Project Title: DEMO: What are the impacts of being formally enrolled with a GP on continuity and integration of care: evidence from a comparison of QC and BC

Date Generated: March 4, 2025

Section 1: General Project Information

1.1 Project Information

Enter the title of the Research Project/Program:
DEMO: What are the impacts of being formally enrolled with a GP on continuity and integration of care: evidence from a comparison of QC and BC

If the project title entered above is different from the project title in your ethics and/or funding documentation, explain the reason for this discrepancy below:
:
If this application is related to a previously approved data access request, Explain here:
:
Enter the previous Project number, if applicable:
:

1.2 BC SUPPORT Unit

Does the work you plan to do in this project meet the criteria for patient-oriented research?
:
Has this data access request been informed by a BC Data Scout™ report?
This information will help PopData to determine the impact of the BC Data Scout™ Initiative.
:

Section 2: Safe People – Principal Investigator/Student

Redacted for privacy

Section 3: Safe People – Research Team Members

Redacted for privacy

Section 4: Safe Projects - Research Project Overview

Ensuring the Users Can be Trusted to Use the Data in an Appropriate Manner

Ministry of Health Policy Reference: Access to Health Data for Research Policy, Section 5 (a – b). See https://www2.gov.bc.ca/assets/gov/health/conducting-health-research/data-access/access-to-health-data-for-research.pdf for more information.

4.1 Research Project Overview

Describe the Project's key aims and objectives/research questions:

RESEARCH QUESTIONS/OBJECTIVES

To assess whether and how patient enrolment may improve patient experiences, continuity and quality of care, and policy-relevant outcomes, we will:

1. Explore the meaning of patient enrolment to patients and providers and the potential mechanisms by which enrolment may change their experiences, behaviours, and relationships

2. Make cross-provincial research using existing administrative data more relevant and feasible by engaging with our partners to identify relevant outcomes, identify methodological challenges, and develop replicable techniques to address them in order to develop comparable measures across jurisdictions.

3. Estimate the impact and effect modifiers of being formally enroled with a GP on continuity and quality of care, and on policy-relevant health care system outcomes.

In Obj. 1 & 3 we will investigate whether the meaning and impacts of enrolment with a GP vary by patient characteristics (e.g., high-users of health care services, patients of low socioeconomic status).

RESEARCH HYPOTHESIS

We hypothesize that the meaning and impacts of enrolment with a GP may vary by patient characteristics: e.g., high users of health care services, patients with lower socioeconomic status. We will investigate this hypothesis under both Obj. 1 & 3.

Describe the Project's basic methodology:

Methodology: Because both quantitative and qualitative evidence is needed to provide a comprehensive understanding of patient enrolment to diverse stakeholders and across multiple outcomes of interest, we will use a sequential mixed methods design. The results of the qualitative strand (themes important to stakeholders) will be used to inform our focus on outcomes and effect modifiers for the quantitative analysis, within the limits of administrative data. Quantitative and qualitative results will be jointly interpreted, and the mixed product used to inform policies and future research. The specific themes and outcomes outlined in this proposal are a starting point, and further engagement with our stakeholders at the beginning of our project will contribute to their final form. [This DAR only pertains o the quantitative component of the study (Objectives 2 and 3)]

OBJECTIVE 1

- Data Collection for Obj 1: We will conduct semistructured, in-depth, in-person interviews with individual patients and providers. Patient and physicians will be conducted by telephone by a research assistant to arrange a time and mutually agreed upon location for the interview that is quiet and conducive location (e.g. coffee shop, University meeting room, physicians office, patients home, etc.). Interviews are expected to last 60-90 minutes and will be audio recorded and transcribed after the interview by the research team. After allowing the participant to describe her/his experience with primary care, the interview guide will explore four

domains related to the participants' experiences and perspectives regarding patient enrolment: (i) behaviours and relationships, (ii) engagement in decision making and clarifying their preferences and values (key elements of shared decision making), (iii) ability to navigate the health care system, actively participate in their health, and self-manage their chronic conditions, and (iv) perceptions of the potential benefits of patient enrolment, vis-à-vis policy goals. Provider interviews will be similarly structured. The draft interview guides will be further developed in partnership with our patient and provider partners.

