# Principal Investigator

**Application Number: 1468**

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| **Institution:** | Dalhousie University |
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## Project Details

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| **Title:** | An interactive web-tool to support the development of interdisciplinary primary care teams |
| **Category of Research:** | Health Policy |

**Keywords:**

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|---|---|---|
| interdisciplinary primary care teams | policy decision support | knowledge synthesis |
| primary care team organization | interactive web-tool | primary care team funding |

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| **Most applicable/predominant NSHRF priority related to the project:** | Primary health care |
| **Institution that will administer funds:** | Dalhousie University |
| **Academic Appointment:** | Yes |
| **Total Requested:** | ██████ |
| **Please tell us how you heard about this funding opportunity:** | NSHRF Website |

## Plain Language Summary

Provide a clear and concise description of their project, written in language suitable for a non-scientific audience. Describe the objective of your project (the activities for which you are requesting funding), the potential impact of the project on sharing research knowledge in the province and any potential impact on improving the health of Nova Scotians through the research knowledge being shared.

Many Nova Scotians rely on an interdisciplinary team for their primary care services, and the government is committed to, and working on, supporting this form of primary care delivery. It is important that policy makers rely on research evidence when they decide about the organization or the financing of teams. Unfortunately, most of the evidence is fragmented and hard to access, being available mainly through a variety of academic databases. Policy makers are left in a bind, because they do not have the capacity to find this dispersed evidence and synthesize it. Researchers must take the lead to provide evidence in more user friendly formats.

We propose to develop an easy-to-use, interactive web-tool for policy makers who are working on policies about the structure, funding, and organization of interdisciplinary primary care teams. The web-tool will present evidence from an ongoing large knowledge synthesis study, in which we bring together approximately 100 studies that assess the impact of team features on how well teams deliver primary care. Our web-tool will allow policy makers to select a particular team feature, for example, whether teams include a pharmacist, and see what the research evidence says about the impact on the primary care received by patients. Requested funding will be used for the development, testing, evaluation and final design of the interactive web-tool.

While the target audience for the web-tool are policy makers, it will be available publicly to all interested users. As such, existing but hard-to-access knowledge will be shared widely in user friendly format with patients, families, patient groups, students, policy makers, and the public. Improved access to evidence by policy makers and the public will support the creation of evidence-supported policies, which are a key ingredient to the improvement of services delivered to Nova Scotians by interdisciplinary primary care teams.

## Application Objectives

List the main learning objectives that you want to achieve over the full duration of your project. Ensure listed objectives cover all the main activities you plan to undertake using the project funds.

**Please note: Funded applicants will be expected to report on progress related to the listed objectives.**

| Objective |
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| To support decision makers during the design, development and implementation of policies related to interdisciplinary primary care teams. |
| To translate findings of a knowledge synthesis study for non-academic audiences. |
| To develop an interactive electronic web-tool as a novel method for the dissemination of review study findings. |
| To measure and evaluate the success of the web-tool as an effective decision support. |
| To add to our understanding of the use and usability of research evidence in policy making. |

## PROJECT DESCRIPTION

**Policy Issue to be Addressed –** From Integrated Health Networks in British Columbia to Family Health Centres in Prince Edward Island, primary care delivery is shifting to interdisciplinary teams. These are shown to support the goals of primary care, including access to the appropriate provider at the appropriate time, coordination of services, emphasis on health promotion, prevention and chronic disease management (e.g. Farris et al. 2004; Haggerty et al. 2008; Hogg et al. 2009; Hutchison et al. 2011). Contribution to these goals is improved with optimized design of interdisciplinary primary care (IDPC) teams.

**Research Knowledge to be Shared –** The knowledge to be shared are the results of a CIHR funded Knowledge Synthesis Project, titled "*How best to structure Interdisciplinary Primary Care Teams: A Systematic Review*" that was ranked 6th out of 149 applications. The goal of the project is to assess which factors contribute to the effective functioning of interdisciplinary primary care (IDPC) teams and improved health system outcomes (Wranik et al. 2016). Work on the project began in March 2016. Since this time, we have screened 11,219 titles and 488 full-text articles, of which 92 were included in the final synthesis. Data extraction and quality rating of the 92 studies is near completion. Analysis and synthesis are to be completed over the course of the next two months, after which the results of the knowledge synthesis will be shared in innovative and standard formats.

