

WEDNESDAY, MAY 30 | MERCREDI 30 MAI

9:00 - 10:30

CONCURRENT SESSIONS

9 h à 10 h 30

SÉANCES SIMULTANÉES



CRESCENT

UNDERSTANDING AND INTERPRETING INDICATORS FOR CHRONIC DISEASES

As this session has an interactive component, organizers request that participants bring a laptop to utilize the application that will be profiled in the session.

Participants will review basic concepts about chronic disease indicators and work with real data to illustrate strategies for interpreting indicators. We will begin with a presentation on current and emerging methods for calculating indicators, along with strategies for interpreting indicators. Then, participants will use the Population Health Record to complete two exercises, with a moderated group discussion following each exercise.

The first exercise will focus on analyzing indicators within a region and understanding how different types of indicators (e.g., prevalence, incidence, mortality) can be used to set priorities. The second exercise will focus on analyzing indicators across regions and understanding the use of benchmarks and standardization in comparisons between regions. We will close with a brief review highlighting the learning objectives addressed. The skills and knowledge learned in this workshop will help participants to interpret chronic disease indicators appropriately and use them effectively for surveillance and planning within and across regions.

Learning Objectives:

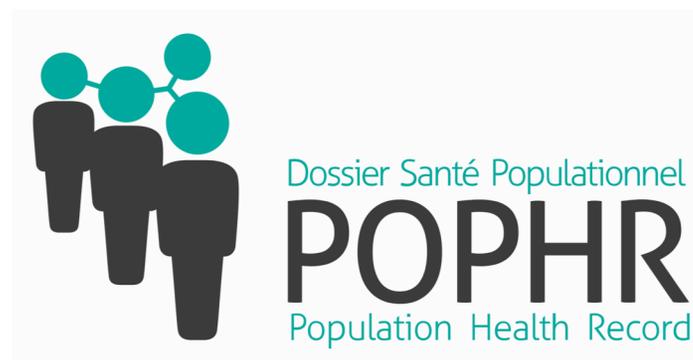
- Describe how chronic disease indicators are calculated, including limitations of current methods and emerging methods.
- Examine chronic disease indicators within a region and describe how different types of indicators can be used to identify priorities.
- Compare chronic disease indicators across regions and understand how benchmarks and standardization can be used in this process.

Workshop Facilitators:

Session presenters can respond to questions in either English or French.

Les présentateurs et présentatrices des séances peuvent répondre aux questions en français ou en anglais.

- David Buckeridge, Associate Professor, McGill University, Medical Consultant, INSPQ, INESSS, CIHR Applied Public Health Chair in eHealth Interventions
- Valerie Émond, Chef d'unité scientifique, Surveillance des maladies chroniques et traumatismes, Bureau d'information et d'études en santé des populations, Institut national de santé publique du Québec (INSPQ)
- Guido Powell, Research Assistant, McGill University
- Mengru Yuan, Research Assistant, McGill University



Accessing the PopHR Platform

Two ways to access:

- Use your own Google account to authenticate
- Ask us for a Google account to use for the workshop

Use the chrome browser.

Wifi: ssid - Fairmont Meeting
password - ph2018

<https://pophr.mchi.mcgill.ca>

Agenda

Time	Activity
9:00 – 9:15	Welcome and introduction <ul style="list-style-type: none">○ Workshop objectives○ Access and introduction to the Population Health Record (PopHR) project and software
9:15 – 10:00	Exercise I: Objective: explore relationships between epidemiological measures for one chronic disease <ul style="list-style-type: none">○ Review of measures and their relationships○ PopHR application demonstration○ Group exercise and discussion
10:00 – 10:15	Exercise II: Objective: standardization in comparisons between regions <ul style="list-style-type: none">○ Review of standardization○ Illustration of results and brief discussion
10:15 – 10:30	Closing remarks

Introduction

Exercise(s)

Closing

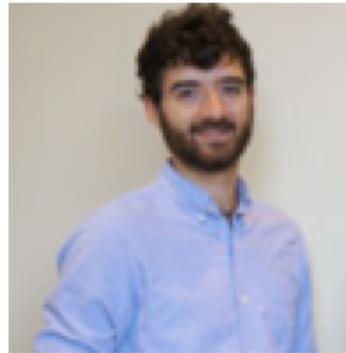
Workshop Team



David
Buckeridge,
Professor, McGill
University, CIHR
Chair in eHealth
Interventions