- Analysis for Obj 1: The research team will conduct thematic analysis iteratively to improve rigour and credibility. In debriefing sessions conducted immediately after each interview, the researchers and research assistants will reflect on the data collection, summarize findings, identify emerging themes, and prepare subsequent interviews. We will develop codes for themes and sub-themes through independent analysis of transcripts and consolidate them in team discussions. Each transcript will be analyzed by at least two members of the team using NVivo software. We will compare our work and resolve any discrepancies by reviewing and discussing the transcripts.

OBJECTIVES 2
- Summary for Obj. 2: Our quantitative data will be secondary use of administrative health data from provincial insurers. QC data are already in our possession BC data are readily available via PopData BC. Team members have extensive experience with data in each province, and have worked over the last year on direct comparisons. Data include physician services (billed via fee-for-service), hospitalizations, emergency department use, demographics, morbidity and mortality information for all individuals; prescription drugs and ancillary services (e.g., vision care) are available for subgroups with public coverage.

- Data Collection for Obj. 2: The following datasets will be provided by Population Data BC and linked by the research team: Medical Services Plan (MSP) payment information file, Discharge Abstract Database (DAD), National Ambulatory Care Reporting System (NACRS) data, Consolidation file, Vital Statistics (VS) death file, and Pharmanet. Quebec data is already with the researchers in QC. In QC, quantitative data files will be stored in a space dedicated to INESS in the data warehouse of the Regie de Assurance Maladie du Quebec (RAMQ). Data access is restricted to INESSS' employees, based on the nature of the project, via an access login. The research team will work with an INESS analyst to conduct analyses. Documents related to the study will be kept separate from the data, in a locked office at McGill. In BC, quantitative data will be stored in a Secure Research Environment developed by Population Data BC. This a central server that is physically located in premises that are access controlled. Access to these data requires two factor authentication, including a system of one-time only passwords managed through a SecureID system.

- Analysis for Obj. 2: We will build cohorts of patients aged 40 years and over in each province over fiscal years 1999/0 to 2015/16 (or the most recent year available). By focusing on adults age 40+, we expect that this cohort will include a large portion of the chronically-ill frequent users of services who could benefit the most from enrolment policy. Only aggregated results will be compared between BC and QC. We will begin with established within-province measures that our team has used previously:
- Continuity of care, capturing aspects of both management and relational continuity: Concentration of Care Index, Known Provider Continuity, Usual Provider of Care, outpatient follow-up within 30 days following hospital discharge for heart failure, acute myocardial infarction, and COPD.
- Quality of care: clinical guideline adherence, poly-pharmacy, ED and hospital admissions related to ambulatory-care sensitive conditions, 30-day hospital readmissions
- Policy-relevant health care system outcomes often targeted by decision makers: use of secondary and tertiary care (including specialist services), ED visits and acute care admissions.

OBJECTIVE 3
- Summary for Obj. 3: Using provincial differences in the content and timing of patient enrolment policies,

and the relevant, harmonized measured created under Obj. 2, we will evaluate if being formally enroled with a GP improves continuity and quality of care, policy-relevant health care system outcomes, and examine modifiers of these effects.

- Analysis for Obj. 3: Given the natural experiment created by policy variation, we will use a quasi-experimental difference-in-differences (DD) approach. The team has used this and related methods to evaluate the impacts of other healthcare policies. We will use the same cohort from Obj 2, patients aged 40 years and over in each province over fiscal years 1999/0 to 2015/16 (or the most recent year available). We focus on this period for several reasons. First, the relevant reforms began in 2002/03. Second, the differences in patient enrolment policy are clearest prior to 2010. There were very small financial incentives for GPs in QC and the larger financial incentives in BC focused on only a few groups of patients. We therefore capture the three key time periods necessary for our quasi-experimental analysis: pre exposure (1999/00-2002/03), exposure (2003/04-2009/10), and follow-up (2010/11 2015/16). By focusing on adults age 40+, we expect that this cohort will include a large portion of the chronically-ill frequent users of services who could benefit the most from enrolment policy.

