

EMR Digital Health Immunization Repository (DHIR) 1.0

Business View

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1. INTRODUCTION

1.1 Overview

The purpose of the DHIR EHR Service is to provide clinicians with access to view and update their patients' immunization records maintained in the Digital Health Immunization Repository (DHIR) as an integrated function within their EMR Offering.

1.2 What is the DHIR?

The DHIR is a provincial repository that provides various health care organizations and systems (e.g., health care providers, public health units, parents using Immunization Connect) with centralized access to view and update patients' immunization records.

The DHIR EHR Service allows for the integration of secured and authorized access to a patient's immunization history stored in the DHIR within an EMR Offering. The following is an overview of the EMR-supported interactions supported by the DHIR EHR Service.

1. Retrieval of a patient's immunization history from the DHIR via the EMR Offering
2. Retrieval of a patient's immunization forecast from the DHIR via the EMR Offering
3. Submission of an immunization record for a patient captured using the EMR Offering and sent the DHIR

1.3 Data Available in the DHIR

The DHDR maintains Ontarian's immunization records that include publicly and privately funded immunizations for patients of all ages (e.g., school children and adults). This includes immunizations considered under the Immunization of School Pupils Act (ISPA) as well as immunizations outside of the scope of the ISPA. This data is contributed by various public health and health care agencies as well as individuals themselves (or by the families of a child).

1.4 Business Drivers

Currently, clinicians maintain their patients' immunization records using EMRs, but do not have real-time access to sources of patient immunization information reported by other health care providers, agencies and organizations in the health care domain. The DHIR EHR Service enables integrated functionality within an EMR Offering to access patient immunization records that reside in the DHIR. This provides health care providers and clinicians with a more comprehensive, real-time view of their patients' immunization history to assist with clinical decision-making and enhance patient care.

2. SYSTEM VIEW

2.1 Patient Consent Directives

Confidentiality of a patient’s immunization records is determined by the patient’s consent directives maintained by the DHIR EHR Service. By default, the consent of every patient is implied consent unless the patient or their substitute decision-maker (SDM) had submitted an explicit consent directive to the Ministry of Health (MOH) to block access to their immunization information. Patients have the right to withhold or withdraw consent for the disclosure of their immunization information stored in the DHIR.

When an EMR Offering requests a patient’s immunization history from the DHIR EHR Service, consent directive information is returned by the DHIR EHR Service if a directive exists, blocking that patient’s information from being made available to the clinician. (As of this writing, less than 0.01% of patients exist in the DHIR that have a consent directive in place.)

If a consent directive exists for a patient in the DHIR, then one or more immunization event(s) will be blocked and unavailable while the remaining unblocked immunization events will be successfully returned. There is no supported functionality in the DHIR EHR Service for an EMR to override a patient consent directive.

2.2 DHIR EHR Views

The following figures illustrate the distinction between the different ‘views’ that the EMR Offering is required to provide when displaying information about a patient’s immunization events retrieved from the DHIR EHR Service. These examples contain fictitious patient data and are intended for illustrative purposes only -- implementation of these views in different EMR Offerings may vary. For a list of the minimum set of data elements to display, refer to the EMR requirements.

2.2.1 Summary View

The following diagram illustrates an example of a Summary View of a patient’s immunization events retrieved from the DHIR EHR Service and displayed in an EMR Offering.

Patient: John Doe		HCN: 12345678							
DOB: 2000-12-31		Gender: F							
Immunization Event(s) from DHIR									
Immunization Date	Valid Flag	Agent	Trade Name	Generic Name	Lot #	Status	PHU	Performer	Expiration Date
2016-02-14	True	MMR	MMR measles + mumps + rubella unspecified	MMR	65BB	Completed	Toronto PHU	June Elder	2017-02-28
2016-01-14	True	BCG	Freeze-dried Glutamate BCG Vaccine Japan	BCG	6452CV	Completed	Toronto PHU	Ronald Regan	--
Date retrieved from DHIR: 2019-06-31T23:59									
Warning: Limited to Immunization Information available in the Digital Health Immunization Repository (DHIR) EHR service. To ensure a Best Possible Immunization History, please review this information with the patient/family and use other available sources of Immunization information in addition to the DHIR EHR service.									

Figure 1 - Illustration of the Summary View in the EMR Offering

2.2.2 Comparative View

The following diagram illustrates an example of a Comparative View. The patient's immunization events are retrieved from the DHIR EHR Service and displayed alongside immunization records stored and maintained in the EMR Offering.

