EMR Data for Health System Use

CONSOLIDATED PRESENTATION MATERIALS
WORKSHOP #2
SEPT 30, 2020
Welcome & Introductions

Co-Chairs:
Christine Grimm, Senior ED, Digital Health, Analytics, Privacy, Health and Wellness
Mary Byrnes, Manager, Primary Health Care Information, CIHI

Workshop Participants:
Dr. Mike Wadden, Family Physician
Dr. Aaron Smith, Family Physician
Dr. Rick Gibson, Family Physician, Senior Medical Director, Primary Health Care and Department of Family Practice
Lynn Edwards, Senior Director of Primary Health Care and Chronic Disease Management, Nova Scotia Health
Dr. Liesha Hawker, Family Physician
Dr. Natasha Deshwal, Family Physician
Stewart Gray, Senior e-Health Strategist, Doctors Nova Scotia
Jill Casey, ED Business Analytics and Information Management, Health and Wellness
Denise MacDonald Billard, Project Executive, Primary Health Care, Health & Wellness
Dr. Matt Grandy, Family Physician and Network Director for the Maritime Family Practice Research Network (MaRNet)

Presenters:
Dr. Jennifer Rayner, Alliance for Healthier Communities
Dr. Itamar Tamari, Stonegate Community Health Centre
Tanya Khan, CIHI

Support:
Matt Murphy, Nova Scotia Health
Erin Christian, Nova Scotia Health
Rachelle O’Sullivan, CIHI
Paul Rossolatos, CIHI
Pam Butler, DHW
Susan Philipott, Senior Policy Analyst, Primary Health Care, Health & Wellness
Lisa Napier, Manager Virtual Care/EMR program, Health & Wellness
Melinda Melanson, Project Executive, Analytics, Health & Wellness
Jean-Charles Charron, CIHI IT Support Technician
| Agenda |
|-------------------------|-------------------------|
| **Purpose & Participants** | Welcome: Christine Grimm, DHW<br>Participant Introductions (Roundtable) 15 minutes |
| **Highlights from Workshop #1** | Recap: Discussion Highlights from Workshop on EMR Data for Health System Use<br>- Christine Grimm, DHW<br>- Mary Byrnes, CIHI 15 minutes |
| **The Alliance for Healthier Communities** | Primary Care Data at CIHI: Demonstrating the Value of Standardized and Linked EMR Data in Understanding the Patient Journey<br>- Dr. Jennifer Rayner, Alliance for Healthier Communities<br>- Dr. Itamar Tamari, Stonegate Community Health Centre<br>- Tanya Khan, CIHI<br>Group Discussion:<br>Facilitator: Christine Grimm, DHW 30 minutes |
| **NS – CIHI Partnership Opportunity** | Joint Proof of Concept Proposal – presentation & discussion<br>- Mary Byrnes, CIHI<br>- Jill Casey, DHW 40 minutes<br>Seeking advice on:<br>- Prioritization of use cases<br>- Approach<br>- How to get started<br>- Next Steps |
| **Closing Remarks** | Christine Grimm, DHW 5 minutes |
Online Facilitation Tools & Approach
Purpose

Goal

- To explore stakeholder readiness to pursue in-depth planning for a possible joint project using linked primary care EMR data for health system use.

Meeting Objectives:

- Validate what we heard from Workshop #1 June 17, 2020
- Demonstrate the value, learnings and successes from a similar partnership with Alliance for Healthier Communities and CIHI
- Inform a NS-CIHI partnership opportunity for a proof of concept project and approach to participation
Recap: Discussion Highlights from Workshop on EMR Data for Health System Use

(June 17, 2020, Virtual Session)
Recap – NS/CIHI June 17th Workshop | Objectives

Goal: To explore stakeholder readiness to pursue in-depth planning for a possible joint project using linked primary care EMR data for health system use.