**Innovative Strategies for Knowledge Sharing –** The innovative format proposed for sharing the results of the CIHR knowledge synthesis project is the development of an online and interactive web-tool for the use of knowledge users who wish to inform discussions about designing IDPC teams. Knowledge users include policy decision makers, managers of IDPC teams, or any other interested individual (we use the term knowledge users broadly for word efficiency in this application). In addition, we propose to develop a webinar for knowledge users to demonstrate the content and the use of the web-tool.

The web-tool is conceptualized as a quick reference database and is a direct result of a framework analysis of the data (see *Table 1* for draft template). Support from the NSHRF Knowledge Sharing fund will allow us to not only develop, but also pilot and improve a high quality web-tool. At this time, we have in-kind support from the Nova Scotia Health Authority in the form of two graduate students in Computer Science, who have contributed time to the conceptualization of the tool. The web-tool was a part of our original proposal, but given the very large number of studies screened, the CIHR budget is not sufficient to fund the web-tool. The NSHRF KS fund would allow us to employ more Research Assistant time to support more fully the creative design, coding, content management, piloting, and on-going improvement during an eighth month piloting phase. The NSHRF funds would also support the development of the webinar.

**Engagement of and Benefit to Knowledge Users and Decision Makers –** The CIHR Knowledge Synthesis Grant is a collaboration between academic researchers and decision makers from three provinces (Nova Scotia, Manitoba, and Alberta). The team has previously published primary care research together, and has focused on knowledge sharing also in non-traditional ways (see [www.primaryhealthcareteams.ca](www.primaryhealthcareteams.ca)). The current NSHRF team includes a sub-set of researchers from the CIHR team, knowledge users from Nova Scotia, and an additional member who is expert in computer science and information management.

Decision makers have demonstrated interest in our project by way of participation in the project design, application and execution (regular consultations about critical decision nodes in the project). In addition, Nova Scotia's knowledge users have demonstrated interest in our project by offering in-kind support towards its completion (see budget and work plan). The NSHA has provided research assistance in the conceptualization of the web-tool and also toward the data extraction and quality rating of studies included in the synthesis. Results of our work will be integrated into the NSHA knowledge distribution system, linked to our website, and also distributed by the decision makers who are members of our research team.

**Relevance to NSHRF Mandate, REAL Knowledge Program and NSHRF Research Priorities –** The knowledge sharing support from NSHRF would allow us to share the health research knowledge gained from a large CIHR funded systematic review in a new and innovative way that would be particularly well suited for policy and decision makers, but also broader interested audiences. Our request fits the criteria of the award precisely in that we wish to further disseminate research (funded by CIHR) for the benefit of knowledge users and decision makers in the health system.

The knowledge sharing activities included in this proposal will provide a better foundation for informed decision making with research, an initiative keenly supported by the NSHRF as one of several strategies to improve the health of Nova Scotians through health research.

The project addresses several NSHRF research priorities, as it focuses on extant knowledge about the organizational, governance and funding models in primary health care. For example, the project will speak to the impacts of salaries versus fee-for-service payments to physician in IDPC teams on team effectiveness. As a second example, the project will speak to team composition and the implications for patient care processes.

This knowledge sharing project captures the four *REAL* components recommended by NSHRF.  The project has been designed based on existing evidence of funding models for IDPC teams to ensure that the findings are *relevant* to decisions being made. The information gleaned from the study has high potential to be of *excellent* quality due to the rigorous methodology, team expertise and innovation and responsiveness of the web-tool to meet current decision making challenges. The use of a web-based initiative also ensures that the decision making tool is *accessible* to all stakeholders.  Finally, the national and local support for the project from key decision makers provides assurance that the findings *legitimate* to those who would be most likely to use them.

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*Table 1* **– Draft template for the decision support tool**
The decision tool will have three layers, each providing more detail about a subset of information contained in the previous layer. The goal of the first layer is to provide a broad overview over the state of knowledge. The goal of the second layer is to provide a more focused overview of linkages between specific structural elements and selected outcomes. The goal of the third layers is to describe in more detail the extant knowledge of the connection between one structural elements and a selected outcome.