Patient: Jane Doe		HCN: 1234567897								
DOB: 2000-12-31		Gender: F								
Immunization Event(s) from DHIR										
Immunization Date	Valid Flag	Agent	Trade Name	Lot #	Status	PHU	Performer	Expiration Date		
2016-02-14	True	MMR	MMR measles + mumps + rubella unspecified	65BB	Completed	Toronto Public Health	June Elder	2017-02-28		
2016-01-14	True	BCG	Freeze-dried Glutamate BCG Vaccine Japan	6452CV	Completed	Peterborough Public Health	Ronald Regan	--		
Date retrieved from DHIR: 2019-06-31T23:59										
<p>Warning: Limited to Immunization Information available in the Digital Health Immunization Repository (DHIR) EHR service. To ensure a Best Possible Immunization History, please review this information with the patient/family and use other available sources of Immunization information in addition to the DHIR EHR service.</p>										
EMR Immunization Record										
Name	Code	Type	Manufacturer	Lot #	Route	Site	Dose	Date	Refused	Notes
MMR measles + mumps + rubella unspecified	02244081	MMR	PFIZER CANADA INC.	65BB	Intramuscular	Right Deltoid	20 uG/0.5ML	2016-02-14	No	Prevnar Note
BCG	00075124	BCG	SANOFI PASTEUR LIMITED	AB112233	Intradermal	Left Deltoid	0.1 MG/0.1 ML	2011-01-01	No	BCG note

Figure 2 - Illustration of the Comparative in the EMR Offering

2.3 Submitting an Immunization Event

Immunization records can be updated through various organizations, agencies and individuals. For example, a patient can log onto Immunization Connect (ICON) to contribute to their own records, primary care physicians can contribute to their patients' immunization records using an EMR Offering. Data from these multiple sources is maintained centrally in the DHIR in a standardized data format that can be used by disparate systems and applications that are authorized to access this data. The DHIR EHR Service enables clinicians to contribute to immunization events in a more streamlined process directly from their EMR Offering.

Note that immunization events submitted to the DHIR are subject to a manual process of review before actual inclusion into the DHIR. As a result, immunization information submitted using the DHIR EHR Service by an EMR Offering may not be immediately available. In some cases, the Public Health Unit (PHU) may contact the submitter of the immunization event to verify information provided, or the immunization event may be rejected (e.g., identified as a duplicate entry) and not actually submitted to the DHIR EHR Service.

In the event that a valid immunization event is submitted in error and was accepted into the DHIR EHR Service, the process to make corrections is for the submitter is to contact their local PHU¹ (which is a manual process beyond the scope of EMR functionality).

2.3.1 Canadian Vaccine Catalogue (CVC)

The CVC maintains vaccine terminology and vaccine product information in Canada and is periodically updated (typically on a monthly basis) by CANImmunize as new vaccines become available. The DHIR leverages the CVC as the source of terminology and information of available immunizations. As new vaccines become available, EMR Offerings and other contributors can submit immunizations for new (and existing) vaccines. In order to submit immunizations to the DHIR EHR Service, EMR Offerings need to ensure that the immunization data aligns with the terminology used by the CVC. This is achieved with EMR Offering functionality to regularly update and reference the list of vaccines and terminology from the CVC.

¹ List of Public Health Units: <http://www.health.gov.on.ca/en/common/system/services/phu/locations.aspx>.

2.3.2 Workflow to leverage the CVC to Submit an Immunization to the DHIR EHR Service

The DHIR EHR Service uses FHIR-based terminology defined by the CVC to accept or provide standardized immunization data to systems. As such, when submitting an immunization event to the DHIR EHR Service, the EMR Offering needs to follow the same CVC terminology. The EMR Offering will need to ensure that its internal immunization data aligns to match the CVC terminology and ensure that the EMR Offering uses a current version of the CVC terminology.

The CVC offers functionality for EMR Offerings to regularly check for and retrieve the latest CVC terminology. Refer to the CVC Implementation Guide for more details of methods for interaction with the CVC.

The following diagram illustrates the workflow for an EMR Offering that maintains a mapping of CVC terminology to submit immunization events to the DHIR EHR Service.