1. Describe the Nova Scotia context, and current primary health care / EMR data priorities;

2. Gather information on stakeholder perspectives; and

3. Identify a potential approach for a joint data project and identify readiness to engage.
Vision: Use for Health Information

CHI/CIHI Vision 2013 as approved by Conference of Deputy Ministers

Better healthcare and improved health for Canadians

- **Care to the Patient**: Use of data to provide direct care to the patient
- **Clinical Program Management**: Use of data to improve health care programs and services
- **Health System Management**: Use of data to improve the effectiveness & efficiency of the system
- **Population Health**: Use of data to understand the health of the public
- **Research**: Use of data for health research & innovation

**Primary Use**

**Health System Use**

**Note**: This has been adapted for NS use by including the *Primary Use* and *Health System Use* boxes at the bottom of diagram
Workshop participants were asked to share their views and perspectives as follows:

- What are the top priorities and information needs of Primary Health Care (PHC)?
- As we move more care to community, what are the health system problems and gaps that need to be resolved?
- How can EMR data and data linkage address these needs?
- Do we have a common ground to move forward to next steps?
Recap - Workshop Dialogue | Key Themes

Highlights report distributed to participants, includes the following themes:

• There is general agreement on PHC priorities for NS, especially integration of care.

• There is a need to better understand patient flow beyond the hospital sector.

• Improvements in information flows, EMR data access and EMR functionality are needed to better support primary health care.

• Outcomes evaluation must include primary care EMR data.

• EMR data and data linkage is valuable.

• Data sharing initiatives must demonstrate value at all levels.
Recap - Workshop Dialogue | Key Themes (con’t)

- Assess and enhance data quality through use and continuous improvement.
- Start small and then explore opportunities for scale.
Options emerging from the Workshop

Based on the workshop discussion, the following analytical themes emerged as potential health system use opportunities for further discussion:

- Medications (link EMR to Drug Information System) with a potential to explore patient outcomes
- Chronic Disease (link EMR to DAD*/NACRS*) with a potential to follow the patient journey with a focus on ACSC* conditions
- Mental Health, Addictions (link EMR to DAD/NACRS) with a potential to follow the patient journey

*Opportunity for us to revisit these options after The Alliance presentation

*Glossary
DAD: Refers to the Discharge Abstract Database administered by CIHI, includes administrative, clinical and demographic information on hospital discharges
NACRS: Refers to the National Ambulatory Care Reporting System administered by CIHI, contains data for all hospital-based and community-based ambulatory care including day surgery, outpatient and community-based clinics, and emergency departments.
ACSC: Refers to Ambulatory Care Sensitive Conditions (diabetes, COPD, asthma, etc.)
Discussion
Primary Care Data at CIHI: Demonstrating the Value of Standardized and Linked EMR Data in Understanding the Patient Journey
Alliance for Healthier Communities (Alliance)

CHAMPIONING TRANSFORMATIVE CHANGE

In keeping with OUR VALUES

Equity:
We champion an equitable, inclusive and respectful primary health care system.

Leadership:
We challenge the status quo with integrity and transparency and are catalysts for system innovation.

Collaboration:
We embrace community-driven cooperation and partner to influence change.

Knowledge:
We act and learn from a community-informed and evidence-based approach.

and our MODELS

Health & Wellbeing

STRATEGIC DIRECTIONS

1. Champion health equity and population needs-based planning, and challenge systemic inequities to achieve improved health outcomes.

2. Advance people-centred, high quality primary health care as the foundation of the universal and publicly funded health system to increase access to appropriate services, especially for populations facing barriers.

3. Demonstrate the value and impact of the Model of Health and Wellbeing on the improved health outcomes and experience of people and communities.

4. Advocate for appropriate policies, processes and resources to ensure members are equipped to operate healthy organizations and realize their potential as effective catalysts in system transformation.

to support OUR MISSION
We champion transformative change to improve the health and wellbeing of people and communities facing barriers to health.

and achieve OUR VISION.
The best possible health and wellbeing for everyone in Ontario.
Business Intelligence Reporting Tool (BIRT)

- The Alliance developed BIRT to support member centres in the areas of accountability reporting to funders, administrative planning and evidenced-based clinical decision making.

- Ability to look at data across multiple programs, drive quality improvement, make strategic planning decisions, and benchmark performance. A BIRT performance dashboard is used by all community health centres (CHCs).

- Near real-time EMR data

- Privacy and security infrastructure is flexible enough to have sensitive clinical information, while allowing users to share, collaborate and develop best practices.

- Used to generate EMR data extracts, data elements can be mapped.
Alliance’s structured data: What makes it possible?

