STRENGTHENING A POPULATION HEALTH APPROACH FOR HEALTH SYSTEM PLANNING

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Executive Summary

Background

The Province of Ontario's *Patients First Act*, requires public health units (PHUs) to work with local health planning agencies (Local Health Integration Networks - LHINs) and use a population health approach to plan health services that meet the health needs of the entire community. A population health approach focuses on improving the health of all people, regardless of social, economic, and/or environmental conditions.

Research Questions

The project aimed to answer: "*What are the key elements for a successful PHU-LHIN collaboration as required by Patients First Act, to achieve an improved health system in Ontario informed by a population health approach?*"

Objectives

1. To determine key elements required for successful PHU-LHIN collaboration, and the scope of those collaborations (e.g., values, goals, definitions, processes, structures, use of population health indicators/measures/assessment /information).

2. To identify and prioritize the categories of population health and health system indicators which could potentially strengthen the PHU-LHIN collaboration.

Key Findings

The research helped identify PHUs and LHINs' perspectives concerning their present and future collaboration. The analysis showed that:

- Public heath units and LHINs have worked together or already do work together on a variety of activities (e.g. local and broader planning, using data to determine local needs, leadership councils, etc.).
- Both sectors reported concerns about LHINs having more power to influence the direction of public health, and the increased clinicalization of public health work.
- Increased resources, shared goals and strong leadership are necessary for effective collaborations.
- Identifying appropriate data to support planning requires careful attention.

In addition, the research helped determine key elements, top barriers and important tools for successful collaboration. Examples of these are:

- Key elements include strong leadership, common and aligned vision and goals, working with a set of common health indicators, and data sharing.
- Top barriers include challenges with data and with geography.
- Important tools include shared planning tools, as well as models and approaches to support analysis.

Methods & Respondent Characteristics

A mixed methods study design was used for this two-phase study. In Phase 1 of this research, a descriptive qualitative approach was used involving interviews and focus groups with sixty-eight participants. Results informed a cross-sectional online survey of 310 respondents in Phase 2.

Phase 1

- 11 homogenous focus groups were conducted involving 56 participants stratified by sector (e.g., PHU, LHIN) and position (e.g., board members, senior management, middle management).
- 12 key informant interviews were conducted via telephone with MOHLTC stakeholders from various branches of the Ministry as well as key relevant agencies of government (e.g., Public Health Ontario, Health Quality Ontario).

Phase 2

- 310 respondents completed the survey and 97% worked in Ontario.
- The majority of respondents (74%) worked at PHUs, while 14% worked LHINs. The variation in response rates from public health and LHIN employees is likely representative of the numbers of employees working in each area.
- One fifth of respondents were managers while the remaining respondents covered a wide range of positions and levels.
- Close to half of respondents had worked in the health sector for more than 15 years and a fifth had worked less than 5 years.

Conclusions

This project adds important insight into the scope of past and existing PHU-LHIN collaborations indicating that some PHUs and LHINs have already been working well together while others have limited experience in collaborating with each other. Although a number of barriers and threats to collaboration were raised, there were also many ideas shared that indicate there is eagerness to work together.

Numerous elements that can enhance successful collaboration at the system, organizational, inter and intra-personal levels have been identified from a wide range of stakeholders including data-focused staff (i.e. data analysts, epidemiologists), managers, senior leadership and board members. These elements point to strategies for all stakeholders to consider in order to support current and future PHU-LHIN collaborations. Information was also collected on the types and sources of information as well as information gaps that exist to support health system planning from a population health perspective.

Introduction

On December 7, 2016, Ontario passed the Patients First Act (Bill 41, Patients First Act, 2016), formally connecting Local Health Integration Networks (LHINs) with local boards of health to leverage public health expertise in population health. At the same time, the Ministry of Health and Long-Term Care (MOHLTC) was engaged in a process to modernize the 2008 Ontario Public Health Standards (OPHS) which includes a new requirement for boards of health to provide population health information, including determinants of health and health inequities, to the public, LHIN(s), community partners, and health care providers. The expected outcome of this population health assessment standard is that "*LHINs and other relevant community partners have population health information, including information on health inequities, necessary for planning, delivering, and monitoring health services that are responsive to population health needs.*"[1]

Population health is defined by the Public Health Agency of Canada as "*an approach to health that aims to improve the health of the entire population and to reduce health inequities among population groups*".[2] Successfully integrating a population health approach into the current system's planning process will require significant and sustained collaboration among health care, public health, and other service providers to improve health outcomes at the individual, community and population levels.

In Phase 1 of this two-phase project, the team focused on exploring PHUs and LHINs current collaborations, the elements influencing PHU-LHIN collaborations as well as future possibilities to support a population health approach to health system planning.

In Phase 2, results of Phase 1 were used to generate an online survey looking at the extent of collaboration, process/structures and tools needed to promote collaboration. This survey was distributed widely among LHIN, PHU and other health agencies in Ontario and included questions on population health data needed to inform health system planning.

Research Question

This project aimed to answer: "*What are the key elements for a successful PHU-LHIN collaboration as required by Patients First Act, to achieve an improved health system in Ontario informed by a population health approach?*"

Research Objectives

The objective of Phase 1 was to explore PHU and LHIN staff/practitioner perspectives on values, goals, definitions, processes, structures and use of population health

[1] MOHLTC. The Ontario Public Health Standards: Requirements for Programs, Services, and Accountability, January 1st 2018, p. 18
[2] Public Health Agency of Canada. What is the Population Health Approach? [internet] cited 2017

indicators/measures/assessment/information, to determine the scope of and key elements of successful PHU-LHIN collaboration.

Using Phase 1 results, Phase 2 focused on answering the following research questions:

- What do Ontario PHU and LHIN stakeholders think are the most important actions to be taken to foster successful collaboration and the most likely solutions to overcome barriers to collaboration between PHUs and LHINs?
- What are priority categories of population health and health system data/information that could potentially strengthen PHU-LHIN collaboration?

Social ecological theory, upon which our conceptual framework for collaboration is based, would suggest that determinants of collaboration at one level of the framework can enhance or suppress determinants at another level (i.e., systems, organizational, interpersonal, and intrapersonal levels). Using this ecological lens, we explored the key elements of successful PHU-LHIN collaboration required to achieve an improved health system in Ontario informed by a population health approach.

Methodology

A mixed methods study design was used for this two-phase study. In phase 1, we conducted a descriptive qualitative study (Table 1) that was then used to inform a cross-sectional online survey conducted in phase 2. Appropriate descriptive statistics were used to analyse the results (e.g., frequency, average, range, percentage of responses). Further statistical testing (e.g., intergroup differences) was conducted for some survey questions (e.g., ranking; Likert scale), as warranted.

Following completion of the data analysis, a face to face all day full team meeting was held to consider implications from phase 1 and 2 results and recommendations for policy, practice and future research. With this new knowledge, the team was able to make recommendations to assist PHUs and LHINs to develop/promote criteria for common measures for PHUs- LHINs, as well as policy makers in the MOHLTC.

Data Collection and Analysis

Participants were recruited to represent a diverse sample from urban, rural, northern/remote, and mixed urban/rural communities to ensure a wide range of input (convenience sample). The research team recruited from the same groups for both phases of data collection using a number of strategies, including:

- study primer (Appendix 1) widely circulated to initiate interest and clarification on the focus of this study;
- email invitations (Appendix 2);
- telephone recruitment (Appendix 3);
- recruitment during existing meetings such as Medical Officers of Health monthly teleconferences or monthly LHIN CEO meetings;
- association listserves;
- relevant newsletters;
- relevant websites; and
- follow-up reminders (Appendix 4)

Phase 1

Eleven homogenous *focus groups* were conducted involving 56 participants stratified by sector (i.e., PHU, LHIN) and position (e.g., board members, senior management, middle management, etc.) from regions across Ontario (Table 1). They were held via teleconference involving up to 5-6 people per focus group, lasting up to one hour. In addition, 12 key informant interviews lasting between 45-60 minutes were conducted via telephone with MOHLTC stakeholders from various branches of the Ministry as well as key relevant agencies of government (e.g., Public Health Ontario, Health Quality Ontario).

Table 1. Methods and Study Sample Size for Phase 1 (N=68)

Sector	Method	Sample	Participants
PHUs	6 Focus Groups	n= 26	1. CEOs/MOHs/VPs 2. Directors 3. EPIs/Analysts/Planners/ Decision Support 4. Managers/ Senior Integration Specialists 5. Board Members
LHINs	5 Focus Groups	n = 30	
Others	Interviews	n = 12	Key Informants (BC, SK, ON, NS)

Given the wide range of roles and sectors of proposed respondents and size of the sub-groups, the focus group and interview participants were first identified by the project team and advisors to the team (e.g., PHO, LHIN colleagues) then recruited by the Research Coordinator by email.

Academic researchers and a Research Coordinator experienced in qualitative research conducted the focus groups and interviews using a moderator/interview/focus group guide to ensure that rich data was obtained. Two pilot interviews were conducted and guiding interview questions were refined or adapted as needed. The pilot interviews were included in the data for analysis.

All interviews were audiotaped and professionally transcribed verbatim for analysis. NVivo 11 was used to identify major and minor themes related to the research questions. Analysis was conducted in collaboration with the entire research team. Promising and important themes and sub-themes informed the development of an online survey for the next phase of research.

Focus Group and Interview Questions

1. How (in what contexts) are PHUs and LHINs currently working together to achieve an improved health system using a population health approach?
2. What do PHUs, LHINs, MOHLTC and other key provincial stakeholders perceive to be elements needed for a successful PHU-LHIN collaboration as required by the *Patients First Act* to achieve an improved health system in Ontario?
3. Applying an ecological systems lens:
    a) What elements at the intrapersonal level (within the person) are required?
    b) What elements at an interpersonal level (within teams) are required?
    c) What elements at an organizational level (within organizations) are required?
    d) What elements at a systems level (outside of the organization) are required?
4. How do elements needed for successful PHU-LHIN collaboration, as required by the *Patients First Act* to achieve an improved health system in Ontario, differ and/or are similar by participant groups (PHUs, LHINs, Others)?

Phase 2

A cross-sectional online survey was conducted to obtain input from PHUs, LHINs, MOHLTC stakeholders, and others from across ON to answer the quantitative research questions 2 and 3. A sub-group of the team developed the general structure of the survey which builds from the phase 1 results. The survey included **three sections**:

1. **Demographic information of respondents** (e.g., employment sector, position title, years of experience working directly as well as indirectly with LHINs, province).

2. **Key elements for successful PHU-LHIN collaboration,** as prioritized by respondents, using a population health approach to achieve an improved health system in Ontario. Following the finalization of the qualitative analysis from phase 1, the sub-group specified items for the core section of the survey related to prioritizing elements for successful collaboration based on the qualitative themes and sub-themes. Elements were initially organized under the following domains: intrapersonal, interpersonal, organization and system level and potentially reorganized depending on the results. Survey items were finalized by the team over a half-day, face-to-face meeting. Responses to items were measured using a 5 point Likert scale. Open-ended questions were included to allow respondents to add elements.

3. **Measures of population health** that respondents find useful to aid in decision making regarding programs and services. Respondents were asked to prioritize a) categories, and b) types of population health and health system indicators from an available list. This list was developed from two sources:

    - A list of population heath measures issued by the MOHLTC (Spring 2017);
    - A list developed by the research team members with expertise in epidemiology and the epidemiology team across the province who are already working on indicators with LHIN analysts. Existing work of the Association of Epidemiologists of Ontario (APHEO) informed the development of the list. Knowledge of relevant work was strengthened through this research strategy through the Phase 1 part of the research strategy.

    Examples of categories of indicators included (e.g., morbidity and mortality data, economic indicators, health status, risk factors, chronic disease, child health, income, employment, environmental etc.) Relevant respondents were asked to rank each type of information for its degree of importance for health-based planning using a population health perspective.

Respondents were offered the option to skip questions that they do not feel they have the expertise to answer. An open-ended question was added to identify any information or indicators that were deemed to be important but were missing from the survey list created by the project team. These additions were not prioritized.

Epidemiologists and academic researchers worked together to measure the content validity of the questionnaire. The survey was pilot tested with approximately 5 respondents including PHU, LHIN and MOHLTC respondents to obtain feedback regarding the clarity and flow of the questions as well as to estimate the length of time the survey will take to complete. The survey completion time was kept to a maximum of 25 minutes in length.

The online survey was hosted by Ottawa Public Health using available online FluidSurvey software that met the host organization's data privacy policies. Links were shared widely with senior and middle managers as well as front line staff and policy makers. A convenience sample was recruited from 36 health units, 14 LHINS, MOHLTC, and other relevant government agencies from Ontario (e.g., Public Health Ontario, Health Quality Ontario) and other relevant organizations (Institute for Clinical Evaluative Sciences).

The aim was to reach a representative sample of 100 respondents from PHUs and LHINs. This number was surpassed with a final total of 310 survey respondents.

Survey Questions

1. What do Ontario stakeholders rate as the key elements for successful PHU-LHIN collaboration at the intrapersonal, interpersonal, organization and system levels for successful PHU-LHIN collaboration as required by the *Patients First Act* to achieve an improved health system in Ontario?
2. How do the key elements differ by PHUs, LHINs versus other respondents (i.e., government agencies) and by the position of respondent (i.e., board members, senior management and middle management and decision support staff (epidemiologists, data analysts, etc.)?
3. What types of population health information (e.g. social determinants of health/health outcomes/health risk factors/health behavior/health system characteristics/health performance/public health indicators) do PHU and LHIN respondents (i.e., epidemiologists, data analysts, MOHs (Associate Medical Officers of Health), CEOs, and business improvement managers) prioritize as being most important for measurement of population health at the LHIN, subLHIN and PHU levels?

