Ontario Health Mental Health and Addictions Provincial Data Set (MHA PDS)

Vendor Implementation Guide

Version 1.3.1

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Ontario Health Mental Health and Addictions Provincial Data Set

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1 Overview

This document is a web services application programming interface and implementation guide for the Ontario Health Mental Health and Addictions Provincial Data Set (MHA PDS) Project.

In 2020, Ontario launched Roadmap to Wellness, which is the province's multi-year strategy to support the development of a connected and comprehensive mental health and addictions (MHA) system. As a key component of this strategy, the MHA Data and Digital initiatives (DDI) will provide the foundation to report on the performance of the MHA system, make evidence-based service planning and funding decisions, and make it easier for service providers in the MHA system to use data and information to improve clinical practice across the lifespan.

The Mental Health and Addictions Provincial Data Set (MHA-PDS) will standardize the collection of data across the sector and lifespan. The Ontario MHA-PDS will be developed and implemented in a phased approach. The initial data collection scope for MHA-PDS is Ontario Ministry of Health (MOH) and Ontario Health (OH) funded community mental health and addiction services.

Reconnect will support the MHA Data and Digital initiatives (DDI) through its leadership and management of the MHA PDS project. Reconnect supports an existing Community Business Intelligence (CBI) project that facilitates the collection of information from a Health Service Provider (HSP)'s Client Management System (CMS) for the purposes of reporting at the individual and aggregate levels with the ability to query data, receive standard reports and share client data. HSPs receive data quality reporting that alerts them to any data quality issues within their current CMS and to compare data quality statistics to sector averages.

Building upon this background, Ontario Health Mental Health & Addictions Centre of Excellence has determined the need to improve upon current decision support capabilities within the community sector and has drafted a specification for a minimum data set (MHA PDS) with significant focus on collecting health equity data. In this project, Ontario Health (OH) is prioritizing point of care data collection, interoperability between other datasets, storage in a central OH-based repository and exposing data through an Ontario EHR (both client-facing and service provider-facing).

OH has chosen Reconnect Community Services as the Project Sponsor to lead this project, building off its experience with the existing CBI project. The project began as an initial Limited Production Release to work with 2 major software vendors in the community mental health and addictions sector, and on-board 17 health service providers (HSP) as early data submitters. The next phase of the project will involve expanding to additional vendors and HSPs.

Because data collection at HSPs is implemented using diverse technologies and methods, a single, standardized method is needed to facilitate the interoperability and

gathering of data for analysis, reporting and strategic planning purposes. The Web Services Gateway is the central gathering point for data that will be collected from HSPs. All information exchanged with Ontario Health is performed under the authority of the Health Information Custodian of that information (i.e., the HSP who gathered the information being transmitted).

This guide is intended for software vendors who provide Client Management Systems (CMS)s for HSPs in the community mental health and addictions sector to implement the MHA PDS Module.

1.1 Assumptions and Prerequisites

This section describes the technical and knowledge assumptions and prerequisites required to create a web services implementation using this document as a guide.

1.1.1 Programming Knowledge and Experience

Programmers who have been contracted as a Vendor should have knowledge of and experience in the following technology and skill areas in order to use this guide and build the implementation described in it:

- *Relational Database Management Systems (RDBMS) or Transactional Database Systems*
- *Database-driven web development.*
- *HL-7 FHIR interface language and FHIR Structure Definition*
- *JSON and SOAP services, including working with WSDL and XML files.*
- *Network and web application security, including the implementation of secure methods of transmitting data across the internet, such as TLS protocol and SSL certificates, etc.*
- *OAuth2 protocol for secure data exchange*
- *A computer programming language capable of building a web services client.*
- *The specifics of how JSON or SOAP works with technologies in use in your environment, such as languages or scripting in Java, Ruby, PHP, C#, .NET, etc.*

1.1.2 Database Assumptions

The client information databases at HSPs are assumed to have the following features in order for the data to be compatible with the repository database on the web services server:

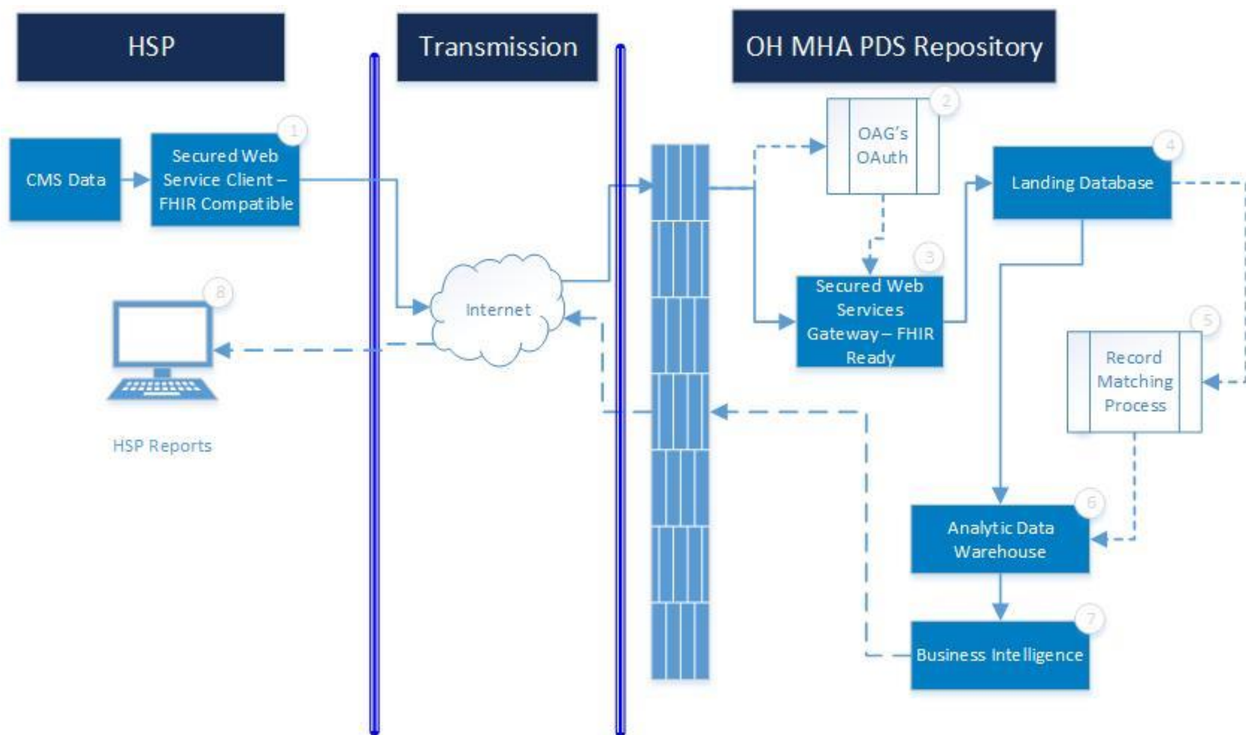
- *The database is a relational database (RDBMS) or Transactional Database.*
- *The following tables and keys are present and have a relationship:*
    - *A Client Profile table with a Primary Key that uniquely identifies each client (e.g., ClientID). The Client Profile table contains the demographic information of clients and/or the information of the Social Determinants of Health (SDOH).*
    - *The Client ID field sent to OH MHA PDS is required for OH MHA PDS reports end users to identify a client in MHA PDS reports. Data selected for this field needs to be available for quick reference from the program user interface so OH MHA PDS reports users can match a client to a report.*

- *A table containing the mapping of service names or program names used in the vendor's CMS to the functional cost centres and Connex Program Numbers.*
- *A table mapping the organization locations (sites) and programs and the Connex Site Numbers.*
- *A table storing the System Social Determinant of Health data elements.*
- *A table for tracking referrals' status and associated services or programs using a unique key to identify each referral. The relationship between Clients and Referrals is one-to-many (because a client can be referred to more than one service/program).*
- *A table for tracking admissions' status including the originated referral, services or programs enrolled using a unique key to identify each admission. The relationship between Clients and Admissions is one-to-many (because a client can be admitted to more than one service/program).*
- *A table containing statuses, events and associated information for the health services events or activities (Encounters and workloads). Such health services events or activities are associated with the corresponding admission to a service/program.*

1.2 Where to go for Help

If, throughout any stage of the OH MHA PDS Project, you have questions, please contact cbisupport@reconnect.on.ca for assistance.

1.3 Architecture



The architecture for the submission of Data from HSPs to the Provincial MHA PDS Repository is represented above. The diagram illustrates the following data flow:

1. *The Data elements as set out in Appendix A – MHA PDS Data Dictionary are sent from the Client Management System (CMS) Database of the HSPs via encrypted web services to the Web Service compliant web server hosted at Provincial MHA PDS Repository.*
2. *The Data elements are received by the Web Service Server and must meet the data format and mandatory data element requirements. If they do not, records are rejected, and the CMS will receive an error message.*
3. *Received Data elements are stored in the Landing Database with cell-level encryption applied to demographic and health information data elements.*
4. *HSP's submitted client/health service data as outlined in Appendix A – MHA PDS Data Dictionary are processed through the Record Matching Process system to identify and match client records to create a complete and single view of a client. The Record Matching Process System will assign a unique identifier for each unique Client.*
5. *Data records are sent from the Landing Database to the Data Warehouse.*
6. *Reports are prepared for HSPs and OH from the Data Warehouse.*

7. *Each HSP can access reports prepared based on its own client/health services records submitted to the MHA PDS Repository. Reports are hosted in a secured Report Portal, for which each HSP's authorized personnel will be provided with sign-in credentials.*

2 MHA PDS Data Elements Review and Requirements

This section provides a review of and the requirements for the MHA PDS data elements which form the data collection foundation of the initiative.

The data submission includes 4 data segments and streams:

a) ***Client Information/Episode of Care Group***, *which includes the client demographic information, the health service provider information and data elements related to the Referral and Episode of Care;*

b) ***Client SDOH Group***, *which includes the client social determinants of health data elements, and the health service provider information;*

c) ***Health Services/Encounters Group***, *which contains data elements related to the health services/encounters delivered to the client; and*

d) ***Client Scheduled Appointment Date***, *which includes the first Scheduled Appointment Date with the client, but is only submitted if the appointment did not happen (client no-show or was rescheduled) with an Appointment Reschedule Reason provided.*

The data elements from each data group and stream mentioned above are available in Section 3.1 – Submission Data Packages.

The data elements have been separated into 10 categories: Client, Client ID, Client Address, Client Social Determinants of Health (SDOH), Referral, Episode of Care, Health Service Provider (HSP) Organization, Health Service Provider (HSP) Site, Health Program and Health Service Event. Each of these categories are discussed in more detail below.

