Pan-Canadian Primary Health Care EMR Minimum Data Set for Performance Measurement

Version 1.0

Canadian Institute for Health Information
Institut canadien d'information sur la santé

Production of this document is made possible by financial contributions from Health Canada and provincial and territorial governments. The views expressed herein do not necessarily represent the views of Health Canada or any provincial or territorial government.

Canadian Institute for Health Information
495 Richmond Road, Suite 600
Ottawa, Ontario K2A 4H6
Phone: 613-241-7860
Fax: 613-241-8120
cihi.ca
copyright@cihi.ca

How to cite this document:
Canadian Institute for Health Information. *Pan-Canadian Primary Health Care EMR Minimum Data Set for Performance Measurement, Version 1.0*. Ottawa, ON: CIHI; 2020.

Cette publication est aussi disponible en français sous le titre *Fichier minimal pancanadien du DME en lien avec les soins de santé primaires pour la mesure de la performance, version 1.0*.

Table of contents

Acknowledgements

The Canadian Institute for Health Information (CIHI) wishes to acknowledge and thank the many individuals and organizations that contributed to the development of this product. In particular, CIHI would like to acknowledge and express its appreciation to the members of the Primary Health Care (PHC) Standards and Data Working Group who provided invaluable input into the development of a pan-Canadian primary health care electronic medical record minimum data set for performance measurement.

Jurisdictions and organizations

- Alberta Ministry of Health
- British Columbia Ministry of Health
- Canada Health Infoway
- Canadian Primary Care Sentinel Surveillance Network
- eHealth Centre of Excellence
- eHealth Saskatchewan
- Health PEI
- Manitoba Health, Seniors and Active Living
- New Brunswick Department of Health
- Newfoundland and Labrador Centre for Health Information
- Northwest Territories Department of Health and Social Services
- Nova Scotia Department of Health and Wellness
- Nunavut Department of Health
- OntarioMD
- Shared Health Manitoba
- Yukon Department of Health and Social Services, eHealth Yukon

About CIHI

The Canadian Institute for Health Information (CIHI) is an independent, not-for-profit organization dedicated to providing essential health information to all Canadians.

CIHI works closely with federal, provincial and territorial partners and stakeholders throughout Canada to gather, package and disseminate information to inform policy, management, care and research, leading to better and more equitable health outcomes for all Canadians.

Health information has become one of society's most valuable public goods. For 25 years, CIHI has set the pace on data privacy, security, accessibility and innovation to improve Canada's health systems.

CIHI: Better data. Better decisions. Healthier Canadians.

For more information, visit our website at cihi.ca.

Introduction

Background

For many Canadians, primary health care plays an important role in their health and wellness, often being their first point of contact with the health care system and the central point of coordination between care providers. **Primary health care** refers to an approach to health and a spectrum of services beyond the traditional health care system. It includes all services that play a part in health, such as income, housing, education and environment. **Primary care** is a type of primary health care that focuses on health care services, including health promotion, illness and injury prevention, and the diagnosis and treatment of illness and injury.[1] For the purpose of this document, the term primary health care (PHC) captures both concepts.

Electronic medical record (EMR) data captured in PHC is important to improve the quality of decisions made by the various stakeholders within Canada's health systems, including patients, practitioners, health system managers and policy-makers. The activities that aim to improve the quality of decisions include performance measurement. PHC EMR data can be used to coordinate, manage and track an individual's care throughout the health care system, as well as to improve the quality of health care through performance measurement.

As the use of EMR systems has become common practice in Canada, the availability of primary health care EMR data has increased. However, challenges remain with data comparability,[2, 3] due to the lack of data content standards. PHC EMR data content standards can enable the creation of comparable data for use in managing patients in PHC practices, as well as for planning and performance measurement in the broader PHC sector and Canada's health systems. Structured data captured in EMRs can be used for better decision-making in areas such as chronic disease prevention and management.

The Canadian Institute for Health Information (CIHI) has provided national leadership on PHC EMR data standards for over a decade. Since its initial release in 2009, the content standard has evolved from the *Primary Health Care Indicators Electronic Medical Record Content Standards, Version 1.1* to the *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Clinician-Friendly Pick-List Guide* in 2014 (see Appendix A for the revision history). Each iteration has been informed by jurisdictional stakeholder input. And while the number of data elements and associated code system examples have changed over time, the goal has remained the same — to support the generation of comparable PHC EMR data to meet targeted information needs across Canada. The pan-Canadian minimum data set associated with the content standard is a subset of the hundreds of data elements captured in point-of-care EMR systems.

Past versions of the content standard have included a set of data elements with classification and terminology code systems to structure the data. However, due to the pervasiveness of semi-structured and unstructured data in EMR systems, and given discussions in a recent CIHI primary care forum, it is proposed that advanced analytical approaches (e.g., natural language processing) will also be needed to standardize the semi-structured or unstructured EMR data with no associated code systems.[3] It has also been proposed that the set of 45 data elements identified in the pan-Canadian content standard can provide a guide to the data set to be extracted for performance measurement or other information needs at the health system level. As such, the PHC EMR content standard has been refocused to a PHC EMR minimum data set (MDS) to facilitate its future evolution.

Purpose

The purpose of the *Pan-Canadian Primary Health Care EMR Minimum Data Set for Performance Measurement, Version 1.0* is to define a focused set of PHC EMR data elements and associated code systems and/or subsets to guide the creation of a comparable set of PHC EMR data for performance measurement across Canada. As well, this document has combined the information from relevant past versions of the PHC EMR content standard into a single document for ease of use. The PHC EMR MDS for Performance Measurement is intended to exist as a subset of a clinical minimum data set (e.g., a patient summary) and/or EMR system baseline specifications.

Scope

The scope of this release is a core set of 45 data elements and associated code systems and/or subsets for targeted data elements. Clinician-friendly pick-lists (CFPLs) in the previous version have been retired, due to a lack of uptake. It is acknowledged that the inclusion of additional data elements (e.g., allergy data elements) may be required to meet regional and local performance measurement needs. To address this requirement, 61 data elements (formerly in v2.1 of the content standard) are presented as optional data elements to add to a regional or local minimum data set (see Appendix B).

Target audience

The target audience for this document includes Canada's federal/provincial/territorial decision-makers, EMR vendors, health informatics professionals, data and standards developers, policy experts and researchers. This document is not intended to be a full implementation guide given that it may inform data sets at various levels of the health care system. For that reason, only logical data models are offered to depict relationships between the MDS data elements (see Appendix C).

Use case — Performance measurement

The PHC EMR MDS can be used to support the generation of comparable data for performance measurement at the clinical and health system management levels that targets a set of information priorities. These information priorities include chronic disease prevention and management. In this context, the MDS is relevant to indicators populated with EMR data. For example, performance measurement at the point of care can be used by clinicians to track the quality of care that their patients are receiving. At a health system level, comparable EMR data can be used to inform policy decisions that promote improved population health outcomes. Comparable EMR data is valuable at all levels of the health system for peer comparisons and trending results over time.

Clinic-level scenario

The standardized minimum set of comparable data can be used to support indicator calculations within EMR point-of-care system dashboards, to identify patient cohorts and to measure the quality of patient care over time. The indicators, populated with EMR data, can also help clinicians compare their own patient panels with those of peers and/or other practices. For example, indicators will require the identification of patients with hypertension and/or diabetes using comparable data from the following MDS data elements: Patient Identifier (to find unique patients), Health Concern (to identify patients with hypertension and/or diabetes), Patient Status (for active patients) and Date of Birth (to define a target population of patients age 18 and older). Data elements such as Date of Birth and Geographic Location might be used to create stratifiers for measuring health inequalities.[4, 5] Beyond the pan-Canadian EMR MDS identified in this document, additional data elements required for reporting point-of-care dashboard indicators could include Patient First Name and Patient Last Name, allowing clinicians to contact the patients for follow-up of overdue items such as blood pressure monitoring or blood sugar testing.

Health system–level scenario

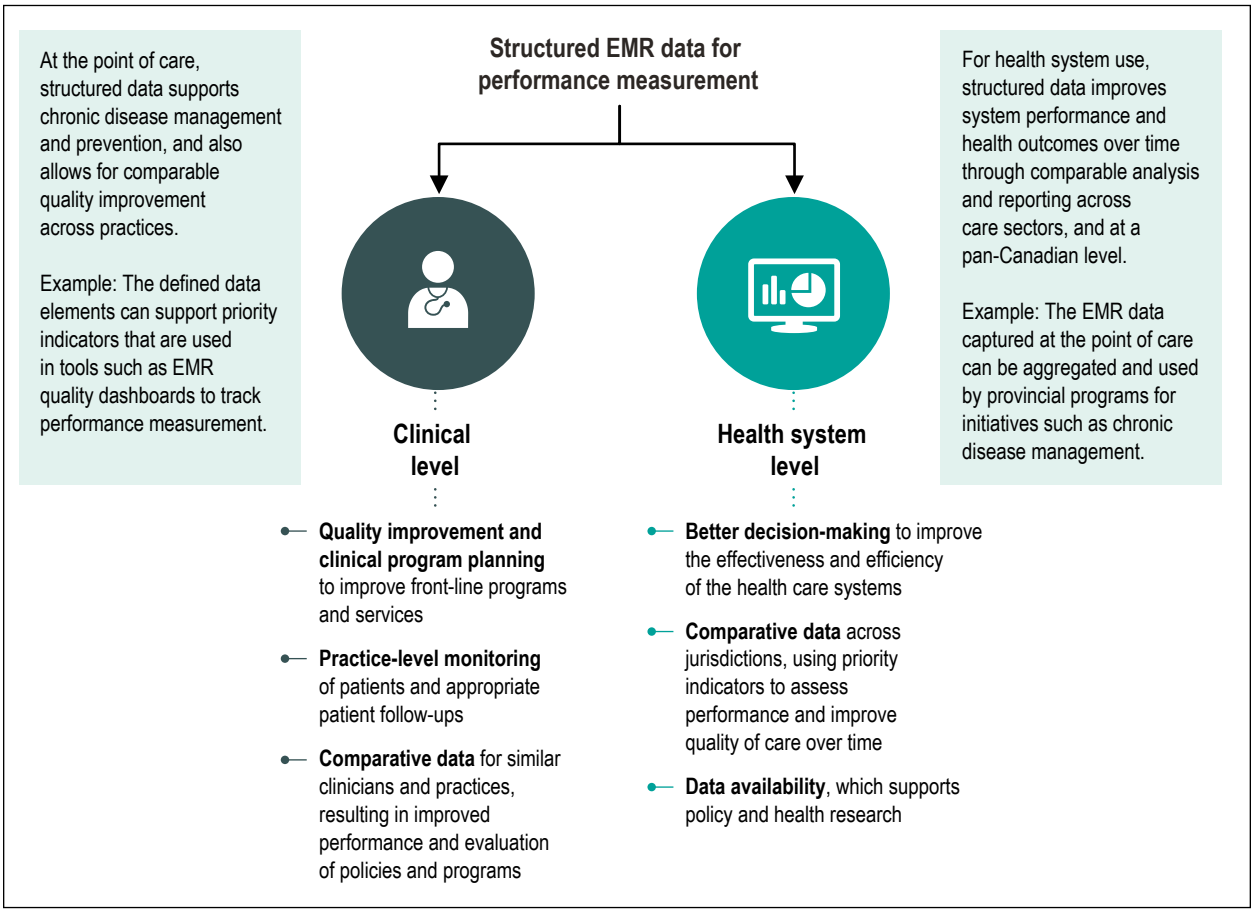
The availability of a focused set of standardized EMR data also allows for performance measurement and research for health system planning in priority areas. Standardized EMR data supports performance measurement through the generation of comparable evidence to inform health programs, population-based policy development and planning, and funding decisions. Data that is comparable across provinces and territories can allow for assessment and comparison of the performance of the primary care sector in each jurisdiction and can be used to identify gaps in the health of populations and contributions of various models of primary care. For example, indicators that can be applied at both the clinical and health system levels are CIHI's Blood Pressure Control for Hypertension and Blood Sugar Monitoring for Diabetes.

