU to continue to enhance its impact on the health research community by strengthening and broadening its efforts.



Future Considerations

Considerations for OSSU as it embarks on the next phase of its evolution include:

- Strengthening existing relationships and facilitating new ones to enhance participation and impact, particularly with patients/communities and priority **groups** (e.g. Indigenous communities).
- **Broadening outreach efforts** to ensure OSSU is maximizing its impact and helping to build capacity across all of Ontario (e.g. Northern/remote regions) and with as many stakeholders as possible (e.g. other SUPPORT Units, SPOR Networks).
- **Building on processes and structures already established** to ensure findings are translated and disseminated to achieve health impact—including greater/sustained relationships with policy-makers and alignment of priority areas for research.
- **Improving communication and dissemination** of information to ensure OSSU's goals, objectives and support services are well known, and to avoid duplication of patient engagement efforts with other initiatives.



Next Steps

Key next steps for OSSU include:

- Consolidating findings with existing metrics and reporting outcomes to CIHR;
- Establishing the infrastructure and methodology within OSSU to engage in regular evaluations to understand progress and inform decision-making; and,
- Engaging in a robust environmental analysis, deeper internal analysis and benchmarking exercise to complement findings from the interim evaluation and support the development of an updated five-year strategic plan.



Appendix



Performance Measurement Framework—Additional Details



Key Stages of the Health Research and Knowledge Translation Process

While forming part of an integrated system, each stage of the health research and knowledge translation process is defined by specific factors—internal or external—that shape key activities and discrete metrics of success (or impacts), including:

STRATEGY

Developing priorities and objectives to ensure equitable healthcare delivery, enable technological advances and improve patient health.

RESEARCH

Creating knowledge and generating tangible health research outputs (biomedical, clinical, health services, public health) that can benefit society.

KTE

Translating knowledge into policy/practice to ensure sustainability of implemented changes, monitor impact and support information dissemination.

ADOPTION

Embedding innovation in the health system through behavioural changes in patients, providers, other stakeholders to realize health/economic benefits.



Additional Considerations for the Tool

The Performance Measurement Evaluation Tool also considers two additional factors that can influence the health research and knowledge translation process, including:

External Factors

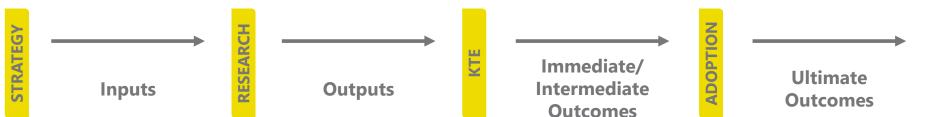
Understanding the external factors that could **impact activities** across the health research and knowledge translation process, and the interactions between OSSU and the environment.

Feedback Loops

Incorporating the ultimate outcomes into the process via continuous feedback loops to constantly shape the health research activities



Preliminary List of Metrics for Measuring OSSU's Impact*



\$ of funding by source

of datasets and data points by type

of OSSU HQP by type

of active OSSU sites

of projects supported/funded # of patient participants

of research studies using linked data

#/nature of clinical trials

of research collaborations

#/type of training program

of students trained

Additional fundi

of publications, atents

of conference papers

of technologies/services

community partnerships Public awareness/uptake Interaction with oplicymakers

of boots at tons in policy products/tools/events

est practice quidelines Evidence-based policy changes

Patient satisfaction Improved/responsive health services

Cultural change in patientoriented research

Prevalence/incidence Life expectancy/QALYs Wait times Clinical guideline adherence Morbidity/mortality

Health benefit from OALYs per dollar spent Licensing reruns (\$)

Health Research Impacts (CAHS Framework)

Advancing Knowledge

Capacity Building

Informing Decision Making Health Impacts Economic/Social Impacts



Complete List of OSSU Initiatives Included in this Evaluation





Conducting Workshops

- Strengthening Workshops
- First Nations Health Research Agenda
- > The Ontario Training Workshop in Pragmatic Randomized Trial Design
- ICES Data Methods Workshop
- Patient Partnership Workshop
- Sex & Gender Integration in Health Research Workshop