2.1 Engagement with First Nations, Inuit, and Métis Community

At the time of this writing, OH is engaging with the First Nations, Inuit and Métis (FNIM) community to review and confirm if and how data related to this community will be captured in the repository. As such, any records for clients who identify as First Nations, Inuit, Métis or otherwise Indigenous will not be submitted to the Repository until further confirmation. Our anticipation is that FNIM records will be included in submissions to the Repository once this engagement is complete. Therefore, a configuration option should be developed to allow for the option to turn the

submission of these records on or off. See additional details in Section 3.2 – Records from Indigenous Clients.

2.2 Data Elements Summary

*A full data dictionary has been provided in **Appendix A – MHA PDS Data Dictionary**.*

The following table outlines the data elements included in this initiative, along with a brief description. Most data elements should be available for the HSP to input into the CMS when the data is available; however, some of data elements will be system generated or derived from other data elements documented in the CMS. This distinction has been indicated where relevant. Indication of which data elements are mandatory is outlined in Section 3.1 – Submission Data Packages.

<u>Unique ID</u> – a unique identifier within the Vendor's data scheme to identify a unique individual or a unique object.
Optional – suggested data element that should be available in the system. HSPs may or may not gather this information from clients. If gathered, the data will be transmitted when available.

*The **Code Set Conformance** column indicates whether the values provided in the value set for that data element are required to be implemented exactly as defined ("As Defined"), if the value set is considered a minimum data set, meaning at least those values must be present ("Minimum") but more options can be implemented into the CMS if desired by the vendor/HSP, or if the value set is meant for code mapping purposes only ("Code Mapping Only"), meaning vendors' CMS systems can contain whatever options are currently available and/or are requested by the HSP customers as long as these can be mapped to the code set for submission.*

Table 2.1 – Data Elements Summary

Category	*Data Element* *Common Name*	*Field Type*	*Code Set Conformance*	*Description/Details*
Client ID	***<u>Client Identifier – MRN</u>***	*ID number (accepts numbers & letters)* *Single value sent*	*N/A*	*Unique identifier issued to the client in the HSP CMS system.*
Client ID	*Identifier Type*	*Single Select* *Single value sent*	*As Defined*	*A coded type for the identifier that can be used to determine which identifier to use for a specific purpose. See Appendix*

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
				A – MHA PDS Data Dictionary for value set. Note: we anticipate that all vendors will use the "MR" type identifier for submission.
Client ID	Client ID Issuing Vendor	Text field Single value sent	N/A	The vendor system submitting the MHA-PDS record.
Client ID	Health Card Number	ID number Single value sent	N/A	Health card number plus the version code if applicable/available
Client ID	HCN Issuing Authority	Single-select Single value sent	Code Mapping Only	Province (e.g. ON) that issued the Health Card. Required if Health Card Number is provided
Client	Client First Name	Text field Single value sent	N/A	If no first name, enter "No First Name" or "NFN" in this field.
Client	Client Middle Name	Text field Single value sent	N/A	
Client	Client Last Name or Single Name	Text field Single value sent	N/A	If client has only a single name, populate it here and enter "No First Name" or "NFN" in the Client First Name field.
Client	Date of Birth	Date field Single value sent	N/A	Client's date of birth
Client	Date of Birth Estimate Flag	Single select Single value sent	As Defined	Send TRUE if Date of Birth was estimated. Send FALSE if Date of Birth is known..
Client Address	Address Use	Single select Single value per address.	As Defined	Captures the type of address (e.g. home, temporary, work, etc.). If client is homeless or no fixed address (NFA), but a City and/or Postal Code is submitted, the address use should be "temp."

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
Client Address	*Postal Code*	*Text field* *Single value per address.*	*N/A*	*The postal code associated with the client's address where the client resides (with or without a permanent residence).*
Client Address	*City*	*Text field* *Single value per address.*	*N/A*	*The city, town or village where the client resides (with or without a permanent residence).*
Client Address	*Province*	*Single Select* *Single value per address.*	*As Defined*	*The province/state where the client resides (with or without a permanent residence).* *Conditionally mandatory if an address is submitted.*
Client SDOH	*SDOH Effective Date*	*Date field* *Single value per SDOH data element.*	*N/A*	*The effective date of any update to an SDOH data element (if known and if applicable). This is an optional data element, but if collected there should be an SDOH Effective Date per SDOH data element. The SDOH effective date applies to the following SDOH elements:* *1) Personal Income Source* *2) Gender Identity* *3) Employment Status* *4) Total Household Income* *5) Sexual Orientation* *6) Housing Status* *7) Number of People Income Supports* *8) Level of Education* *9) Legal Status* *10) Citizenship Status*
Client SDOH	*Ethnicity*	*Multi-select* *Multiple values sent*	*Code Mapping Only*	*The ethno-cultural origin(s) which best represents the client. (See Appendix A – MHA PDS Data Dictionary for value set options.)*

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
Client SDOH	Religion and Spiritual Affiliation	Multi-select Multiple values sent	Code Mapping Only	The client's self-identification or affiliation with any religious denomination, group or other religiously defined community or system of belief and/or spiritual faith practices. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Mother Tongue	Multi-select Multiple values sent	Code Mapping Only	The language the client has grown up speaking since childhood. Client may select multiple options
Client SDOH	Preferred Language to Receive Service	Multi-select Multiple values sent	Code Mapping Only	The language most preferred by the client for treatment related communication from the HSP. Client may select multiple options. (See for Appendix A – MHA PDS Data Dictionary value set options.)
Client SDOH	Preferred Official Language	Single select Single value sent	As Defined	The official Canadian language (English or French) preferred by the client for treatment related communication from the HSP.
Client SDOH	Gender Identity	Single select Single value sent	Minimum	The socially prescribed roles, attributes and behaviors which best describe client's gender. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Sexual Orientation	Single select Single value sent	Minimum	The sexual orientation that best represents the client. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Born in Canada	Single select Single value sent	As Defined	Determines whether or not the client was originally born in Canada. Value set: Yes (Y), No (N), Prefer not to answer (Decline), Unknown (ASKU). If Born in Canada is Yes (Y), the Citizenship should be "Canadian."