The calculation of these indicators would draw upon the data elements Patient Identifier, Health Concern, Patient Status and Date of Birth, as described in the previous scenarios. It would also require, but not be limited to, comparable data elements such as Visit Date(s), Systolic Blood Pressure, Diastolic Blood Pressure and Laboratory Results.

In addition, standardized EMR data may be linked to hospital and other administrative data sources to follow the journey of client groups with targeted chronic diseases (e.g., diabetes) through the continuum of care. This linked comparable data can support the study of potentially avoidable ED visits or hospital admissions associated with a specific chronic disease cohort in primary care.

The figure below describes the value proposition of standardized EMR data for performance measurement at both the clinic and health system levels.

Figure 1 Value proposition: Pan-Canadian PHC EMR Minimum Data Set for Performance Measurement



Source
Canadian Institute for Health Information.

Pan-Canadian PHC EMR MDS v1.0 — Data Dictionary (core data elements)

The PHC EMR MDS v1.0 recommends 45 core data elements. Stakeholders are encouraged to adopt the minimum set of data elements in their EMR system requirements to enable the collection of comparable data for point-of-care dashboards within EMR systems, as well as for performance measurement at the jurisdictional level. The use of a classification or terminology code system to standardize the data is also recommended. At this time, the MDS recommends that a code system be used for relevant data elements but it is not prescriptive about one code system over another.

Table 1 provides a detailed list of the PHC EMR MDS v1.0 core data elements, including data element definitions, data types, valid formats, recommended code systems, example data content and selected considerations for performance measurement and reporting in primary health care. Appendix B lists supplementary (optional) data elements for inclusion in a regional or local PHC EMR MDS. See Appendix C for the PHC EMR MDS v1.0 logical data model associated with the 45 data elements in the core MDS.

Table 1 PHC EMR MDS v1.0 core data elements

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
PATIENT/CLIENT								
A1	Patient Identifier	Client Identifier	Represents a unique numeric or alphanumeric identifier assigned to the Client.	Identifier	Varies by Client Identifier type	n/a	52483-7200	Can be used to associate administrative information (e.g., demographic) and health information (e.g., lab results) with a unique Patient.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
PATIENT/CLIENT (continued)								
A2	Patient Identifier Type	Client Identifier Type Code	Represents the type of Client Identifier (e.g., jurisdictional health care identifier, passport).	Code	n/a	SNOMED CT® or other (jurisdictional codes where available)	22481000087107 Jurisdictional health number (observable entity) (SNOMED CT)	Can be used to characterize further the unique Patient Identifier (data element A1) (e.g., the value represents a jurisdictional health number).
A3	Patient Identifier Assigning Authority	Client Identifier Assigning Authority Code	Represents the legal entity/ organization responsible for assigning the Client Identifier.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	539773351000087101 Ministry of Health Alberta (qualifier value) (SNOMED CT)	Can be used to characterize further the unique Patient Identifier (data element A1) and Patient Identifier Type (data element A2) (e.g., the value represents a jurisdictional health number issued by the Ministry of Health in Alberta).
A4	Patient Date of Birth	Client Birth Date	Represents the Client's date of birth.	Date	YYYYMMDD	n/a	20101001	Can be used to calculate age, which is an equity stratifier for measuring health inequalities.[7, 8]
A5	Patient Gender	Client Administrative Gender Code	Represents the reported gender category of the Client at a given time.	Code	n/a	HL7™	M Male	Can be used as an equity stratifier for measuring health inequalities.[7, 8] Future deliberations are required to explore discrete data elements for sex versus gender.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
PATIENT/CLIENT (continued)								
A9	Patient Status	Client Status Code	Represents whether or not the PHC Provider considers the Client to be actively seeking PHC services through them.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	272730231000087108 Patient active (finding) SNOMED CT	Can be used to identify groups of active versus non-active Patients for analysis.
A14	Patient Postal/ Zip Code	Client Residence Postal Code	Represents the postal code of the Client's primary residence.	String	ANA NAN	n/a	K0K 3R0	Patient postal code (geographic location) can be used to inform a geographic equity stratifier for measuring health inequalities.[7, 8]
CLINICIAN/PROVIDER								
B4	Clinician Identifier	Provider Identifier	Represents a unique numeric or alphanumeric identifier assigned to the Provider.	Identifier	n/a	n/a	12345	Can inform analysis that requires Patient records to be associated with a unique Clinician.
B5	Clinician Identifier Type	Provider Identifier Type Code	Represents the type of Provider Identifier.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	22411000087103 Provider registration number (qualifier value) (SNOMED CT)	Can be used to characterize further the unique Clinician Identifier (data element B4) (e.g., the value represents a Provider registration number).

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
CLINICIAN/PROVIDER (continued)								
B6	Clinician Identifier Assigning Authority	Provider Identifier Assigning Authority Code	Represents the legal entity responsible for assigning the unique identifier to the Provider.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	441144831000087108 Health regulatory body for physicians and surgeons (qualifier value) (SNOMED CT)	Can be used to characterize further the unique Clinician Identifier (data element B4) and Clinician Identifier Type (data element B5) (e.g., the value represents a registration number issued by the health regulatory body for physicians and surgeons).
B7	Clinician Role	Provider Role Type Code	Represents the role/occupation of the Provider in relation to their participation in a specific health care event.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	62247001 Family medicine specialist (occupation) (SNOMED CT)	Can inform analysis of Clinicians' roles (e.g., family medicine specialist, physiotherapist, trained social worker counsellor) in delivering primary care to groups of Patients with targeted chronic diseases or conditions.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
SERVICE DELIVERY LOCATION								
C1	Service Delivery Identifier	Service Delivery Location Identifier	Represents the unique numeric or alphanumeric entry identifier of the practice (Service Delivery Location) where the Client received care.	Identifier	n/a	n/a	897564RT	Can be used to analyze groups of Patients with targeted chronic diseases or conditions (e.g., diabetes) according to service delivery location (e.g., main site versus satellite sites of a primary care practice).
C4	Service Delivery Postal Code	Service Delivery Location Postal Code	Represents the postal code where the Client received the PHC service.	String	ANA NAN	n/a	K0K 3R0	Can be used to analyze groups of Patients with targeted chronic diseases or conditions (e.g., diabetes) according to service delivery location (e.g., main site versus satellite sites of a primary care practice).

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
VISIT/ENCOUNTER								
D1	Appointment Creation Date	Encounter Request Date	Represents the date on which an appointment was created for the Client by the Provider (or their staff).	Date	YYYYMMDD	n/a	20100430	Can support use of the Reason for Visit (data element D2) for analysis.
D2	Reason for Visit	Client Encounter Reason Code	Represents the reason for the encounter as conveyed by the Client.	Code	n/a	SNOMED CT, ICD-9, ICD-10-CA, ENCODE-FM® or other	R51 Headache (ICD-10-CA)	Can be used to analyze Patients' perspectives of their reasons for primary care visits/encounters.
D3	Visit Date	Encounter Date	Represents the date the Client had an encounter with the Provider.	Date	YYYYMMDD	n/a	20101001	In combination with other data elements (e.g., Visit Type — data element D4), can be used to analyze primary care encounter characteristics for groups of Patients with targeted chronic diseases or conditions (e.g., diabetes).
D4	Visit Type	Encounter Mode Code	Represents the type of contact between the Provider and the Client.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	140182721000087101 Direct encounter with client alone (procedure) (SNOMED CT)	Can be used to analyze types of Patient encounters (e.g., direct encounter, email, telemedicine consultation) for groups of Patients with targeted chronic diseases/ conditions (e.g., diabetes).

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
OBSERVATION								
E11	Health Concern	Observation Health Concern Code	Represents the Client's relevant conditions, diagnoses and major past medical history. Often captured in a "problem list."	Code	n/a	SNOMED CT, ICD-9, ICD-10-CA, ENCODE-FM or other	J44.9 Chronic obstructive pulmonary disease, unspecified (ICD-10-CA)	In combination with other data elements (e.g., Prescribed Medication — data element M1), can be used to analyze groups of Patients, according to targeted chronic diseases or conditions (e.g., chronic obstructive pulmonary disease).
E12	Health Concern Date of Onset	Observation Health Concern Start Date	Represents the date on which the Client's health concern started.	Date	YYYYMMDD	n/a	20100430	Can support use of the Health Concern (data element E11) for analysis.
E14	Social Behaviour	Observation Social Behaviour Code	Represents a type of Client social behaviour that increases the possibility of disease or injury for the Client. This can include risk factors such as tobacco use, alcohol use and problematic use of illicit or prescription drugs.	Code	n/a	SNOMED CT, ICD-9, or ICD-10-CA	Z72.0 Tobacco use (ICD-10-CA)	In combination with other data elements, can be used to analyze groups of Patients with targeted chronic diseases or conditions (e.g., chronic obstructive pulmonary disease) according to behavioural risk factors (e.g., tobacco use).[9]

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
OBSERVATION (continued)								
E23	Systolic Blood Pressure	Observation Systolic Blood Pressure Number	Represents the Client's systolic blood pressure value (in mmHg) as measured. The unit of measure (mmHg) is implied when representing the value.	Number	n/a	n/a	120	In combination with other data elements (e.g., Diastolic Blood Pressure — data element E24, Visit date — data element D3, Health Concern — data element E11), can contribute to analysis of blood pressure measurement for groups of Patients with targeted chronic diseases/conditions (e.g., hypertension,[7] diabetes[8]).
E24	Diastolic Blood Pressure	Observation Diastolic Blood Pressure Number	Represents the Client's diastolic blood pressure value (in mmHg) as measured. The unit of measure (mmHg) is implied when representing the value.	Number	n/a	n/a	80	In combination with other data elements, can contribute to analysis of blood pressure measurement for groups of Patients with targeted chronic diseases/conditions (e.g., hypertension,[7] diabetes[8]).