**Layer 1 – Broad overview**

|  | Policies and Procedures | Team Composition | Provider Remuneration | Team Funding | Team Governance |
|---|---|---|---|---|---|
| Team Process | A1 | A2 | A3 | A4 | A5 |
| Health Services Process | B1 | B2 | B3 | B4 | B5 |
| Diabetes Care | C1 | C2 | C3 | C4 | C5 |
| Hypertension Care | D1 | D2 | D3 | D4 | D5 |
| Asthma Care | E1 | E2 | E3 | E4 | E5 |
| Ischemic Heart Disease Care | F1 | F2 | F3 | F4 | F5 |
| Other Chronic Disease Mgmt Outcomes | G1 | G2 | G3 | G4 | G5 |

Cells will be coded for the strength of evidence as described. Some cells may be empty, indicating an absence of studies. The results of the synthesis are not yet available (this is the study protocol). As an example, cell C1 might read "*Moderate evidence of clear policies and procedures improving care for diabetes*".

**Layer 2 – Focused overview**
Selected cells from the first layer are expanded here. The electronic tool allows the user to click on any cell of the first layer and enter the corresponding second layer.

**A1**

| Team Process | Policies and Procedures | | |
|---|---|---|---|
| | Clear common goals | Roles and responsibilities | Process Guidelines |
| Perception of team functioning | **A1a1** | **A1a2** | **A1a3** |
| Measured team functioning | **A1b1** | **A1b2** | **A1b3** |

**B2**

| Health Services Process | Team composition | | |
|---|---|---|---|
| | Add a nurse | Add a pharmacist | Add a dietician |
| Access to Care | **B2a1** | **B2a2** | **B2a3** |
| Care Comprehensiveness | **B2b1** | **B2b2** | **B2b3** |
| Satisfaction with care | **B2c1** | **B2c2** | **B2c3** |

**C3**

| Diabetes Care | Remuneration of Providers | | |
|---|---|---|---|
| | FFS to physician | Salaries to all | Other mixed remuneration |
| Diabetes Care – Process and Service Delivery | **C3a1** | **C3a2** | **C3a3** |
| Diabetes Care – Patient Outcomes | **C3b1** | **C3b2** | **C3b3** |

**Layer 3 – Narrative ecological statements**
The user can click on the result described in C3a2 and will be able to view a narrative statement describing the synthesis of the evidence linking salaries to the cycle of diabetes care. The synthesis contextualizes the evidence into ecological statements that identify conditions in which the stated relationship between salaries and diabetes care is most likely to hold. In addition, the user will be able to click on the general category "remuneration of providers" to view a narrative ecological synthesis of the extant knowledge around the effects of provider remuneration on all aspects of care under investigation.

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**WORKPLAN AND TIMELINE  -** Preliminary work on the web-tool precedes the NSHRF funding start date. Below, we focus on the NSHRF funding timelines. The development of the web-tool requires expertise to support two parallel activities: (i) content development; and (ii) product development. It also requires active participation by potential users, therefore our work plan includes consultation, sharing, and dissemination activities involving users.

**TEAM MEMBERS' RESPONSIBILITIES - WD. Wranik** the Principal Investigator for this and the CIHR Knowledge Synthesis study and will lead and supervise the content development. Her expertise is health policy and health services research, and she brings to the team knowledge of how evidence is used in policy decisions, knowledge of primary care organization and funding, and expertise in program evaluation. She is an Associate Professor in the School of Public Administration at Dalhousie University. **T. Sampalli** is the co-PI for this project and a knowledge user with expressed interest in project results. She is the Director of Research and Innovation in Primary Health Care and Chronic Disease Management at the NSHA – she brings expertise from the practical and applied perspective of using research evidence in policy. She holds a PhD in Computer Science and is an Assistant Professor in Medical Informatics at Dalhousie University, and will therefore supervise the product development. **M. Smit** will is a co-Investigator who will co-supervise the product development of the project. His expertise is in computer science and information management, with focus on the application and usability of online products, including their evaluation. He is an Associate Professor in the School of Information Management at Dalhousie University. **S. Price** is a co-Investigator for this and the CIHR Knowledge Synthesis study. Her expertise is in primary care organization and the use of and planning for interdisciplinary care teams. She will oversee the accuracy of the content development, as well as usability from the practitioner perspective. She is an Associate Professor in the School of Nursing at Dalhousie University. **R. Gibson** is co-Investigator for this study. Dr. Gibson is the Senior Medical Director in Primary Health Care, Family Practice and Chronic Disease Management at the NSHA. His expertise and experience is in primary health care reform, planning and implementation of collaborative family practice teams in Primary Health Care portfolio, is a Co-PI in the MAAP-NS study of physician-led teams and practices in NS. He is an Assistant Professor in Department of Family Medicine at Dalhousie University.**S. Haydt** is an Associate for this study and a co-author of the published study protocol for the CIHR Knowledge Synthesis study. Her expertise is in primary care reform and the sociology of professions, (e.g. relations between professions in primary care) and with governments. She will support the content development. She is a Research Facilitator in the Faculty of Management at Dalhousie.