Ethics Approval

There were four different levels of ethics approval for this project:

1. Ottawa Public Health (as lead PHU)

   Ottawa Public Health's Research Ethics Board (REB)
   Meets Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) requirements and is chaired by an external expert

2. McMaster University
   Hamilton Integrated Research Ethics Board (HiREB)
3. Niagara Region PHU (expedited ethics approval)
   Niagara Region PHU's Research Ethics Review Committee (RERC)
4. Sudbury & District Health Unit (expedited ethics approval)
   Sudbury & District Health Unit's REB

Consent and Protection of data

Informed consent was obtained for all data collection via interviews/focus groups (Appendix 5) and surveys (Appendix 6). Consents from participants were secured by the Research Coordinator prior to commencing the focus groups or interviews and the survey began with a section that captures consent before participants proceeded. In essence, participation in data collection for the focus groups, interviews, and survey were deemed implied consent (i.e., no signatures were required). No data were collected from vulnerable populations.

Phase 1

The data was collected by the Research Coordinator housed at McMaster University, where information is kept on a password-protected computer or in a locked filing cabinet in a locked room. For the purpose of team analysis, only 'cleaned' 'no identifiers' transcriptions of the collected data were shared on the secure Public Health Ontario: Patients First Collaborative site with project team members (i.e., password required to access site). Focus group participants were given an ID number to protect their anonymity. Names were kept separately from the focus group results.

Phase 2

Any quantitative data not housed at McMaster University was kept on a password-protected computer in a secure area, with information only shared via the secure site provided by PHO. A data sharing agreement was developed to support this sharing of data.

Participation in the survey was anonymous. Participants were asked 2 optional questions:

- Consent to being contacted for follow-up should there be a need for further clarification or exploration of ideas, and/or
- Consent to having their identifying information in a report highlighting case examples or work underway.

With such consent, respondents could disclose their contact information should the study team see value in sharing identifiable information in the study reports. Otherwise, reports did not include information that could identify a participant. Participants were able to opt out of either (or both) of these options and were still be able to take part in the survey if they opted out.

Results

Phase 1

Defining population health

Generally, PHU and LHIN participants defined population health and the use of a population health approach similarly. Concepts that were frequently raised by both PHU and LHIN participants were: health equity; a focus on groups or the whole population rather than individuals; social determinants of health; and the use of data to identify population issues, priorities and health inequities.

Strategies Used by LHINs-PHUs to Collaborate in the Past, Present and Future

PHUs and LHINs have worked together or are currently working together in many ways, most often: a) on local program planning including measuring, monitoring, reporting, b) at planning tables; c) by jointly collecting, providing and sharing data to determine priority community needs; and d) working in partnership with others through leadership councils and with other groups.

> "We're working with Public Health to get the demographics of our region as a whole – lifestyle behaviours, risk factors – and so our sub-region collaboratives, which are going to include people from all the different sectors across our LHIN, I think, will be what we're going to be doing to work towards that population health approach." [LHIN]

> "We have done a regional exercise falls prevention strategy in partnership with our Public Health Units… LHIN-led, but they were obviously the key instruments to inform and deliver with that." [LHIN]

In the past, PHU-LHIN collaborations have focused most often on health promotion and prevention topics such as tobacco cessation and falls prevention; communicable disease including outbreaks in long-term care, the pandemic and flu season; data analysis and sharing such as community profiles, and hospital surveillance; as well as mental health and addictions issues such as the opioids crisis and workplace mental health. Currently, the most common issues for collaborating include mental health & addictions (e.g., the opioid strategy); health promotion and prevention related topics e.g., falls, immunizations, tobacco cessation, health communities; chronic disease; Indigenous health issues and emergency response.

The most commonly reported ways to ideally collaborate in the future included: working together on specific concrete (small/ large) projects with clear goals and shared indicators; collaborating on data sharing, analysis and reporting; building relationships and a collaborative culture; sharing resources, tools, expertise, and secondments; and increasing understanding of others' roles, priorities, culture, decision making.

"… creating, maybe, those generic health profiles, but not necessarily information that's specific to what they need for planning or what we need for planning, but just having that common goal and clearly defined purpose in the projects that we work on together." [PHU]

Barriers and Threats in Working Together

Top barriers related to PHU-LHIN collaboration were reported as:

- A lack of resources/capacity to do collaborative work (e.g., time, funding, staff resources to take on collaborative work);
- Challenges with data including who has what data, limited data availability for small geographies; and technical challenges in sharing data;
- Overlapping or inconsistent geographic boundaries;
- Lack of understanding of the 'other' partner's roles, mandates, responsibilities; and
- Confusion related to governance structures, accountabilities and scope of public health work.

"I think a big one, especially for smaller health units, would be insufficient epi and analyst support. There's a lot of work involved, especially if we start working on these smaller projects or local projects together, like was mentioned earlier. It takes a lot of resources. [PHU]

"There's not good alignment between the boundaries of the Health Units and the LHINs so that each of the relationships are a bit different depending on the geography." [LHIN]

PHU participants were more concerned about a lack of resources for collaboration, data challenges, and a lack of understanding of the other partners' roles compared to LHIN respondents.

How would Public Health effectively respond to this new requirement to work with the LHINs on Patients First with no new resources and a growing mandate and huge pressure on their existing staff to carry out existing mandated programs? [PHU]

The most commonly reported threat by both sectors was the LHINs having a "power over" relationship over PHUs and an increased "clinicalization" of PH work. Other threats include the potential change in provincial political leadership related to the upcoming election, and the risk of not being able to meet increasing mandates without additional resources.

Benefits to Working Together

> There's a cost benefit, if we can reduce the number of duplicated services… and efficiency gathered from that as well. We can then use the time that we save in doing that in other projects. [PHU]

The most commonly reported benefit to PHU-LHIN collaboration included: improved health system delivery by reducing duplication of services, shifting expenditures in health care to address a population health focus, improved LHIN linkages with community and municipalities through PH partnerships, and health sector linkages for PH through LHIN partnerships. The next most commonly reported benefit was the improvements in data quality through better access to data, reduced costs by sharing data, and creative problem-solving to solve data issues. The last benefit was the ability to leverage resources for more impact, such as sharing human resources and technical expertise.

Elements Influencing PHU-LHIN Collaboration at the Organizational, Systemic, Inter- and Intrapersonal Levels

PHU, LHIN, and participants from other organizations described elements at the **organizational level** that support successful collaboration more frequently than elements at other levels of influence (i.e., systemic, inter- and intrapersonal levels). They included:

- Dedicated and shared human resources, capacity, and expertise, through the use of secondments, cross-functional teams, and cross-training;
- Common, aligned and mutually beneficial vision, goals, and objectives;
- Shared data and data infrastructure, as well as tools and methods for data management and analysis using centralized capacity and data sharing agreements;
- Strong leadership and effective leadership structures for all levels of staff including leadership and physicians, and having horizontal rather than vertical structures;

> "It may be useful to have people cross over to the dark side, whichever side they consider is the light side. I think secondments, shared positions – that kind of thing. If we think about the kind of learning health system approach." [Other]

> "We don't even have an information system that links us. And that's a huge expense. But boy, it would sure help. It would sure put patients first, if everybody could share information without having to start from scratch all the time." [LHIN]

- Agreement on shared collaborative processes; for example, planning tables, cross-training, shared processes for community engagement and strategic planning, and keeping municipalities informed;
- Shared understanding of and respect for each others' history, mandates and accountabilities; and
- Effective communication strategies between organizations such as a shared common language, frank open discussions, and a key contact person in each organization for communication.

The above elements were reported by both PHU and LHIN respondents, except for the element "sharing dedicated human resources" which was raised less often by LHIN respondents as compared to PHU and others.

The next most commonly reported elements for successful collaboration were at the **system level** including:

> "I think we were talking here about really clear expectations of the role from the higher level of… coming from the ministry. What's the actual… what are the expectations? And whether that's tied to accountability agreements or indicators." [PHU]

- Clarity of expectations from the ministry re: Patients First and how to work together; clear roles of MoHs and CEOs beyond executive leadership;
- Clear PH & LHIN alignment of accountability requirements and deliverables (i.e., indicators for collaboration and population health) as per Patients First;
- Impact and influence of partners beyond PH and LHINs (e.g., municipalities, community, primary care); and
- Clarity on resource allocation from MoHLTC and adequacy of funding to support Patients First to include resources that will support: costs of collaboration and role transitions, long term initiatives and IT infrastructure.

Of the elements noted above, having more alignment of accountability requirements and deliverables based on Patients First was raised more often by PHU respondents than others. Less commonly raised elements by all included the changing political landscape (e.g., elections, opioid crisis), provincial directions such as the focus on Indigenous health, addictions and mental health strategies, and inter-jurisdictional/ ministerial committees and networks.

At the **interpersonal level** the most commonly reported elements included:

- shared values, beliefs and common understanding of mandates, goals, objectives, and shared language;
- understanding of each other's perspectives, roles, expertise, drivers, and knowledge; and
- willingness to share power and control.

> "…just making sure that there is a common understanding of the goals and objectives and what it is that we're trying to accomplish, recognising that the mandates might be different, but having that whole idea of common language, common understanding, taking a pause on those values, and trying to really, really come together to what the common values might be." [PHU]

Willingness to share power was raised more often by LHIN respondents. An infrequently reported, but important, element was the need to have leaders who have strong interpersonal relationships.

The **intrapersonal level** elements included:

- individual values, attitudes, traits that support collaboration and change (e.g., trusting, team player, collaborative, persistent, open to change, innovative, respectful of all populations);
- knowledge and understanding of key health system concepts; such as population health, social determinants of health, public health, cross sector collaboration, the health care system and community; and
- leadership, critical thinking, problem solving, strategic thinking, advocacy, facilitation, and technical skills.

> "Any individual, they need to have a clear vision of the value-add and a clear system vision on how health equity and a population health approach can help the populations overall. Certainly understanding the impact of the social determinants of health, respect for the client and all those things." [PHU]

The above elements were raised by all groups although PHU respondents more often raised the element "having knowledge and understanding of key health system concepts such as social determinants of health." Less frequently raised elements included using open and flexible ways of working and having effective communication skills.

Tools to Support Collaboration

Tools that can support collaboration included shared planning tools such as logic models, GANTT charts, population health assessment tools; models and approaches to support analysis such as the Plan-Do-Study-Act cycle and continuous quality improvement; supports for face-to-face and online communication; decision-making tools; and financial management tools.

What Types of Information are Needed?

We asked respondents to answer: "*What **types of information** do you think are needed to best support the development of community health profiles to support a population health approach in health system planning?*"

Respondents listed many types of data that were categorized under the following: social determinants of health; community and neighbourhood data; health care system utilization data; morbidity and mortality data; data segmented by population groups; data mapping (GIS); census data; financial data such as tax filter data; and a mix of qualitative and quantitative data. A number of respondents also spoke about the importance of cross sector linked/integrated data.

> "…the collection of demographic information when this touches with the health care system because in order for us to look at health equity or health disparity between and among groups, that is a critical piece that we need to be able to really present priority populations where there's opportunities for intervention. That's a very, very key missing piece to most of the data that we currently have." [PHU]

When asked to answer: "*What **sources of information** do you think are needed to best support the development of community health profiles to support a population health approach in health system planning?*", most respondents identified organizations such as the Institute for Evaluative Sciences, Public Health Ontario, the Canadian Institute for Health Information, universities, and many others. They also noted population survey data such as the Canadian Community Health Survey, Rapid Risk Factor Surveillance System (RRFSS), the Health Care Experience Survey, various Statistics Canada surveys, and public health surveys along with others. Many databases were also identified: Better Outcome Registry and Network (BORN) Information System), ontariohealthprofiles.ca, and Health Shared Services Ontario. Other less frequently mentioned sources included indices and indicator data such as the APHEO Core Indicators project and a data centre for the LHINs.

Respondents were also asked "*What **new types of information or categories of population health indicators** could be used that are currently not being used?*" The most common answers were related to Indigenous populations, equity data, and data from health and social services sectors (e.g., housing, walkability, schools, police reports, Ontario Works and the Ontario Disability Support Program) as well as Electronic Medical Records data.

Phase 2

Demographics

Respondents were asked if they work in Ontario, their employer, their current position/title, and the number of years they have worked in the health sector.

- A total of 310 respondents completed the survey and 97% (n=302) work in Ontario.
- Overall, the majority of respondents (74%) work at Public Health Units (PHUs), while 14% work at Local Health Integration Networks (LHINs). The variation in response rates from PHU and LHIN employees is *likely* representative of the numbers of employees working in each area. About 8% of respondents work in other sectors and 4% work at either the Ministry of Health and Long-term Care (MOHLTC) or Public Health Ontario (PHO).
- Just over a fifth of respondents were managers (22%). The remaining respondents covered a wide range of positions and levels (e.g., 17% data experts).
- Close to half (45%) the survey respondents had worked in the health sector for more than 15 years and a fifth (21%) had worked less than 5 years.

Extent of Collaboration

Respondents were asked to what extent they have, in their current organization, collaborated with each of the following sectors or organizations: LHIN, PHU, MOHLTC, PHO, primary care, hospital, non-health sector, academic research partners working on population health, other sectors.

- LHIN respondents were more likely to state that they collaborated to a "great/moderate" extent with the MOHLTC (90%), Hospitals (88%) and Primary Care (80%).
- PHU respondents were more likely to state that they collaborated to a "great/moderate" extent with PHO (72%), the non-health care sector (70%) and the MOHLTC (62%).

Actions to Foster Better Collaboration

Respondents were asked to select the top five actions that they believe would best foster collaboration between LHINs and PHUs to improve health system planning (Table 2).