Funding Research Projects

- IMPACT Award: Preventing childhood Obesity
- IMPACT Award: Improving Access to Medications
- IMPACT Award: Improving Pain Management in Newborns **>**
- IMPACT Award: Improving Childhood Concussion Care 夠
- 夠 IMPACT Award: Improving Hip-Fracture Care
- **>** IMPACT Award: Improving Dialysis Treatment
- IMPACT Award: Understanding Diabetes in First Nations Communities
- IMPACT Award: Preventing Suicide in Men 夠
- IMPACT Award: Improving Access to Francophone Community Services
- > IMPACT Award: Improve Hospital-to-home Care Transitions
- IMPACT Award: Improving Access to Mental Health Services for On-Reserve Aboriginal Youth **>**
- 夠 IMPACT Award: Improve Care for Kids with Complex Conditions
- 夠 IMPACT Award: Improving Ontario's Health Care System
- IMPACT Award: Improving Heart Failure Care **>**
- 夠 IMPACT Award: Improving Youth Access to Mental Health and Addiction Services
- IMPACT Award: Improving Transportation of C-Spine Patients
- Demonstration Project: Ontario Stroke Network
- Demonstration Project: Patients Canada





Creating Tools & Resources

- Healthy Debates
- ICES Publicly-Available Datasets
- Ontario Health Metadata Mapping
- Pan-Canadian Real World Health Data Network
- Planning Guidelines for Patient Partnership in Health Research
- Researcher/Patient Orientation to Patient Partnership in Health Research
- Research/Patient Partner Surveys
- Online Resources for Sex & Gender-Based Analysis
- Metrics for Sex & Gender-Based Evaluation
- Child Health Data Inventory
- Capacity Building Compendium
- ePRO tool
- Patient Engagement Resource Guide for Research Teams and Networks
- Rethinking Clinical Trials (ReACT) Program





Hosting Events & Presentations

- OSSU/MOHTLC Research Day
- **OSSU Showcase**
- Best Brains Exchange
- **OSSU** Management Team Meetings





Enhancing POR Infrastructure

- ICES Data & Analytics Services
- CTO's Research Ethics Board (REB) Qualification Program





Providing Training

- Masterclass on the Conduct and Use of Patient-Oriented Research
- The Patient Engagement in Research Training Series
- KTE Network Training on KT and Implementation Science Methods
- Drug Policy Training Program (Student & Citizens' Panel)





Offering Consultative Support

- Sex & Gender Research Support
- Methods Development in Patient-Oriented Research
- Support in Francophone Research Service
- Methods Support for Child Health Studies
- Primary Healthcare Methods Support
- **KTE Support**
- DAS Analytics and Reports Support



Evaluation Tool—Additional Details



Funding Research Projects

Core Activity

Funding Research Projects

Performance Metrics

Quantitative

- Amount of OSSU funding awarded to the project
- # of formal collaborations created in applying for OSSU funding (with OSSU) Research Centres, SPOR Networks, clinicians, patients, policy-makers, industry)
- ◆ Amount of *additional* funding leveraged to support the OSSU-enabled project
- # of fellowships supported through OSSU-enabled funding (by stakeholder type)
- # of direct outputs/outcomes resulting from the OSSU-enabled project (by publications, patents, new technologies, KT products/tools, improved health system practices/processes, government policies and other)

- Description of the formal collaborations created in applying for OSSU funding (name of the collaborator, involvement in the research, expertise provided)
- Description of additional collaborations created once funding was awarded (with OSSU Research Centres, SPOR Networks, clinicians, patients, policy-makers, industry)
- Description of OSSU-enabled resources/services leveraged as part of the research project (e.g. DAS, consultative support)
- Description of patient engagement/involvement in the OSSU-enabled project (during concept development, proposal development, project execution, and KT)
- Description of the ways in which Ontario's POR priorities have been integrated into the project (by Indigenous, Sex & Gender and Francophone issues)
- Descriptions of direct outputs/outcomes resulting from the OSSU-enabled project





Creating Tools and Resources

Core Activity

Creating Tools and Resources

Performance Metrics

Quantitative

- Frequency with which the tool/resource is used/accessed
- # of users of the tool/resource (by (by OSSU Research Centres, SPOR Networks, clinicians, patients, policy-makers, industry)
- Participant satisfaction (score and rationale)—ability to establish valuable relationships, knowledge gained to enhance capacity to advance/participate in POR, skills provided to translate evidence into practice and disseminate knowledae

- Description of the objective(s) of the tool/resource
- Description of the knowledge/skills gained as a result of the tool/resource
- Description of stakeholder engagement/involvement in developing and maintaining the tool/resource (by researcher, clinicians, patients, government, industry)





Hosting Events & Presentations

Core Activity

Hosting Events & Presentations

Performance Metrics

Quantitative

- # of attendees at the event (by researchers, clinicians, patients, government, industry)
- # of formal collaborations established at the event (with OSSU Research Centres, SPOR Networks, clinicians, patients, policy-makers, industry)
- Participant satisfaction (score and rationale)—ability to establish valuable relationships, knowledge gained to enhance capacity to advance/participate in POR, skills provided to translate evidence into practice and disseminate knowledge