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
OBSERVATION (continued)								
E28	Height	Observation Height Number	Represents the height of the Client as measured.	Number	n/a	n/a	165	In combination with other data elements (E29 to E31), can contribute to the calculation and analysis of body mass index (BMI) measurement for groups of Patients with targeted chronic diseases or conditions (e.g., diabetes[8]).
E29	Height Unit of Measure	Observation Height Unit of Measure Code	Represents the unit of measure used to capture the Client's height.	Code	n/a	UCUM	cm Centimetre (UCUM)	Can be used to identify the unit of height measured (e.g., centimetres, inches) in data element E28.
E30	Weight	Observation Weight Number	Represents the weight of the Client as measured.	Number	n/a	n/a	61.2	In combination with other data elements (E28, E29 and E31), can contribute to the calculation and analysis of BMI measurement for groups of Patients with targeted chronic diseases or conditions (e.g., diabetes[8]).
E31	Weight Unit of Measure	Observation Weight Unit of Measure Code	Represents the unit of measure used to capture the Client's weight.	Code	n/a	UCUM	kg Kilogram	Can be used to identify the unit of weight measured (e.g., kilograms, pounds) in data element E30.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
OBSERVATION (continued)								
E34	Clinician Assessment	Observation Encounter Clinical Assessment Code	Represents the Provider's professional opinion of the most significant condition related to the Client's current encounter following clinical assessment.	Code	n/a	SNOMED CT, ICD-9, ICD-10-CA, ENCODE-FM or other	J45 Asthma (ICD-10-CA)	In combination with other data elements (e.g., Prescribed Medication — data element M1), can be used to analyze groups of Patients according to targeted chronic diseases or conditions (e.g., asthma).
INTERVENTION								
F1	Intervention (Treatment)	Intervention Code	Represents the services or activities performed for the Client within the PHC setting, as well as relevant intervention history that occurred beyond the PHC setting.	Code	n/a	SNOMED CT, CCI, or other (jurisdictional codes where available)	7.SP.10.VK Smoking cessation counselling (CCI)	Can be used to analyze types of interventions (e.g., smoking cessation counselling) provided for groups of Patients with targeted chronic diseases or conditions (e.g., chronic obstructive pulmonary disease).[9]
F2	Intervention (Treatment) Date	Intervention Date	Represents the date the intervention was performed.	Date	YYYYMMDD	n/a	20100430	Can support the use of Intervention (Treatment) (data element F1) for analysis.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
LABORATORY ORDERS								
G1	Lab Test Ordered	Laboratory Test Name Ordered Code	Represents the lab test ordered by the Provider for the Client.	Code	n/a	pCLOCD/ LOINC™, or other (jurisdictional codes where available)	41995-2 Hemoglobin A1c [Mass/volume] in Blood (pCLOCD)	Can be used to analyze types of lab tests (e.g., hemoglobin A1c [mass/ volume] in blood) ordered for groups of Patients with targeted chronic diseases or conditions (e.g., diabetes[8]).
G2	Lab Test Ordered Date	Laboratory Test Order Date	Represents the date the lab test was ordered by the Provider.	Date	YYYYMMDD	n/a	20100430	Can support the use of Lab Test Ordered (data element G1) for analysis.
LABORATORY RESULTS								
H1	Lab Test Performed Date	Laboratory Test Performed Date	Represents the date the lab test was performed.	Date	YYYYMMDD	n/a	20100430	Can support the use of Lab Test Name (data element H2) and Lab Test Result Value (data element H3) for analysis.
H2	Lab Test Name	Laboratory Test Result Name Code	Represents the lab test performed.	Code	n/a	pCLOCD/LOINC, SNOMED CT or other (jurisdictional codes where available)	41995-2 Hemoglobin A1c [Mass/volume] in Blood (pCLOCD)	Used to identify the name of the lab test associated with the Lab Test Result Value (data element H3).
H3	Lab Test Result Value	Laboratory Test Result Value Text (Number, Code)	Represents the result of the lab test.	String (Number, Text)	n/a	n/a	7.0%	In combination with lab test performed and results data elements (e.g., H1, H2, H4, H5, H7), can be used to monitor glycemic control for diabetes.[8]

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
LABORATORY RESULTS (continued)								
H4	Lab Test Result Unit of Measure	Laboratory Test Result Value Unit of Measure Code	Represents the unit of measure of the lab result for the lab test performed.	Code	n/a	UCUM	% Percent (UCUM)	Used to identify the unit of measure associated with Lab Test Name (data element H2) and Lab Test Result Value (data element H3).
DIAGNOSTIC IMAGING ORDERS								
I1	Diagnostic Imaging Test Ordered	Diagnostic Imaging Test Ordered Code	Represents the type of diagnostic imaging test ordered by the Provider for the Client.	Code	n/a	SNOMED CT, CCI or other (jurisdictional codes where available)	3.YM.10. Mammography [diagnostic, screening] (CCI)	Can be used to analyze diagnostic imaging test ordered (e.g., screening mammography) for targeted groups of Patients (e.g., women in a certain age range who are not at increased risk for breast cancer).[10]
I2	Diagnostic Imaging Test Ordered Date	Diagnostic Imaging Test Ordered Date	Represents the date the diagnostic imaging test was ordered by the Provider.	Date	YYYYMMDD	n/a	20100430	Can support the use of the Diagnostic Imaging Test Ordered (data element I1) for analysis.
DIAGNOSTIC IMAGING RESULTS								
J1	Diagnostic Imaging Test Performed Date	Diagnostic Imaging Test Performed Date	Represents the date the diagnostic imaging test was performed.	Date	YYYYMMDD	n/a	20100430	Can support the use of the Diagnostic Imaging Test Ordered (data element I1) for analysis.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
REFERRAL REQUEST								
K1	Referral	Referral Service Code	Represents the type of service required for the Client.	Code	n/a	SNOMED CT, other (jurisdictional codes where available)	310116007 Psychiatry service (qualifier value) (SNOMED CT)	Can be used to analyze the type of referrals made by primary care Clinicians, to obtain Patient consultation or service intake from a referred-to Clinician (e.g., psychiatrist) or Service (e.g., psychiatry service).
K2	Referral Requested Date	Referral Requested Date	Represents the date the referral request was created by the PHC Provider.	Date	YYYYMMDD	n/a	20100430	Can support the use of Referral (data element K1) for analysis.
REFERRAL RESULT								
L1	Referral Occurred Date	Referral Occurred Date	Represents the actual date the Client had the encounter with the referred-to Provider.	Date	YYYYMMDD	n/a	20100430	Can be used to identify the time period between the Referral Requested Date and the Referral Occurred Date for groups of Patients with targeted diseases or conditions Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
PRESCRIBED MEDICATION								
M1	Prescribed Medication	Medication Prescribed Name Code	Represents the medications prescribed to the Client.	Code	n/a	To be determined	00406716 Novamoxin (Amoxicillin) (DIN)	Can be used to identify the types of medications prescribed to groups of Patients with targeted chronic diseases or conditions (e.g., diabetes, hypertension).
M2	Prescription Date	Medication Prescribed Date	Represents the date the prescription for the medication was created for the Client.	Date	YYYYMMDD	n/a	20100430	Can support the use of Prescribed Medication (data element M1) for analysis.
IMMUNIZATION								
O1	Vaccine Administered	Vaccine Administered Name Code	Represents the vaccine administered to the Client within and beyond the PHC setting, including current and past vaccination history.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	46233009 Influenza virus vaccine (product) (SNOMED CT)	Can be used to identify whether groups of Patients with targeted chronic diseases or conditions (e.g., chronic obstructive pulmonary disease) received a particular type of vaccination (e.g., for influenza virus).[9]

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary health care
IMMUNIZATION (continued)								
O2	Vaccine Administered Date	Vaccine Administered Date	Represents the date the vaccine was administered to the Client.	Date	YYYYMMDD	n/a	20100430	Can be used to support the use of the Vaccine Administered (data element O1) for analysis.

Notes
CCI: Canadian Classification of Health Interventions.
ENCODE-FM: Electronic Nomenclature and Classification of Disorders and Encounters for Family Medicine.
ICD-9: International Classification of Diseases Ninth Revision.
ICD-10-CA: International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada.
LOINC: Logical Observation Identifiers Names and Codes.
pCLOCD: pan-Canadian LOINC Observation Code Database.
SNOMED CT: Systematized Nomenclature of Medicine–Clinical Terms.
UCUM: Unified Code for Units of Measure.
n/a: Not applicable.
Source
Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Clinician Friendly Pick List Guide.* 2014.[6]

Supplementary products

Types of code systems: Classifications and terminologies

This section provides an overview of where vendors and other stakeholders might find code systems for targeted data elements in the PHC EMR MDS v1.0.

Canadian Institute for Health Information: ICD-10-CA, CCI standards

- The Canadian Institute for Health Information sets the standard for morbidity reporting in Canada and maintains, distributes and supports the application of the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada* (ICD-10-CA), the Canadian modification of ICD-10, which is published by the World Health Organization. PHC EMR MDS v1.0 data elements such as Reason for Visit or Health Concern can use these source codes.
- In Canada, the *Canadian Classification of Health Interventions* (CCI) is the CIHI standard for the classification of health-related interventions. PHC EMR MDS v1.0 data elements such as Intervention and Diagnostic Imaging Test Ordered can use CCI source codes or SNOMED CT codes, as described in the next section.

A full list of ICD-10-CA and CCI codes is available in an Excel file that can be obtained from CIHI's online store.

Canadian provinces and territories: ICD-9 standards

- Diagnosis information must accompany certain billing claims by those physicians (family medicine and specialists) being paid via fee for service in Canada. Typically, the required ICD-9 codes vary by province and territory. For a current list of ICD-9 diagnosis codes to be used for physician billing in EMR systems, please contact the ministry or department of health in each Canadian jurisdiction.

Canada Health Infoway: SNOMED CT, LOINC/pCLOCD, UCUM, HL7 standards

- The Systematized Nomenclature of Medicine–Clinical Terms (SNOMED CT) is an international terminology standard that is produced by SNOMED International and made available to Canadian users via Canada Health Infoway. The SNOMED CT CA® (Canadian edition) contains concepts that are specific to use in Canada.[11] It is recommended that implementers use the Canadian edition of SNOMED CT, where available.

- The Logical Observation Identifiers Names and Codes (LOINC™) is an international standard for identifying tests, as well as laboratory and clinical observations and documents.[12] The pan-Canadian LOINC® Observation Code Database (pCLOCD) is a Canadian version of LOINC® that specifically meets Canadian laboratory-ordering and reporting requirements.
- Unified Code for Units of Measure (UCUM) is a code system intended to include all units of measure currently in use in international science.[13]
- Health Level Seven (HL7™) is an international standard providing a comprehensive framework and related standards that support clinical practice and the management, delivery and evaluation of health services.[14]

Canada Health Infoway has also created SNOMED CT, pCLOCD, UCUM and HL7 terminology subsets relevant to the delivery and administration of primary health care. They are called PHC subsets. For example, the Visit Type data element has an associated PHC subset in SNOMED CT. Canada Health Infoway makes the PHC subsets available through the InfoCentral Terminology Gateway. For more information on availability, maintenance and revision guidelines of the PHC subsets, please visit the Terminology Gateway via Canada Health Infoway's website. While a user account is required to access the Terminology Gateway, downloading of PHC subsets is free.