Table 2. Top five actions, reported by all respondents, to foster better collaboration between LHINs and PHUs (N=251)

Overall Top 5 Actions (out of 18 Categories)	Count	Percentage
Working in partnerships on specific projects (small or large) with clear goals & shared indicators	168	66.9%
Collaborating on data sharing and analysis	151	60.2%
Deliberately working to build understanding of each other's roles, priorities, and decision-making processes	120	47.8%
Developing a strong and clear process for leaders of the LHINs and PHUs to connect	98	39.0%
Creating a common understanding of each sector's approach to population health	96	38.2%

Table 3. Top five actions, by sector, to foster better collaboration between LHINs and PHUs (LHIN: N=40, PHU: N=190)

Responses by Employer	LHIN Count (% of LHINs)	LHIN Rank	PHU Count (% of PHUs)	PHU Rank
Working in partnerships on specific projects (small or large) with clear goals & shared indicators	**33 (82.5%)**	**1**	**122 (64.2%)**	**1**
Collaborating on data sharing and analysis	**24 (60.0%)**	**2**	**111 (58.4%)**	**2**
Determining shared vision, values and guiding principles for collaboration	20 (50.0%)	3	60 (31.6%)	
Addressing geographic boundaries between LHINs and PHUs	16 (40.0%)	4	43 (22.6%)	
Creating a common understanding of each sector's approach to population health	**14 (35.0%)**	**5**	**79 (41.6%)**	**4**
Developing a strong and clear process for leaders of the LHINs and PHUs to connect	9 (22.5%)		78 (41.1%)	5
Deliberately working to build understanding of each other's roles, priorities, and decision-making processes	3 (7.5%)		98 (51.6%)	3

Bolded rows represent agreement between LHINs and PHUs on the top five actions

Both LHINs and PHUs agreed on the following actions among the top five (Table 3):

- Working in partnerships on specific projects (small or large) with clear goals & shared indicators
- Collaborating on data sharing and analysis
- Creating a common understanding of each sector's approach to population health

Processes and Structures to Promote Role Clarity

Respondents were asked to select the top three processes or structures they think are important to promote role clarity among LHIN and PHU partners (Table 4).

Table 4. Top three processes or structures, reported by all respondents, to promote role clarity among LHIN and PHU partners (N=248)

Overall Top 3 Processes or Structures (out of 8 Categories)	Count	Percentage
Shared indicators for a health outcome of common interest in both LHIN and PHU accountability agreements	142	57%
Identification of leads in PHUs and LHINs to work with the leadership teams of each organization	125	50%
Formal Memorandum of Understanding (MOU) for collaboration	107	43%

Table 5. Top three processes or structures, by sector, to promote clarity among LHIN and PHU partners (LHIN: N=40, PHU: N=190)

Responses by Employer	LHIN Count (% of LHINs)	LHIN Rank	PHU Count (% of PHUs)	PHU Rank
Shared indicators for a health outcome of common interest in both LHIN and PHU accountability agreements	**22 (55.0%)**	**1**	**100 (52.6%)**	**1**
Identification of leads in PHUs and LHINs to work with the leadership teams of each organization	**18 (45.0%)**	**2**	**93 (48.9%)**	**2**
Face-to-face meetings involving all levels of staff in LHINs and PHUs in their jurisdiction	17 (42.5%)	3	69 (36.3%)	
Formal Memorandum of Understanding (MOU) for collaboration	16 (40.0%)		80 (42.1%)	3

Bolded rows represent agreement between LHINs and PHUs on the top three processes or structures

More than half of respondents (PHU and LHIN) agreed that: 1) shared indicators for a health outcome of interest in both PHU and LHIN accountability agreements and 2) identification of leads with both organisations to work with the leadership teams of each organization were important processes/structures to promote role clarity among LHIN and PHU partners (Table 5). However, LHIN respondents preferred face-to-face meetings as their third preference in comparison to PHUs who preferred having a formal Memorandum of Understanding (MOU) for collaboration as their third preference.

Geographic Challenges

Solutions to help overcome geographic boundary challenges in relation to using data to inform health system planning using a population health approach

When asked about solutions to help overcome geographic challenges in relation to using data to inform health system planning using a population health approach, the top two "somewhat or very likely" solutions selected by both LHINs and PHUs were:

- Ensure that health data are geocoded (89%).
- Ensure that geocoded information is available to all agencies or embedded into health data (82%).

The other proposed solutions were less frequently considered "somewhat or very likely" to help overcome geography boundary challenges:

- Ensure that LHIN sub-regions match PHU boundaries (77%)
- Eliminate or reduce overlap between LHIN and PHU boundaries (57%)

Solutions to help overcome geographic challenges in relation to collaboration between LHINs and PHUs for an improved health system in Ontario

When asked about solutions to help overcome geographic challenges in relation to collaboration between LHINs and PHUs, the top three "somewhat or very likely" solutions selected by both LHINs and PHUs were:

- Develop a joint strategic local needs assessment (77%).
- Identify one PHU lead to connect with each LHIN sub-region leadership team (57%).
- Identify one LHIN executive lead to work with each PHU leadership team (57%).

Tools to Support LHIN and PHU Collaboration

Respondents were asked to select the top five categories of tools (that currently exist or could be created) that would have the most positive impact when jointly used to support LHIN and PHU collaboration for an improved health system in Ontario informed by a population health approach (Table 6). Both LHINs and PHUs agreed on the following tools among the top five (Table 7):

- Program planning, management, and evaluation
- Health equity impact assessments
- Knowledge exchange and translation

Table 6. The top five categories of tools that could have the most positive impact when jointly used to support LHIN and PHU collaboration for an improved health system (N=236)

Overall Top 5 Categories of Tools (out of 14 Categories)	Count	Percentage
Program planning, management, and evaluation	151	64%
Knowledge exchange and translation	123	52%
Health equity impact assessments	121	51%
Joint communication strategies and messages - shared platforms and/or tools for common messaging across all sectors	104	44%
Collaboration/ partnership evaluation	97	41%

Table 7. The top five categories of tools, by sector, that could have the most impact when used jointly to support collaboration (LHIN: N=40, PHU: N=175)

Crosstabs by employer	LHIN Count (% of LHINs)	LHIN Rank	PHU Count (% of PHUs)	PHU Rank
Program planning, management, and evaluation	**29 (72.5%)**	**1**	**104 (59.4%)**	**1**
Business intelligence (for decision support)	24 (60.0%)	2	35 (20.0%)	
Health equity impact assessments	**20 (50.0%)**	**3**	**87 (49.7%)**	**3**
Quality improvement	19 (47.5%)	4	49 (28%)	
Knowledge exchange and translation	**15 (37.5%)**	**5**	**95 (54.3%)**	**2**
Joint communication strategies and messages	12 (30.0%)		80 (45.7%)	4
Collaboration/ partnership evaluation	13 (32.5%)		76 (43.4%)	5

Bolded rows represent agreement between LHINs and PHUs on the top five categories

Criteria for a Common Set of Health Indicators to Inform Health System Planning

When asked to rate the importance of various criteria when selecting a common set of population health indicators to inform system planning, most respondents rated the criteria below as "**important/very important**":

1. Potential to identify inequity (92%)
2. Covers a range of indicator categories (e.g., risk factors in addition to health system utilization) (92%)
3. Meaningful at different geographical levels (e.g., can roll up and down from local/neighbourhood to regional to provincial levels) (87%)
4. Both LHINs and PHUs have a role in improvement of the measured population health outcome (83%)

Both LHINs and PHUs had a similar distribution of these criteria, however, the LHINs had much smaller proportions of respondents reporting the level of importance as "important/very important" and much higher proportions of respondents being neutral about these criteria (Figure 1). For example, 92% of PHU respondents reported that the potential to identify inequity is an "important/very important" criteria as compared to 33% of LHIN respondents (62% were neutral).

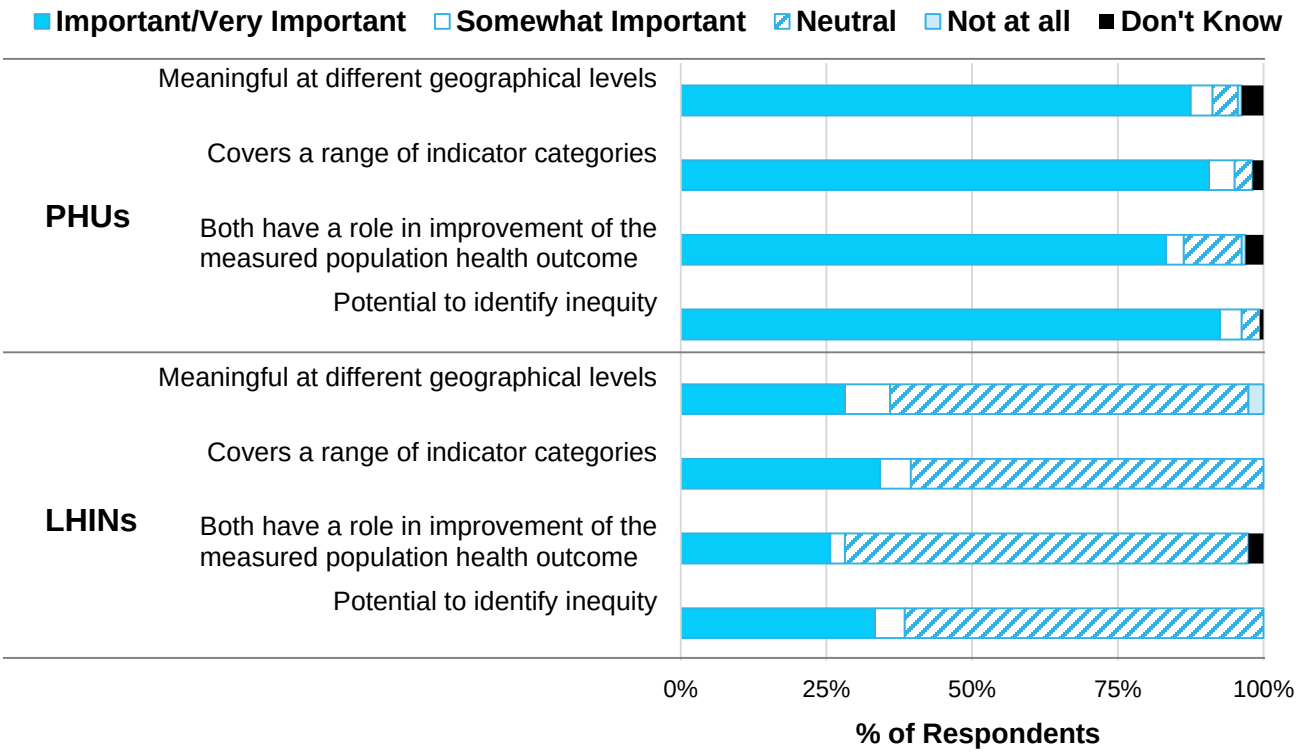

Figure 1. Criteria to consider when selecting a common set of population health indicators to inform health system planning by Public Health Units (PHUs) and Local Health Integration Units (LHINs)

Types of Data that Help Us Understand Population Health

Respondents were asked in an open-ended question; "**Please list the top five types of data that you use to understand the health of your population.**" Responses were analyzed qualitatively and grouped under six major categories (Table 8). The number of responses under each category are displayed by type of respondent (i.e., LHIN and PHU).

Of the total 352 LHIN and PHU responses related to *Data Used to Understand the Health of the Population*, the data categories most often used were:

- Health Status/Health Outcome (30.7%)
- Demographics and Determinants of Health (23.9%)
- Health Services Utilization (23.3%)
- Health Behaviour (e.g., substance use, obesity, breastfeeding, physical activity) (9.7%)
- Community/Neighbourhood Characteristics - community assessment data (i.e., walkability) (8.2%)

Table 8. Number and percentage of items by type of data used to understand population health by LHIN and PHU respondents

Types of Data	LHIN Count (% of LHINs)	PHU Count (% of PHUs)	Total Count (% of Total)
1. Health Status/Health Outcomes (e.g., morbidity/ mortality, life expectancy, injuries, reportable infectious disease)	28 (28.6%)	80 (31.5%)	108 (30.7%)
2. Demographics and Determinants of Health (e.g., employment, income, culture)	21 (21.4%)	63 (24.8%)	84 (23.9%)
3. Health Services Utilization (e.g., hospital, ER, and program use)	28 (28.6%)	54 (21.3%)	82 (23.3%)
4. Health Behaviours (e.g., substance use, obesity, breastfeeding, physical activity)	6 (6.1%)	28 (11.0%)	34 (9.7%)
5. Community Characteristics (e.g., walkability, environmental assessments)	5 (5.1%)	24 (9.4%)	29 (8.2%)
6. Health Services Quality/Performance (e.g., access to services)	10 (10.2%)	5 (2.0%)	15 (4.3%)
Total	**98**	**254**	**352**

For additional information, refer to level 1 aggregation on worksheet titled "Q12 Data Types (LHINs & PH)" in accompanying MS Excel spreadsheet.

Public Health respondents (n=204) contributed 254 responses which were most often grouped into: 'Health Status/Health Outcomes' data (31.5%), 'Demographics and Determinants of Health' (24.8%) and 'Health Services Utilization' data (21.3%).

LHIN respondents (n=40) contributed 98 responses and indicated that they used 'Health Services Utilization' (28.6%) and 'Health Status/Health Outcomes' data (28.6%) most often, followed by the 'Demographics and Determinants of Health' data (21.4%). LHIN respondents also reported using more 'Health Services Quality/Performance indicator' data compared to those in Public Health (10.2% versus 2.0%). PHUs reported using more 'Health Behaviour' data compared to the LHIN (9.4% versus 6.1%)

It should be noted that many respondents (48 responses from LHINs, 313 responses from PHUs) interpreted the question as the *sources* of data rather that *types* of data. For example, many respondents named organizations, such as Statistics Canada or national and provincial surveys; for example, Canadian Community Health Survey (CCHS) and General Social Survey (GSS). Respondents also reported data systems such as those available from the Canadian Institutes for health Information (CIHI); including Continuing Care Reporting System (CCRS); Discharge Abstract Database (DAD); National Ambulatory Care Reporting System (NACRS); and Ontario Mental Health Reporting System (OMHRS). Other data systems were named, including the Rapid Risk Factor Surveillance System (RRFSS). A few respondents named generic types surveys; for instance, parent, population health, or priority population surveys (Table 9).