Mengru Yuan,
Research
Assistant,
McGill
University



Guido Powell,
Research
Assistant,
McGill
University



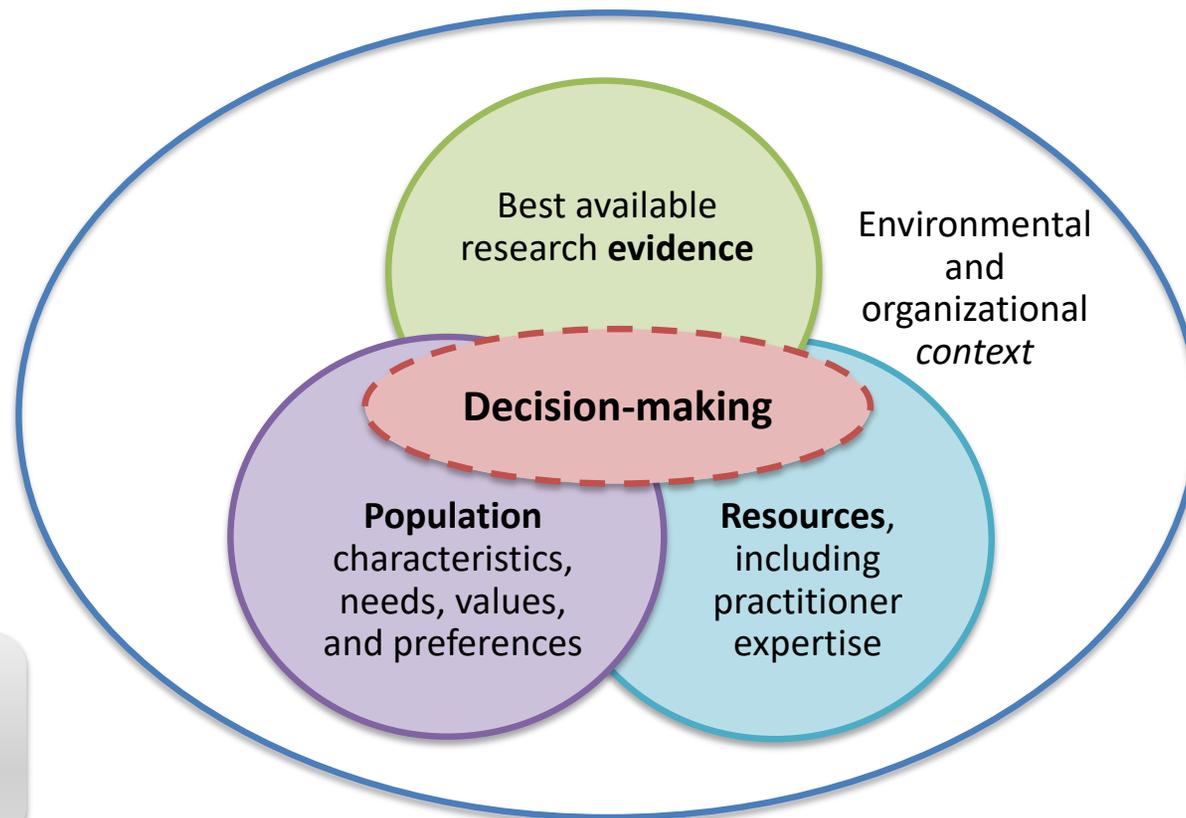
Valerie Émond, Chef
d'unité scientifique,
Surveillance des
maladies
chroniques et
traumatismes,
BIESP, INSPQ

Workshop Objectives

Participants who successfully complete the workshop will have acquired the necessary knowledge and skills:

1. To understand how chronic disease indicators are calculated, including limitations of current methods and emerging methods;
2. To examine chronic disease indicators within a region and describe how different types of indicators can be used to identify priorities; and,
3. To compare chronic disease indicators across regions and understand how benchmarks and standardization can be used in this process.

Evidence-Based Population Health



Brownson, R. C., Fielding, J. E. & Maylahn, C. M. Evidence-based public health: a fundamental concept for public health practice. *Annu Rev Public Health* 30, 175–201 (2009).