PHC indicators

The PHC EMR MDS v1.0 enables performance measurement; comparable EMR data from targeted data elements can be used to support the calculation of indicators to be populated with EMR data. This section provides some examples of sources of relevant indicators.

- **Clinical level:** Within EMR systems at the local level, there may be EMR system dashboards that generate primary care indicators that draw upon various data elements identified in the MDS. Examples can be found in Ontario (the OntarioMD i4C Dashboard indicator specifications)[15] and British Columbia (the Health Data Coalition Measures List by vendor).[16]
- **Health system level:** In 2006, CIHI developed 105 pan-Canadian PHC indicators, in consultation with pan-Canadian experts, to fill a gap in standardized PHC measurement across Canada.[17, 18] In 2012, CIHI updated the set to become a smaller group of 60 indicators.[19] Both sets of indicators can be accessed through CIHI's website. Since 2012, there has been jurisdictional uptake of many of CIHI's pan-Canadian PHC indicators. As well, jurisdictions have been developing their own health system–level PHC indicators for use across their respective province or territory. For the purposes of the PHC EMR MDS and its use for performance measurement at the health system level, a subset of CIHI's indicators — to be populated with EMR data — is included in Appendix D.

Implementation considerations

Core data elements

Stakeholders across Canada are encouraged to adopt all MDS core data elements for performance measurement in their EMR vendor requirements. In some cases, the PHC EMR MDS v1.0 could be positioned as a subset of EMR system baseline specifications. Recall that the data dictionary provides a detailed view of the 45 core data elements in the minimum data set, including data element definitions, data types and valid formats.

Supplementary and potential new data elements

Federal, provincial and territorial stakeholders, including researchers, may choose to include additional EMR data elements beyond the core elements in the pan-Canadian PHC EMR MDS v1.0. These may be drawn from the set of supplementary data elements defined in Appendix B to support other use cases such as gathering comparable data on social determinants of health. As well, stakeholders may choose to add new data elements (e.g., on client income) to their MDS for performance measurement and research. The decision about the number of data elements to add, with related classifications and terminologies, will be driven and supported by jurisdictional, researchers' or other stakeholders' needs. Through future consultations, CIHI will consider the addition of supplementary and new data elements to the pan-Canadian EMR MDS of core data elements.

Future directions

Primary health care continues to evolve and so will the PHC EMR MDS v1.0. This release focuses on a minimum data set for performance measurement as the first part of a planned 2-phase update. The subsequent planned update is expected to define a broader scope of pan-Canadian data elements and use cases. For example, the performance measurement use case can be updated to include data elements related to social determinants of health. This process will include a review of the additional 61 data elements which are currently recommended as supplementary. The larger data set will also have applications for use by researchers.

Additionally, future evolutions of the PHC information standards will include further investigation of advanced analytical techniques to standardize data for performance measurement. Potential application of artificial intelligence techniques on semi-structured and unstructured data is under consideration but is yet to be precisely defined.

Contact us

For more information on the PHC EMR MDS, or to learn more about primary health care in Canada, please email the Primary Health Care Information Program at phc@cihi.ca or visit CIHI's Primary health care web page.

Appendix A: PHC EMR Content Standard — Revision history

The following table provides a brief summary of the PHC EMR Content Standard revision history.

Table A1 PHC EMR Content Standard revision history

Iteration	Guide	CIHI supplementary products	Number of data elements
1	*Canadian Institute for Health Information Primary Health Care Indicators Electronic Medical Record Content Standards, Version 1.1 (2009)*	Pan-Canadian PHC Indicators Report 1, Volumes 1 and 2 (2006)	112 data elements
2	*Draft Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 2.1 — Implementation Guide (2012)*	Business View, Conceptual Model, Logical Model, Detailed Logical Model, Data Extract Specification Pan-Canadian PHC Indicators Report 1, Volumes 1 and 2 (2006) PHC subsets (Canada Health Infoway)	106 data elements
3	*Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Clinician-Friendly Pick-List Guide (2014)*	CFPL Excel spreadsheets v1.0 (2014) and v1.1 (2018) FAQ, technical guide, business view, conceptual model, logical model, detailed logical model Pan-Canadian PHC Indicators Report 1, Volumes 1 and 2 (2006) Pan-Canadian PHC Indicator Update Report (2012) PHC subsets (Canada Health Infoway)	45 data elements
4	*Pan-Canadian Primary Health Care EMR Minimum Data Set for Performance Measurement, Version 1.0 (i.e., this document)*	Pan-Canadian PHC Indicators Report 1, Volumes 1 and 2 (2006) Pan-Canadian PHC Indicator Update Report (2012) PHC subsets (Canada Health Infoway)	45 core and 61 supplementary data elements

Note
The historical documents listed above have been archived but are available upon request.
Source
Canadian Institute for Health Information.

Appendix B: Pan-Canadian PHC EMR MDS v1.0 — Data Dictionary (supplementary data elements)

The following table reflects the additional set of data elements that were originally published, along with the PHC EMR MDS v1.0 core data elements, in the PHC EMR Content Standard v2.1. These data elements are considered optional and should be included at the user's discretion.