Table 9. Number and percentage of data sources* used to understand population health by LHIN and PHU respondents

Data Source	LHIN Count (% of LHINs)	PHU Count (% of PHUs)	Total Count (% of Total)
Risk Factor Surveys	6 (12.5%)	66 (21.1%)	72 (19.9%)
Census	11 (22.9%)	51 (16.3%)	62 (17.2%)
Organizations Providing Data	11 (22.9%)	36 (11.5%)	47 (13.0%)
Better Outcomes Registry and Network (BORN)	0	31 (9.9%)	31 (8.6%)
Existing Profiles, Reports, Snapshots	1 (2.1%)	22 (7.0%)	23 (6.4%)

**Only the top 5 data sources are listed here*
For additional information, refer to level 1 aggregation on worksheet titled "Q12 Data Sources (LHINs & PH)" in accompanying MS Excel spreadsheet.

Indicators to Strengthen Collaborative Health System Planning

Respondents were asked to identify **"the two most important indicators in each category that will strengthen collaborative health system planning by LHIN and Public Health."** Responses were analysed qualitatively. Results are reported using frequency counts of the items within sub-categories for each of the major categories.

Although the question asked about the top two indicators, the list below includes the top **five indicators to strengthen collaborative health system planning by LHINs and Public Health** within each of the eight major categories:

a) **Health Outcomes** (e.g., mortality, life expectancy)

1. mortality measured in various ways (e.g., mortality by cause, preventable, premature) (n= 90);
2. life expectancy (e.g., life expectancy by income quartile, disability free life expectancy) (n=43);
3. morbidity reported in various ways (e.g., incidence, changes in rates of disease, multi-morbidity) (n=33);
4. quality of life (n=15); and
5. health service use including hospitalizations (n=14).

b) **Health Status** (e.g. excellent or very good health, cancer incidence)

1. diseases including chronic disease, infectious diseases, multi-morbidity and correlations (n=92);
2. general self-reported health status (n=49);
3. mental health (n=37) described as self-rated mental health and excellent to very good self-reported mental health;
4. physical health (e.g., physical activity level, obesity) (n=16); and
5. quality of life measures (n=9);activities of daily living, disabilities, functional status and mobility (n=9).

c) **Population/Demographic** (e.g., birth rate; age/sex distribution)

1. age, sex, and gender data (n=95);
2. birth and death rates (n=40);
3. ethnic, racial, cultural, and minority groups/priority populations (e.g., indigenous, immigrant and refugees, LGBTQ, and ethnicity) (n=28);
4. income indicators (e.g., income inequality, family income, poverty rates, deprivation) (n=23); and
5. population size and make up (n=14).

d) **Health Risk Factors** (e.g., tobacco use; fruit and vegetable intake; exceeding low risk alcohol drinking guidelines)

1. substance use including tobacco (n=80), alcohol (n=42), drugs (n=32), and substance use in general (n=7) (total n=161);
2. energy imbalance (e.g., food intake, weight, physical activity, clustered physical activity, nutrition) (n=92);
3. mental health (n=11);
4. social determinants of health (n=8); and
5. healthy lifestyle (n=6); injuries (n=6); communicable diseases (n=6).

e) **Social Determinants of Health/Health Inequities** (e.g., population in low income (LIM); housing affordability; differences in health outcomes comparing indigenous and non-indigenous populations)

1. income (e.g., low-income measure (LIM), poverty, deprivation index, living wage) (n=104);
2. housing (e.g., affordability, safety, security, access, and transient housing) (n=41);
3. priority populations (e.g., indigenous population, cultural communities, visible minorities) (n=33);
4. health outcomes by population (e.g., indigenous populations, immigrant populations, social determinants of health, socioeconomic status, income) (n=23); and
5. education (n=16).

f) **Health Service Capacity/Health System Characteristics** (e.g., number of general practitioners and nurse practitioners per capita; number of home care visits per capita)

1. numbers and ratios of health and community care providers per capita, including primary care, health care and community care, health services, and public health providers (n=64);
2. access to health and community services and providers (e.g., wait times, bed care spaces, access to providers and quality of access) (n=61);
3. number per capita and quality of home care visits (n=15);
4. number of unattached patients (n=13); and
5. service utilization rates for hospitalization, ER, primary care, dental and long-term care (n=11).

g) **Health System Performance** (e.g., visits for conditions best managed elsewhere; two-year old well baby visits)

1. appropriate and inappropriate use of service (e.g., visits and ambulatory care sensitive conditions best managed elsewhere, inappropriate emergency room use) (n=34);
2. hospital and ER admissions, readmissions and discharges including use of Alternate Level of Care (ALC) beds (n=26);
3. prenatal, well baby including breastfeeding support, and HBHC visits (n=25);
4. access to services/specialists/procedures (e.g., wait times, access to primary care, access to appropriate care 24/7) (n=25); and
5. Immunization rates (n=8).

h) **Health System Utilization** (e.g. emergency room visits, hospitalization rates)

1. emergency department utilization (e.g., rates by cause and return visits) (n=74);
2. hospitalization rates (e.g., admissions and readmissions, use of ALC beds, length of stay, and reasons for admissions) (n=48);
3. appropriate versus inappropriate utilization of services (e.g., inappropriate use of acute care beds, non-urgent use of ER and visits for conditions best managed elsewhere) (n=16);
4. primary care utilization and access measures (e.g., walk-in use) (n=11); and
5. home care use (n=8).

Data Gaps – Indicators, Topics, and Population Data Needed to Facilitate Collaborative Health System Planning

Respondents were asked to identify, to the best of their knowledge, **"five indicators, topics, or populations for which data are not currently available"** but would facilitate collaboration between LHINs and PHUs for an improved health system in Ontario, informed by a population health approach.

Respondents provided up to five answers for the above question. A total of 384 answers reported data needs which were all coded qualitatively (Table 10; Table 11). These answers were grouped into three major categories as follows: '**Topics of Interest**' (n= 23 answers; 58.1%); '**Populations of Interest**' (n=83 answers; 21.6%); and '**Demographics and Access to Data**' (n =78 answers, 20.3%).

Table 10. Number and percentage of topics by overall category for which data are not currently available but are needed for LHIN-PHU collaboration

Topics		Total Count	% of Total
1.	Topics of Interest	223	58.1%
2.	Populations of Interest	83	21.6%
3.	Demographics and Data Access	78	20.3%
Total		**384**	**100%**

For additional information, refer to level 1 aggregation on worksheet titled "Q14 Data Not Available" in accompanying MS Excel spreadsheet.

Within the **'Topics of Interest'** category (n=223) (Table 11) were:

1. 'Health Issues' (n=151; 67.7%). These comprised of health behaviours, mental health, chronic diseases, healthy weights and obesity, immunizations vaccinations, and injuries and violence (Table 12). The most frequent responses (n=57; 37.7%) were grouped into the sub-category 'Health Behaviours' (i.e., substance use, physical activity, nutrition, and sleep). The next most frequently identified health issue was 'Mental Health' (i.e., general mental health, child and youth mental health, suicide) (n=35; 23.2%). The third most frequently reported health issue was 'Chronic Diseases' (n=8; 5.2%);

2. 'Health System Issues' (n=52; 23.3%). These comprised of access to health services, utilization of health services, and system performance (Table 13); and

3. 'Socio-environmental Issues' (n=20; 8.9%). These comprised of the built environment, employment indicators, housing, and community neighbourhood characteristics (Table 14).

Table 11. Number and percentage of Q14 collated responses for which data are not currently available but are needed for LHIN-PHU collaboration (N = 384)

Data Gaps	Total Count	% of Total for Each Category
Topics of interest	**223**	**-**
Health Issues (*Largest category – see table 11 below*)	151	67.7%
Health System Issues	52	23.3%
Socio-environmental Issues	20	9%
Populations of Interest	**83**	**-**
Indigenous/First Nations	24	28.9%
Children and Youth	23	27.7%
Ethno-cultural groups	10	12%
Seniors	10	12%
Priority populations (e.g., poor, marginalized)	6	7.2%
Homeless population	4	4.8%
Newcomers/Refugees	4	4.8%
LGBTQ	2	2.4%
Demographics and data access	**78**	**-**
Data available but not accessible to all	64	82.1%
Demographics	14	17.9%

For additional information, refer to level 1 aggregation on worksheet titled "Q14 Data Not Available" in accompanying MS Excel spreadsheet

Table 12. Number and percentage of health issues for which data are not currently available but are needed for LHIN-PHU collaboration (N=151)

Health Issues	Total Count	% of Total
Behaviours	57	37.7%
Mental health	35	23.2%
Chronic diseases	8	5.3%
Healthy weights and obesity	6	3.9%
Immunizations vaccinations	6	3.9%
Injuries and violence	6	3.9%
Social engagement - isolation for seniors	5	3.3%
Infectious diseases	4	2.6%
Dental care	4	2.6%
Attitudes beliefs	3	1.9%
Food security	3	1.9%
Health literacy	3	1.9%
Caregiver strain	2	1.3%
General health status information	2	1.3%
Sexual health	2	1.3%
Learning disabilities autism ADHD	1	0.7%
Prescription drugs	1	0.7%
Preconception & pregnancy health	1	0.7%
Disabilities	1	0.7%
Hospice care	1	0.7%

For additional information, refer to level 3 aggregation on worksheet titled "Q14 Data Not Available" in accompanying MS Excel spreadsheet

Table 13. Number and percentage of health system issues for which data are not currently available but are needed for LHIN-PHU collaboration (N=52)

Health Systems Issues	Total Count	% of Total
Access to Health and Community Care (Including Wait Times)	19	36.5%
Utilization of Health Services	14	26.9%
Health System Performance	11	21.2%
Human Resources	5	9.6%
Health Equity	3	5.7%

For additional information, refer to level 3 aggregation on worksheet titled "Q14 Data Not Available" in accompanying MS Excel spreadsheet

Table 14. Number and percentage of socio-environmental issues for which data are not currently available but are needed for LHIN-PHU collaboration by LHIN and PHU respondents (N=20)

Socio-environmental Issues	Total Count	% of Total
Built Environment (Including Water Quality)	7	35.0%
Community/Neighbourhood Characteristics	3	15.0%
Employment Indicators	3	15.0%
Housing	3	15.0%
Social and Environmental Determinants of Health	3	15.0%
Mobility	1	5.0%

For additional information, refer to level 3 aggregation on worksheet titled "Q14 Data Not Available" in accompanying MS Excel spreadsheet

Within the '**Populations of Interest Category**' (n=83) (Table 11) were:

1. 'Indigenous Population and First Nation Issues' (n=24; 28.9%). This comprised of requests related to Indigenous population/First Nations data both on and off reserve;
2. 'Children and Youth' (n=23; 27.7 %). This category comprised of gaps in the general child health data and in particular child health data under the age of 12 years;
3. 'Ethno Cultural Groups' (n=10; 12%). The comprised of gaps in Mennonite and Francophone specific data;
4. 'Seniors' (n=10; 12%). General data requests for senior health data;
5. 'Priority Populations' (n=6; 7.2%) This comprised of requests for data related to marginalised groups generally, specifically data in relation to sex trade workers and institutionalized groups;
6. 'Homeless Population' (n=4; 4.8%). This comprised of gaps in homeless, inadequately housed and transitional youth data;
7. 'Newcomers and Refugee Data' (n=4; 4.8%); and
8. 'LGBTQ' (n=2; 2.4%).

Within the '**Demographics, Data Quality and Access**' (n=78) (Table 15) were:

1. 'Data Available but not Accessible to All' (n=64; 82%)
   a. 'Small area - sub-region data availability' (n=32; 41%). The need for more granular neighbourhood level/DA level data on specific health indicators was identified.
   b. 'Data available but not easily accessible' (n=17; 21.8%). Responses in this category identified that, although data is available to some organizations, it

may not be available to all (e.g., Coroners' data, OHIP billing data, EMS data, Primary Care and other EMR data).

c. 'Linked data and data sharing' (n=11; 14.1 %). Responses in this category identified the need for better/more data linkages across disparate data systems.

d. 'Other types of information' (n=4; 5.1%) included Emergency Medical Services (EMS) data, Patient Reported Outcome Measures (PROMs), and primary care screening data.

2. 'Demographics' (n=14; 17.9%). Respondents identified a need for more/better socio–economic and demographic data (e.g., education, income, ethnicity, immigration status).

Table 15. Number and percentage of demographics, data quality and access issues for which data are not currently available but are needed for LHIN-PHU collaboration (N=78)

Data Accessibility	Total Count (% of Total)
Small Area/Neighbourhood/Sub-region Data Availability	32 (41.0%)
Data Available But Not Easily Accessible (e.g. Coroner's Data, OHIP, Primary Care Data)	17 (21.8%)
Demographics (e.g., Income, Ethnicity, Education, Socio-economic Status)	14 (17.9%)
Linked Data and Data Sharing (e.g., Unique Patient Identifiers, Linking Health Admin Datasets with Other Data)	11 (14.1%)
Other Types of Data (e.g., EMS Data, PROMs, Primary Care Screening Data, EMR Data)	4 (5.1%)

For additional information, refer to level 3 aggregation on worksheet titled "Q14 Data Not Available" in accompanying MS Excel spreadsheet

Study Limitations

One notable study limitation was that not all PHUs and LHINs in Ontario were represented, although there was an attempt to cover every region in Ontario by at least one sector representative. Similarly, not all disciplines were represented from each region, although there was a strong cross-section of disciplines and roles including staff, middle and senior managers in the sample. A full review of the study limitations is provided in Appendix 9.

Conclusions

This project adds important insight into the scope of past and existing PHU-LHIN collaborations indicating that some PHUs and LHINs have already been working well together while others have limited experience in collaborating with each other. Although a number of barriers and threats to collaboration were raised, there were also many ideas shared that indicate there is motivation to work together in the interest of the community's health.

Numerous elements that can enhance successful collaboration at the system, organizational and inter and intra-personal level were identified from a wide range of stakeholders including data-focused staff (i.e., data analysts, epidemiologists), managers, senior leadership and board members. These elements point to strategies for all stakeholders to consider in order to support current and future PHU-LHIN collaborations. Information was also collected on the types and sources of information as well as information gaps that exist to support health system planning from a population health perspective.