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
Client SDOH	Year Arrived in Canada	Text field (four digit number) Single value sent	N/A	The year a client (born outside of Canada) first arrived in Canada, from another country, with the intention of staying in Canada for one year or more. Conditionally required if response to "Born in Canada" question is "No."
Client SDOH	Citizenship Status	Single select Single value sent	Minimum	The citizenship status of the client.
Client SDOH	Highest Level of Personal Education Attained	Single select Single value sent	Minimum	Highest level of education attained by the client. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Employment Status	Single select Single value sent	Minimum	The client's primary relation to the labour force. If the client has more than one source of employment, the employment status which client receives the highest income amount is to be considered the primary source. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Personal Income Source	Single select Single value sent	Minimum	The client's main or primary source of income. If the client has more than one source of income, the source from which the client receives the highest income amount is to be considered the primary source. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Marital Status	Single select Single value sent	Code Mapping Only	Client's relationship or marital status. (See Appendix A – MHA PDS Data Dictionary for value set options.)

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
Client SDOH	Housing Status[1]	Single select Single value sent	Minimum	The type of residential setting where the client normally lives. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Total Household Income	Single select Single value sent	Minimum	The combined annual income (before tax) of client's household from all sources, included wages, commissions, bonuses, social assistance and retirement income. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Number of People Household Income Supports	Text field (number) Single value sent	N/A	The number of people the above income supports. Value must be a positive integer.
Client SDOH	Legal Status	Multi-select Multiple values sent	Minimum	The client's involvement with the criminal justice system or youth justice system. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Client SDOH	Pre-existing Conditions	Multi-select Multiple values sent	Minimum	Pre-existing conditions covers a broad range and degree of conditions, some visible and some not visible. (See Appendix A – MHA PDS Data Dictionary for value set options.)
Referral	**Referral ID**	ID number Single value per referral. Multiple referrals can be sent.	N/A	Unique identifier for a client referral to an organization for a specific program/service. If no referral is captured, the referral is not required. However, if referral information is collected, all Referral data elements should be submitted.

[1] Housing Status is the terminology used in FHIR. This data element may be named "Residence Type" in the vendor CMS system (or some other nomenclature as determined by the vendor and its HSP customers). It is anticipated that the Ontario Health reports that are derived from this information will use the term "Residence Type" related to this data element.

Category	*Data Element* *Common Name*	*Field Type*	*Code Set Conformance*	*Description/Details*
Referral	*Referral Received Date*	*Date field* *Single value per referral.*	*N/A*	*The date when the referral was received by the organization for a specific program/service.* *If no referral is captured, the referral is not required. However, if referral information is collected, all Referral data elements should be submitted.*
Referral	*Referral Source*	*Text field* *Single value per referral.*	*N/A*	*The agency, organization or individual (including self-referral) that referred the client for treatment to the HSP.* *If no referral is captured, the referral is not required. However, if referral information is collected, all Referral data elements should be submitted.*
Referral	*Referral Source Type*	*Single Select* *Single value per referral.*	*Code Mapping Only*	*The type of agency, organization or individual that referred the client for treatment. (See Appendix A – MHA PDS Data Dictionary for value set options.)* *If no referral is captured, the referral is not required. However, if referral information is collected, all Referral data elements should be submitted.*
Referral	*Referral Type*	*Single Select* *Single value per referral.*	*As Defined*	*The type of referral (e.g., initial (external) or internal).* *If no referral is captured, the referral is not required. However, if referral information is collected, all Referral data elements should be submitted.*
Episode of Care	***Episode of Care Identifier***	*ID number* *Single value per episode of care.* *Multiple Episodes can be sent.*	*N/A*	*A unique identifier associated with the Episode of Care for a specific program/service, which begins at the point of referral. For more details, see section* ***2.6.1 Episode of Care Status****.*

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
Episode of Care	Episode of Care Status	Single select Single value per episode of care.	Minimum	Refers to the status of the Episode of Care. For more details, see section **2.6.1 Episode of Care Status**.
Episode of Care	First Contact Date	Date field Single value per episode of care.	N/A	Date the client first experienced contact with an HSP regarding a specific program/service.
Episode of Care	Eligibility Screening Date	Date field Single value per episode of care.	N/A	The date at which an eligibility determination is done by the HSP and the client is deemed to be accepted (eligible) or not accepted (ineligible) into the program/service.
Episode of Care	Initial Assessment Date	Date field Single value per episode of care.	N/A	The date the client completed an initial assessment for service. This date must be prior to the Service Enrollment Date, unless it is a Service Enrollment in an Intake program. If no formal assessment is completed, do not submit.
Episode of Care	Service Enrollment Date	Date field Single value per episode of care.	N/A	The date the HSP enrolls the client in the service/program. Also known as **Admission Date**.
Episode of Care	Scheduled Appointment Date	Date field Single value per episode of care.	N/A	The date of the first appointment offered by the HSP and accepted by the client following the Service Enrollment, regardless of whether the client attended the appointment or subsequently changed it. The value of this field should be recorded in the CMS, but this field is only required to be sent if the first appointment has been rescheduled or the client did not show, otherwise it is not necessary to send.