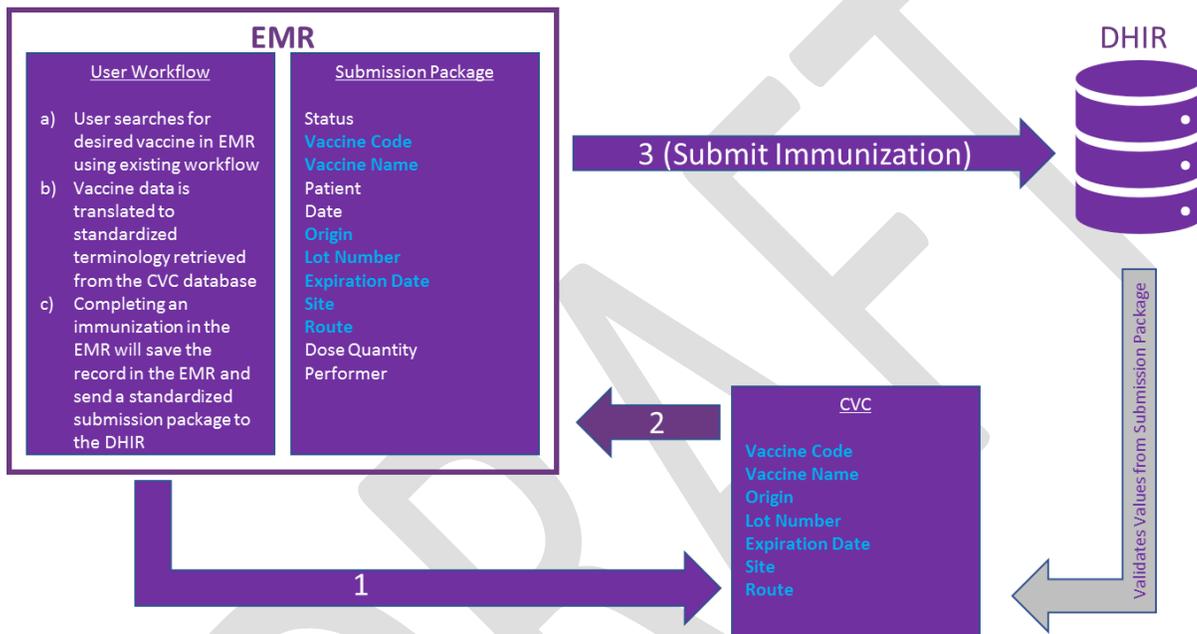


Figure 3 - Workflow of EMR Offering using CVC

3. APPENDIX A: GLOSSARY OF KEY TERMS AND DEFINITIONS

3.1 Acronyms and Abbreviations

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

ACRONYM	DEFINITION
API	Application Programming Interface
CPP	Cumulative Patient Profile
CVC	Canadian Vaccine Catalogue
DHIR	Digital Health Immunizations Repository
EHR	Electronic Health Record
EMR	Electronic Medical Record
FHIR	Fast Healthcare Interoperability Resources
HCN	Health Card Number
HL7	Health Level Seven
ICON	Immunization Connect
ISPA	Immunization of School Pupils Act
MOH	Ministry of Health
PHI	Personal health information
PHIPA	Personal Health Information Protection Act
PoC	Proof of Concept
ReST	Representational State Transfer
SDM	Substitute decision-maker
HTTP	HyperText Transfer Protocol
UAO	Under the Authority of
URI	Uniform Resource Identifier
URL	Uniform Resource Locator

3.2 Definitions

TERM	DEFINITION
Administering Provider	<p>The provider who performed the immunization.</p> <p>This may or may not be the same individual as the Submitting Provider.</p>
Generic Name	<p>This is the generic name of the vaccine, as defined by the CVC.</p> <p>It may be referred to as vaccine generic name, agent or immunizing agent in other documentation.</p>
Immunization event	<p>A single immunization recorded for the patient.</p> <p>This may include data about the patient, the immunization, the practitioner who administered that immunization, the organization to which the practitioner belongs and other system information as it relates to this immunization.</p>
Immunization history	<p>The complete set of immunization events for the patient.</p> <p>In the context where filters or constraints are applied, this encompasses the subset of immunizations for that patient.</p>
Patient chart	<p>Patient cumulative profile in the EMR Offering.</p>
Submitting Provider	<p>The provider who submitted the immunization event to the DHIR EHR Service.</p> <p>This may or may not be the same individual as the Administering Provider. For example, the nurse may have administered the immunization, but the physician is submitting the immunization event to the EHIR EHR Service.</p>
Trade Name	<p>This is the trade name of the vaccine, as defined by the CVC.</p> <p>It may be referred to as vaccine trade name, brand name, agent or immunizing agent in other documentation.</p>