Defining a Population Health Record

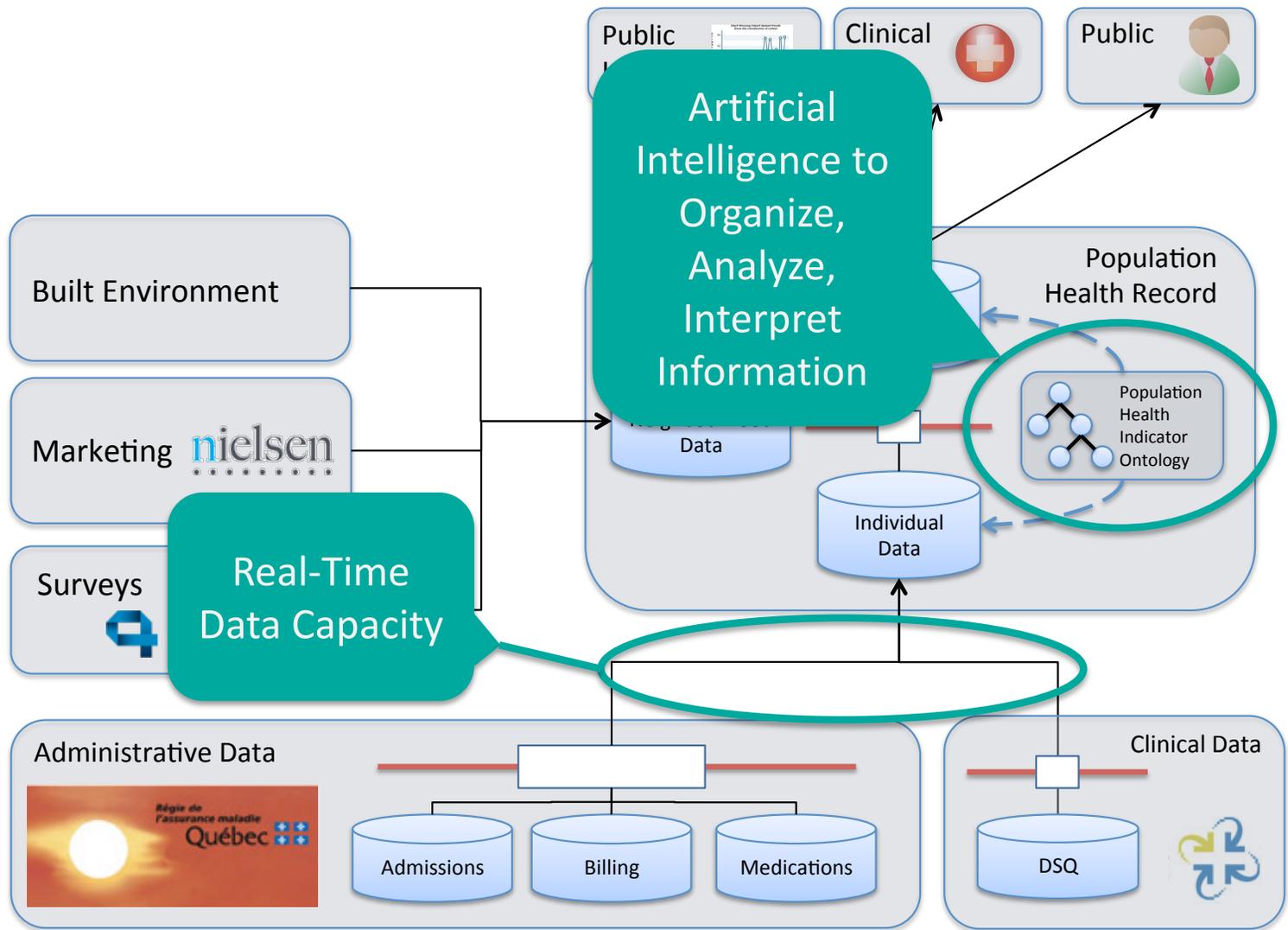
- Representative information for a defined population
- Evidence about population health and health systems
- Explicit population health framework used to organize information and evidence
- Facilitates population health decision making
 - Integrated data on determinants, outcomes, healthcare
 - Alignment of information and evidence regarding population health and health system interventions