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
Episode of Care	*Appointment Rescheduled Reason*	*Single select* *Single value per episode of care.*	*Mandatory*	*If the first initial scheduled appointment following Service Enrollment has a status of "no show" or "cancelled," a reason is required. (See Appendix A – MHA PDS Data Dictionary for value set options.)*
Episode of Care	*Service Initiation Date*	*Date field* *Single value per episode of care.*	*N/A*	*The date the client started receiving direct service after being accepted into a program/service (i.e., after Service Enrollment Date).*
Episode of Care	*Service Termination Date*	*Date field* *Single value per episode of care.*	*N/A*	*The date when the client's need for service has ended or as part of the HSP service termination criteria. Also known as* ***Discharge Date*** *or* ***End Date****.*
Episode of Care	*Service Termination Reason*	*Single Select* *Single value per episode of care.*	*Minimum*	*The reason the client is terminated from service. The termination could occur at different stages of service provision (intake, screening, waitlist, service delivery, or service completion). (See Appendix A – MHA PDS Data Dictionary for value set options.)*
Health Service Event	***Health Service Event ID***	*ID Number* *Single value per Health Service Event* *Multiple Health service events will be sent.*	*N/A*	*The unique identifier assigned to each health service event/interaction.* *Each Health Service Event should be linked to an Episode of Care ID.*
Health Service Event	*Encounter Date*	*Date field* *Single value per Health Service Event*	*N/A*	*The date that the health service event occurred.*
Health Service Event	*Service Modality*	*Single Select*	*Minimum*	*The service modality of the health service event (e.g. in-person, phone, virtual).*

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
		Single value per Health Service Event		
Health Service Event	Health Service Group ID	ID Number (can include both numbers and letters) Single value per Health Service Event	N/A	If the Health Service Event/Encounter occurred as a group interaction, send a unique identifier for the Group.
Health Service Event	Direct Minutes	Number Single value per Health Service Event (if applicable)	N/A	The number of minutes spent in direct service interaction with the client, associated with the health service event. For Health Service Events that occur as a Group, the total number of direct minutes should be divided by the number of clients who participated in the group event.
Health Service Event	Indirect Minutes	Number Single value per Health Service Event (if applicable)	N/A	The number of minutes spent in indirect service for a client, associated with the health service event. For Health Service Events that occur as a Group, the total number of indirect minutes should be divided by the number of clients who participated in the group event.
Health Service Event	Encounter Status	Coded value Single value per Health Service Event	As Defined	The status of the submitted encounter. Encounters should only be submitted if they occurred, therefore a status of “finished” should be used for most submissions. A status of “cancelled” would be submitted to update if an encounter was submitted but had been cancelled. A status of “entered in error” would be submitted for any

Category	Data Element Common Name	Field Type	Code Set Conformance	Description/Details
				encounter that was previously submitted as "finished" or "cancelled" but was entered in error (for example, incorrect client, or incorrect encounter).
Health Program	***Health Program Number***	*Single Select* *Single value per Episode of Care*	*As Defined*	*The HSP program number that uniquely identifies the service offering. (From the ConnexOntario Program Number, not the Program ID)*
Health Program	*Health Program Name*	*Text field* *Single value per Episode of Care*	*N/A*	*The Program Name, as assigned by the HSP/Agency.*
Health Program	*Functional Centre Code*	*Single select* *Single value per Episode of Care*	*As Defined*	*The cost center identifier associated with the program/services supports provided to the client.*
HSP Organization	***HSP Organization Number***	*ID Number* *Single value*	*As Defined*	*The HSP ConnexOntario# as assigned by Connex.*
HSP Organization	***MOH Organization ID***	*ID Number* *Single Value*	*N/A*	*The Ontario Healthcare Financial and Statistical (OHFS) Facility ID.*
HSP Organization	*HSP Organization Name*	*Text field* *Single value*	*N/A*	*The name of the HSP organization.*
HSP Site	***HSP Site Number***	*ID number* *Single value per Episode of Care*	*As Defined*	*The Connex Ontario Site number associated with the Program's location(s). (Note, this is the Site # not the Site ID.)*
HSP Site	*HSP Site Name*	*Text field* *Single value per Episode of Care*	*N/A*	*The name of the HSP site providing the service.*

2.3 Client & Client ID

These categories include basic demographic information pertaining to the client: name, health card number, date of birth, etc. A unique identifier should be assigned to the client by the CMS system (this would be considered a Medical Record Number Client Identifier Type). The value of the Identifier Type is defined by the vendor's CMS, not a user entry when a client is registered. The OH MHA PDS repository will use a Record Matching Process System to assign a unique identifier to clients within the repository, and match clients whose data is being sent from multiple HSPs.

2.4 Client Address

The MHA PDS repository can support multiple addresses for each client, but only the City, Province and Postal Code should be submitted for the address information, along with an Address Use (e.g., home, temporary, etc.). When the client's Address Use, City or Postal Code is included in the Patient Resource, the value of Province must be included.

