

# EMR Core Data Set (CDS) 6.1

## Requirements

June 12, 2020

Document Version & Status: 1.1 - DFC (Draft for Comment)



## Table of Contents

<b>1. INTRODUCTION .....</b>	<b>3</b>
1.1 PURPOSE .....	3
1.2 HIGHLIGHT OF CHANGES .....	3
<b>2. EMR REQUIREMENTS .....</b>	<b>4</b>
2.1 LOGICAL DATA – STORE AND DISPLAY .....	5
2.2 DATA ACCESS LAYER (DAL) .....	7
2.3 APPLICATION PROGRAM INTERFACE (API) .....	7
2.4 TRANSPORT LAYER SECURITY .....	8
<b>3. APPENDIX A: ADDITIONAL REFERENCES .....</b>	<b>9</b>
<b>4. APPENDIX B: CDS-S – DATA DICTIONARY LEGEND .....</b>	<b>10</b>

## 1. INTRODUCTION

### 1.1 Purpose

This document provides the information necessary for an EMR Offering to align with the EMR Core Data Set (CDS-S) requirements.

### 1.2 Highlight of Changes

To promote data exchange and interoperability, the EMR CDS-S now references the Fast Health Interoperability Resources (FHIR) Specification to describe the physical data using FHIR data elements.

## 2. EMR REQUIREMENTS

This section consists of the EMR functional requirements for EMR CDS-S.

Support:

**M** = Mandatory. EMR Offerings certified for this specification **MUST** support this requirement

**O** = Optional. EMR vendors **MAY** choose to support this requirement in their certified EMR Offering

Status:

**N** = New requirement for this EMR Specification version

**P** = Previous requirement

**U** = Updated requirement from the previous EMR Specification version

**R** = Retired requirement from the previous EMR Specification version

OMD #:

A unique identifier that identifies each requirement within OntarioMD's EMR Requirements Repository

### CONFORMANCE LANGUAGE

The following definitions of the conformance verbs are used in this document:

- **SHALL/MUST**: Required/Mandatory
- **SHOULD**: Best Practice/Recommendation
- **MAY**: Acceptable/Permitted

The tables that follow contain column headings named: 1) "Requirement," which generally contains a high-level requirement statement; and 2) "Guidelines," which contains additional instructions or detail about the high-level requirement. The text in both columns is considered requirement statements.

## 2.1 Logical Data – Store and Display

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CDS01.01	The EMR Offering MUST be able to store the logical data elements defined in the EMR CDS-S - Data Dictionary.	<p>Logical data elements MAY be physically stored in different ways in EMR Offerings. For example, the logical data element “Blood Pressure” might be stored and displayed as two different fields, one for systolic and one for diastolic.</p> <p>EMR Offerings MUST NOT physically store two separate logical data elements as a single element. For example, there is a logical data element for patient roster and another for patient enrolment, because they are two different concepts. Combining these logical data elements into a single field is not acceptable.</p> <p>Adherence to this requirement can be demonstrated by producing mapping documentation that shows how the EMR Offering’s database table and column names map to the data elements in the data dictionary.</p>	M	P
CDS01.02	The EMR Offering MUST be able to display the logical data elements defined in the EMR CDS-S - Data Dictionary.	<p>Logical data elements MAY be physically displayed in different ways in EMR Offerings. For example, the logical data element “Blood Pressure” might be displayed as two different fields, one for systolic and one for diastolic.</p> <p>EMR Offerings MUST NOT combine two separate logical data elements into a single physical data element in the display. For example, there is a logical data element for patient roster and another for patient enrolment, because they are two different concepts. Combining these logical data elements into a single field in the user interface is not acceptable.</p>	M	P
CDS01.03	The EMR Offering MUST NOT present default values in the user interface for the following data elements:	These data elements are essentially binary (e.g., yes or no) indicators that require the EMR user to make a decision as to whether or not they should be populated.	M	P

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
	<ul style="list-style-type: none"> <li>a) Long-Term Medication (DE09.016)</li> <li>b) Patient Compliance (DE09.018)</li> <li>c) Substitution Not Allowed (DE09.029)</li> <li>d) Smoking Status (DE16.013)</li> <li>e) Erectile Function (DE16.019)</li> </ul>	This requirement was previously embedded in the definition of each of these data elements.		
CDS01.04	<p>The EMR Offering MUST allow backdating (i.e., entering past dates) for the following data elements:</p> <ul style="list-style-type: none"> <li>a) Prescription Written Date (DE09.001)</li> <li>b) Start Date (DE09.002)</li> <li>c) Receive Date (DE14.005)</li> </ul>	<p>These data elements must allow the EMR user to enter past dates to accommodate use cases such as when the EMR Offering is not available to the EMR user and this data needs to be subsequently entered when the EMR Offering becomes available.</p> <p>This requirement was previously embedded in the definition of each of these data elements.</p>	M	P
CDS01.05	At a minimum, the EMR Offering MUST support the display and storage of the patient's residential and mailing addresses.	This requirement was previously embedded in the definition of DE02.001 - Address Type. The Address Type logical data element is listed as optional in the Data Dictionary because EMR Offerings could meet this requirement by supporting a set of residential address data elements (e.g., "Residential Street Address", "Residential City") and a separate set of mailing address data elements (e.g., "Mailing Street Address", "Mailing City") or by having generic address data elements (e.g., "Street Address", "City") which are associated with an Address Type (e.g., Residential, Mailing)	M	P