PopHR Project Timeline





Dossier Santé Populationnel
POPHR
 Population Health Record

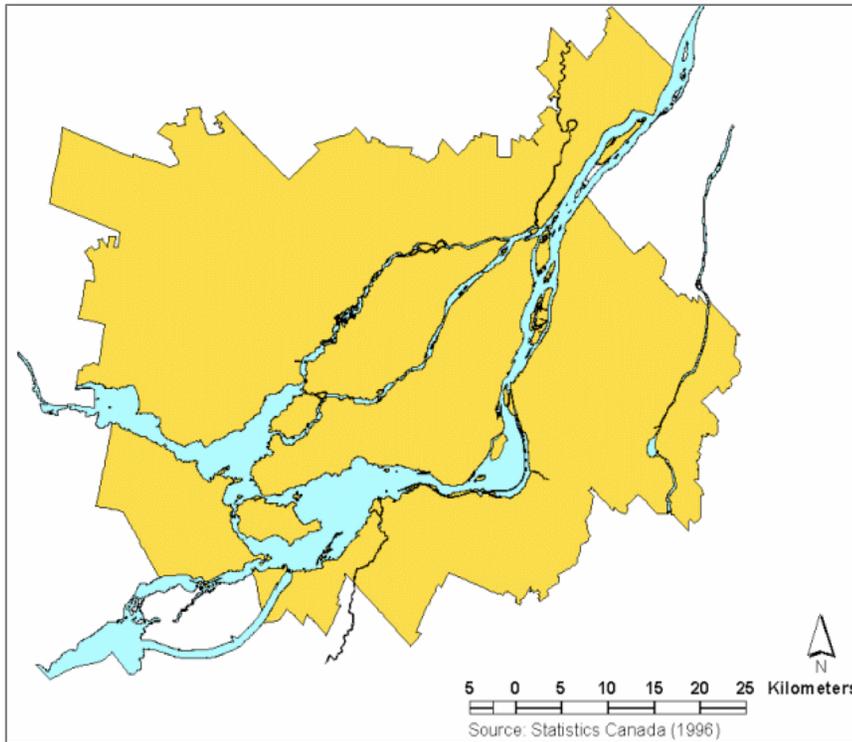


Shaban-Nejad, A., Lavigne, M., Okhmatovskaia, A., & Buckeridge, D. L. (2016). Annals of the New York Academy of Sciences, 1387(1), 44-53.

Buckeridge, D. L. et al. IBM Journal of Research and Development 56, (2012).

PopHR Development

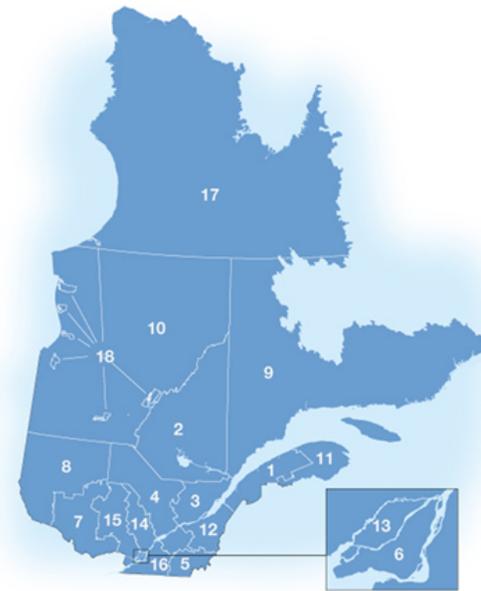
4.1 million people (2016)

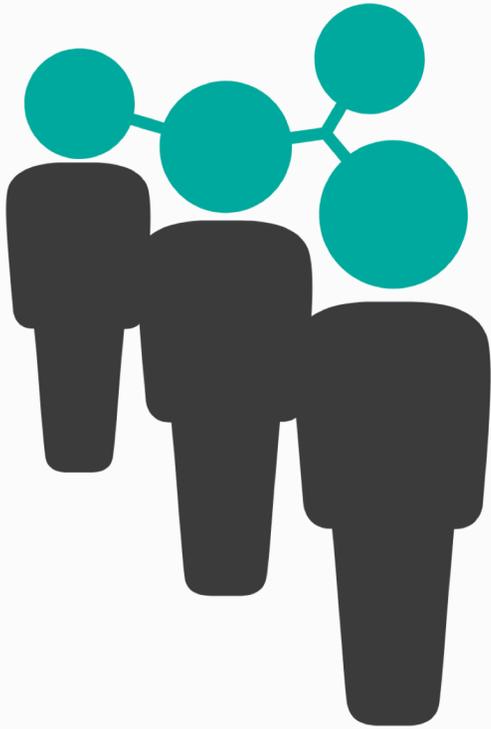


Data from 1998 to present
25% random sample
~ 1 million people

Implementation of PopHR in Québec

- ✓ Define project governance
- ✓ Install hardware, software
- ✓ Connect PopHR to data
- ➔ Validate indicators
- ➔ Make PopHR available in public health departments