2.5 Social Determinants of Health

The OH MHA PDS Project includes several key Social Determinants of Health (SDOH) data elements that form a critical part of the data collection for this project. They are considered part of the demographic information or the supplementary demographic information of a client and should be implemented in the CMS in a centralized user interface where users can easily review and update them. The Vendor is required to implement the SDOH data elements in:

1) *the Demographic user interface where the existing demographic data elements are recorded, updated, or reviewed; or*
2) *a new user interface containing all SDOH data elements or those SDOH data elements not captured in the main Demographic user interface. This new user interface can be named, for example, "Supplementary SDOH."*

The SDOH data elements from the Demographic user interface and/or the supplementary Demographic user interface are referred to collectively as "the System SDOH data elements". New entries or updates to one or a number of the SDOH data elements will be queued for submissions automatically, the triggers for submissions are available in Section 3.3.

Selected SDOH data elements are also captured in the OCAN/CDS, the DATIS data capture forms (if supported by the CMS), or possibly other assessments incorporated in the CMS. The values of the SDOH data elements available in the Demographic user interface and/or the Supplementary Demographic user interface are considered to be the "source of truth" even though other assessments or forms in the CMS capture the values of the SDOH data elements.

The Vendor should store the values of the System SDOH data elements in a separate date table to store the most up-to-date values along with the date that the value(s) is(are) added or updated. The date that the value(s) is(are) added or updated is the SDOH Effective Date which forms part of the SDOH data element submissions.

A key consideration of the OH MHA PDS data collection roll out is for it to be implemented within the software in a user-friendly manner, such that participating HSPs are not burdened with duplicative data entry. As a result, the Vendor's MHA PDS Module, user interfaces designs and functions for the SDOH data elements must meet the following specifications:

1. *The CMS should have alert capability to flag to the user either when the client's profile (demographic or supplementary demographic user interface) is accessed, in the already-existing alert function of the CMS, or on a regular basis if one or more SDOH data element has not been updated in a defined period of time. The period of time should be able to be defined by the HSP's system administrator.*
2. *Individual data elements should be able to be updated individually as needed, and not require the review/update of the other SDOH data elements.*
3. *Date and time stamps should be associated with the capture of each data element update. An update log is recommended to record the update date and time for each SDOH data element.*
4. *A variety of data input types must be supported, including single select, multi-select, dates and free text boxes, depending on the requirements of each SDOH data element.*
5. *The values recorded from the System SDOH data elements should be used to populate the SDOH data elements that appear on an assessment (e.g., OCAN) when a new assessment is initiated. New values or updated values of the SDOH data elements captured from the assessment should be updated back to the System SDOH data elements once the assessment is saved and not necessarily completed in whole. Such updates to the System SDOH data elements should be considered a trigger to submit the SDOH data elements to the Repository as outlined in Section 3.3. This specification does not include the consideration of the value set difference, the value set mapping and the number of responses recorded (multi-select) between the System SDOH data elements and those in the assessment. The mapping of the SDOH data elements to those in OCAN is discussed in Section 2.5.1.*
6. *If updates to SDOH data elements occur in the process of completing an assessment, the CMS system should submit those updates during the next scheduled MHA PDS data submission, not hold them back until the assessment is completed.*
7. *Referring to the point 5, the System SDOH date elements should remain the "source of truth" of the SDOH data elements across the CMS.*
8. *The System SDOH data elements should not be built onto a separate form/assessment for users to update, review and submit separately.*

2.5.1 Data Element Mapping

Many of the data elements outlined in Appendix A – MHA PDS Data Dictionary may already be implemented in the vendor's CMS system, for example, client demographics, health service event, health programs, and the SDOH data elements. In the case of the SDOH elements, the System SDOH data elements of the MHA PDS

should be the "source of truth" for this information about the client. If the same/similar information is captured in other assessments in the CMS, the values from the System SDOH data elements will ideally be captured once and feed to these other assessments, and if updated in the assessment, the update will feed back to the System SDOH data element. The new values inputted from an assessment will be updated back to the System SDOH data elements so that the System SDOH data elements submitted to the MHA PDS Repository contains the most up-to-date information.

If MHA PDS data elements are already existing in the vendor's CMS, it may not be required to implement new data entry fields to align with these data elements; however, vendors will be required to update the value sets (answer options) in the existing CMS data fields to ensure the MHA PDS value sets are available either as a minimum data set or to support mapping to the available code set; with the caveat that, if these data fields only exist within an assessment (e.g. the OCAN), this is not sufficient to adhere to SDOH documentation requirements as outlined above.

We recognize that some CMS systems and some HSPs may have implemented these data elements with customizable value sets based on individual HSP needs and requirements. These custom data elements and value sets can continue to be supported in the User Interface of the CMS system, as long as the vendor can implement a mapping for any additional custom values for OH MHA PDS submission purposes. (Note that some values are required as a mandatory data set, meaning that these specific answer options must be the ones implemented. Section 2.2 Data Elements Summary identifies if the value set conformance is to be considered a minimum data set, for code mapping only, or to be implemented exactly as defined for each data element. Vendors should be aware that when working with mapping, vendor must consider the code set conformance (e.g. "as defined" and "minimum"), and that mapping may not always be feasible..)

The vendor, in partnership with its HSP customers, will be responsible for determining and implementing this mapping. Vendors should make best efforts to map to the minimum value sets established in the MHA PDS. If the vendor cannot establish that mapping, then the selected custom value should map to "Other" (if available) or "Do Not Know/Not Applicable" (if available), depending on the data element and value set options.

The following table provides recommendations regarding mapping of SDOH to OCAN data elements.