**TIMELINES - January to March 2018** – Conceptualization, development of two or several prototypes of the web-tool, initial assessment of proposed options via online consultation and focus group with policy makers as potential knowledge users. **April to May 2018 –** Development of the final version of the web-tool, distribution of the web-tool and corresponding webinar. **June to September 2018 –** Management of the web-tool interactive features. Management of an evaluation tool (built into the web-tool), data collection and analysis about the success of the web-tool as a policy support. **October 2018 –** Improvements to the web-tool. Conference. **November 2018 –** Continued monitoring and final improvements. Preparation of manuscript for the publication of an assessment of an interactive web-tool as a policy decision support. [**Challenges** to be identified and addressed as a part of the evaluation].

**INDICATORS OF SUCCESS -** The indicators of success of the web-tool as a knowledge sharing approach will be developed as a part of the project  in collaboration with decision makers involved in the CIHR Knowledge Synthesis Study. The concepts to be measured include usability of the web-tool, likelihood of reliance on the web-tool in policy discussions, and usefulness of information contained in the web-tool. Users will also be able to provide qualitative feedback online, as well as during a focus group. **Dr. Wranik** will share the knowledge gained about the utility of an interactive web-tool as a presentation method for a knowledge synthesis study, and as a policy decision aid during the Qualitative Health Research Conference in October of 2018.

## IMPACT

The NSHRF Knowledge Sharing Support Award will increase and expand the impact of our CIHR funded knowledge synthesis by (i) packaging information into a *user-friendly format*, and (ii) increasing its use through strongly *integrated knowledge translation*.

The impact of the CIHR knowledge synthesis on health services in Nova Scotia is that policy development will be able to rely on existing scholarly evidence when working on questions related to IDPC teams (Who should be a part of the team? How should team members be paid? Who should be in charge? Etc.) .

The impact of the web-tool on decision making related to IDPC teams is direct. The impact on the health of Nova Scotians is indirect. Better informed policy is expected to improve the functioning of IDPC teams, which increasingly are at the heart of the primary care system. A stronger primary care system is expected to improve the health of its clients and their families.

### User Friendly Packaging
A knowledge synthesis is typically published in standard academic formats, such as a scholarly article. While this is also our intent, in addition, we want to ensure that the knowledge is packaged specifically for those, who will use it in policy decisions. The creation of the web-tool and webinar (to be funded by NSHRF) will allow us to present this knowledge in a particularly policy relevant format. Policy makers will be able to easily see the general state of evidence and zoom in on particular relationships between policy levers and outcomes (services, process, or health).

Canadian IDPC teams vary in funding, remuneration, governance, management and organization. We call these team characteristics. Their design is not commonly evidence-based, and we have published about this in the past (Wranik et al. 2017; Wranik et al. 2016). Decision makers, including members of this research team and the larger CIHR research team, want to know how to design IDPC teams to support specific primary care goals in specific contexts

Our web-tool will allow decision makers to gain a quick overview of the state of academic knowledge, and thereby quickly identify which team characteristics have been studied by researchers, and which have not. They will also easily see, which characteristics have strong evidence to support them, and which only have lower quality or weak evidence. In addition, policy makers will be able to zoom into any particular characteristic (e.g. funding approaches) and see more detail with respect to research conducted and results related to this characteristic. In total, we will provide three levels of detail, from broad to specific.

Access to well-packaged information for policy makers improves the policy process by (i) providing relevant and timely information, and (ii) saving time of the policy maker and their team. The lack of timely and relevant information has been flagged as a core challenge to evidence-supported policy making, and a dissonance between the policy and research cycles.

### Integrated Knowledge Translation
The active involvement of the knowledge users (as co-PI and co-Investigator) in the development of the web-tool (NSHRF funded), their guidance throughout the project, from development to evaluation, and their endorsement in terms of publicizing the web-tool, is a proven approach to increasing the uptake and use of research results (see for example http://www.cihr-irsc.gc.ca/e/29418.html).