We will examine whether the effect of patient enrolment on continuity varies by key potential effect modifiers: e.g., patient morbidity/high-user-of-care status, neighborhood-level SES, and the patient's preexisting relationship with that provider, with the specifics informed by our qualitative research. From an equity perspective, we are also interested in effect heterogeneity by type of chronic condition (e.g. diabetes), SES, sex, and age.

INTEGRATION OF OBJECTIVES 1-3
We will examine the key findings from all 3 objectives jointly, in order to construct a richer understanding of the real-world impacts of patient enrolment on a varied range of outcomes valued by a diverse set of stakeholders and the underlying mechanisms at work. While integration of qualitative and quantitative results is a challenge, we will engage with the Methods Unit of the QC SUPPORT Unit to strengthen the presentation (e.g., using joint displays), discussion, and interpretation of our findings by the entire team. The mixed product will provide a more comprehensive portrait than would be possible from qualitative or quantitative results alone, and inform future work assessing innovations to create more integrated health care systems.

Describe how data requested from each data file (including external data sources) are necessary to achieve your research objectives (e.g. MSP, DAD, etc.). Include each data file, date range and a brief rationale. If sensitive/Non-Core data variables are being requested (e.g. 6 digit postal code) also provide a rationale: Achieving Objectives:

RESEARCH OBJECTIVES:
OB1. Explore the meaning of patient enrolment to patients and providers and the potential mechanisms by which enrolment may change their experiences, behaviours, and relationships
OB2. Make cross-provincial research using existing administrative data more relevant and feasible by engaging with our partners to identify relevant outcomes, identify methodological challenges, and develop replicable techniques to address them in order to develop comparable measures across jurisdictions.
OB3. Estimate the impact and effect modifiers of being formally enroled with a GP on continuity and quality of care, and on policy-relevant health care system outcomes.

DATA SOURCES:
a) Medical services plan payment information (MSP) file. The MSP file will be used to identify all fee-for-service services provided by physicians. These services will be used to build continuity of care, quality of care, and policy-relevant health care system measures for OB2 and OB3.

b) Consolidation file
The Consolidation file will be used to determine demographic characteristics (e.g. age, sex, SES, etc.) of the

cohort of patients (aged 40 years; a population that includes a large portion of the chronically-ill frequent users of services who could benefit the most from enrollment policy. These demographics will be used to describe the population in OB2 and OB3.

c) Discharge abstracts database
The DAD will be used to identify services delivered in the hospital setting. These services will be used to build continuity of care, quality of care, and policy-relevant health care system measures for OB2 and OB3.

d) National Ambulatory Care Reporting System (NACRS) data
The NACRs data will be used to identify services delivered in the emergency room setting. These services will be used to build continuity of care quality of care, and policy-relevant health care system measures for OB2 and OB3.

e) Vital statistic death data
The Vital Statistics Death file will be used to identify patients in our cohorts for OB2 and OB3 that died during the study period 1999/00-2015/2016.

f) Pharmanet
The Pharmanet file will be used to identify prescriptions prescribed to the cohort of patients. These prescriptions will be used to build continuity of care, quality of care, and policy-relevant health care system measures for OB2 and OB3.

DATA RANGE:
We are requesting data from 1999/00 to 2015/16. We focus on this period because this is when the differences in patient enrolment policy are clearest: there were very small financial incentives for GPs in QC and the larger financial incentives in BC focused on only a few groups of patients.