- Description of event/presentation objective(s)
- Description of the knowledge/skills gained as a result of the Event/Presentation
- Description of high-impact collaborations created as a direct result of the **Event/Presentation**
- Description of the ways in which Ontario's POR priorities (i.e. Indigenous, Sex & Gender and Franco[phone issues) have been integrated into the **Event/Presentation**





Enhancing POR Infrastructure

Core Activity

Enhancing POR Infrastructure



A common set of Metrics will be applied to all OSSU investments made to enhancing POR infrastructure.

Quantitative

- ◆ Amount of OSSU funding into enhancing the POR infrastructure (by designation to CAPEX/OPEX, % of total funding received)
- Frequency with which the infrastructure is used
- # of requests received an completed
- # of direct outputs/outcomes resulting from the OSSU-funded infrastructure (by publications, patents, new technologies, KT products/tools, improved health system practices/processes, government policies and other)
- Participant satisfaction (score and rationale)—ability to advance/participate in POR, value-add of resource in the Ontario health research environment

- Description of direct outputs/outcomes resulting from the OSSU-funded infrastructure (e.g. publications, patents, conference papers, new technologies, KT products/tools)
- User satisfaction with OSSU-enabled infrastructure—ease of use, value of OSSU investment in this resource





Enhancing POR Infrastructure (Cont'd)

Core Activity

Enhancing POR Infrastructure

Performance Metrics

Given the nuanced nature of the type of infrastructure enhanced through OSSU investments, it may be necessary to identify and apply customized **Metrics** to appreciate the true value and impact of the Initiative.

ICES' DAS

Quantitative (all Metrics are Common)

- Description of new linked datasets (e.g. with number of patient records, description of the organization from which the data is sources, reflection of Ontario's POR priorities in the dataset)
- Description of the linked data and analytic tools accessed and type of research that the data/tools supported



Enhancing POR Infrastructure (Cont'd)

Core Activity

Enhancing POR Infrastructure



Performance Metrics

Given the nuanced nature of the type of infrastructure enhanced through OSSU investments, it may be necessary to identify and apply customized **Metrics** to appreciate the true value and impact of the Initiative.

CTO's REB PROCESS

Quantitative

- # of POR trial applications received, screened and approved
- # of research collaborators involved in the pragmatic trial (by stakeholder type, affiliation)
- # of trial participants involved in POR trials (by gender)
- ◆ # of sites involved in POR trials (by major urban/rural hospitals/healthcare clinics)
- Annual and per project cost savings due to the streamlined REB approval process for POR trials
- Annual and per project time savings for approval due to the streamlined REB process for POR trials

- Description of the most recent POR trial for which REB approval was sought
- Description of POR trial by scientific collaborators, trial sites, participants
- Description of the ways in which Ontario's POR priorities (i.e. Indigenous, Sex & Gender and Franco[phone issues) were integrated into the POR trial



Providing Training

Core Activity

Providing Training

Performance Metrics

Quantitative

- # of trainees (by OSSU Research Centres, SPOR Networks, clinicians, patients, policy-makers, industry)
- Participant satisfaction (score and rationale)—ability to establish valuable relationships, knowledge gained to enhance capacity to advance/participate in POR, skills provided to translate evidence into practice and disseminate knowledge

- Description of the objective(s) of the OSSU training
- Description of stakeholder engagement/involvement in developing and maintaining the training program (by researcher, clinicians, patients, government, industry)
- Description of the knowledge/skills gained as a result of the training





Offering Consultative Support

Core Activity

Offering Consultative Support

Performance Metrics

Quantitative

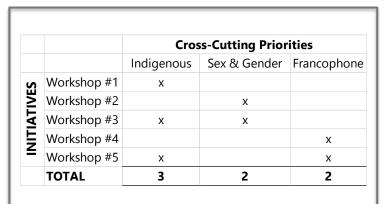
- # of requests received and completed/in progress (by OSSU Support Services and by Ontario POR Priorities)
- Frequency with which consultative support service is used/accessed
- # of formal collaborations created as a direct result of the consultative support service (with OSSU Research Centres, SPOR Networks, other researchers, clinicians, patients, policy-makers, industry and other)
- Participant satisfaction (score and rationale)—ability to advance/participate in POR, value-add of resource in the Ontario health research environment