Dossier Santé Populationnel

POPHR

Population Health Record

Introduction

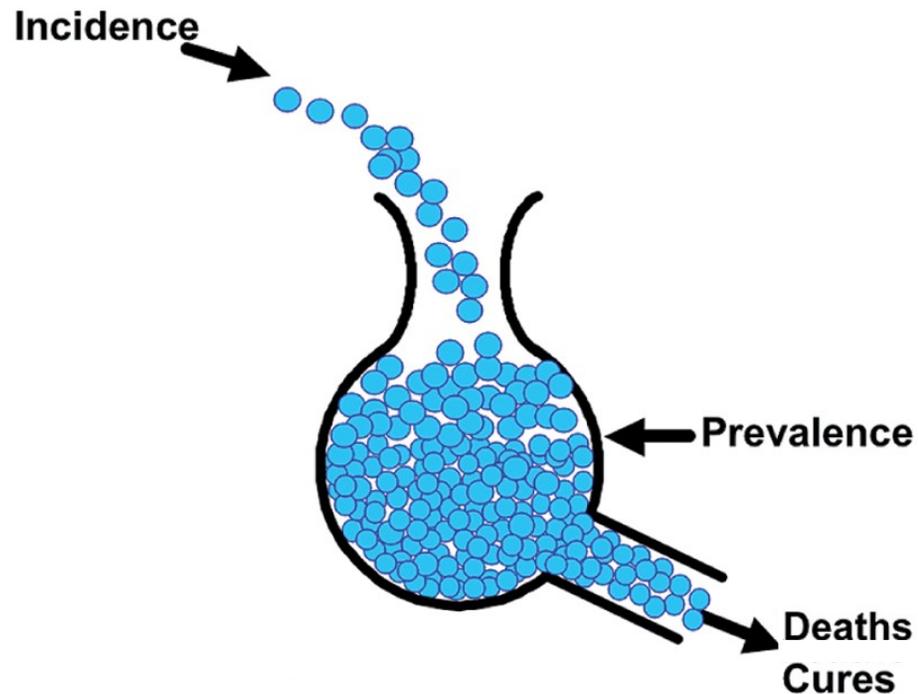
Exercise(s)

Closing

Explore the relationship between indicators for one chronic disease

EXERCISE I

Prevalence, incidence, and mortality



Prevalence increases with addition of new cases

Prevalence decreases as patients die or are cured

Prevalence = Incidence × Duration of the disease

Measures

- *Incidence rate* = $\frac{\text{New cases of a condition}}{\text{Person-time at risk of condition}}$
- *Prevalence* = $\frac{\text{People with condition}}{\text{People at risk of condition}}$
- *Mortality rate* = $\frac{\text{Deaths of any cause}}{\text{Person-time alive}}$
- *Mortality rate in people with a condition* = $\frac{\text{Deaths of any cause}}{\text{Person-time alive of people with a condition}}$

Exercise I

Disease of interest: Diabetes

Region of interest: Two CLSCs: Parc-Extension and Montréal-Centre-Ville (marked in page 4)

Indicator of interest: Prevalence, incidence, and mortality rate in people with diabetes

Question: Complete the table by using PopHR (suggested view: time series and disease view) to explore the general trends of the indicators in the regions of interest.

Exercise I

Trend (2002-2014)	Montreal-Centre-Ville	Parc-Extension	Rest CLSCs
Prevalence			
Incidence			
Mortality rate in people with diabetes			
Relationship between the three indicators above			-----

Exercise I

Trend (2002-2014)	Montreal-Centre-Ville (CLSC)	Parc-Extension (CLSC)	Rest CLSCs
Prevalence	Stable/decline (54.8 – 53.6)	Increase to the Top2 (56 -- 100.90)	Increase (29.10,67.20) --- (41.1, 102.1)
Incidence	Generally, decline (11.5 – 4.9)	Generally high (7.3 – 7.4)	Stable (3.9,12.9) --- (2.8,8.1)
Mortality	Consistently high (82.9—107.1)	Consistently low (18.1—19.1)	Stable (0,82.9) --- (19.1,107.1)
Priorities	High mortality rate in diabetes patients	High incidence rate	-
Reason	Even though the incidence is not increasing, it stills contribute to the prevalent cases, meaning that the declining prevalence is largely driven by the high mortality rate in diabetes patients	The mortality in diabetes patients is relatively low, meaning that the increased prevalence could be largely caused by the high incidence	-