Provide a brief description of the public interest/public benefit of the project:
The enrolment of patients with individual GPs or primary care practices is an important aspect of integrated primary health care (PHC) delivery models. In Canada, patient enrolment (i.e., rostering, registration) is pursued in several provinces in more and less formal ways, ranging from a signed contract between a patient and his GP, to additional fees billable by the GP, to default enrolment based on where patients seek care. Some financial incentives exist for physicians based on patients' share of visits with "their" GP, but patients remain free to choose their physician and there are no financial penalties for patients if they seek care elsewhere. Essentially an acknowledgement that the quality of the patient-provider relationship is crucial to many processes and outcomes across the continuum of care, enrolment has the potential to directly or indirectly improve the Triple Aim outcomes: health of populations, experience of care, and per-capita costs.

In this project, we will investigate whether and how patient enrolment may improve patient experiences, continuity and quality of care, and policy-relevant health care system outcomes. Our results will provide crucial knowledge to our stakeholders, whose needs and questions have shaped this project. Our principal knowledge users (KUs) are provincial-level Ministry officials responsible for the development of effective and responsive PHC systems. They have clearly expressed that, having based their policies on evidence of the benefits of patient enrolment from other jurisdictions, they have little information on the impacts of enrolment in Canada, where physicians are autonomous professionals. In short, they ask whether and how patient enrolment with a primary care provider improves patient experiences, continuity and quality of care and health outcomes, and whether the kinds of enrolment policies used in some provinces are more effective than those used elsewhere.

Colleges of Family Physicians across Canada have generally been supportive of enrolment initiatives,

particularly when additional investments are made. However, physician groups have also questioned the effectiveness of patient enrolment when faced with negative incentives for not enroling enough patients or if their enroled patients seek care elsewhere. Informal consultations with Canadians who do, or want to, access PHC suggest that they have questions about what patient enrolment means for their access to care, how enrolment changes their relationship with their provider, and whether being enroled really benefits them. Our team's researchers share the policy-relevant questions of whether and how patient enrolment "works", and seek to advance scientific knowledge regarding optimal organization of integrated health care services delivery and the dynamics of the patient-physician relationship. Our research team includes national leaders in these areas and the entire team shares a strong interest in building capacity for comparative policy evaluation in Canada. Responses to these questions posed by our stakeholders will provide the crucial insight needed to develop and improve integrated PHC policies across this country.

QC takes an explicit, contract-based approach to patient enrolment, with specific targets laid out by the Ministry. BC relies on physician incentives via billing codes to increase patient attachment. Both of these are scalable innovations in health care organization and delivery, and we will compare and evaluate these different approaches to enrolment by pairing this policy variation with appropriate data and methods. We will assess whether enrolment impacts patient experiences, continuity and quality of care, and policy-relevant health care system outcomes, particularly among more vulnerable patient groups: high users of health care and social services and patients with lower socioeconomic status.

In addition to aligning with our KU's needs, our objectives correspond to the broad priority areas identified by CIHR and we are engaged with numerous elements of the SPOR: the PIHCI member networks (particularly Réseau-1 Quebec and the BC Primary Health Care Research Network), the SPOR Network in Diabetes and its Related Complications, and the SUPPORT Units in QC and BC. Our findings will produce new knowledge informing patient-oriented best practices to optimize service integration across the continuum of care, with special attention to the experiences of patients with complex or chronic health needs.

Provide a brief consideration of how the research will be eventually presented, communicated and utilized: : We intend to publish the results of our analyses in peer-review journals. Results will only be presented at the aggregate level. We will also present our findings at academic conferences. We will also produce other knowledge translation materials, such as posters and infographics to disseminate to our study partners.

Note to PI

The research project overview provides the context for your data access request.

The more complete and clear the information provided in the project overview, the more likely PopData will be able to review and submit your request without delays.

Your clarity and consistency also will assist PopData, the Health Data Platform, the Health Data Platform Council, The Data Stewardship Committee, or other Data Stewards to review and process your DAR with minimal questions and iterations.

All information provided must be consistent with the relevant ethics application and any information supplied in the DAR.