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Appendix 1

Study Primer for the Research Project

Public Health Units and LHINs working together for population health

McMaster University School of Nursing

HiREB # 3091 Version 2 May 4, 2017

A "Locally-Driven Collaborative Project" (LDCP) led by public health units, funded by Public Health Ontario

Announcing a research project in support of LHIN-PHU collaboration

How will this research project help your work?

This project will explore the question: What are the key elements for successful public health unit and Local Health Integration Network (PHU-LHIN) collaboration as required by the *Patients First Act*, to achieve an improved health system in Ontario informed by a population health approach?

Meeting these study objectives may answer questions you have about collaboration between LHINs and PHUs:

- ☑ Explore elements such as: values, goals, definitions, processes, structures and use of population health information, in order to determine the scope of and key elements of successful PHU-LHIN collaboration
- ☑ Identify and prioritize the categories of population health and health system indicators whose use could strengthen the PHU-LHIN collaboration for population health

This project aims to provide you with:

- ❖ A common definition and understanding of population health across PHUs and LHINs
- ❖ Core elements that support successful PHU-LHIN collaboration (e.g., values, goals, definitions, processes, structures and use of population health information)
- ❖ Categories of core population and health system information (and possibly measures/indicators, such as morbidity and mortality data, economic indicators, health status, risk factors, chronic disease, child health, income, employment, and environmental) that in their use can support population health assessment
- ❖ An understanding of how standardized indicators are incorporated into local population health assessment for the purposes of health systems planning, who is using them and with what impact
- ❖ Insight into the scope of PHU-LHIN collaborations that are likely to be successful for different staff roles within the respective organizations, given the experiences of a wide range of stakeholders
- ❖ Examples of effective public health contribution to local health system planning, funding and service delivery

What can you expect as the research progresses?

- Key stakeholder groups will be engaged throughout the project for ongoing two-way information sharing e.g. MOHLTC, the relevant *Patients First* Work Stream groups, LHIN Chief Executive Officers (CEOs) and PHU Medical Officers of Health/CEOs
- You will hear about emerging information and research insights throughout the research project

Lead Health Unit	Ottawa Public Health, Dr. Vera Etches, Deputy Medical Officer of Health; Amira Ali; Lise Labrecque
Co-applicant Health Units	Eastern Ontario (Louise Simmons). Niagara (Sinéad McElhone). Oxford (Ruth Sanderson). Sudbury (Marc Lefebvre)
Co-applicant LHIN	Champlain LHIN – Cal Martell
Co-applicant academics	McMaster and Western – Drs. Ruta Valaitis and Anita Kothari
Funding	**$107,939**. Public Health Ontario Special Edition Locally Driven Collaborative Project (LDCP)
Timelines	April 2017-March 2018
Research Design	Focus group, interviews, surveys with PHU, LHIN, MOHLTC and key health systems planning agencies. Diverse sample of participants from: urban, rural, northern/remote, and mixed urban/rural communities; those with different relationship configurations (e.g., number of LHIN-PHU relationships based on overlapping boundaries); range of position groups i.e., MOHs, CEOs, managers, front-line staff, boards.

Questions? Contact Dr. Vera Etches. vera.etches@ottawa.ca. (613) 580-6744 Ext. 23675 or Dr. Ruta Valaitis Valaitis@mcmaster.ca (905) 525-9140 Ext: 22298

Prepared for: Public Health Unit and LHIN MOHs and CEOs, April 2017

The **"Public Health Units and LHINs Working Together for Population Health"** Project Team would like to thank PHO for its support of this project. The team gratefully acknowledges funding received from PHO through the Locally Driven Collaborative Projects program. The views expressed in this publication are the views of the project team, and do not necessarily reflect those of PHO.

Appendix 2

Recruitment Letters and Emails for Interviews, Focus Groups, and the Online Survey from McMaster University

Strengthening a population health approach for health system planning

HiREB Project #3091

McMaster University
School of Nursing

Version 2
March 29, 2017

Participant's Name
Position
Address (Organization)

Dear XXXXXXXXXXX,

Your name has been provided to our research team to invite you to participate in a Patients First: Locally Driven Collaborative Project (LDCP) study led by Vera Etches, Deputy Medical Officer of Health, Ottawa Public Health and Academic Lead- Principal Investigator, Ruta Valaitis, Associate Professor, School of Nursing, McMaster University, Hamilton, Ontario. Our research aims to answer the question, "What are the key elements for a successful collaboration between Local Health Integration Networks (LHINs) and Public Health Units (PHUs), as required by Patients First legislation, to achieve an improved health system in Ontario using a population health approach?"

You are being invited to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area. The interview will take up to 1 hour and will be scheduled at your convenience. Attached is the Letter of Information and Consent form for your perusal.

If you are interested, would you kindly provide a number of potential times that a telephone interview could be conducted over the next few months [May 15, 2017 – September 1, 2017].

If you have any questions, please feel free to contact me.

Thank you.

_____

Nancy Murray RN, PhD
Research Coordinator
McMaster University
Faculty of Health Sciences
Telephone: 905-525-9140 Ext: 21422
Fax: 905-524-5199
Email: nmurray@mcmaster.ca

Mailing Address:
1280 Main Street West, HSC 3H29
Hamilton, Ontario, Canada, L8S 4K1
Courier Address:
1200 Main Street West, HSC 3H29
Hamilton, Ontario, Canada, L8N 3Z5

Strengthening a population health approach for health system planning

McMaster University School of Nursing

HiREB Project #3091

Version 2
March 29, 2017

Participant's Name
Position
Address (Organization)

Dear XXXXXXXXXXX,

Your name has been provided to our research team to invite you to participate in a Patients First: Locally Driven Collaborative Project (LDCP) study led by Vera Etches, Deputy Medical Officer of Health, Ottawa Public Health and Academic Lead- Principal Investigator, Ruta Valaitis, Associate Professor, School of Nursing, McMaster University, Hamilton, Ontario. Our research aims to answer the question, "What are the key elements for a successful collaboration between Local Health Integration Networks (LHINs) and Public Health Units (PHUs), as required by Patients First legislation, to achieve an improved health system in Ontario using a population health approach?"

You are being invited to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area. The focus group will take up 1-1.5 hour(s) and will be scheduled at your convenience. Attached is the Letter of Information and Consent form for your perusal.

If you are interested, would you kindly provide a number of potential times that a telephone interview could be conducted over the next few months [May 15, 2017 – September 1, 2017].

If you have any questions, please feel free to contact me.

Thank you.

_____

Nancy Murray RN, PhD
Research Coordinator
McMaster University
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Strengthening a population health approach for health system planning

McMaster University School of Nursing

HiREB Project #3091 Version 2

March 29, 2017

Participant's Name
Position
Address (Organization)

Dear XXXXXXXXXXX,

Your name has been provided to our research team to invite you to participate in a Patients First: Locally Driven Collaborative Project (LDCP): Phase 2 in the form of an online survey which will be hosted by Ottawa Public Health or the Sudbury & District Health Unit. This study, namely 'Strengthening a population health approach for health system planning' is led by Vera Etches, Deputy Medical Officer of Health, Ottawa Public Health and Academic Lead- Principal Investigator, Ruta Valaitis, Associate Professor, School of Nursing, McMaster University, Hamilton, Ontario.

In Phase 1 of our study, we focussed on the question, "What are the key elements for a successful collaboration between Local Health Integration Networks (LHINs) and Public Health Units (PHUs), as required by Patients First legislation, to achieve an improved health system in Ontario using a population health approach?" In Phase 2, our study aims to identify and prioritize the categories of population health and health system indicators which could potentially strengthen the PHU-LHIN collaboration(s).

You are being invited to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area. The link to the survey will be sent to you to be completed at your convenience over the next several months (October 2017 –December 2017). Attached is an overview of the study (one pager).

If you are interested, would you kindly reply acknowledging your consent to participate in this study. The survey commences with a section that captures consent before are permitted to proceed.

If you have any questions, please feel free to contact me.

Thank you.

_____

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Recruitment Email for the Online Survey

Dear Colleagues,

Ontario's *Patients First Act* provides an opportunity for public health units (PHUs) and local health integration networks (LHINs) to work together using a "population health" approach to plan health services that meet the health needs of all Ontarians. We would like to invite you to participate in a survey that explores how LHINs and local PHUs can best work together. You are being invited to complete the survey because of your work or governance experience in a relevant stakeholder agency in Ontario. This survey explores your thoughts and opinions on strategies and tools to assist PHUs and LHINs to successfully collaborate together for population health. **The survey will take 15 - 20 minutes to complete**. Here is the link. **Please complete the survey by December 7, 2017**. The survey is limited to stakeholders working in Ontario.

The survey is part of a larger research project ***Public Health Units and LHINs working together for population health***, funded by Public Health Ontario and led by a project team with representation from public health units (PHUs), Local Health Integration Networks (LHINs) and universities.

Your responses will inform recommendations to help PHUs and LHINs successfully collaborate together for population health including a proposed set of common measures for population health that could be used by PHUs, LHINs and policy makers within the Ministry of Health and Long-Term Care.

Thank you in advance for your time and interest.

Sincerely,

Vera Etches *MD, MHSc, CCFP, FRCPC*
Medical Officer of Health (Acting)/ *Médecin chef en santé publique (intérimaire)*
Ottawa Public Health / *Santé publique Ottawa*
100 Constellation Cr., Ottawa, ON K2G 6J8
Tel./ tél.: (613) 580-6744 ext: 23675
vera.etches@ottawa.ca

Cal Martell
Vice-President, Integration/ *Vice-président, Intégration*
Champlain LHIN / *RLISS de Champlain*
1900 City Park Dr, Suite 204, Ottawa, ON K1J 1A3
Tel./ tél.: 613-747-6784
Cal.Martell@lhins.on.ca

Appendix 3

Telephone Recruitment Script

Strengthening a population health approach for health system planning

HiREB Project#3091

McMaster University
School of Nursing

Version 2
March 29, 2017

Project Title: Strengthening a population health approach for health system planning

A collaborative research project led by public heath units and funded by Public Health Ontario

Letter of Information / Consent

Project Lead:
Etches, Vera. MD, MHSc, CCFP, FRCPC.
Deputy Medical Officer of Health
Ottawa Public Health.

Academic Lead- PI

Valaitis, Ruta, RN, PhD

Associate Professor
School of Nursing
McMaster University

Hamilton, Ontario, Canada

Phase 1: Academic Co-investigator:
Kothari, Anita, PhD
Associate Professor,
School of Health Studies,
Western University,
London ON

Lead Epidemiologist
Ali, Amira.
Epidemiologist
Ottawa Public Health.

Project Coordinator
Labrecque, Lise, BSW, MHSc, Cert. PE;
Program & Project Management Officer,

Phase 2 co-lead
Lefebvre, Marc, MA,
Manager, Population Health Assessment and Surveillance,
Sudbury & District Health Unit.

Quantitative Support
McElhone, Sinéad, BSc DPhil
Manager of Surveillance and Evaluation,
Niagara Region Public Health.
Quantitative support.

Public health Unit rep. Knowledge User
Sanderson, Ruth, MSc
Manager, Foundational Standard
Oxford County Public Health.

Public health Unit rep.Knowledge User
Louise Simmons MSc.
Manager, Foundational Standard,
Eastern Ontario Health Unit.

LHIN rep. Knowledge User
Martell, Cal.
Senior Director,
Health System Integration,
Champlain LHIN

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Strengthening a population health approach for health system planning

HiREB Project#3091

McMaster University
School of Nursing

Version 2
March 29, 2017

Ottawa Public Health	

Research Sponsor: This study has been funded by Public Health Ontario (Pending) [Final decision is anticipated mid-March 2017].

Code:

P = Potential Participant;
R = Researcher

Introduction

R - May I please speak to [name of potential participant]?

P - Hello, [name of potential participant] speaking. How may I help you?

R - My name is Nancy Murray and I am a McMaster University Research Coordinator in the School of Nursing. I am currently conducting research under the supervision of Dr. Ruta Valaitis and the Aging, Community and Health Research Unit team on a Health Links Caregiver Evaluation Study.

R – You may have seen our primer one pager describing our study 'Strengthening a population health approach for health system planning' which is led by Vera Etches, Deputy Medical Officer of Health, Ottawa Public Health and Academic Lead- Principal Investigator, Ruta Valaitis, Associate Professor, School of Nursing, McMaster University, Hamilton, Ontario.

You are being invited to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area.

In Phase 1 (May 15th – September 2017) of our study, we will focus on the question, "What are the key elements for a successful collaboration between Local Health Integration Networks (LHINs) and Public Health Units (PHUs), as required by Patients First legislation, to achieve an improved health system in Ontario using a population health approach?"

In Phase 2 (a survey) (October 2017 – December 2017), our study aims to identify and prioritize the categories of population health and health system indicators that best support the LHINs and PHU collaboration(s).

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Strengthening a population health approach for health system planning

HiREB Project#3091

McMaster University
School of Nursing

Version 2
March 29, 2017

You are being invited to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area.

Why is this research being done?

A new law in Ontario, called the Patients First Act, requires public health units (PHUs) to work with local health planning agencies, namely, Local Health Integration Networks (LHINs) and use a "population health" approach to plan health services that meet the health needs of the entire community. A "population health" approach to health wants to improve the health of the entire population and to reduce health inequities among certain groups in the population, , so that all people – individuals, groups, and communities – have a fair chance to reach their full health potential and are not disadvantaged by social, economic, and/or environmental conditions.

PHUs and LHINs will work together to develop "profiles" of the health of the community to help plan and deliver services that meet patients' and communities' health needs. Yet, specific ways of how to best work together to achieve population health have not been well documented in Canada. This research aims to answer the question, "What are the key elements for a successful collaboration between LHINs and PHUs, as required by Patients First legislation, to achieve an improved health system in Ontario using a population health approach?"

Purpose of the Study:

This Locally Driven Collaborative Project (LDCP) will identify and describe the key elements for successful collaboration between LHINs and PHUs as required by the Patients First to achieve an improved health system in Ontario using a population health approach. The objectives of this project are as follows:

1. To explore elements such as: values, goals, definitions, processes, structures and use of population health indicators/measures/assessment/information, in order to determine the scope of and key elements of successful PHU-LHIN collaboration.
2. To identify and prioritize the categories of population health and health system indicators which could potentially strengthen the PHU-LHIN collaboration.

