EMR Core Data Set Standard (CDS-S)

Business View

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1. INTRODUCTION

1.1 Purpose

This document describes the business context for the EMR Core Data Set Standard (CDS-S), which consists of the minimum set of logical data elements supported by certified EMR Offerings.

The EMR CDS-S Specification consists of the following documents.

DOCUMENT NAME	PURPOSE
EMR Core Data Set Standard (CDS-S) – Business View	Describes the business context and needs for EMR Offerings to have a common set of logical data elements
EMR Core Data Set Standard (CDS-S) – Data Dictionary	Defines the physical elements names, descriptions, associated code sets (where applicable), and conformance criteria for individual data elements
EMR Core Data Set Standard (CDS-S) – Logical Data Model	Represents the data elements as key concepts (i.e. entities), their attributes, and their relationships in a single diagram. Provided purely as supplemental material
EMR Core Data Set Standard (CDS-S) – Requirements	Describes requirements for supporting the storage and/or display of logical data elements

1.2 Business Overview

Clinicians and their staff use EMR Offerings as clinically valuable tools to enhance the way they deliver patient care and efficiently administer the business of the practice, regardless of the practice model (e.g., sole practitioner, family health organization).

Clinicians routinely work with other health care professionals, operating in different practices or care settings to deliver care to patients, making it one of the primary business drivers for them to use their EMRs to exchange data with other health care professionals in a patient's circle of care. Data exchange between health care professionals increasingly relies on the systems that interact with electronic health records (EHRs).

As the health care system faces pressure to reduce costs and improve patient outcomes, clinicians have growing needs to enhance the use of EMR Offerings and the valuable patient records they hold to coordinate patient care and decrease administrative costs. To accomplish this, systems that clinicians use and interact with need to be able to communicate and share information in an understandable and meaningful manner. Establishing a data standard creates the foundation for these systems to exchange information and interact efficiently together. Adopting the EMR CDS-S enables a means for EMR Offerings to share data between different EMR Offerings and EHR systems with which they interact.

1.3 Business Drivers

EMR functions and capabilities have evolved in lockstep with the changes in the way clinicians use their EMRs to provision and administer patient care. This evolution has formed business drivers for a common set of logical data elements that support:

1. **Data Portability and Exchange** – There is a need to ensure that EMR data can be transferred into, and out of EMRs to support numerous scenarios, such as exchanging or migrating patient health records from one EMR Offering to another, or exchanging patient data with EHR assets that provide key clinical information using standard definitions of data across multiple care domains.

2. **EHR Products and Services** – Clinicians' use of their EMR Offerings to enhance the provision of care requires extended functionality such as health indicator dashboards, or access to dispensed drug information available from EHR products and services, or access to other functionality provided by other systems – all of which require the exchange of data between the EMR Offering and those other systems.

3. **Core Business** – There is a common set of data required for functions within an EMR that clinicians need to provide care, administer practices, and maintain compliance with legislation and regulatory policies. These core EMR functions need to be able to reference information consistently within an EMR Offering.

EMR data exchange is increasingly needed to support clinicians' core business and enhance the use of EMRs. The following section expands on EMR data concepts and provides additional insight into the business and technical needs for the EMR CDS-S.

1.4 Data Interoperability Standard

To support data exchange between disparate systems, interoperability is a key component to the efficient and meaningful exchange of information. It can provide clinicians with access to important information about their patients beyond what is stored within their EMRs to assist clinical decision-making. It also allows for the sharing of relevant patient information from their EMRs to other health care workers within a patient's circle of care. Fast Healthcare Interoperability Resources (FHIR) is growing and evolving in the health care space as an international standard allowing disparate systems to communicate together. As the adoption of FHIR evolves, information exchange can and will need to evolve to form a consistent way to be represented to share between disparate systems.

The result will enable access to much more information from multiple different systems to enhance care for their patients.

The EMR CDS-S has evolved to further describe the interoperability between disparate systems leveraging the FHIR standard. It introduces a standard for how the core set of data elements are described and referenced between EMR Offerings and EHR products and services. EMRs can leverage the physical element names as a way to consistently represent the data when exchanging information in and out of the EMR. This would result in less effort required to integrate any EHR product or service into the EMR.

2. EMR DATA EXCHANGE

EMR data exchange is increasingly required to support clinician's core business and enhanced use of EMRs through the ability to transfer data into and out of EMR Offerings. EMR data exchange can support multiple types of data (e.g., patient data, clinical practice data), means of transfer (e.g., batch export, HL7 message, FHIR resources), and direction of transfer (e.g., data in, data out). Some examples of data exchange use cases include connecting an EMR Offering with a provincial EHR product or service such as the Ontario Laboratories Information System (OLIS), and the Digital Health Drug Repository (DHDR) EHR Service.