4.2 Study Population/Cohorts

Enter details of your study population/cohort by clicking the "Create Cohort" button:

Edit **Delete**

4.2 Study Population/Cohorts

Enter details of your study population/cohort by clicking the "Create Cohort" button:

Name	Cohort 1	**Description**	Patients aged 40 years and over between 1999/00 and 2015/16 (i.e. patients born on or before 03-31-1976)	**PopData Assisted**	False
External Administrative	False	**Researcher-collected**	False	**PopData Held**	True

Create Cohort

Section 5: Safe Projects - Ethics

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Section 6: Safe Projects - Funding

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Section 7: Safe Projects - Peer Review

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Section 8: Safe Data - Core Data Sets - PopData Managed

8.1 Core Data Sets

Edit Delete					
Core Data Set	Consolidation File / Client Roster	Cohorts	Cohort 1	Notes	
Edit Delete					
Core Data Set	Discharge Abstract Database (DAD)	Cohorts	Cohort 1	Notes	
Edit Delete					
Core Data Set	Fee for Services (MSP) Data	Cohorts	Cohort 1	Notes	
Edit Delete					
Core Data Set	PharmaNet	Cohorts	Cohort 1	Notes	
Edit Delete					
Core Data Set	Mortality Data - Vital Statistics	Cohorts	Cohort 1	Notes	
Edit Delete					
Core Data Set	National Ambulatory Care Reporting System (NACRS)	Cohorts	Cohort 1	Notes	

Identify the Core data sets that are required to conduct your research by clicking "Create Core Data Set":

Create PopData BC Core Data Set

Note to PI

Core vs Non-Core data

Some BC Ministry of Health data sets available through PopData and HDPBC are called '**Core Data**'. A Core Data set is a standardized 'bundle' of commonly requested variables. A Core Data set may not include **ALL** the variables available in the data set. For example, some Core Data variables, such as geography or organisational codes, are suppressed to meet privacy legislation requirements.

Non-Core Data: Non-Core Data are variables that are **NOT** included in the standardized Core Data set. Non-Core Data is available for request **as an addition** to the Core Data set.

For the majority of DARs, requesting access to Core Data **ONLY** may make the data access approval process quicker and may expedite data provision. Data requests that include Non-Core Data will be subject to regular rather than expedited processes, both for application review and data provisioning.

Please note that the overall data access request is subject to meeting ALL of the Five SAFEs requirements. For more detail on the Five SAFEs, visit the Eligibility and the Five SAFES model page of our website.

PIs can view all accessible data and thus have the flexibility to create their own study population/cohort and select their variables of interest.

Providing the opportunity to see all available data will assist PIs to make informed decisions as to which data best suits their needs as well as decreasing the possibility of omission when selecting variables.

Data Refresh Schedule

Data refreshes may be available on a quarterly, annual or ad hoc basis depending on the data file. Data refreshes will be automatically available within the SRE.

Section 9: Safe Data - Core Data Sets - HDPBC Managed

Not applicable for this study

Section 10: Safe Data - Non-Core Data PopData Managed

Not applicable for this study

Section 11: Safe Data - Non-Core Data PopData Managed Checklists

Not applicable for this study

Section 12: Safe Data - Non-Core Data HDPBC Managed

Not applicable for this study

Section 13: Safe Data - External Data Sets

Not applicable for this study

Section 14: Safe Data - Researcher-collected Data

Not applicable for this study

Section 15: Safe Settings

Ensuring the Data Access Environment has Appropriate Safeguards and Limits Unauthorized Use

Ministry of Health Policy Reference: Access to Health Data for Research Policy, Section 9. See https://www2.gov.bc.ca/assets/gov/health/conducting-health-research/data-access/access-to-health-data-for-research.pdf for more information.

15.1 Data Analysis Tools

Which set of tools are needed for your analysis

PopData Secure Research Environment (SRE) tools

- ArcGIS
- Epi Info
- JoinPoint
- GeoDa
- Gephi
- graphViz
- MS Visio
- MPlus
- MS Office
- MS Project
- Rtools
- Python
- R
- Rstudio
- Stat Transfer
- SAS
- SaTScan
- SPSS
- Stata
- WinBugs

Health Data Platform (HDPBC) Secure Environment (SE) tools:

- DataBricks
- R
- SAS
- MSOffice
- Rstudio
- SQL
- Python
- Rtools

Tools needed

All the tools needed for this project are in the PopData SRE

All the tools needed for this project are in the HDPBC SE

Other - if you need additional tools or tools from both platforms, please explain below Other

Note to PI

The PI is required to access the project data and perform their analysis using a secure environment (SE) that is deemed acceptable by the Health Data Platform Council, the Data Stewardship Committee, and/or other Data Stewards depending on the data requested.