Table 2.5.1 SDOH to OCAN mapping

Data Element	Conformance Requirement	Mapping Possible?	Recommendation
SDOH Effective Date	*N/A*	*N/A*	*This field is required per SDOH data element. It is optional for the HSP user to capture or not.* *The SDOH effective date applies to the following SDOH elements:*

			1) Personal Income Source 2) Gender Identity 3) Employment Status 4) Total Household Income 5) Sexual Orientation 6) Housing Status 7) Number of People Income Supports 8) Level of Education 9) Legal Status 10) Citizenship Status
Ethnicity	*Code Mapping Only*	*Y*	*This field aligns with the Racial or Ethnic origin question in the OCAN, as well as the Ethnicity value set from DATIS.[2]* *Vendors should implement this field as a multi-select. Because OCAN (and DATIS) will only support a single answer, it is recommended that a "Primary Ethnicity" field (single-select) be supported, and then an "Additional Ethnicity" field, which supports multi-select.*
Religion and Spiritual Affiliation	*Code Mapping Only*	*N/A*	*This field does not exist in the OCAN. If not already in the vendor system, it will need to be added.*
Mother Tongue	*Code Mapping Only*	*Y*	*A field regarding Mother Tongue exists in the OCAN.* *Because OCAN (and DATIS) will only support a single answer, it is recommended that a "Primary Mother Tongue" field (single-select) be supported, and then an "Additional Mother Tongue" field, which supports multi-select.*
Preferred Language to Receive Service	*Code Mapping Only*	*Y*	*Because OCAN (and DATIS) will only support a single answer, it is recommended that a "Primary Preferred Language to Receive Service" field (single-select) be supported, and then an "Additional Preferred Language to Receive Service" field, which supports multi-select.*
Preferred Official Language	*As Defined*	*Y*	*Vendors should ensure that a field capturing Preferred Official Language is available outside of the OCAN, with the value set as outlined in the data dictionary. These values will map to the options available in the OCAN. If Neither or Prefer Not to Answer are selected, no value would populate in the OCAN and the user would*

[2] *Although the MHA PDS Repository will not include submission of First Nations, Inuit, Métis or Indigenous/Aboriginal until the community engagement is complete, the CMS should include these options, as these value options will be used to determine whether records for FNIM clients are to be sent to the Repository.*

			be responsible for answering the question directly in the OCAN.
Gender Identity	*Minimum*	*Y*	*Vendors should ensure software has a field to capture gender identity that includes at minimum the values in the PDS. Vendors will be responsible for mapping these to the OCAN options to reduce duplicate data entry.[3]*
Sexual Orientation	*Minimum*	*Y*	*Vendors should ensure software has a field to capture sexual orientation that includes at minimum the values in the PDS. Vendors will be responsible for mapping these to the OCAN options to reduce duplicate data entry.[4]*
Born in Canada	*As Defined*	*Y*	*This field aligns with the OCAN.*
Year Arrived in Canada	*N/A*	*Y*	*This field aligns with the OCAN.*
Citizenship Status	*Minimum*	*Y*	*Vendors should ensure software has a field to capture Citizenship status that includes at minimum the values in the PDS. Vendors will be responsible for mapping these to the OCAN options to reduce duplicate data entry.*
Highest Level of Personal Education Attained	*Minimum*	*N*	*Vendors should ensure software has a field to capture Highest Level of Personal Education Attained that includes at minimum the values in the PDS. This field does not align with the "What is your highest level of education?" question in the OCAN, so mapping will not be required.*
Employment Status	*Minimum*	*N*	*Vendors should ensure software has a field to capture Employment Status that includes at minimum the values in the PDS. This field does not align with the "What is your employment status?" question in the OCAN, so mapping will not be required.*
Personal Income Source	*Minimum*	*Y*	*Vendors should ensure software has a field to capture Personal Income Source that includes at minimum the values in the PDS. Vendors will be responsible for mapping these to the OCAN options to reduce duplicate data entry.*

3 The Gender Identity option of "Two-Spirit" is not included in the MHA PDS Data Dictionary until further engagement is complete with the FNIM community. This value may continue to be available in the vendor's CMS. If the "Two-Spirit" option is selected for a client who does not identify as FNIM, vendors should map this to "Other gender identity" when submitting to the Repository. (In the scenario where "Two-Spirit" is selected for a client who does identify as FNIM, no records would be submitted to the Repository for this client.)

4 The Sexual Orientation option of "Two-Spirit" is not included in the MHA PDS Data Dictionary until further engagement is complete with the FNIM community. This value may continue to be available in the vendor's CMS. If the "Two-Spirit" option is selected for a client who does not identify as FNIM, vendors should map this to "Other" when submitting to the Repository. (In the scenario where "Two-Spirit" is selected for a client who does identify as FNIM, no records would be submitted to the Repository for this client.)

Marital Status	*Minimum*	*Y*	*Vendors should ensure software has a field to capture Marital that includes at minimum the values in the PDS. Vendors will be responsible for mapping these to the OCAN options to reduce duplicate data entry.*
Housing Status	*Minimum*	*N*	*Vendors should ensure software has a field to capture Housing Status that includes at minimum the values in the PDS. This field does not align with the "Where do you live?" question in the OCAN, so mapping will not be required.*
Total Household Income	*Minimum*	*Y*	*Vendors should ensure software has a field to capture Total Household Income that includes at minimum the values in the PDS. Vendors will be responsible for mapping these to the OCAN options to reduce duplicate data entry.*
Number of People Household Income Supports	*N/A*	*Y*	*Ideally, software will include a field to capture the Number of People Household Income Supports. Vendors will be responsible for mapping this value to the OCAN to reduce duplicative data entry.*
Legal Status	*Minimum*	*Y*	*Vendors should ensure software has a field to capture Legal Status that includes at minimum the values in the PDS. Vendors will be responsible for mapping these to the OCAN options to reduce duplicate data entry.*
Pre-existing Conditions	*Minimum*	*Y*	*Vendors should ensure software has a field to capture Pre-Existing Conditions that includes at minimum the values in the PDS. Vendors will be responsible for mapping these to the OCAN (Diagnostic Categories) options to reduce duplicate data entry.*