You are being invited to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area.

Your name was shared with us by a member of the project team
_____ (co-Investigator's name)

What will happen during the study?

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Strengthening a population health approach for health system planning

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- **You are invited to participate in either an interview or a focus group by telephone (not both);**
- The interview will take up to 1 hour and the focus group will take from 1 to 1 ½ hours;
- You will be invited to discuss key elements for a successful Public Health Unit (PHU)-Local Health Integrating Network (LHIN) collaboration to achieve an improved health system in Ontario using a population health approach;
- Topics will include:
    - understanding of population health and population health approaches;
    - past and current examples of PHU and LHIN collaborations
    - key processes and structures to ensure successful PHU and LHIN collaborations
    - use of population health indicators/ measures/ assessment/ information and criteria for and categories of population and health system indicators or types of information which can best support community health profiles
- All interviews will be audio-taped and professionally transcribed verbatim for analysis.

Are there any risks to doing this study?

- Participation in this study may cause some inconvenience to you as it will require some time commitment. The study will take place during work hours (unless you prefer to participate outside of work hours);
- You can refuse to answer questions that you do not want to answer or that make you feel uncomfortable;
- You can stop taking part at any time.

Privacy and Confidentiality

- Every precaution will be taken to ensure that your anonymity is protected. For example, no information will be attributed to you directly;
- Data will be collected by the academic researchers or Research Coordinator and will be housed at McMaster University, on a password-protected computer or in a locked filing cabinet in a locked room for up to 5 years;
- Only data collected with all identifiers removed will be shared with the project team through the secure site at Public Health Ontario for the Patients First Locally Driven Collaborative Project as only team members have access to this site via password;
- Focus group participants will be given an ID number to protect their anonymity. Names will be kept separately from the focus group results. Focus group participants will be asked ahead of time if they are willing to be identified in reports about their work;
- It is important to note that due to the nature of focus groups (individuals discussing particular issues within a group setting led by a facilitator), researchers cannot

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guarantee confidentiality. However, there are a number of safeguards that will be put into place to protect your confidentiality;

- First, we will remind focus group participants prior to each session that it is important to keep the identity and comments of others confidential to only those people involved in the focus group;
- Second, you are expected to say only what you feel comfortable in communicating;
- Third, for all data collection methods, your name and characteristics including the name of your employer, if mentioned, will be removed or altered and contents of quotes will not reveal individual identities. In other words, no individuals will be identified in any reports or papers emerging from the project;

- Results will be shared with relevant stakeholders in Ontario such as the Ministry of Health and Long-term Care, LHINs, public health units and other relevant organizations
- Results will also be disseminated through scholarly journals or other publications, presentations at conferences, on websites, and possibly in curriculum materials (e.g. small case studies).

If I do not want to take part in this study, are there other choices?

- Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any negative consequences or any explanation;
- If you were part of a focus group and withdraw from the study, the information you provided up to the time of withdrawal cannot logistically be removed and will be included in the analysis.
- If you were involved in an interview, the information you provided up to the time of withdrawal can be removed and will be excluded in the analysis.
- To make sure that you continue to consent to participate in this research, you will voluntarily choose to remain a part of the research project.

Will there be any costs related to this study?

- Your participation in this research project will involve your time.

What are the possible benefits of this study?

- This project will add important insight into the scope of PHU-LHIN collaborations that are likely to be successful at different levels of the organizations, given the experiences of a wide range of stakeholders from data-focused staff (i.e. data analysts, epidemiologists) through to board members.
- Given your position, you will likely find the information useful to you and your organization given the current Patients First legislation.

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Strengthening a population health approach for health system planning

HiREB Project#3091

McMaster University
School of Nursing

Version 2
March 29, 2017

Questions about the Study:

If you have questions or need more information about the study itself, please contact:

Project Lead:	**Phase 2 co-lead; Knowledge User**	**Academic Lead- PI**
Etches, Vera. MD, MHSc, CCFP, FRCPC. Deputy Medical Officer of Health Ottawa Public Health. (613) 580-6744 Vera.Etches@ottawa.ca	Lefebvre, Marc, MA, Manager, Population Health Assessment and Surveillance, Sudbury & District Health Unit (866) 522-9200 Ext:353 lefebvrem@sdhu.com	Valaitis, Ruta, RN, PhD Associate Professor School of Nursing McMaster University Hamilton, Ontario, Canada (905) 525-9140 Ext: 2298 valaitis@mcmaster.ca

This study has been reviewed by the Hamilton Integrated Research Ethics Board (HIREB). The HiREB is responsible for ensuring that participants are informed of the risks associated with the research, and that participants are free to decide if participation is right for them. It has also been reviewed by the Ottawa Public Health Ethics Review Board and the Sudbury & District Health Unit Ethics Review Board and received ethics clearance. If you have concerns or questions about your rights as a participant or about the way the study is conducted, please contact:

Ottawa Public Health / Santé publique Ottawa
100 Constellation Crescent / 100, croissant Constellation
Ottawa, Ontario K2G 6J8
613-580-6744 | TTY / ATS: 613-580-9656
toll free / sans frais: 1-866-426-8885
ottawa.ca/health | ottawa.ca/sante

Sudbury & District Ethics Review Board
1300 Paris Street
Sudbury, ON P3E 3A3
Telephone: 705.522.9200
Toll-free: 1.866.522.9200
Fax: 705.522.5182

Hamilton Integrated Research Ethics Board
Office of the Chair, Hamilton Integrated Research Ethics Board
Telephone: 905.521.2100
Extension: 42013

INFORMED CONSENT

- I have read the information presented in the information letter about survey
- I have had the opportunity to ask questions about my involvement in this study and to receive additional details I requested;
- I understand that if I agree to participate in this study, I may withdraw from the study.

McMaster University, 1280 Main Street West, HSC-3N25 Hamilton, ON, Canada L8S 4K1
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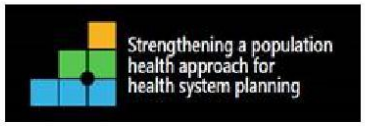

HiREB Project#3091

McMaster University
School of Nursing

Version 2
March 29, 2017

- I have been given a copy of this form;
- In essence, participation in data collection will deemed implied consent (i.e., no signatures will be required);
- No data collection from vulnerable populations is anticipated.

Consent questions:

- Do you have any questions or would like any additional details? *[Answer questions.]*

- Do you agree to participate in the interview/focus group knowing that you can withdraw at any point with no consequences to you?
  - Yes- Go to 1 A
  - No (R = Thank you for your time)

- Is this a convenient time?
  - Yes (R= Thank you. *Then move to Q. 2 followed by commencing the survey*)
  - No –(R= May we set up a time that works for you? *Set-up a convenient time; then move to Q.* o I'm not certain (R = With your permission, I could email/mail/fax you an information letter which has all of these details along with contact names and numbers on it to help assist you in making a decision about your participation in this study. *Then move to Q. 2*)

- Do you agree to participate in a telephone at another time knowing that you may or not be selected?
  - Yes (R =Thank you).
  - (R = Thank you for your time.)
  - I'm not certain (R = With your permission, I could email/mail/fax you an information letter which has all of these details along with contact names and numbers on it to help assist you in making a decision about your participation in the interview.)

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Appendix 4

Sample Reminder Email to Recruit Interview and Focus Groups Participants

Public Health Units and LHINs working together for population health

McMaster University
School of Nursing

HiREB Project #3091

Version 2 May 11, 2017

Participant's Name
Position
Address (Organization)

Dear XXXXXXXXXXX,

Further to the email below, I would like to invite you to participate in an hour interview related to Patients First: Locally Driven Collaborative Project (LDCP) research scheduled at your convenience.

The interview will take up to 1 hour and will be scheduled at your convenience. Attached is the Letter of Information and Consent form outlining more details related to our study.

If you are interested, would you kindly reply providing a number of potential times that a telephone interview could be conducted over the next few months [i.e., May 15, 2017 – September 1, 2017].

If you have any questions, please feel free to contact me.

Thank you.

_____

Nancy Murray RN, PhD
Research Coordinator
McMaster University
Faculty of Health Sciences
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Public Health Units and LHINs working together for population health

McMaster University School of Nursing

HiREB Project #3091

Version 2 May 11, 2017

Participant's Name
Position
Address (Organization)

Dear XXXXXXXXXXX,

Your name has been provided to our research team to invite you to participate in a Patients First: Locally Driven Collaborative Project (LDCP) study led by Vera Etches, Deputy Medical Officer of Health, Ottawa Public Health and Academic Lead- Principal Investigator, Ruta Valaitis, Associate Professor, School of Nursing, McMaster University, Hamilton, Ontario. Our research aims to answer the question, "What are the key elements for a successful collaboration between Local Health Integration Networks (LHINs) and Public Health Units (PHUs), as required by Patients First legislation, to achieve an improved health system in Ontario using a population health approach?"

You are being asked to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area. The interview will take up to 1 hour and will be scheduled at your convenience. Attached is the Letter of Information and Consent form for your perusal.

If you are interested, would you kindly provide a number of potential times that a telephone interview could be conducted over the next few months [May 15, 2017 – September 1, 2017].

If you have any questions, please feel free to contact me.

Thank you.

_____

Nancy Murray RN, PhD
Research Coordinator
McMaster University
Faculty of Health Sciences
Telephone: 905-525-9140 Ext: 21422
Fax: 905-524-5199
Email: nmurray@mcmaster.ca

Mailing Address:
1280 Main Street West, HSC 3H29
Hamilton, Ontario, Canada, L8S 4K1
Courier Address:
1200 Main Street West, HSC 3H29
Hamilton, Ontario, Canada, L8N 3Z5

Appendix 5

Letter of Information/Consent Form for Qualitative Interviews and Focus Groups

Strengthening a population health approach for health system planning

McMaster University School of Nursing

HiREB Project # 3091 Version 1

Project Title: Strengthening a population health approach for health system planning

A collaborative research project led by public heath units and funded by Public Health Ontario

Letter of Information / Consent

Project Lead: Etches, Vera. MD, MHSc, CCFP, FRCPC. Deputy Medical Officer of Health Ottawa Public Health. **Academic Lead- PI** Valaitis, Ruta, RN, PhD Associate Professor School of Nursing McMaster University Hamilton, Ontario, Canada **Phase 1: Academic Co-investigator:** Kothari, Anita, PhD Associate Professor, School of Health Studies, Western University, London ON **Lead Epidemiologist** Ali, Amira. Epidemiologist Ottawa Public Health. **Project Coordinator** Labrecque, Lise, BSW, MHSc, Cert. PE; Program & Project Management Officer, Ottawa Public Health	**Phase 2 co-lead** Lefebvre, Marc, MA, Manager, Population Health Assessment and Surveillance, Sudbury & District Health Unit. **Quantitative Support** McElhone, Sinéad, BSc DPhil Manager of Surveillance and Evaluation, Niagara Region Public Health. Quantitative support. **Public health Unit rep. Knowledge User** Sanderson, Ruth, MSc Manager, Foundational Standard Oxford County Public Health. **Public health Unit rep.Knowledge User** Louise Simmons MSc. Manager, Foundational Standard, Eastern Ontario Health Unit. **LHIN rep. Knowledge User** Martell, Cal. Senior Director, Health System Integration, Champlain LHIN

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Strengthening a population health approach for health system planning

McMaster University School of Nursing

HiREB Project # 3091 Version 1

Research Sponsor: This study has been funded by Public Health Ontario (Pending) [Final decision is anticipated mid-March 2017].

Why is this research being done?

A new law in Ontario, called the Patients First Act, requires public health units (PHUs) to work with local health planning agencies, namely, Local Health Integration Networks (LHINs) and use a "population health" approach to plan health services that meet the health needs of the entire community. A "population health" approach to health wants to improve the health of the entire population and to reduce health inequities among certain groups in the population, , so that all people – individuals, groups, and communities – have a fair chance to reach their full health potential and are not disadvantaged by social, economic, and/or environmental conditions.

PHUs and LHINs will work together to develop "profiles" of the health of the community to help plan and deliver services that meet patients' and communities' health needs. Yet, specific ways of how to best work together to achieve population health have not been well documented in Canada. This research aims to answer the question, "What are the key elements for a successful collaboration between LHINs and PHUs, as required by Patients First legislation, to achieve an improved health system in Ontario using a population health approach?"

Purpose of the Study:

This Locally Driven Collaborative Project (LDCP) will identify and describe the key elements for successful collaboration between LHINs and PHUs as required by the Patients First to achieve an improved health system in Ontario using a population health approach. The objectives of this project are as follows:

1. To explore elements such as: values, goals, definitions, processes, structures and use of population health indicators/measures/assessment/information, in order to determine the scope of and key elements of successful PHU-LHIN collaboration.
2. To identify and prioritize the categories of population health and health system indicators which could potentially strengthen the PHU-LHIN collaboration.

You are being asked to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area.

Your name was shared with us by a member of the project team
_____ (co-Investigator's name)

What will happen during the study?

- You are invited to participate in either an interview or a focus group by telephone (not both);
- The interview will take up to a maximum of 1 hour and the focus group will take from 1 to a maximum of 1 ½ hours;
- You will be invited to discuss key elements for a successful Public Health Unit (PHU)-Local Health Integrating Network (LHIN) collaboration to achieve an improved health system in Ontario using a population health approach;

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- Topics will include:
  - understanding of population health and population health approaches;
  - past and current examples of PHU and LHIN collaborations
  - key processes and structures to ensure successful PHU and LHIN collaborations
  - use of population health indicators/ measures/ assessment/ information and criteria for and categories of population and health system indicators or types of information which can best support community health profiles
- All interviews will be audio-taped and professionally transcribed verbatim for analysis.

Are there any risks to doing this study?