- Description of the knowledge/skills gained as a result of the consultative support service
- Description of high-impact collaborations created as a direct result of consultative support service
- Description of high-impact outputs/outcomes of the consultative support service (e.g. successful proposal/funding received, integration of patients into research process, publications, KT products)



Within an Activity:

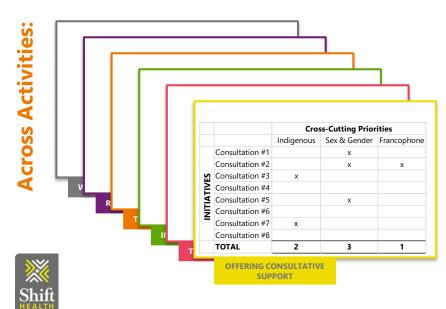
Tagging specific Initiatives will enable the creation of alternate aggregate views for performance evaluation.

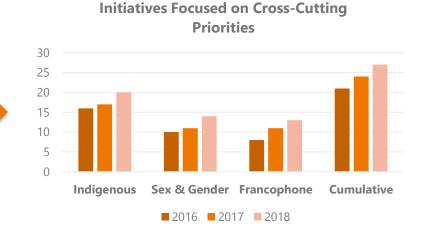


CONDUCTING **WORKSHOPS**











Tagging common Metrics will also enable performance evaluation within and across the Activities.

	# of		# of patients	# of
		participants	involved	collaborations
	Workshop #1	25	5	2
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Workshop #2	12	0	1
Ę	Workshop #3	35	4	2
NITIATIVE	Workshop #4	8	0	0
-	Workshop #5	10	0	0
	TOTAL	90	9	5

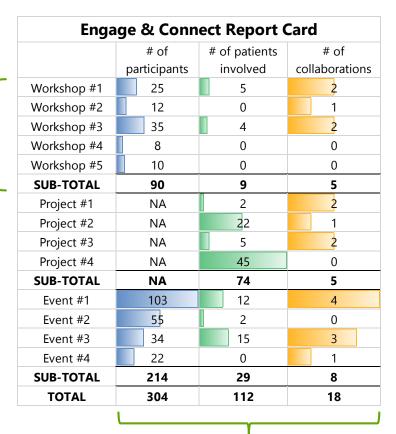
CONDUCTING WORKSHOPS

		# of	# of patients	# of
		participants	involved	collaborations
ES	Project #1	NA	2	2
NITIATIVES	Project #2	NA	22	1
E	Project #3	NA	5	2
Ž	Project #4	NA	45	0
	TOTAL	NA	74	5

FUND RESEARCH

		# of participants	# of patients involved	# of collaborations
S	Event #1	103	12	4
≧	Event #2	55	2	0
NITIATIVES	Event #3	34	15	3
Ξ	Event #4	22	0	1
	TOTAL	214	29	8

Within an Activity



Across Activities





Information Gathering—Additional Details



Information Requests

Information request forms were distributed to gather and curate pre-existing and new information for specific Initiatives.

Overview of the Approach:

- Shift Health created representative forms for each Activity containing specific information requests/Metrics (see below)
- Forms were completed by identified organizers/leads for each Initiative
- Key targets included: Primary contact for each Initiative (at Research Centres, within Working Groups); OSSU Funding Coordinator; OSSU Leadership

Applicable Metrics:

Ouantitative

- # of participants/patients/users involved
- Description of Initiative objective(s)
- Amount of funding/investment
- Utilization rate (of tools/resources)
- # of requests received/processed
- # of centres involved, patients, engaged, cost savings (pragmatic trials)

- Successfully funded project information (e.g. description of collaborations)
- Description of infrastructure/use, consultative services (including outputs/outcomes)
- Integration of Ontario POR priorities (e.g. research project)
- Satisfaction/feedback (if collected)



Surveys

Online surveys were used to collect more in-depth information on the impact of specific Initiatives.

Overview of the Approach:

- Shift Health developed customized online surveys using Survey Monkey that collected key demographic/identifier data, quantitative data and qualitative insights
- Surveys were distributed by organizes/leads of OSSU Initiatives to their broader network to gather baseline information
- Potential targets may have included: Participants, attendees and users of specific Initiatives (within workshops, tools/resources, training, infrastructure, consultations); Award winners

Applicable Metrics:

Quantitative

- # of collaborations created (direct, indirect)
- # fellowships supported
- # outputs/outcomes

- ◆ Knowledge gained
- Description of the collaboration created
- Description of outputs/outcomes
- Satisfaction/feedback (if not already collected)



Consultations

One-on-one consultations were conducted to gather additional narratives around OSSU's impact in the environment.