- **Shared mission, vision, and values with invested clinicians** (e.g. respiratory therapists)

- **Data governance and data quality mechanisms**
  - Performance indicators drive data quality initiatives
  - The Model of Health and Wellbeing Evaluation Framework

- **Significant investment in and commitment to IM/IT infrastructure**
  - Investment in EMR software with some common EMR tools (e.g. templates) for all CHCs
  - Business Intelligence Reporting Tool (BIRT) acts as a central store of EMR data
  - Ongoing training and resources (e.g. data management coordinators)
Alliance common data requirements

The Model of Health and Wellbeing Evaluation Framework supports a common data standard

- Overview of information needs
- ENCODE-FM use to codify health concern and intervention

The Business Intelligence Reporting Tool allows for further data standardization

- ENCODE-FM is mapped to ICD-10 to support linkage and secondary use of the data
Initial data sharing agreement signed between the Alliance and CIHI for test EMR data in March 2018.

In July 2018, the Alliance shared 3 years of data from BIRT with CIHI.

CIHI, with input from the Alliance, assessed EMR data for quality, usability and linkage potential.

CIHI, with input from the Alliance, conducted a first proof-of-concept analysis on COPD using Alliance EMR data linked to CIHI data.

A second proof-of-concept analysis was conducted on clients with mental health and addictions concerns.
What we learned about usability of the EMR data

**Successes**

- Minimal processing was required to make data fit for analysis
- Data required for linkage was available
- Of enrolled clients, 78% had a valid HCN
- Diagnosis data such as health concern and reason for visit are highly standardized and complete
- Good alignment with CIHI’s primary health care EMR content standard

**Opportunities for Advancement**

- Future availability of medications, lab results and risk factors in BIRT will provide a more comprehensive picture of care
- Improving the availability of structured data for procedures and ordered tests will help generate a more complete overview of services provided to clients
- More complete data for determinants of health and biometric data such as blood pressure and BMI will allow for improved understanding of clients
COPD Proof of Concept Analysis
What is the portrait of Alliance COPD clients?

COPD prevalence rate: 8.7%
(n=13,023)

15.4% are non-English speakers

37.7% have high school education as highest level of attainment

26.4% live alone

37.7% have high school education as highest level of attainment

22.5% have an annual household income <$15,000

Demographics:
Average age of 64.3 years
50.4% male

Source: Alliance for Healthier Communities EMR data, 2015-16 to 2017-18 (73 CHCs)
How are COPD clients managed in primary care?

Most clients had 10-19 PHC visits per year, with multi-disciplinary care:
- Physician (29.0%)
- Nurse Practitioner (20.3%)
- Nurse (20.0%)

Common reasons for PHC visits:
- Health advice/ instructions (12.8%)
- Discussion regarding the treatment plan (8.2%)
- Medication renewal (7.5%)

Vaccinations among those offered:
- Flu vaccine (83.1%)
- Pneumococcal vaccine (95.0%)

Top external referrals:
- Surgeon-general (8.0%)
- Other (7.8%)
- Respirologist (5.8%)

Top internal referrals:
- Physician (13.0%)
- Other (7.0%)
- Nurse (6.7%)

Source: Alliance for Healthier Communities EMR data, 2015-16 to 2017-18 (73 CHCs)
The COPD Patient Journey Over 3 years

**Primary care**
- 3/4 of COPD clients had at least one ED visit.
- Average of 5 ED visits (average of 5.7 hours).
- Most ED visits resulted in the client being discharged home.

**Emergency Department**
- 16.2% of ED visits led to hospital admission.
- Average of 5 ED visits (average of 5.7 hours).
- Most ED visits resulted in the client being discharged home.

**Inpatient stays**
- 1/3 of all COPD clients had at least one hospitalization.
- Average of 2 acute care stays (average stay 6 days).
- 4 out of 5 patients were discharged home.

1/2 of COPD clients discharged had a primary care follow-up within 7 days.

Source: Alliance for Healthier Communities EMR data, DAD, NACRS, 2015-16 to 2017-2018 (73 CHCs)
MHA Proof of Concept Analysis
What is the portrait of Alliance MHA clients?

MHA prevalence rate: 24.5%
(45,019/183,849 enrolled clients)

- 15% are non-English speaker
- 35% have high school education
- 20% live alone
- 24% with annual household income <$15,000

Demographics:
Median age: 48 years
58% female

Source: Alliance for Healthier Communities EMR data, 2015-16 to 2017-18 (73 CHCs)
How are MHA clients managed at CHCs?