Participation in this study may cause some inconvenience to you as it will require some time commitment. The study will take place during work hours (unless you prefer to participate outside of work hours);

- You can refuse to answer questions that you do not want to answer or that make you feel uncomfortable;
- You can stop taking part at any time.

Privacy and Confidentiality

- Every precaution will be taken to ensure that your anonymity is protected. For example, no information will be attributed to you directly;
- Data will be collected by the academic researchers or Research Coordinator and will be housed at McMaster University, on a password-protected computer or in a locked filing cabinet in a locked room for up to 5 years;
- Only data with de-identified material will be shared with the project team through the secure site at Public Health Ontario for the Patients First Locally Driven Collaborative Project as only team members have access to this site via password;
- Focus group participants will be given an ID number to protect their anonymity. Names will be kept separately from the focus group results. Focus group participants will be asked ahead of time if they are willing to be identified in reports about their work;
- It is important to note that due to the nature of focus groups (individuals discussing particular issues within a group setting led by a facilitator), researchers cannot guarantee confidentiality. However, there are a number of safeguards that will be put into place to protect your confidentiality;
  - First, we will remind focus group participants prior to each session that it is important to keep the identity and comments of others confidential to only those people involved in the focus group;
  - Second, you are expected to say only what you feel comfortable in communicating;
  - Third, for all data collection methods, your name and characteristics including the name of your employer, if mentioned, will be removed or altered and contents of quotes will not reveal individual identities. In other words, no individuals will be identified in any reports or papers emerging from the project;

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- Results will be shared with relevant stakeholders in Ontario such as the Ministry of Health and Long-term Care, LHINs, public health units and other relevant organizations
- Results will also be disseminated through scholarly journals or other publications, presentations at conferences, on websites, and possibly in curriculum materials (e.g. small case studies).

If I do not want to take part in this study, are there other choices?

- Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any negative consequences or any explanation;
- If you were part of a focus group and withdraw from the study, the information you provided up to the time of withdrawal cannot logistically be removed and will be included in the analysis.
- If you were involved in an interview, the information you provided up to the time of withdrawal can be removed and will be excluded in the analysis.
- To make sure that you continue to consent to participate in this research, you will voluntarily choose to remain a part of the research project.

Will there be any costs related to this study?

Your participation in this research project will involve your time.

What are the possible benefits of this study?

This project will add important insight into the scope of PHU-LHIN collaborations that are likely to be successful at different levels of the organizations, given the experiences of a wide range of stakeholders from data-focused staff (i.e. data analysts, epidemiologists) through to board members.
Given your position, you will likely find the information useful to you and your organization given the current Patients First legislation.

Questions about the Study:

If you have questions or need more information about the study itself, please contact:

Project Lead:	**Phase 2 co-lead; Knowledge User**	**Academic Lead- PI**
Etches, Vera. MD, MHSc, CCFP, FRCPC. Deputy Medical Officer of Health Ottawa Public Health. (613) 580-6744 Vera.Etches@ottawa.ca	Lefebvre, Marc, MA, Manager, Population Health Assessment and Surveillance, Sudbury & District Health Unit (866) 522-9200 Ext:353 lefebvrem@sdhu.com	Valaitis, Ruta, RN, PhD Associate Professor School of Nursing McMaster University Hamilton, Ontario, Canada (905) 525-9140 Ext: 2298 valaitis@mcmaster.ca

This study has been reviewed by the Hamilton Integrated Research Ethics Board (HIREB). The HiREB is responsible for ensuring that participants are informed of the risks associated with the research, and that participants are free to decide if participation is right for them. It has also been reviewed by the Ottawa Public Health Ethics Review Board and the Sudbury & District Health Unit Ethics Review Board

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and received ethics clearance. If you have concerns or questions about your rights as a participant or about the way the study is conducted, please contact:

Ottawa Public Health / Santé publique Ottawa
100 Constellation Crescent / 100, croissant Constellation
Ottawa, Ontario K2G 6J8
613-580-6744 | TTY / ATS: 613-580-9656
toll free / sans frais: 1-866-426-8885
ottawa.ca/health | ottawa.ca/sante

Sudbury & District Ethics Review Board
1300 Paris Street
Sudbury, ON P3E 3A3
Telephone: 705.522.9200
Toll-free: 1.866.522.9200
Fax: 705.522.5182

Hamilton Integrated Research Ethics Board
Office of the Chair, Hamilton Integrated Research Ethics Board
Telephone: 905.521.2100
Extension: 42013

INFORMED CONSENT

- I have read the information presented in the information letter about survey
- I have had the opportunity to ask questions about my involvement in this study and to receive additional details I requested;
- I understand that if I agree to participate in this study, I may withdraw from the study.
- I have been given a copy of this form;
- In essence, participation in data collection will deemed implied consent (i.e., no signatures will be required);
- No data collection from vulnerable populations is anticipated.

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Appendix 6

Letter of Information/Consent Form for Online Survey

Public Health Units and LHINs working together for population health

McMaster University School of Nursing

HiREB Project # 3091

Version 1 May 11, 2017

Project Title: Strengthening a population health approach for health system planning

A collaborative research project led by public heath units and funded by Public Health Ontario

Letter of Information / Consent

Project Lead: Etches, Vera. MD, MHSc, CCFP, FRCPC. Deputy Medical Officer of Health Ottawa Public Health. **Academic Lead- PI** Valaitis, Ruta, RN, PhD Associate Professor School of Nursing McMaster University Hamilton, Ontario, Canada **Phase 1: Academic Co-investigator:** Kothari, Anita, PhD Associate Professor, School of Health Studies, Western University, London ON **Lead Epidemiologist** Ali, Amira. Epidemiologist Ottawa Public Health. **Project Coordinator** Labrecque, Lise, BSW, MHSc, Cert. PE; Program & Project Management Officer, Ottawa Public Health	**Phase 2 co-lead** Lefebvre, Marc, MA, Manager, Population Health Assessment and Surveillance, Sudbury & District Health Unit. **Quantitative Support** McElhone, Sinéad, BSc DPhil Manager of Surveillance and Evaluation, Niagara Region Public Health. Quantitative support. **Public health Unit rep. Knowledge User** Sanderson, Ruth, MSc Manager, Foundational Standard Oxford County Public Health. **Public health Unit rep.Knowledge User** Louise Simmons MSc. Manager, Foundational Standard, Eastern Ontario Health Unit. **LHIN rep. Knowledge User** Martell, Cal. Senior Director, Health System Integration, Champlain LHIN

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McMaster University School of Nursing

HiREB Project # 3091 Version 1 May 11, 2017

Research Sponsor: This study has been funded by Public Health Ontario

Why is this research being done?
A new law in Ontario, called the Patients First Act, requires public health units (PHUs) to work with local health planning agencies, namely, Local Health Integration Networks (LHINs) and use a "population health" approach to plan health services that meet the health needs of the entire community. A "population health" approach to health wants to improve the health of the entire population and to reduce health inequities among certain groups in the population, , so that all people – individuals, groups, and communities – have a fair chance to reach their full health potential and are not disadvantaged by social, economic, and/or environmental conditions.

PHUs and LHINs will work together to develop "profiles" of the health of the community to help plan and deliver services that meet patients' and communities' health needs. Yet, specific ways of how to best work together to achieve population health have not been well documented in Canada. This research aims to answer the question, "What are the key elements for a successful collaboration between LHINs and PHUs, as required by Patients First legislation, to achieve an improved health system in Ontario using a population health approach?"

Purpose of the Study:
This Locally Driven Collaborative Project (LDCP) will identify and describe the key elements for successful collaboration between LHINs and PHUs as required by the Patients First to achieve an improved health system in Ontario using a population health approach. The objectives of this project are as follows:

1. To explore elements such as: values, goals, definitions, processes, structures and use of population health indicators/measures/assessment/information, in order to determine the scope of and key elements of successful PHU-LHIN collaboration.
2. To identify and prioritize the categories of population health and health system indicators which could potentially strengthen the PHU-LHIN collaboration.

You are being asked to participate in this study because of your position in a relevant stakeholder agency and the expertise that you have in this area.

Your name was shared with us by a member of the project team
_____ (co-Investigator's name)

What will happen during the Phase 2 of this study?

- You are invited to participate in an **online survey;**
- The completion of the survey will range from 20-45 minutes;

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Public Health Units and LHINs working together for population health

McMaster University School of Nursing

HiREB Project # 3091 Version 1 May 11, 2017

- Participation in the survey will be anonymous. At the start of the survey, you will be asked 2 optional questions to:
  - consent to being contacted for follow-up should there be a need for further clarification or exploration of ideas entered in open text boxes, and/or
  - Consent to having their identifying information in a report highlighting case examples or work underway.
- With such consent, you will provide their contact information should the study team see value in sharing identifiable information in the study reports. Otherwise, reports will not include information that could identify a participant.
- You will be able to opt out of either (or both) of these options and will still be able to take part in the survey if they opt out.
- You will be invited to answer questions related to key elements for a successful Public Health Unit (PHU)-Local Health Integrating Network (LHIN) collaboration to achieve an improved health system in Ontario using a population health approach. Topics will include the use of population health indicators/ measures/ assessment/ information and criteria for and categories of population and health system indicators or types of information which can best support community health profiles

Are there any risks to doing this study?

- Participation in this study may cause some inconvenience to you as it will require some time commitment. The study will take place during work hours (unless you prefer to participate outside of work hours);
- You can refuse to answer questions that you do not want to answer or that make you feel uncomfortable;
- You can stop taking part at any time.

Privacy and Confidentiality

- Every precaution will be taken to ensure that your anonymity is protected. For example, no information will be attributed to you directly;
- Data will be collected by the academic researchers or Research Coordinator and will be housed at McMaster University, on a password-protected computer or in a locked filing cabinet in a locked room for up to 5 years;
- Only data with de-identified material will be shared with the project team through the secure site at Public Health Ontario for the Patients First Locally Driven Collaborative Project as only team members have access to this site via password;
- Aggregated results will be shared with relevant stakeholders in Ontario such as the Ministry of Health and Long-term Care, LHINs, public health units and other relevant organizations
- Results will also be disseminated through scholarly journals or other publications, presentations at conferences, on websites, and possibly in curriculum materials (e.g. small case studies).

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Public Health Units and LHINs working together for population health

McMaster University School of Nursing

HiREB Project # 3091 Version 1 May 11, 2017

If I do not want to take part in this study, are there other choices?

- Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any negative consequences or any explanation;
- To make sure that you continue to consent to participate in this research, you will voluntarily choose to remain a part of the research project.

Will there be any costs related to this study?

- Your participation in this research project will involve your time.

What are the possible benefits of this study?

- This project will add important insight into the scope of PHU-LHIN collaborations that are likely to be successful at different levels of the organizations, given the experiences of a wide range of stakeholders from data-focused staff (i.e. data analysts, epidemiologists) through to board members.
- Given your position, you will likely find the information useful to you and your organization given the current Patients First legislation.

Questions about the Study:

If you have questions or need more information about the study itself, please contact:

Project Lead:	**Phase 2 co-lead; Knowledge User**	**Academic Lead- PI**
Etches, Vera. MD, MHSc, CCFP, FRCPC. Deputy Medical Officer of Health Ottawa Public Health. (613) 580-6744 Vera.Etches@ottawa.ca	Lefebvre, Marc, MA, Manager, Population Health Assessment and Surveillance, Sudbury & District Health Unit (866) 522-9200 Ext:353 lefebvrem@sdhu.com	Valaitis, Ruta, RN, PhD Associate Professor School of Nursing McMaster University Hamilton, Ontario, Canada (905) 525-9140 Ext: 2298 valaitis@mcmaster.ca

This study has been reviewed by the Hamilton Integrated Research Ethics Board (HIREB). The HiREB is responsible for ensuring that participants are informed of the risks associated with the research, and that participants are free to decide if participation is right for them. It has also been reviewed by the Ottawa Public Health Ethics Review Board and the Sudbury & District Health Unit Ethics Review Board and received ethics clearance. If you have concerns or questions about your rights as a participant or about the way the study is conducted, please contact:

Ottawa Public Health / Santé publique Ottawa
100 Constellation Crescent / 100, croissant Constellation
Ottawa, Ontario K2G 6J8

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HiREB Project # 3091 Version 1 May 11, 2017

613-580-6744 | TTY / ATS: 613-580-9656
toll free / sans frais: 1-866-426-8885
ottawa.ca/health | ottawa.ca/sante

Sudbury & District Ethics Review Board
1300 Paris Street
Sudbury, ON P3E 3A3
Telephone: 705.522.9200
Toll-free: 1.866.522.9200
Fax: 705.522.5182

Hamilton Integrated Research Ethics Board
Office of the Chair, Hamilton Integrated Research Ethics Board
Telephone: 905.521.2100
Extension: 42013

INFORMED CONSENT

- I have read the information presented in the information letter about survey
- I have had the opportunity to ask questions about my involvement in this study and to receive additional details I requested;
- I understand that if I agree to participate in this study, I may withdraw from the study.
- I have been given a copy of this form;
- In essence, participation in data collection will deemed implied consent (i.e., no signatures will be required);
- No data collection from vulnerable populations is anticipated.

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Appendix 7

Online Survey Questionnaire

Strengthening a population health approach for health system planning - A research project in support of LHIN - PHU collaboration.

Page #1

The purpose of this survey is to obtain your perspectives about factors influencing successful collaboration between Local Health Integration Networks (LHINs) and Public Health Units (PHUs). We have an opportunity and a responsibility through the Patients First legislation to achieve stronger collaboration between LHINs and PHUs to attain an improved health system in Ontario informed by a population health approach.

Specific ways of how to best work together to achieve positive population health outcomes have not been well documented in Canada. Initial qualitative research has suggested that there are concrete actions that can promote successful collaboration. We want to know what you would endorse as promising next steps.

The survey should take 15-20 minutes to complete and you will need to complete it in one sitting. Please complete this survey with your personal opinions, rather than on behalf of your organization. Your answers will inform recommendations to assist PHUs and LHINs with successful collaboration and to propose criteria for common measures for use by PHUs and LHINs, as well as policy makers in the Ministry of Health and Long-Term Care (MOHLTC). This survey is anonymous and only aggregate results will be reported.