Table B1 PHC EMR MDS v1.0 supplementary data elements

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
PATIENT/CLIENT								
A6	Patient Highest Education	Client Highest Education	Represents the highest level of education completed by the Client.	Code	n/a	SNOMED CT® or other (jurisdictional codes where available)	224300008 Received university education (finding) (SNOMED CT)	Education can be used as an equity stratifier for measuring health inequalities.[7] Performance measurement and reporting considerations to be determined.
A7	Patient Housing Status	Client Housing Status Code	Represents the housing status of the Client.	Code	n/a	SNOMED CT	32911000 Homeless (finding) (SNOMED CT)	Housing status can be used as an equity stratifier for measuring health inequalities.[7] Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
PATIENT/CLIENT (continued)								
A8	Patient Primary Language	Client Primary Language Code	Represents the preferred spoken language of the Client.	Code	n/a	ISO 639-3	Fra French (ISO 639-3)	Language can be used as an equity stratifier for measuring health inequalities.[7] Performance measurement and reporting considerations to be determined.
A10	Patient Date of Death	Client Deceased Date	Represents the Client's date of death	Date	YYYYMMDD	n/a	20190430	Performance measurement and reporting considerations to be determined.
A11	Patient Rostered Start Date	Client Rostered Start Date	Represents the date the Client was included on the roster.	Date	YYYYMMDD	n/a	20140615	Can be used to support analysis of Patient rosters/panels.
A12	Patient Rostered End Date	Client Rostered End Date	Represents the date the Client was removed from the roster.	Date	YYYYMMDD	n/a	20191031	Can be used to support analysis of Patient rosters/panels.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
PATIENT/CLIENT (continued)								
A13	Patient Ethnicity	Client Administrative Ethnicity Code	Represents the self-reported ethnic group to which the Client belongs. Used for administrative purposes. The ethnic origin refers to a person's roots and should not be confused with his or her citizenship or nationality.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	14045001 Caucasian (ethnic group) (SNOMED CT)	Ethnicity can be used as an equity stratifier for measuring health inequalities.[7] Performance measurement and reporting considerations to be determined.
CLINICIAN/PROVIDER								
B1	Clinician Last Name	Provider Family Name Text	Represents the Provider's legal family name.	String	n/a	n/a	Doe	Can be used to identify the family name of the Clinician who assessed the Patient during an encounter. For use at the clinical level only.
B2	Clinician First Name	Provider Given Name Text	Represents the Provider's legal given name.	String	n/a	n/a	John	Can be used to identify the first name of the Clinician who assessed the Patient during an encounter. For use at the clinical level only.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
CLINICIAN/PROVIDER (continued)								
B3	Clinician Middle Name	Provider Middle Name Text	Represents the Provider's middle name.	String	n/a	n/a	Edward	Can be used to identify the middle name of the Clinician who assessed the Patient during an encounter. For use at the clinical level only.
B8	Clinician Expertise	Provider Expertise Code	Represents the expertise of the Provider.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	394579002 Cardiology (qualifier value) (SNOMED CT)	Can inform analysis of Clinician's expertise (e.g., cardiology) in delivering health care to groups of Patients with targeted chronic diseases or conditions (e.g., congestive heart failure).[21] Performance measurement and reporting considerations to be determined.
SERVICE DELIVERY LOCATION								
C2	Service Delivery Name	Service Delivery Location Name Text	Represents the name of the practice (Service Delivery Location) where the Client received care.	String	n/a	n/a	Glendale Family Health Clinic	Can be used to analyze groups of Patients with targeted chronic diseases or conditions (e.g., diabetes) according to service delivery location name.
C3	Service Delivery Type of Services	Service Delivery Location Type Code	Represents the type of location (Service Delivery Location) where the Client received care.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	394761003 General practitioner (GP) practice site (environment) (SNOMED CT)	Can be used to analyze groups of Patients with targeted chronic diseases or conditions (e.g., diabetes) according to service delivery environment.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
VISIT/ENCOUNTER								
D5	Payment Source	Encounter Payor Source Code	Represents the source for Provider payment for the encounter.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	726220521000087101 Provincial and/or territorial government plan — resident (qualifier value) (SNOMED CT)	Can be used in the administration of care for billing purposes. Performance measurement and reporting considerations to be determined.
D6	Payment Type	Encounter Remuneration Mode Code	Represents the type of reimbursement paid to the Provider for the encounter.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	999487181000087102 Fee for service (finding) (SNOMED CT)	Can be used in the administration of care for billing purposes. Performance measurement and reporting considerations to be determined.
D7	Billing Code	Encounter Billing (Fee) Code	Represents the jurisdictional billing code.	Code	n/a	Per jurisdiction-specific set of values from fee schedules	A007 Intermediate assessment or well baby care (Ontario Health Insurance Plan Schedule of Benefits and Fees)[22]	Can be used in the administration of care for billing purposes. Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
OBSERVATION								
E1	Family Member Health Concern	Observation Family History Health Concern Code	Represents the relevant health concerns of a person sharing common ancestry with the Client.	Code	n/a	SNOMED CT, ICD-9, ICD-10-CA, ENCODE-FM® or other (jurisdictional codes where available)	254837009 Malignant tumor of breast (disorder) (SNOMED CT)	Can be used to note that the Patient may have a risk factor for a certain health concern (e.g., breast cancer), based on a family member's specific disease or condition. For example, a woman whose mother had breast cancer may be at higher risk of developing breast cancer.[23] Performance measurement and reporting considerations to be determined.
E2	Family Member Social Behaviour(s)	Observation Family History Social Behaviour Code	Represents the relevant social behaviours of a person sharing common ancestry with the Client. This can include risk factors such as tobacco use, alcohol use and problematic use of illicit or prescription drugs.	Code	n/a	SNOMED CT, ICD-9, ICD-10-CA or other (jurisdictional codes where available)	133940008 Alcoholic parent (finding) (SNOMED CT)	Can be used to note that the Patient may have a risk factor for a certain social behaviour, based on a family member's social behaviour. For example, a Patient whose parent was dependent on alcohol may be at higher risk of becoming alcohol-dependent.[24] Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
OBSERVATION (continued)								
E3	Family Member Interventions (Treatments)	Observation Family History Intervention Code	Represents the relevant interventions performed on a person sharing common ancestry with the Client.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	278723004 Mastectomy incision (procedure) (SNOMED CT)	Can be used to note that the Patient may have a risk factor for a certain health concern (e.g., breast cancer), based on a family member's intervention (e.g., mastectomy). For example, a woman whose mother had breast cancer may be at higher risk of developing breast cancer.[23] Performance measurement and reporting considerations to be determined.
E4	Family Member Relationship to Patient	Observation Family History Familial Relationship Code	Represents the relationship between the Client and a person who shares a common ancestry.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	66839005 Father (person) (SNOMED CT) 72705000 Mother (person) (SNOMED CT)	Can be used to support analysis of a family member's health concern (data element E1), social behaviour (data element E2) or intervention (data element E3). Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
OBSERVATION (continued)								
E5	Family Member Health Concern, Intervention or Social Behaviour Age at Onset	Observation Family History Effective Onset Age Number	Represents the age of the family member (in years) when the health concern, intervention or social behaviour started.	Number	n/a	n/a	82	Can be used to support analysis of a family member's health concern (data element E1), social behaviour (data element E2) or intervention (data element E3). Performance measurement and reporting considerations to be determined.
E6	Family Member Health Concern, Intervention or Social Behaviour Start Date	Observation Family History Effective Start Date	Represents the date on which the health concern, intervention or social behaviour started for the family member.	Date	YYYYMMDD	n/a	19901010	Can be used to support analysis of a family member's health concern (data element E1), social behaviour (data element E2) or intervention (data element E3). Performance measurement and reporting considerations to be determined.
E7	Family Member Health Concern, Intervention or Social Behaviour End Date	Observation Family History Effective End Date	Represents the date on which the health concern, intervention or social behaviour ended for the family member.	Date	YYYYMMDD	n/a	20050430	Can be used to support analysis of a family member's health concern (data element E1), social behaviour (data element E2) or intervention (data element E3) Performance measurement and reporting considerations, if any, to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
OBSERVATION (continued)								
E8	Family Member Deceased Date	Observation Family History Effective Deceased Date	Represents the date on which the family member died.	Date	YYYYMMDD	n/a	20100430	Can be used to support analysis of a family member's health concern (data element E1), social behaviour (data element E2) or intervention (data element E3). Performance measurement and reporting considerations to be determined.
E9	Family Member Cause of Death	Observation Family History Death Cause Code	Represents the clinical cause of death for the family member.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	57054005 Acute myocardial infarction (disorder) (SNOMED CT)	Can be used to support analysis of a family member's health concern (data element E1), social behaviour (data element E2) or intervention (data element E3). Performance measurement and reporting considerations to be determined.
E10	Family Member Ethnicity	Observation Family History Familial Ethnicity Code	Represents the ethnicity of the family member.	Code	n/a	SNOMED CT, or other (jurisdictional codes where available)	414551003 Japanese (ethnic group) (SNOMED CT)	Can be used to support analysis of a family member's health concern (data element E1), social behaviour (data element E2) or intervention (data element E3). Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
OBSERVATION (continued)								
E13	Health Concern Date of Resolution	Observation Health Concern End Date	Represents the date on which the Client's health concern ended.	Date	YYYYMMDD	n/a	20100430	Can support the use of Health Concern (data element E11) for analysis.
E15	Social Behaviour Date of Onset	Observation Social Behaviour Start Date	Represents the effective date the Client started the social behaviour.	Date	YYYYMMDD	n/a	20100430	Can support the use of Social Behaviour (data element E14) for analysis.
E16	Social Behaviour Date of Resolution	Observation Social Behaviour End Date	Represents the effective date the Client ceased the social behaviour.	Date	YYYYMMDD	n/a	20100430	Can support the use of Social Behaviour (data element E14) for analysis
E17	Allergy/ Intolerance Type	Observation Allergy/ Intolerance Type Code	Represents the type of allergy or intolerance a Client has.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	414285001 Food allergy (disorder) (SNOMED CT)	Can be used in the provision and administration of care. Can inform EMR system reminders and alerts. Performance measurement and reporting considerations to be determined.
E18	Allergy Agent	Observation Allergy Agent Code	Represents the specific allergen or other agent/ substance to which the Client has an allergic reaction.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	227150003 Mussels (substance) (SNOMED CT)	Can be used in the provision and administration of care. Can inform EMR system reminders and alerts. Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
OBSERVATION (continued)								
E19	Allergy/ Intolerance Severity	Observation Allergy/ Intolerance Severity Code	Represents the level of severity a Client has in relation to an allergy or intolerance.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	24484000 Severe (severity modifier) (qualifier value) (SNOMED CT)	Can be used in the provision and administration of care. Can inform EMR system reminders and alerts. Performance measurement and reporting considerations to be determined.
E20	Allergy/ Intolerance Status	Observation Allergy/ Intolerance Status Code	Represents whether an allergy/ intolerance is active or inactive.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	55561003 Active (qualifier value) (SNOMED CT)	Can support the use of Allergy/Intolerance Type (data element E17) and Allergy Agent (data element E18).
E21	Allergy/ Intolerance Date of Onset	Observation Allergy and or Intolerance Start Date	Represents the date on which the recorded allergy/ intolerance is considered active.	Date	YYYYMMDD	n/a	20100430	Can support the use of Allergy/Intolerance Type (data element E17) and Allergy Agent (data element E18).
E22	Allergy/ Intolerance Date of Resolution	Observation Allergy and or Intolerance End Date	Represents the date on which the recorded allergy/ intolerance is no longer considered active.	Date	YYYYMMDD	n/a	20100430	Can support the use of Allergy/Intolerance Type (data element E17) and Allergy Agent (data element E18).

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
OBSERVATION (continued)								
E25	Blood Pressure Body Location	Observation Blood Pressure Measurement Anatomical Location Code	Represents the anatomical location on the Client's body where the blood pressure was measured.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	368209003 Right upper arm structure (body structure) (SNOMED CT)	Can support the use of Systolic Blood Pressure Number (data element E23) and Diastolic Blood Pressure Number (data element E24). Performance measurement and reporting considerations to be determined.
E26	Blood Pressure Body Position	Observation Blood Pressure Measurement Body Position Code	Represents the position the Client's body was in when blood pressure was measured (e.g., standing, sitting, lying).	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	163035008 Sitting blood pressure (observable entity) (SNOMED CT)	Can support the use of Systolic Blood Pressure Number (data element E23) and Diastolic Blood Pressure Number (data element E24). Performance measurement and reporting considerations to be determined.
E27	Blood Pressure Representative Reading	Observation Representative Blood Pressure Reading Code	Represents whether the Client's blood pressure reading is representative of the Client's current health condition.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	31874001 True (qualifier value) (SNOMED CT)	Can support the use of Systolic Blood Pressure Number (data element E23) and Diastolic Blood Pressure Number (data element E24). Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
OBSERVATION (continued)								
E32	Waist Circumference	Observation Waist Circumference Number	Represents the waist circumference of the Client as measured.	Number	n/a	n/a	70	In combination with data about optimal values for waist circumference, can be used to identify Patient risk for selected chronic diseases or conditions, such as diabetes.[25] Performance measurement and reporting considerations to be determined.
E33	Waist Circumference Unit of Measure	Observation Waist Circumference Unit of Measure Code	Represents the unit of measure used to capture the Client's waist circumference.	Code	n/a	UCUM	cm Centimetre (UCUM)	Can support the use of Waist Circumference (data element E32) for analysis.
INTERVENTION								
F3	Intervention (Treatment) Refusal Reason	Intervention Refusal Reason Code	Represents the reason the Client refused an intervention.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	62458008 Has religious belief (finding) (SNOMED CT)	Can be used to ensure that an intervention already refused by a Patient is not repeatedly offered to the Patient. Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
LABORATORY RESULTS								
H5	Lab Test Result Low Range	Laboratory Test Result Reference Range Low Number	Represents the low end of a normal reference range lab result for a particular test performed in a particular lab.	Number	n/a	n/a	n/a (for HbA1c)	Lab tests are ordered in the provision of care for many reasons, including confirmation of suspected diagnoses and disease monitoring. A reference range (low and high values) is required to determine whether the lab test result is normal/optimal. For example, clinical practice guidelines identify normal reference ranges for hemoglobin A1c [mass/volume] in blood lab test results.[8] Performance measurement and reporting considerations to be determined.
H6	Lab Test Result Low Range — Unit of Measure	Laboratory Test Result Reference Range Low Unit of Measure Code	Represents the unit of measure associated with the Laboratory Test Result Reference Range Low Number.	Code	n/a	UCUM	% Percent (UCUM)	Can support the use of Lab Test Result Low Range (data element H5).

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
LABORATORY RESULTS (continued)								
H7	Lab Test Result High Range	Laboratory Test Result Reference Range High Number	Represents the high end of a normal reference range lab result for a particular test performed in a particular lab.	Number	n/a	n/a	5.5% (for HbA1C)	Lab tests are ordered in the provision of care for many reasons, including confirmation of suspected diagnoses and disease monitoring. A reference range (low and high values) is required to determine whether the lab test result is normal/optimal. For example, clinical practice guidelines identify normal reference ranges for hemoglobin A1c [mass/volume] in blood lab test results.[8] Performance measurement and reporting considerations to be determined.
H8	Lab Test Result High Range — Unit of Measure	Laboratory Test Result Reference Range High Unit of Measure Code	Represents the unit of measure associated with the Laboratory Test Result Reference Range High Number.	Code	n/a	UCUM	% Percent (UCUM)	Can support the use of Lab Test Result High Range (data element H7).

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
PRESCRIBED MEDICATION								
M3	Prescription Expected Completion Date	Medication Prescribed Expected Completion Date	Represents the date the prescribed medication is expected to be finished.	Date	YYYYMMDD	n/a	20100430	Can support the use of Prescribed Medication (data element M1) for analysis. Performance measurement and reporting considerations to be determined.
M4	Prescription Stop Date	Medication Prescribed Stopped Date	Represents the last date the Client took the prescribed medication.	Date	YYYYMMDD	n/a	20100430	Can support the use of Prescribed Medication (data element M1) for analysis. Performance measurement and reporting considerations to be determined.
M5	Medication Strength	Medication Prescribed Strength Number	Represents the potency of the drug/chemical, usually measured in metric weight (e.g., micrograms, milligrams, grams) and described as the strength of the product's active (medicinal) ingredient.	Number	n/a	n/a	100	Can support the use of Prescribed Medication (data element M1) for analysis of groups of Patients with targeted chronic diseases or conditions (e.g., diabetes, hypertension).