84% of MHA clients made five or more visits in the follow-up year.
- 28% made 20 or more visits

The most common care providers:
- physicians (28%)
- nurse practitioners (19%)

The most commonly addressed issues:
- Prescription repeats (8%)
- Special screening examination (5%)

Only 7% of clients were referred to psychiatrists. The most common external referrals were identified as unknown (9%).

Most frequent internal referrals:
- physicians (10%)
- social workers (9%)
- dietitians/nutritionists (7%).

Note: 7% were identified as ‘other’
What is the journey of MHA clients through the continuum?

Primary care

Emergency Department

Inpatient stays

42% of all MHA clients had at least one ED visit

Average of 3 ED visits
Average LOS 4 hours

11% of ED visits led to hospital admission

13% of all MHA clients had at least one hospitalization (*excludes day surgeries)

Average of 1.6 hospitalizations
Average LOS 9.1 days

37% of MHA clients had a primary care follow-up within 7 days of discharge.

Source: Alliance for Healthier Communities EMR data, DAD, NACRS, 2015-16 to 2017-2018 (73 CHCs)
Insights for Community Health Centres

• What was produced? Data quality and COPD/ MHA interactive reports

• Consider the COPD/ MHA results against clinical practice guidelines where relevant (e.g. immunizations)

• Undertake quality improvement activities, including benchmarking CHC results against other CHCs

• Improve transitions between care settings
Insights for Providers

CIHI Linked Data

Client Characteristics
Care Continuum
Benchmarking data
Identify gaps in care (specialists, internal team members, 7-day primary care visit after d/c)
Insights for Providers

Point of Care
- Patient Registries
- Recall Lists
- Ability to see PHI

BIRT Reporting Tool
- Dashboards
- CHC Benchmarking
- Internal care journey
- Ability to see PHI
- Accountability & Performance

CIHI Linked Data
- Client Characteristics
- Care Continuum
- Benchmarking data
- Identify gaps in care (specialists, internal team members, 7-day primary care visit after d/c)

Health System Use Type Analysis
NS – CIHI Partnership Opportunity
What could a proof of concept project look like?

Phase 1 – Discovery
- Explore NS stakeholder readiness
- Explore potential use cases in greater detail
- Data sharing agreements and Privacy By Design approach

Phase 2 – Data Submission and DQ Assessment
- Data extraction & submission to CIHI
- Data validation
- Data quality assessment

Phase 3 – Proof of Concept Analysis
- Conduct proof of concept analysis
- Explore opportunities to share results

Phase 4 – Project Closure
- Evaluate project learnings
- Explore readiness for a phase 2 project
## Use Case Parameters

### NS Priorities

- Integration
- High Users
- Care shifting to community
- Quality, Quality Improvement

### Potential Topics

1. Medications (link EMR to Drug Information System data)
2. Chronic Disease (link EMR to DAD*/NACRS* and follow patient journey) (potential to focus on ACSC* condition)
3. Mental Health, Addictions (link EMR to DAD/NACRS and follow patient journey)

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Questions?
Closing Remarks
Thank you for Participating
Appendix: NS – CIHI Partnership Opportunity Potential Use Cases
Joint Proof of Concept | Example Use Case (ACSC)

- Phase 1 Proof of concept will focus on 1 to 2 PHC sector policy questions deemed important to both NS stakeholders and CIHI, and that may lend themselves to quality improvement at the point of care in the future

Example:

- High-level research question #1: How does PHC management of patients with a select ACSC condition impact the downstream use of acute care services (e.g., ED visits and hospitalizations, including readmissions)?

  - What is the profile of clients with ACSC condition? (ex., age, sex, comorbidities, social behaviours, etc...)?
  - Do patients have lab test results to confirm their diagnosis? If so, what is their disease severity?
  - Have they seen a specialist or been referred to other provider types (ex., endocrinologist, respirologist, etc...)?
  - How does PHC management of patients impact the use of acute care services (ex., ED visits and hospitalizations, including readmissions)?
  - Does PHC management and/or outcomes vary by patient and provider characteristics?
  - What prescribed medications are being used to manage patients?