If you have questions about the survey, please contact: Dr. Vera Etches, Medical Officer of Health(Acting) at Ottawa Public Health: vera.etches@ottawa.ca or at 613-580-6744 ext.: 23675

Page #2

Section 1: Tell us about yourself

Do you work in Ontario?(Q1)

- ○ Yes
- ○ No

Page #3

Section 1: Tell us about yourself

Where do you work? (Check one primary employer)(Q2)

- ○ Local Health Integration Network /including board members
- ○ Public Health Unit/including board members
- ○ Ministry of Health and Long-Term Care
- ○ Public Health Ontario
- ○ Other, please specify _____

What is your current position/title? (Check all that apply)(Q3)

- ☐ Board Member
- ☐ Medical Officer of Health/Associate Medical Officer of Health
- ☐ Chief Executive Officer
- ☐ President/Vice President
- ☐ Director
- ☐ Manager/Supervisor
- ☐ Program Planner
- ☐ Senior Integration Specialist
- ☐ Epidemiologist
- ☐ Data Analysis/Decision Support
- ☐ Front Line Staff e.g., Public Health Nurse, Public Health Inspector, etc
- ☐ Other, please specify _____

How many years in total have you worked in the health sector? Enter number of years:(Q4)

_____

Page #4

Section 2: LHIN-PHU collaboration

The following questions ask about collaboration. By collaboration we mean: A recognized relationship among different sectors or groups, which has been formed to take action on an issue to be more effective or sustainable than might be achieved by one organization or party alone.

To what extent have you in your current organization collaborated with each of the following sectors or organizations? (Note: for your own organization choose 'not applicable')(Q5)

	Not at all	A minimal extent	A moderate extent	A great extent	Don't know	Not applicable
Local Health Integration Network	○	○	○	○	○	○
Public Health Unit	○	○	○	○	○	○
Ministry of Health and Long-Term Care	○	○	○	○	○	○
Public Health Ontario	○	○	○	○	○	○
Primary Care (e.g. family practice)	○	○	○	○	○	○
Hospital	○	○	○	○	○	○
Non-health sector (e.g. housing, education, social services)	○	○	○	○	○	○
Academic research partners (universities or colleges) working on population health	○	○	○	○	○	○
Other sector (please specify sector below)	○	○	○	○	○	○

(Q5other)

_____

Page #5

Section 3: Key elements of successful collaboration

Please select the top five actions that you believe will best foster collaboration between LHINs and PHUs to improve health system planning – (whether or not you have collaborated with a LHIN or a PHU):(Q6)

- ☐ Working in partnerships on specific projects (small or large) with clear goals shared indicators
- ☐ Collaborating on data sharing and analysis
- ☐ Creating joint online reporting
- ☐ Tracing patients' experiences through the health care system, including public health interventions
- ☐ Sharing resources (e.g., tools, expertise)
- ☐ Deliberately working to build understanding of each other's roles, priorities, and decision- making processes
- ☐ Including PHUs and LHINs in each other's strategic planning process
- ☐ Using shared communication strategies
- ☐ Determining shared vision, values and guiding principles for collaboration
- ☐ Developing a strong and clear process for leaders of the LHINs and PHUs to connect
- ☐ Leveraging existing relationships (e.g., municipalities, hospitals)
- ☐ Creating a common understanding of each sector's approach to population health
- ☐ Addressing geographic boundaries between LHINs and PHUs
- ☐ Cross-training opportunities for employees to learn about each organization's work (e.g., secondments, joint educational sessions)
- ☐ Working on defined research projects – (e.g., including approval by research ethics committees, application for funding for initiatives, etc.)
- ☐ Co-locating LHIN and PHU employees
- ☐ Working from written mandates/expectations for LHIN-PHU collaboration from the MOHLTC
- ☐ Other: please explain _____
- ☐ Don't know

Page #6

Section 3: Key elements of successful collaboration

Please select three of the following processes or structures that you think are important to promote role clarity among LHIN - PHU partners in collaborations as they address population health:(Q7)

- ☐ Theoretical frameworks that facilitate discussions about population health (e.g., Health Impact Pyramid)
- ☐ Formal Memorandum of Understanding (MOU) for collaboration
- ☐ Shared performance indicators about the collaborative relationship in both LHIN and PHU accountability agreements
- ☐ Shared indicators for a health outcome of common interest in both LHIN and PHU accountability agreements
- ☐ Identification of leads in PHUs and LHINs to work with the leadership teams of each organization
- ☐ Face-to-face meetings involving all levels of staff in LHINs and PHUs in their jurisdiction
- ☐ Models for employment exchanges such as secondments, job shadowing and cross-training opportunities
- ☐ Other: please explain _____
- ☐ Don't know

Page #7

Section 3: Key elements of successful collaboration

How likely do you think each of the following solutions can help you to overcome geographic boundary challenges in relation to using data that can inform health system planning using a population health approach?(Q8)

	Very unlikely	Somewhat unlikely	Neutral	Somewhat likely	Very likely	Don't know
Eliminate or reduce overlap between LHIN and PHU boundaries	○	○	○	○	○	○
Ensure that LHIN sub-regions match PHU boundaries to facilitate common reporting	○	○	○	○	○	○
Ensure that health data are geocoded such that they can be analyzed and reported by either LHINs, LHIN sub-regions, PHUs, and neighbourhoods/communities	○	○	○	○	○	○
Ensure geocoding information (e.g., crosswalks, unique geographic ID codes) is available to all agencies or embedded into health data (e.g., IntelliHealth emergency room and hospitalization data)	○	○	○	○	○	○
Other 1 : please specify other solution below	○	○	○	○	○	○
Other 2 : please specify other solution below	○	○	○	○	○	○

(Q8other)

Other 1 _____

Other 2 _____

Page #8

Section 3: Key elements of successful collaboration

How likely are the following solutions to help you overcome geographic challenges in relation to collaboration between LHINs and PHUs for an improved health system in Ontario informed by a population health approach?(Q9)

	Very unlikely	Somewhat unlikely	Neutral	Somewhat likely	Very likely	Don't know
Identify one executive PHU lead to work with each LHIN leadership team	○	○	○	○	○	○
Identify one LHIN executive lead to work with each PHU leadership team	○	○	○	○	○	○
Identify one PHU lead to connect with each LHIN sub-region leadership team	○	○	○	○	○	○
Cross-appoint LHIN and PHU members to each other's boards	○	○	○	○	○	○
Develop a joint strategic local needs assessment	○	○	○	○	○	○
Other solution 1: please explain below	○	○	○	○	○	○
Other solution 2: please explain below	○	○	○	○	○	○

(Q9other)

Other solution 1 _____

Other solution 2 _____

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Section 3: Key elements of successful collaboration

Please select the top five categories of tools (that currently exist or could be created) that could have the most positive impact when jointly used to support LHIN and PHU collaboration for an improved health system in Ontario informed by a population health approach? (Q10)

- ☐ Collaboration/ partnership evaluation
- ☐ Program planning, management, and evaluation
- ☐ Use standardized screening tools for population health or disease specific assessment (e.g., Rourke, Nutri-step, DPoRT)
- ☐ Health equity impact assessments
- ☐ Change management
- ☐ Quality improvement
- ☐ Risk assessment
- ☐ Business intelligence (for decision support)
- ☐ Knowledge exchange and translation
- ☐ Returns on investment assessment
- ☐ Joint communication strategies and messages - shared platforms and/or tools for common messaging across all sectors
- ☐ Emergency planning and response
- ☐ Cultural sensitivity/ humility
- ☐ Other: please specify _____
- ☐ Don't know

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Section 4: Prioritize key categories of population health information

How important are each of the following criteria for LHINs and PHUs to consider when selecting a common set of population health indicators to inform health system planning?(Q11)

	Not at all Important	Somewhat Important	Neutral	Important	Very Important	Don't know
Meaningful at different geographical levels (e.g., can roll up and down from local/neighbourhood to regional to provincial levels)	○	○	○	○	○	○
Covers a range of indicator categories (e.g., risk factors in addition to health system utilization)	○	○	○	○	○	○
Both LHINs and PHUs have a role in improvement of the measured population health outcome	○	○	○	○	○	○
Potential to identify inequity	○	○	○	○	○	○
Other: please specify other criteria below	○	○	○	○	○	○

(Q11other)

_____

Please list the top five types of data that you use to understand the health of your population (Q12)

1. _____
2. _____
3. _____
4. _____
5. _____

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Section 4: Prioritize key categories of population health information

What are the two most important indicators in each category listed below that will strengthen collaborative health system planning by LHINs and PHUs?
The categories we are asking about are: health outcomes; health status; population/demographics; health risk factors; social determinants of health/health inequities; health service capacity/health system characteristics; health system performance; health system utilization

(Please note: The examples have been provided for ease of reference but you are not limited by these specific examples) (Q13)

Health outcomes (e.g. mortality, life expectancy)(Q13a)

1. _____
2. _____

(Q13aDK)

Don't know

Health status (e.g. excellent or very good health, cancer incidence)(Q13b)

1. _____
2. _____

(Q13bDK)

Don't know

Population/demographic (e.g. birth rate; age/sex distribution)(Q13c)

1. _____
2. _____

(Q13cDK)

Don't know

Health risk factors (e.g. tobacco use; fruit and vegetable intake; exceeding low risk alcohol drinking guidelines)(Q13d)

1. _____
2. _____

(Q13dDK)

Don't know

Social determinants of health/health inequities (e.g. population in low income (LIM); housing affordability; differences in health outcomes comparing indigenous and non-indigenous populations)(Q13e)

1. _____
2. _____

(Q13eDK)

Don't know

Health service capacity/health system characteristics (e.g. number of general practitioners and nurse practitioners per capita; number of home care visits per capita)(Q13f)

1. _____
2. _____

(Q13fDK)

Don't know

Health system performance (e.g. visits for conditions best managed elsewhere; two-year old well baby visits)(Q13g)

1. _____
2. _____

(Q13gDK)

Don't know

Health system utilization (e.g. emergency room visits, hospitalization rates)(Q13h)

1. _____
2. _____

(Q13hDK)

Don't know

Other, please specify(Q13i)

1. _____
2. _____

(Q13iDK)

Don't know

Appendix 8

Dataset resulting from Qualitative Analysis of Online Survey Questions

Please refer to the accompanying MS Excel Workbook “Patients First LDCP Study Survey Responses to Qualitative Questions May 282018 FINAL.xls” for more detailed information.

Patients First LDCP
Study Survey Respor

Appendix 9

Detailed Study Limitations

The limitations of this study are outlined in the tables below (Table A11-1; Table A11-2).

Table A11-1. Study limitations in Phase 1 of this research study

Limitation	Implication	Mitigation Strategy
Time and budget restrictions	The team was not be able to conduct "member checking" to confirm the results.	The team used strategies to ensure that the ideas were captured as accurately as possible: e.g. interviewer summarized key points raised during interviews/focus groups to validate key ideas, used quotes to support the presence of themes and sub-themes to showcase that the results came directly from the data and not the researchers' predispositions (e.g., dependability of the results).
Low Recruitment	Results limited and/or not generalizable	Team approached the main contact person of existing list-serves/Community of Practice/stakeholder/knowledge user groups. Asked them to identify a smaller number of participant

Table A11-2. Study limitation in Phase 2 of this research study

Limitation	Implication	Mitigation Strategy
Survey sample not representative	Results limited and/or not generalizable	Recruitment was conducted using multiple sources to ensure a balanced response from each stakeholder group. Engage with a small ad hoc knowledge user advisory group with representatives from PHUs, LHINS, and the MOHLTC to achieve the most effective ways to reach the target audience.
Low response rate	Results limited and/or not generalizable	The team ▪ developed and distributed a 1-page primer on the project (tailored to various audiences) as we meet with stakeholder groups before and during data collection (part of our KE strategy) ▪ emailed up to 3 reminders to encourage participation ▪ In a few cases, the team made phone calls to the potential participants.
Small sample size	Not able to analyze intergroup differences	The team used boarder groups by sectors PHU versus LHINs overall by sector and roles (e.g., PHU epidemiologists versus LHINS data analysts)
Research occurring at the same time as MOHLTC-PHU-LHINs multiple Health Systems Transformation and Modernization work stream stemming from the Patients First Legislation	Duplicate or lose some relevancy if the outcomes of the research do not reach the decision makers in a timely manner. This risk is low, given that given that PH system change/reform will take place over many months (or possibly years).	Team indicated to the PH Workstream a desire to maintain ongoing engagement with that group. The team remained in contact with the relevant work streams at the MOHLTC, either directly and/or through PHU representatives on these Workstreams. This incorporated into our knowledge exchange activities. The team met with the PH Workstream group on February 28th 2017 and requested their perspective on possible challenges, other groups that should be consulted, and other initiatives to be aware of. The team endeavoured to engage these decision-makers to offer suggestions to inform the research project.

Appendix 10

Literature Search Strategy

Although a full scoping literature review was not part of this project's deliverables, the research team launched a literature search to increase topical knowledge and provide support for this and future work focused on collaboration between health authorities and public health units. The literature review surveyed scholarly articles, books, and other sources (e.g., dissertations, conference proceedings) with the following question in mind: '*What are the key elements for collaboration between health authorities and public health units to improve the health system using a population health approach?*'

Methods

The team used a mixed method approach utilizing a narrative review with a thematic analysis to describe key points. The team performed a limited scoping search according to the following stages:

Stage 1: Clarify and link the purpose of the review and research question
Stage 2: Balance feasibility with breadth and comprehensiveness of the process
Stage 3: Utilize inclusion / exclusion criteria to screen and select studies
Stage 4: Extract data from selected studies using conceptual categories
Stage 5: Consult with stakeholders to identify additional publications and/or research in-progress

The search was also restricted to articles published from 2006 to present, after the implementation of the Local Health System Integration Act in 2006.

The research team prepared a list of search history/online databases and a list of articles that met the searching procedure strategy. These products can be downloaded from the Patients First - LDCP page on the PHO website.