EMR data exchange requires several conceptual layers to transfer data in or out of an EMR Offering:

- **Network Layer** – Used to transmit data between an EMR Offering and another system.
- **Application Layer** – The EMR application code used for everything from the user interface and various functions to the transformation of data into different formats for transmission or persistence.
- **Data Layer** – The data that persists as part of the EMR Offering. This broadly covers data persisted in databases, file servers, or any other means of data storage.

EMR data exchange covers many different use cases, and therefore EMR Offerings have to be able to support different approaches to transmit data (e.g., networking protocols like HTTP and FTP, different interface approaches like Web Services and RESTful APIs, etc.), different approaches to transforming and encrypting data, and persisting data in different formats (e.g., different data models and physical database structures, different storage formats such as free text and coded values, different file types such as PDF and JPEG).

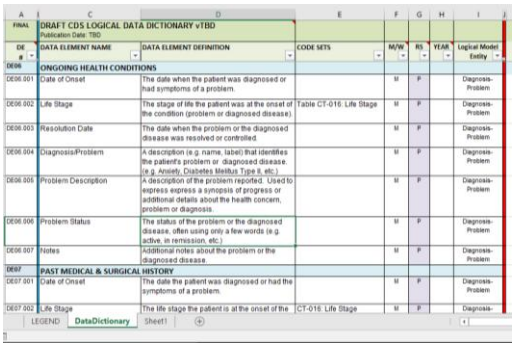


Figure 1 - Conceptual EMR System Layers

3. EMR Core Data Set Standard (CDS-S)

3.1 What is the EMR CDS-S?

The EMR CDS-S is a logical representation of a *minimum* set of data elements that certified EMR Offerings support for display to EMR users and for persistence in the EMR Offering.



FINAL	DRAFT CDS LOGICAL DATA DICTIONARY vTBD Publication Date: TBD							
DE #	DATA ELEMENT NAME	DATA ELEMENT DEFINITION	CODE SETS	M/W	RS	YEAR	Logical Model Entity	
DE06	ONGOING HEALTH CONDITIONS							
DE06.001	Date of Onset	The date when the patient was diagnosed or had symptoms of a problem.		M	P		Diagnosis-Problem	
DE06.002	Life Stage	The stage of life the patient was at the onset of the condition (problem or diagnosed disease).	Table CT-016: Life Stage	M	P		Diagnosis-Problem	
DE06.003	Resolution Date	The date when the problem or the diagnosed disease was resolved or controlled.		M	P		Diagnosis-Problem	
DE06.004	Diagnosis/Problem	A description (e.g. name, label) that identifies the patient's problem or diagnosed disease. (e.g. Anxiety, Diabetes Mellitus Type II, etc.)		M	P		Diagnosis-Problem	
DE06.005	Problem Description	A description of the problem reported. Used to express/ express a synopsis of progress or additional details about the health concern, problem or diagnosis.		M	P		Diagnosis-Problem	
DE06.006	Problem Status	The status of the problem or the diagnosed disease, often using only a few words (e.g. active, in remission, etc.)		M	P		Diagnosis-Problem	
DE06.007	Notes	Additional notes about the problem or the diagnosed disease.		M	P		Diagnosis-Problem	
DE07	PAST MEDICAL & SURGICAL HISTORY							
DE07.001	Date of Onset	The date the patient was diagnosed or had the symptoms of a problem.		M	P		Diagnosis-Problem	
DE07.002	Life Stage	The life stage the patient is at the onset of the	CT-016: Life Stage	M	P		Diagnosis-	

LEGEND | DataDictionary | Sheet1

Figure 2 - Data Dictionary

3.1.1 CDS-S Data Dictionary

The EMR CDS-S logical data elements are defined in the EMR Core Data Set - Data Dictionary. The EMR Core Data Set - Data Dictionary provides the data element names, definitions, associated code sets (where applicable) and conformance expectations for the display and storage of the data elements.

3.1.2 CDS-S Logical Data Model

The EMR CDS-S also includes a logical data model that shows the key concepts (i.e., entities), their attributes, and their relationships with each other. It provides a simple abstracted view of the EMR Core Data Set on a single page. The EMR CDS-S Logical Data Model is provided purely for reference. It is important to note that the EMR CDS-S Logical Data Model represents all the data elements found in the EMR Core Data Set Data Dictionary, but it does not show every logical data element. This is because some of the concepts in the EMR CDS-S Data Dictionary repeat, and can be represented once in a model. For example, the logical data elements for primary care physician name and enrolled-to physician name can be represented once in the model as the provider name.

4. EMR CDS-S and FHIR

4.1 EMR CDS-S Data Elements

The EMR CDS-S is a logical representation of a *minimum* set of data elements that certified EMR Offerings support for display to EMR users and for persistence in the EMR Offering. It provides a consistent way to describe data between disparate health systems such as different EMR Offerings and the various EHR products and services to which they may connect. Each element is defined within the EMR CDS-S Data Dictionary as a logical representation of information that EMRs are expected to support.