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
PRESCRIBED MEDICATION (continued)								
M6	Medication Strength Unit of Measure	Medication Prescribed Strength Unit of Measure Code	Represents the units of measure for the Medication Prescribed Strength Number.	Code	n/a	TBD	mg Milligram	Can be used to support the use of Medication Strength (data element M5) for analysis.
M7	Medication Dosage	Medication Prescribed Dose Number	Represents the measured portion of a drug to be taken at any one time that pertains to the drug prescribed.	Number	n/a	n/a	100	Can support the use of Prescribed Medication (data element M1) for analysis of groups of Patients with targeted chronic diseases or conditions (e.g., diabetes, hypertension).
M8	Medication Dose Unit of Measure	Medication Prescribed Dose Unit of Measure Code	Represents the unit of measure of a drug dose taken at any one time.	Code	n/a	UCUM	mg Milligram (UCUM)	Can be used to support the use of Medication Dosage (data element M7) for analysis.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
PRESCRIBED MEDICATION (continued)								
M9	Medication Form	Medication Prescribed Form Code	The physical configuration or presentation of state of matter of any given drug product. The dosage form in which the medication is administered (e.g., tablet, liquid, suppository, solution).	Code	n/a	TBD	NDROP (nasal drops)	Can be used in both the provision and administration of care. Ensures that the right form of the prescribed medication is provided to the Patient as required for treatment. Performance measurement and reporting considerations to be determined.
M10	Medication Frequency	Medication Prescribed Frequency Text	Represents the number of occurrences within a given time period that a dose of a drug is to be administered.	String/ General Timing Specification	n/a	n/a	2 tablets/24 hours	Can be used in the provision of care to ensure that the Patient takes the medication as required during a specified period of time, helping to ensure the efficiency of the treatment and to prevent any unintended medication overdose. Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
PRESCRIBED MEDICATION (continued)								
M11	Medication Route	Medication Prescribed Route Code	Represents the part of the body on which, through which or into which a drug product is to be introduced. A drug product can have more than one route of administration.	Code	n/a	TBD	NASINHL (nasal inhalant)	Can be used to provide instructions to the Patient regarding how the medication is to be taken. Performance measurement and reporting considerations to be determined.
M12	Medication Number of Repeat/ Refill(s)	Medication Prescribed Repeat Number	Represents the number of times the prescription can be used to refill the prescribed medication.	Number	n/a	n/a	2	Can be used to provide instructions on how often a particular prescription can be refilled and the potential need for a follow-up reminder to the Clinician for this Patient. Performance measurement and reporting considerations to be determined.
M13	Medication Not Prescribed Reason	Medication Prescribed Not Given Reason Code	Represents the reason why a preferred medication was not prescribed to a Client.	Code	n/a	TBD	PATINELIG patient not eligible	Can be used in both the provision and administration of care. Explains why a Clinician was not able to prescribe a medication at the time of an encounter. Performance measurement and reporting considerations to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
PRESCRIBED MEDICATION (continued)								
M14	Medication Compliance	Medication Prescribed Adherence Code	Represents whether or not the Client has been administering the prescribed medication(s) as instructed.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	31874001 true (qualifier value) (SNOMED CT)	Can be used in both the provision and administration of care. Documents that a Client did not take the prescribed drug and can be used to inform subsequent provision of care. Performance measurement and reporting considerations to be determined.
DISPENSED MEDICATION								
N1	Medication Dispensed	Medication Dispensed Code	Represents the medication that was dispensed to the Client.	Code	n/a	TBD	Gen-acebutolol 200 mg	Can be used to create a longitudinal medication record to support the provision of care. Performance measurement and reporting considerations to be determined.
N2	Medication Dispensed Date	Medication Dispensed Date	Represents the date the medication was dispensed to the Client.	Date	YYYYMMDD	N/A	20100430	Can be used to create a longitudinal medication record to support the provision of care. Performance measurement and reporting considerations, if any, to be determined.

Data element number	Data element common name	Data element standard name	Data element definition	Data type	Valid format	Recommended code system(s)	Example	Selected considerations for performance measurement and reporting in primary care
IMMUNIZATION								
O3	Vaccine Administered Lot Number	Vaccine Administered Lot Number	Represents the batch identification number of the vaccine.	Identifier	n/a	n/a	89765	Can be used to contact Patients who received a particular lot number of a vaccine substance. Performance measurement and reporting considerations to be determined.
O4	Reason Vaccine Not Given	Vaccine Not Given Reason Code	Represents the reason a vaccine was not administered to a Client.	Code	n/a	SNOMED CT or other (jurisdictional codes where available)	77386006 Pregnant (SNOMED CT)	Can be used to explain why a Patient may have been offered a vaccination but refused or why the vaccine was not given for other reasons. Performance measurement and porting considerations to be determined.

Notes
ENCODE-FM: Electronic Nomenclature and Classification of Disorders and Encounters for Family Medicine.
ICD-9: International Classification of Diseases Ninth Revision.
ICD-10-CA: International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada.
SNOMED CT: Systematized Nomenclature of Medicine–Clinical Terms.
UCUM: Unified Code for Units of Measure.
n/a: Not applicable.
TBD: To be determined.
Source
Canadian Institute for Health Information. *Draft Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 2.1 — Implementation Guide*. 2012.[20]

Appendix C: Logical data model

A logical data model[26] was developed to provide an overview of PHC business entities (such as Client and Health Service Event) and the relationships between these entities. The logical model is independent of technology (databases, files, etc.) and usage context. The logical data model (Figure C1) has been structured with the Client at the centre to reflect the needs of patient-centric health care. A detailed logical data model (Figure C2) is also provided to further define relationships between the entities. The PHC EMR MDS logical data models support the core set of 45 data elements, and were developed to support both clinical and health system use.

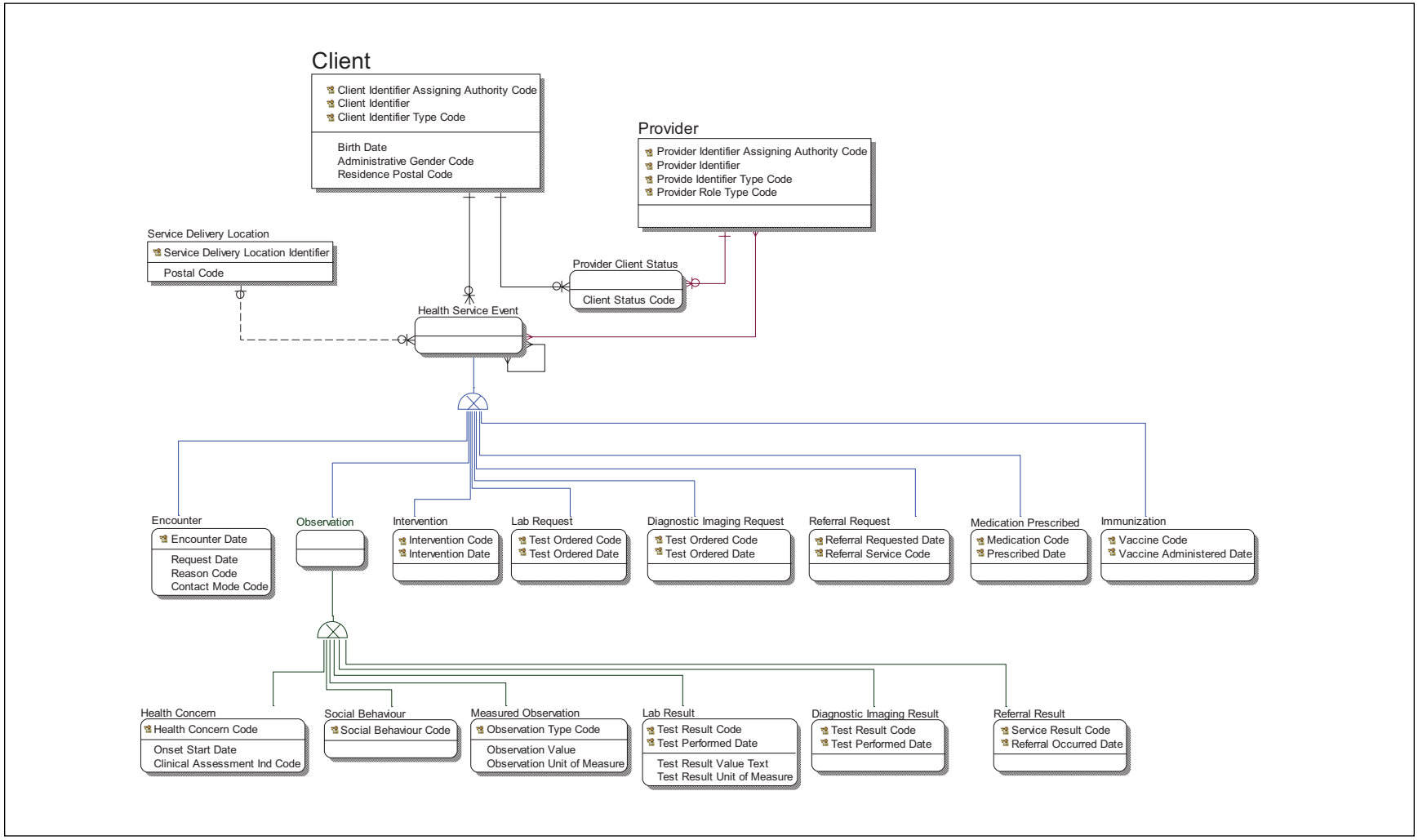
Note that for coded data elements, where more than one code system is possible, additional detail would be required to identify the code system used for data exchange purposes.

The logical data model contains the following key entities and definitions:

- **Patient/Client:** A person who has received, is receiving or is eligible to receive health care–related services or goods. A Client is dependent on a Provider to receive a Health Service Event (HSE).
- **Clinician/Provider:** A person who has delivered, is delivering or has the potential to deliver health care–related services or goods.
- **Service Delivery Location:** A place where health care–related services or goods are provided. A Service Delivery Location is the site of Health Service Events.
- **Health Service Event:** A past, current, planned or requested act. This entity is a supertype of the following business entities: Encounter, Observation, Intervention, Lab Request, Diagnostic Imaging Request, Referral Request, Prescribed Medication and Immunization.
- **Visit/Encounter:** An interaction between a Client and 1 or more Providers for the purpose of providing 1 or more health care–related services or goods.
- **Intervention:** Current and previous services/activities performed within or outside the PHC setting that are relevant to the patient's care.
- **Lab Request:** The lab test ordered by the Provider for the Client.
- **Diagnostic Imaging Request:** The type of diagnostic imaging test ordered by the Provider for the Client.
- **Referral Request:** The type of service or specialty required for the Client requested by the PHC Provider (e.g., cardiology).
- **Medication Prescribed:** The medications prescribed for the Client.
- **Immunization:** The vaccine administered to the Client within and beyond the PHC setting, including current and past vaccination history.