The two main secure environments are:

- the Secure Research Environment (SRE) maintained and operated by PopData
- the Health Data Platform Secure Environment (HDPBC SE)

Determining which secure environment (SE) is to be used will depend on the type of data needed for the project and the tools needed to complete the data analysis.

For more information on the PopData SRE, including a list of the software available, visit the my.popdata website.

15.2 Safe Settings

Will data be handled within either the PopData SRE or the HDPBC SE?

True

If No, identify which of the HDPBC Data Council approved SEs you propose to use:

Note to PI

Use of an alternative SE must be approved by the Health Data Platform Council, the Data Stewardship Committee, and/or other Data Stewards depending on the data requested.

In all but the most exceptional cases, use of an alternative secure environment **located outside of BC will not be approved**.

15.3 Archival Storage

Archival Storage for SRE

Data files for completed projects will be archived at Population Data BC Red Zone for up to 7 years, or until the Data Steward(s) request the destruction of the files. Researchers may extend the archive period by obtaining approval from the Data Steward(s).

Immediately following the archival expiry date, Population Data BC will destroy all copies of the data in its custody. Should extenuating circumstances require research results to be revisited, Researchers may request permission from Data Stewards to access archived data during the archive period. Requirements to access archived data include reactiving ethics and associated costs.

15.4 Physical Location and Security of Data (if not using PopData SRE or the HDPBC SE)

If you are not using the PopData SRE or HDPBC SE, please indicate the physical location(s) where research data will be used or accessed. Describe physical and network security measures in place by clicking the "Create Data Storage" button:
Create Data Storage

Section 16: Safe Output

16.1 Safe Output

What outputs do you intend to transfer out of the PopData SRE or HDPBC SE? Please be specific and outline your proposed output in detail (e.g. aggregated data tables) below.
Our outputs to be extracted from the PopData SRE will only include aggregated data, including tables (e.g., sample descriptives, bivariate statistical tests, regression modelling results), or graphs. No record-level data will be extracted and no information that would allow identifying individuals would be extracted.

Describe how small cell sizes will be managed to mitigate the risk of re-identifiability of the information disseminated below.
During analysis: Data will be stored in a secure research environment developed by Population Data BC. This is a central server that is located in access-controlled premises. Access to these data requires two-factor authentication, including a system of one-time only passwords managed through a securID system. Documents related to the study will be kept in an office inside access controlled premises. All individuals that have access to the data will have completed primary training per the Population Data BC regulations.

It is not our intent to attempt to identify individuals within the data. All data will be de-identified, and non identifying fields will be retained for analysis.

For publication: Only aggregate results will be reported. Also, cells size equal to or fewer than five individuals will not be reported.

Describe for what reasons output is required, what the intention of using the data will be, and how it will be published below.
The output will be used by the study team to discuss interpretation of results, and create figures and tables for knowledge dissemination. Descriptive tables will also help the study team plan for further analyses and future studies. Results will be published in academic journals, presented at academic conferences, and other knowledge translation material (e.g. infographics) to study partners.

Note to PI

PIs and their research teams are required to conduct project analyses within the PopData Secure Research Environment (SRE) or Health Data Platform (HDPBC) Secure Environment (SE).

Only statistical products and non-data will be permitted as outputs from the PopData SRE or Health Data HDPBC SE.

Statistical products are, generally, information dissemination products that describe, estimate, forecast, or analyze the characteristics of groups, customarily without identifying the persons, organizations, or individual data observations that comprise such groups (e.g. aggregated data tables, regression results, etc.).

All outputs will be reviewed.

Section 17: File Uploads Summary

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