Overview of the Approach:

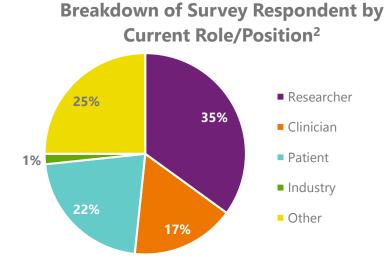
- Shift Health engaged in focused discussions with key stakeholders to gather insights on the overarching impact of OSSU's activities in advancing POR in the Province as well as (potential) downstream health research and KT outcomes
- Xey targets included: OSSU leadership; Research Centre/Working Group Leads; patients; government stakeholders

Applicable Metrics:

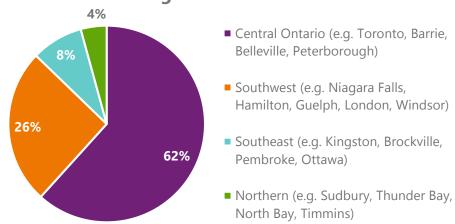
- Specific metrics were not used; questions included:
 - ◆ What do you see as the main achievements from OSSU to date?
 - ◆ How does the work of OSSU support you (and your organization) specifically?
 - ◆ How has OSSU contributed to advancing knowledge across Ontario? Building capacity? Informing decision-making? Achieving health, social and/or economic impact?
 - ◆ What are some of the challenges that OSSU will need to overcome in the future to enhance its impact?
 - What could OSSU achieve in the future (and how)?



Demographic of respondents to the 'Impact of OSSU's Initiatives' survey.1



Breakdown of Survey Respondents by Region in Ontario





¹ Survey responses were not received from government stakeholders or research funders.

² 'Other' types of stakeholders include members of citizen panels, professional associations, advocacy groups, the OSSU Board.

List of Interviewees

Type of Stakeholder	Name	Title/Affiliation
	Dr. Vasanthi Srinivisan	Executive Director, OSSU
OSSII Laadarshin	Michael Decter	Chair, OSSU Board
OSSU Leadership	Dr. Joshua Tepper	Vice-Chair, OSSU Board
	Dr. Adalsteinn Brown	Vice-Chair, Research & Scientific Relevance Committee
	Alies Maybee	Patient Representative, Patient Partnership Working Group
Patients/Community	Frank Gavin	Patient Representative, Patient Partnership Working Group
Patients/Community Partners	Anne Lyddiatt	Patient Representative, Patient Partnership Working Group; Patient Partners in Arthritis Program
	Carmen Jones	Research Manager, Chiefs of Ontario
	Dr. Bob Bell	Deputy Minister, MOHLTC
	Dr. Anne Hayes	Director (Research, Analysis and Evaluation), MOHLTC
Government Stakeholders/	Dr. Deborah VanOosten	Senior Research and Planning Advisor, MOHLTC
Stakeholders/ Advisors	Allison Barr	Director (Research Branch), MRIS
	Lesley Cunningham	Senior Policy Advisor (Research Branch), MRIS
	Lee Fairclough	Vice-President (Quality Improvement), HQO



List of Interviewees (Cont'd)

Type of Stakeholder	Name	Title/Affiliation
	Dr. Dean Fergusson	OSSU Research Centre Lead, Ottawa Methods Centre; Ottawa Hospital Research Institute
	Dr. John Lavis	OSSU Research Centre Lead, Centre for Health Economics and Policy Analysis; McMaster University
	Dr. Julia Abelson	Member, Centre for Health Economics and Policy Analysis; McMaster University
	Dr. Tara McCready	Director, Population Health Research Institute
Researchers	Dr. Martin Osmond	OSSU Research Centre Lead, Children's Hospital of Eastern Ontario
	Dr. Colin Macarthur	OSSU Research Centre Lead, Sick Kids
	Dr. Noah Ivers	IMPACT Awardee; Women's College Research Institute
	Dr. Michael McGillion	Engagement Lead for IMPACT Award; McMaster University
	Dr. Samuel Vaillancourt	Funded Researcher, Patients Canada Demonstration Project; University of Toronto
	Dr. Catharine Whiteside	Executive Director, SPOR Diabetes Network; University of Toronto
	Dr. Paul Moayyedi	Lead, SPOR GI Network; McMaster University





162 Cumberland Street, Suite 310 Toronto, Ontario M5R 3N5 Canada +1.416.236.1054

www.shifthealth.com