## 2.2 Data Access Layer (DAL)

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CDS02.01	The EMR Offering must maintain a DAL that translates its EMR database to FHIR elements.	An access layer should be implemented to ensure data elements when called upon are reusable for different data exchange purposes.	M	N
CDS02.02	The EMR Offering MUST maintain the mapping of CDS-S Elements to the physical EMR database fields.	Mappings MUST be implemented in the DAL.	M	N

## 2.3 Application Program Interface (API)

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CDS03.01	The EMR Offering MUST maintain an EMR API for data interactions based on CDS-S elements.	An API MUST be available for access to EMR data based on FHIR data standards and references.	M	N
CDS03.02	The DAL MUST have the functionality to return EMR data based on either the need for specific data elements or complete FHIR resource sets.	<p>Both methods of retrieving EMR data MUST be supported:</p> <ul style="list-style-type: none"> <li>a) Specific EMR data elements (e.g., patient last name)</li> <li>b) Complete data sets (e.g., all patient demographics)</li> </ul> <p>Where an integration only requires a specific data element (e.g., patient last name), the API shall facilitate a method of both requesting and returning only the specified elements.</p> <p>Where requested, the API shall return complete FHIR resources allowing for the selection of optional fields for inclusion.</p>	M	N

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CDS03.03	The EMR Offering MUST use the DAL for EHR Asset integrations where FHIR profiles and references are used for data interactions.	The EMR Offering integrations MUST utilize the DAL APIs to interact with EMR data stores as needed by EHR Asset data requirements.	M	N
CDS03.04	The EMR Offering MUST allow a method to allow for integration-specific exceptions to the FHIR mapping to be implemented.	<p>Where an EMR Offering integration has specific data element(s) that do not match the CDS-S mapping, the EMR Offering MUST have the means to transpose the required data from the CDS-S FHIR to the FHIR field required by the integration.</p> <p>A CDS-S data element that does not match includes a data element that is either not defined in CDS-S or one which is mapped differently.</p>	M	N

## 2.4 Transport Layer Security

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CDS04.01	The EMR Offering MUST follow industry best-practices for maintaining controls for API security and privacy.	One example of an industry-standard includes guidelines described by NIST SP-800 series guidelines.	M	N



### 3. APPENDIX A: ADDITIONAL REFERENCES

The following are supporting documentation and recommended reading.

ID	NAME	VERSION	DATE
3	Computer Security Resource Center (National Institute of Standards and Technology (NIST), n.d.) <a href="https://csrc.nist.gov/publications/sp800">https://csrc.nist.gov/publications/sp800</a>	N/A	N/A
1	GraphQL – A Query Language for Your API (The GraphQL Foundation, 2020) <a href="https://graphql.org/">https://graphql.org/</a>	N/A	2020
2	HL7 FHIR Release 4 (Health Level Seven, 2019) <a href="https://www.hl7.org/fhir/">https://www.hl7.org/fhir/</a>	4.0.1	2019-11-01

## 4. APPENDIX B: CDS-S – DATA DICTIONARY LEGEND

The following columns are used in the EMR CDS-S - Data Dictionary to describe conformance statements for each data element that are used to implement the EMR requirements stated above.

DATA DICTIONARY COLUMN NAME	PURPOSE
Store/Display	Indicates if the data element is expected to be stored and displayed, or just stored.
Code Sets	<p>Indicates the name of the code set that needs to be supported, where applicable.</p> <p>The term “support” in the context of storage conformance expectations means that the EMR Offering, at a minimum, can store the value from the “Code” column from the code set in the patient record.</p> <p>The use of the term “support” in the context of display conformance expectations means that the EMR can display the values from the “Name” or the “Code” column as part of the patient record. With the following exceptions:</p> <ul style="list-style-type: none"> <li>• There are several data elements that are essentially indicators (e.g., see requirement LD01.03 above) with the words “Store:” followed by the name of the code set because there is no display requirement. For example, these indicators may be implemented as a single tick box in the EMR Offering user interface and thus do not need to display the words “Yes” or “No”.</li> <li>• Data elements that represent dates do not have a display format requirement but must be stored using the World Wide Web Consortium (W3C) date standard.</li> </ul>
Code Set Conformance	<p>Indicates conformance expectations for EMRs to support the storage and/or display of coded concepts associated with logical data elements using the following conformance terms:</p> <ul style="list-style-type: none"> <li>• <b>Mandatory</b> - The EMR Offering MUST support only the values in the code set.</li> <li>• <b>Minimum</b> - The EMR Offering MUST support the values in the code set, and MAY support additional values so long as those values represent different concepts. The EMR Offering MUST NOT support two different values with the same definition and semantic meaning.</li> <li>• <b>Optional</b> - The EMR Offering MAY or MAY NOT support the code set</li> </ul>

DATA DICTIONARY COLUMN NAME	PURPOSE
M/O	<p>Indicates if a logical data element is considered mandatory (i.e., “M”) or optional (i.e., “O”) to support.</p> <p>If an EMR Offering supports an optional data element, it MUST also support all of the associated data requirements. For example, if an EMR Offering supports an optional data element that has a mandatory code set associated with it, the EMR Offering MUST be able to support the mandatory code set.</p>