- **Observation:** Information derived from performance of a health-related activity. This entity is a supertype of Health Concern, Social Behaviour, Measured Observation, Lab Result, Diagnostic Imaging Result and Referral Result.
- **Health Concern:** The Client's relevant conditions, diagnoses and associated past medical history.
- **Social Behaviour:** A type of Client behaviour that increases the possibility of disease or injury. This can include risk factors such as tobacco use, alcohol use and problematic use of illicit or prescription drugs.
- **Lab Result:** A result for analytical services, typically performed by medical laboratories in areas such as chemistry, serology, hematology, microbiology, histology, anatomic pathology, cytology and virology.
- **Measured Observation:** Data obtained by performing a health-related activity that is represented by a numeric value. Recordings of a Client's height, weight and blood pressure are examples of Measured Observations.

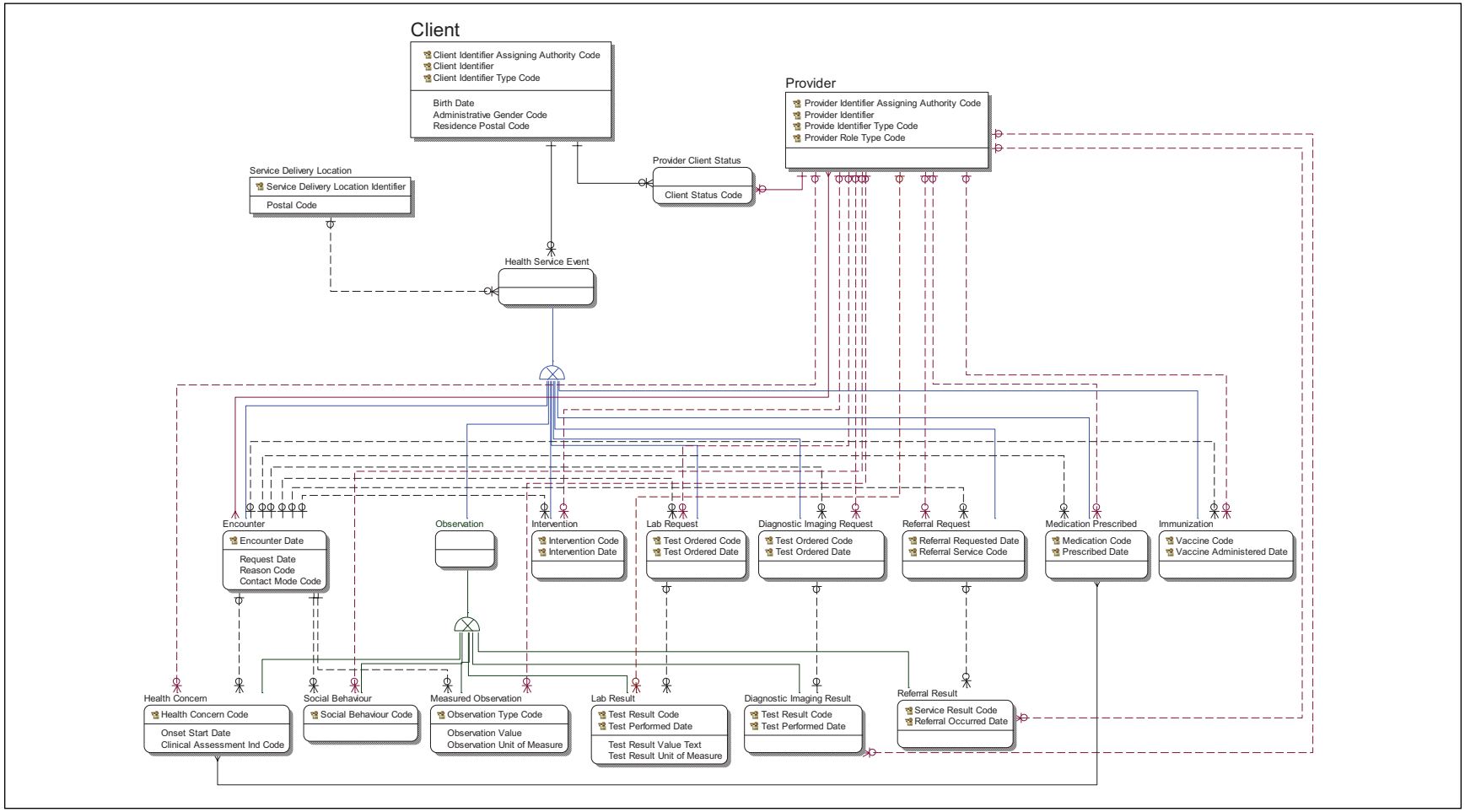
Figure C1 Pan-Canadian Primary Health Care Minimum Data Set for Performance Measurement v1.0 — Logical Data Model



Source

Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Logical Model*. 2014.[27]

Figure C2 Pan-Canadian Primary Health Care Minimum Data Set for Performance Measurement v1.0 — Detailed Logical Data Model



Note

Due to limitations with the data modeling tool, the relationship between Encounter and Provider appears to be many-to-many, but it should be one-or-many to one-or-many.[26]

Source

Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Detailed Logical Model*. 2014.[28]

Appendix D: CIHI's Pan-Canadian PHC EMR–related indicators — Definitions

This information comes from CIHI's *Pan-Canadian PHC Indicators, Report 1, Volumes 1 and 2* (2006) and *Pan-Canadian Primary Health Care Indicator Update Report* (2012); both reports are available on CIHI's Primary health care web page. The following is a subset of indicators that use the primary care EMR system as their data source. These pan-Canadian indicators will be updated by CIHI to keep pace with evolving clinical practice guidelines and jurisdictional stakeholder information priorities.

Table D1 CIHI's pan-Canadian PHC EMR–related indicators, definitions and sources

Indicator name	Definition	Source
Child Immunization	Percentage of patient population, currently age 7, who have received recommended childhood immunizations.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Colon Cancer Screening	Percentage of patient population, age 50 to 74, who had a screening test ordered for colon cancer.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Breast Cancer Screening	Percentage of female population, age 50 to 74, who reported having had a mammogram.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Cervical Cancer Screening	Percentage of female patient population, age 18 to 69, who had a Papanicolaou test. (The recommended screening age group will be updated to 21 and older in future revisions.)	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Smoking Cessation Advice in PHC	Percentage of patient population who are smokers, age 12 and older, who were offered specific help or information to quit smoking.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Influenza Immunization, 65+	Percentage of patient population, age 65 and older, who received an influenza immunization.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Well Baby Screening	Percentage of patient population, currently age 3, who received screenings for congenital hip displacement, eye and hearing problems.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Blood Pressure Testing	Percentage of patient population, age 18 and older, who have had their blood pressure measured by their primary health care (PHC) provider.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness

Indicator name	Definition	Source
Screening for Modifiable Risk Factors in Adults With Coronary Artery Disease	Percentage of patient population, age 18 and older, with coronary artery disease who received testing for all of the following: • Full fasting lipid profile screening; • Blood pressure measurement; and • Obesity/overweight screening.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Screening in Adults With Diabetes	Percentage of patient population, age 18 and older, with diabetes mellitus who received testing for all of the following: • Hemoglobin A1c (HbA1c); • Full fasting lipid profile screening; • Nephropathy screening (e.g., albumin/ creatinine ratio, microalbuminuria); • Foot examination; • Blood pressure measurement; and • Obesity/overweight screening.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Screening for Modifiable Risk Factors in Adults With Hypertension	Percentage of patient population, age 18 and older, with hypertension who received testing for all of the following: • Fasting blood sugar; • Blood pressure measurement; and • Obesity/overweight screening.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Treatment of Dyslipidemia	Percentage of patient population, age 18 and older, with established coronary artery disease and elevated low-density lipoprotein cholesterol who were offered lifestyle advice and lipid-lowering medication.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Treatment of Acute Myocardial Infarction	Percentage of patient population who have had an acute myocardial infarction and are currently prescribed a beta-blocking drug.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Treatment of Anxiety	Percentage of patient population, age 18 and older, with a diagnosis of panic disorder or generalized anxiety disorder who were offered treatment or referral to a mental health provider.	**2012 PHC Indicator Update Report** PHC domain: Appropriateness
Blood Pressure Control for Hypertension	Percentage of patient population, age 18 and older, with hypertension for a duration of at least 12 months, who have blood pressure measurement control.	**2012 PHC Indicator Update Report** PHC domain: Effectiveness
Overweight and Obesity Rate	Percentage of patient population, age 2 and older, who are currently overweight or obese.	**2012 PHC Indicator Update Report** PHC domain: Health Status
Complications of Diabetes	Percentage of population, age 50 to 74, with established diabetes mellitus who had an acute myocardial infarction, had an above- or below-knee amputation or began chronic dialysis.	**2012 PHC Indicator Update Report** PHC domain: Effectiveness

Indicator name	Definition	Source
Health Risk Screening in PHC	Percentage of PHC clients/patients, age 12 and older, who were screened by their PHC provider for the following common health risks over the past 12 months: • Tobacco use; • Unhealthy eating habits; • Problem drug use; • Physical inactivity; • Overweight status; • Problem alcohol drinking; • Unintentional injuries (home risk factors); • Unsafe sexual practices; and • Unmanaged psychosocial stress and/or depression.	**PHC Indicator Report 2006**
Glycemic Control for Diabetes	Percentage of PHC clients/patients, age 18 and older, with diabetes mellitus in whom the last HbA1c was 7.0% or less (or equivalent test/reference range depending on local laboratory) in the last 15 months.	**PHC Indicator Report 2006**
Dyslipidemia Screening for Women	Percentage of PHC women clients/patients, age 55 and older, who had a full fasting lipid profile measured within the past 24 months.	**PHC Indicator Report 2006**
Dyslipidemia Screening for Men	Percentage of PHC men clients/patients, age 40 and older, who had a full fasting lipid profile measured within the past 24 months.	**PHC Indicator Report 2006**
Screening for Visual Impairment in Adults With Diabetes	Percentage of PHC clients/patients, age 18 to 75, with diabetes mellitus who saw an optometrist or ophthalmologist within the past 24 months.	**PHC Indicator Report 2006**
Bone Density Screening	Percentage of women PHC clients/patients, age 65 and older, who received screening for low bone mineral density at least once.	**PHC Indicator Report 2006**
Pneumococcal Immunization, 65+	Percentage of PHC clients/patients, age 65 and older, who have received a pneumococcal immunization.	**PHC Indicator Report 2006**

Sources

Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Indicators, Report 1, Volume 1: Pan-Canadian Primary Health Care Indicator Development Project*. 2006.
Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Indicators, Report 1, Volume 2: Pan-Canadian Primary Health Care Indicator Development Project*. 2006.
Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Indicator Update Report*. 2012.