Using standardization to compare indicators in different regions

EXERCISE II

Adjusted or Standardized Measures

Goal: Make a measure (e.g., prevalence, incidence) **comparable** between groups by adjusting for the effect of one or more *confounding* variables (e.g., age, sex)

The measure is **adjusted** to reflect the hypothetical scenario where each group has the same distribution of the confounders

Two **types of adjustment**: Direct, indirect

Direct versus Indirect

	Direct	Indirect
Data from standard	Age distribution	Age-specific rates
Data from study	Age-specific rates	Age distribution
Result	Age-adjusted rates	SMR
Good for	Descriptive purposes, comparison across studies	Small event rates in study population
For both	Give a single summary number for each study group. This number is based on a hypothetical circumstances, but circumstances are the same between groups, so comparison is made fairer.	

Exercise II

Disease of interest: Diabetes

Region of interest: Two CLSCs: Montreal-Centre-Ville and Lac Saint-Louis (marked in page 4 of handbook)

Indicator of interest: demographic indicators, crude and age-standardized prevalence of diabetes

Question: complete the table below by finding the indicators values using PopHR (suggested view: region profile view and time series view/disease view)

Exercise II

Indicators	Montreal-Centre-Ville	Lac Saint-Louis
Describe the age pyramid		
Trend of crude prevalence of diabetes 2002-2014		
Trend of age-standardized prevalence of diabetes 2002-2014		
Interpret the difference between the crude and age-standardized prevalence of diabetes		

Exercise II

Indicators	Montreal-Centre-Ville (CLSC)	Lac Saint-Louis (CLSC)	benchmark
Age-distribution	High % of people at 20-39	Opposite distribution, lowest proportion at 25-39	-
% of population with low-income	High 26.22%	Low 5.76%	8.98% QC as benchmark
% of children living in low-income household	High 27.21%	Low 6.17%	8.38% QC as benchmark
Commute to work by active transport	High 41.26%	Low 4.22%	7.08% QC as benchmark
Trend of crude prevalence of diabetes	Trend: Stable/decline (54.8-53.6)	Increasing every year and the values almost double (33.7-62.9)	Average as benchmark (around 72)
Trend of age-standardized prevalence of diabetes	Trend: Stable/increase (47.4-66.5)	Stable/gradually increase (39-54.5)	-
Reasoning		Aging population is driving the rapid increase in the crude prevalence in this CLSC	

Introduction

Exercise(s)

Closing

Workshop Objectives

Participants who successfully complete the workshop will have acquired the necessary knowledge and skills:

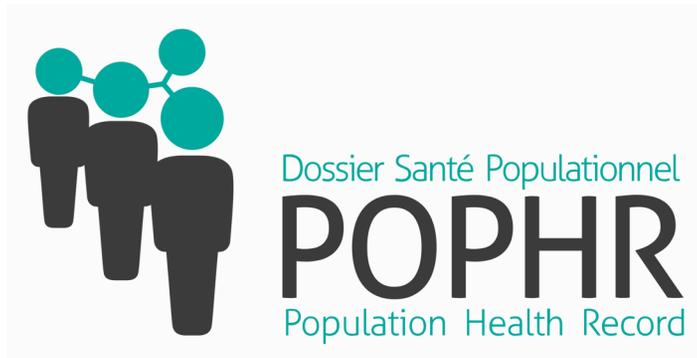
1. To understand how chronic disease indicators are calculated, including limitations of current methods and emerging methods;
2. To examine chronic disease indicators within a region and describe how different types of indicators can be used to identify priorities; and,
3. To compare chronic disease indicators across regions and understand how benchmarks and standardization can be used in this process.

The PopHR Team and Partners

Software Development:	Maxime Lavigne, Alexis Hamel, Xuefei Shi, Mojtaba Peyvandy, Interns
Research Team:	David Buckeridge, Anya Okhmatovskaia, Guido Powell, Mengru Yuan, Nikita Boston
INSPQ:	Valérie Emond, Danielle St Laurent, Mariève Doucet, Melanie St-Onge
Health Evidence:	Maureen Dobbins
Computer Science:	Byron Wallace
Funding:	CFI, CIHR, PHAC



surveillance.mcgill.ca



pophr.mchi.mcgill.ca