4.1.1 EMR CDS-S to Physical Element Name Data Mapping

As EMRs connect to and rely on the exchange of data with disparate systems, a consistent way to represent the physical data is needed to exchange information reliably, consistently and efficiently. To support this growing need, the FHIR standard is leveraged to extend the logical CDS-S element definitions to physical data representations in the form of FHIR profiles. As more EHR services are adopted and a wider range of health care data is exchanged, the FHIR profiles and resources that are included will evolve and expand. To facilitate a standard and consistent definition of commonly exchanged data, CDS-S data elements will be referenced in a physical form here: https://simplifier.net/omd-cdss.

The following diagram illustrates data exchange between EMR Offerings and EHR products and services. The arrows represent an exchange of data between systems. The boundaries for the EMR CDS-S are defined within the hashed box.

EMR Offerings that are aligned with the EMR CDS-S can easily exchange data with other systems like EHR products and services. The EMR CDS-S provides a mapping of physical data elements that implementers can reference.

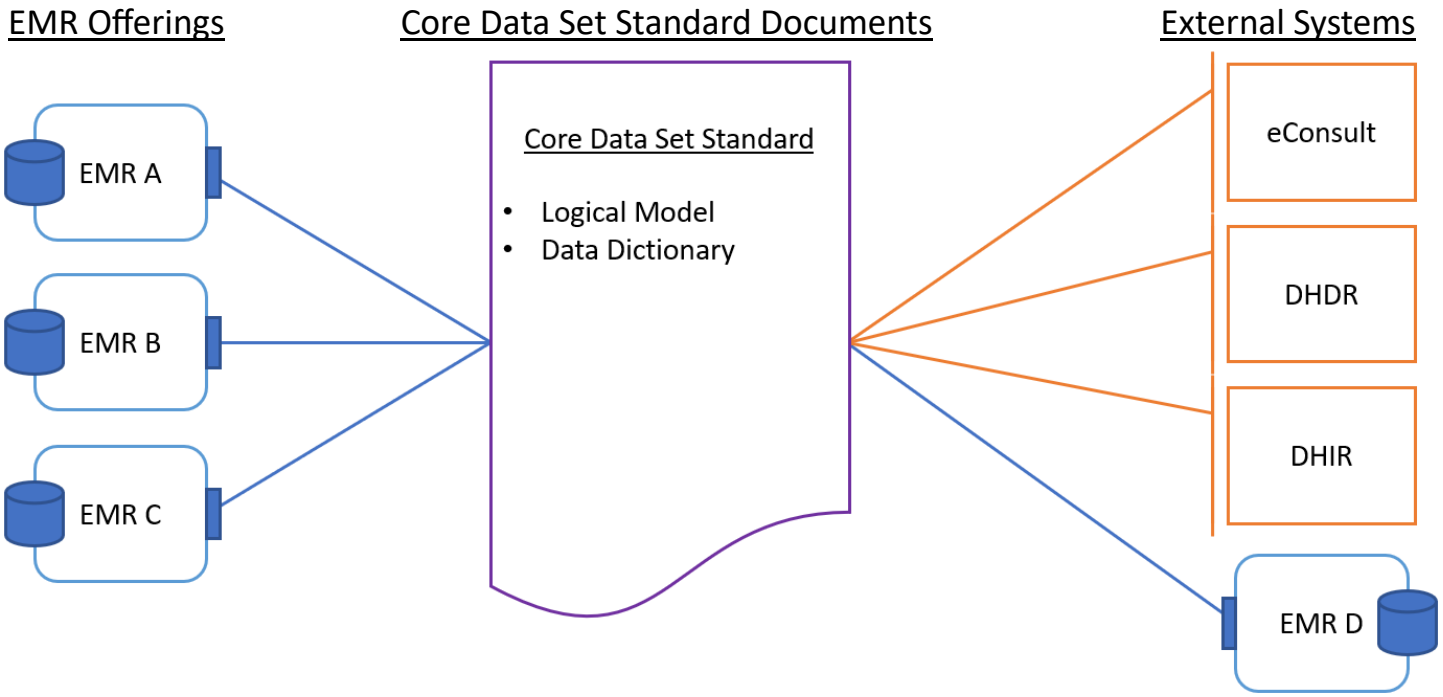


Figure 3 - Logical Data Model and CDS-S

5. APPENDIX A: GLOSSARY OF KEY TERMS AND DEFINITIONS

5.1 Acronyms and Abbreviations

This table identifies definitions for terms used within or that are relevant to this EMR specification.

ACRONYM	DEFINITION
API	Application Programming Interface
CDS-S	Core Data Set Standard
EHR	Electronic health record
EMR	Electronic medical record
FHIR	Fast Healthcare Interoperability Resources
HCN	Health Card Number
HL7	Health Level Seven
RESTful or REST	Representational state transfer
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
W3C	World Wide Web Consortium