Appendix E: Glossary

Table G1 Glossary

Term	Acronym (if applicable)	Description
Canadian Classification of Health Interventions	CCI	A national standard for classifying health care procedures in Canada. CCI is the companion classification system to ICD-10-CA. CCI replaces the Canadian Classification of Diagnostic, Therapeutic and Surgical Procedures (CCP) and the intervention portion of ICD-9-CM in Canada. It is designed to be provider- and location-neutral so that it may be used across the continuum of health care settings in Canada.[29]
Canadian Institute for Health Information	CIHI	CIHI is an independent, not-for-profit organization that provides essential data and analysis on Canada's health systems and the health of Canadians.
clinician-friendly pick-lists	CFPLs	Constrained lists of clinician-friendly terms mapped to appropriate code system(s), aimed at supporting adoption of the PHC EMR CS Priority Subset. The scope of the CFPLs is focused on supporting PHC indicators for clinicians and jurisdictions.[6]
Standards and Data Working Group	n/a	The Standards and Data Working Group provides input and expert advice on the adoption, implementation and maintenance of the PHC EMR CS to ensure that it remains clinically and technically relevant and aligned with existing standards, where applicable. The group includes jurisdictional standards experts, PHC providers, researchers and Canada Health Infoway representatives.
Drug Identification Number	DIN	A Health Canada–assigned unique identifier to all drug products sold in a dosage form in Canada. It is located on the label of prescription and over-the-counter drug products and identifies the following characteristics: manufacturer; product name; active ingredient(s); strength(s) of active ingredient(s); pharmaceutical form; and route of administration.[30]
electronic health record	EHR	An electronic health record (EHR) refers to the systems that make up the secure and private lifetime record of a person's health and health care history. These systems store and share such information as lab results, medication profiles, key clinical reports (e.g., hospital discharge summaries), diagnostic images (e.g., X-rays) and immunization history. The information is available electronically to authorized health care providers.[31]

Term	Acronym (if applicable)	Description
electronic medical record	EMR	For the PHC EMR MDS, an electronic medical record (EMR) is an office-based system that enables a health care professional, such as a family doctor, to record the information gathered during a patient's visit. This information might include a person's weight, blood pressure and clinical information, and would previously have been hand-written and stored in a file folder in a doctor's office. Eventually the EMR will also allow the doctor to access information about a patient's complete health record, including information from other health care providers that is stored in the EHR.[31]
Health Level Seven	HL7™	An international standard providing a comprehensive framework and related standards for the exchange, integration, sharing, and retrieval of electronic health information that supports clinical practice and the management, delivery and evaluation of health services.[14]
health system use	HSU	HSU of information refers to the use of health information to monitor, manage and improve the health of Canadians and the health care system.
International Statistical Classification of Diseases and Related Health Problems, Ninth Revision	ICD-9	A set of codes from the World Health Organization used to classify diseases and injuries. It is associated with fee schedules/billing codes used by primary care physicians across Canada.[32]
International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada	ICD-10-CA	An enhanced version of ICD-10 developed by CIHI for morbidity classification in Canada. It also includes conditions and situations that are not diseases but represent risk factors to health.[29]
International Organization for Standardization	ISO	An independent, non-governmental international organization that develops and publishes standards. The ISO consists of a network of national standards bodies in 164 countries.[33]
Logical Observation Identifiers Names and Codes	LOINC™	An international standard for identifying tests, and laboratory and clinical observations and documents.[12]
Pan-Canadian LOINC® Observation Code Database	pCLOCD	A nomenclature standard that uses the LOINC® records and attributes that specifically meet Canadian laboratory-ordering and reporting requirements.[12]
primary health care	PHC	First-contact care that deals with the majority of health problems. It is the foundation of any health care system, and countries with strong primary care seem to have better health than those without.
primary health care subsets	PHC subsets	Constrained lists of allowable values developed by Canada Health Infoway from source code systems that are applicable to the delivery and administration of PHC. They support the implementation of the PHC EMR MDS by facilitating standardization of PHC data for primary and health system use.[20]

Term	Acronym (if applicable)	Description
roster	n/a	A patient panel, or roster, lists the unique patients (clients) that have an established relationship with a physician. There is an implicit or explicit agreement that the identified physician will provide primary care services.[34]
Systematized Nomenclature of Medicine–Clinical Terms	SNOMED CT®	A clinical terminology that contains more than 311,000 concepts with unique meanings and formal logic-based definitions organized into hierarchies.[11]
Unified Code for Units of Measure	UCUM	A code system intended to include all units of measure currently in use in international science.[13]
use case	n/a	Scenarios that convey electronic transmission points of a common set of data elements between an end user and another system to link knowledge and achieve a specific business goal.[6]
value set	n/a	A list of valid permissible values or codes from 1 or more code systems.[20]

Note
n/a: Not applicable.
Source
Canadian Institute for Health Information.

Appendix F: Text alternative for figures

Text alternative for Figure 1: Value proposition: Pan-Canadian PHC EMR Minimum Data Set for Performance Measurement

The value proposition for a pan-Canadian PHC EMR minimum data set is the availability of structured EMR data for performance measurement at both the clinical and health system levels.

Structured EMR data at the clinical level enables quality improvement and clinical program planning to improve front-line programs and services; practice-level monitoring of patients and appropriate patient follow-ups; and comparative data with similar clinicians and practices, resulting in improved performance and evaluation of policies and programs. At the point of care, structured data supports chronic disease management and prevention, as well as allows for comparable quality improvement across practices. For example, the defined data elements can support priority indicators that are used in tools such as EMR quality dashboards to track performance measurement.

Additionally, having structured EMR data at the health system level enables better decision-making to improve the effectiveness and efficiency of the health care system; comparative data across jurisdictions, using priority indicators to assess performance and improve quality of care over time; and data availability to support policy and health research. For health system use, structured data improves system performance and health outcomes over time through comparable analysis and reporting across care sectors, and at a pan-Canadian level. For example, the EMR data captured at the point of care can be aggregated and used by provincial programs for initiatives such as chronic disease management.

Source
Canadian Institute for Health Information.

Text alternative for figures C1 and C2: Logical data models

The logical data models provide an overview of PHC business entities (such as Client and Health Service Event) and the relationships among these entities. Refer to Appendix C for the full list of key entities.

In most cases, the relationship between entities in the data model has been set to optional to provide flexibility in storing and submitting data and to minimize potential data loss. However, there are some mandatory relationships.

Mandatory relationships between entities include the following:

- A Health Service Event (HSE) must be associated with a Client.
- A Social Behaviour must be associated with an Encounter.
- A Measured Observation must be associated with an Encounter.
- A Provider Client Status must be associated with a Client and Provider.

Figure C1 source
Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Logical Model*. 2014.[27]

Figure C2 note
Due to limitations with the data modeling tool, the relationship between Encounter and Provider appears to be many-to-many, but it should be one-or-many to one-or-many.[26]

Figure C2 source
Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Detailed Logical Model*. 2014.[28]

References

1. Government of Canada. About primary health care. Accessed January 20, 2020.

2. Canada Health Infoway. Progress in Canada. Accessed January 20, 2020.

3. Canadian Institute for Health Information. *Forging the Path: Toward a Shared Standard for EMR Data — Highlights and Recommendations From CIHI's Primary Care Forum*. 2019.

4. Canadian Institute for Health Information. *Pan-Canadian Dialogue to Advance the Measurement of Equity in Health Care: Proceedings Report*. 2016.

5. Canadian Institute for Health Information. *In Pursuit of Health Equity: Defining Stratifiers for Measuring Health Inequality — A Focus on Age, Sex, Gender, Income, Education and Geographic Location*. 2018.

6. Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Clinician Friendly Pick List Guide* [archived]. 2014.

7. Nerenberg KA, Zarnke K, Leung A, et al. Hypertension Canada's 2018 guidelines for diagnosis, risk assessment, prevention, and treatment of hypertension in adults and children. *Canadian Journal of Cardiology*. 2018.

8. Diabetes Canada. *Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada*. 2018.

9. O'Donnell DE, Aaron S, Bourbeau J, et al. Canadian Thoracic Society recommendations for management of chronic obstructive pulmonary disease — 2007 update. *Canadian Respiratory Journal*. 2007.

10. Klarenbach S, Sims-Jones N, Lewin G, et al. for the Canadian Task Force on Preventive Health Care. Recommendations on screening for breast cancer in women aged 40–74 years who are not at increased risk for breast cancer. *CMAJ*. 2018.

11. Canada Health Infoway. SNOMED CT. Accessed January 20, 2020.

12. Canada Health Infoway. pCLOCD/ LOINC. Accessed January 20, 2020.

13. Regenstrief Institute, Inc., Unified Codes for Units of Measures (UCUM) Organization. The Unified Code for Units of Measure. Accessed January 20, 2020.

14. HL7 International. About HL7. Accessed January 20, 2020.

15. OntarioMD. EMR Specifications Library. Accessed January 20, 2020.

16. Health Data Coalition. HDC measures list for MOIS, OSCAR, Wolf and Med Access. Accessed January 20, 2020.

17. Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Indicators, Report 1, Volume 1: Pan-Canadian Primary Health Care Indicator Development Project*. 2006.

18. Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Indicators, Report 1, Volume 2: Pan-Canadian Primary Health Care Indicator Development Project*. 2006.

19. Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Indicator Update Report*. 2012.

20. Canadian Institute for Health Information. *Draft Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 2.1 — Implementation Guide* [archived]. 2012.

21. Ezekowitz JA, et al. 2017 comprehensive update of the Canadian Cardiovascular Society guidelines for the management of heart failure. *Canadian Journal of Cardiology*. 2017.

22. Ontario Ministry of Health. *Schedule of Benefits: Physician Services Under the Health Insurance Act*. 2019.

23. Cancer Research UK. Breast cancer risk factors. Accessed January 30, 2020.

24. Kahan M. *Management of Alcohol Use Disorders: A Pocket Reference for Primary Care Providers*. 2017.

25. Dobbelsteyn CJ, Joffres MR, MacLean DR, et al. A comparative evaluation of waist circumference, waist-to-hip ratio and body mass index as indicators of cardiovascular risk factors. The Canadian Heart Health Surveys. *International Journal of Obesity and Related Metabolic Disorders*. 2001.

26. Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Technical Guide* [archived]. 2014.

27. Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Logical Model* [archived]. 2014.

28. Canadian Institute for Health Information. *Pan-Canadian Primary Health Care Electronic Medical Record Content Standard, Version 3.0 — Detailed Logical Model* [archived]. 2014.

29. Canadian Institute for Health Information. Codes and Classifications. Accessed January 20, 2020.

30. Government of Canada. Drug Identification Number (DIN). Accessed January 20, 2020.

31. Canada Health Infoway. Understanding EHRs, EMRs and PHRs. Accessed January 20, 2020.

32. Centers for Disease Control and Prevention. International Classification of Diseases, Ninth Revision (ICD-9). Accessed January 20, 2020.

33. International Organization for Standardization. About ISO. Accessed January 20, 2020.

34. Access Improvement Measures (AIM), et al. *Guide to Panel Identification for Alberta Primary Care*. 2014.

help@cihi.ca

CIHI Ottawa
495 Richmond Road
Suite 600
Ottawa, Ont.
K2A 4H6
613-241-7860

CIHI Toronto
4110 Yonge Street
Suite 300
Toronto, Ont.
M2P 2B7
416-481-2002

CIHI Victoria
880 Douglas Street
Suite 600
Victoria, B.C.
V8W 2B7
250-220-4100

CIHI Montréal
1010 Sherbrooke Street West
Suite 602
Montréal, Que.
H3A 2R7
514-842-2226

cihi.ca

21713-0220