2.5.2 Multi-Select SDOH Data Elements

The following SDOH Data Elements are required to support multi-select:

- *Ethnicity*
- *Religion and Spiritual Affiliation*
- *Mother Tongue*
- *Preferred Language to Receive Service*
- *Legal Status*
- *Pre-Existing Conditions*

If these fields are already incorporated into a centralized place in the CMS (i.e. the core client data set) as single select fields, the recommended approach is to relabel the existing field to "Primary [data element]" (e.g. "Primary Ethnicity") and add additional field or fields to collect more responses called "Additional [data element]" (e.g. "Additional Ethnicity") that supports multi-select. Beside the multiple additional fields, one Additional [data element] field can be presented in a check-box format or a drop-

down list supported multiple responses to be chosen. This recommendation provides minimal changes to existing system structure and will also support the mapping requirements outlined above. The Vendor can also choose to implement a single field which allows the multi-select function to choose more than one response.

For the following data elements, only a maximum of 5 value submissions is required to support:

- *Ethnicity*
- *Religion and Spiritual Affiliation*
- *Mother Tongue*
- *Preferred Language to Receive Service*

For Legal Status and Pre-Existing Conditions, there are no limitations on the number of responses that could be selected/submitted.

2.6 Referral

Referral information is included in the Repository, whether from a client self-referral or a formal referral from another HSP. A unique Referral ID should be established within the CMS to associate with each client referral. Each referral to a Program should be submitted uniquely. Multiple referrals may exist for a client, each of which would create a unique Episode of Care (see section 2.6.1 Episode of Care Status for more information). Referrals can also be internal, meaning one service/program refers to another service/program within the same HSP.

If no Referral is captured for a client enrollment, the Episode of Care can be created based on the client's enrollment in a valid Program, and this can be submitted without the Referral information.

However, if Referral information is available for an Episode of Care, the minimum information should be the Referral ID, Referral Received Date, Referral Source, Referral Source Type and Referral Type.

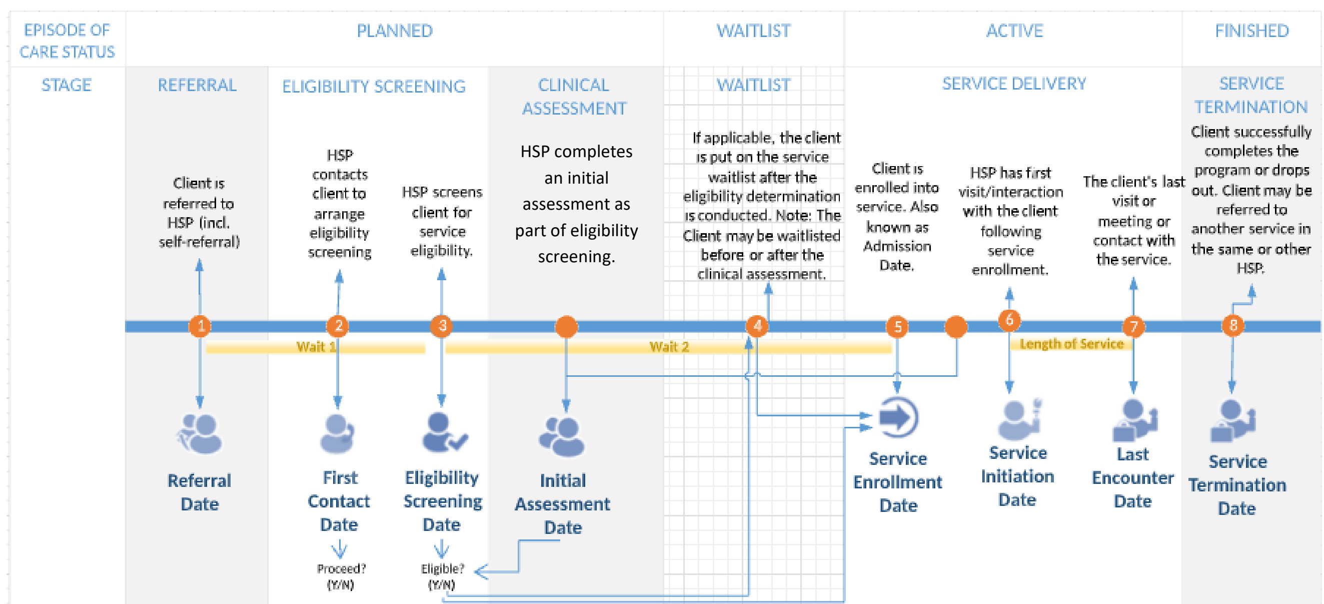
2.7 Episode of Care

2.7.1 Episode of Care Status

The Episode of Care Status data element will be derived by the CMS system based on the status of a Referral or an Admission to a service/program. The following section outlines the logic to be used to identify the Episode of Care.

Referral	*First Contact*	*Intake, Screening & Waitlist*	*Service Delivery*	*Service Termination*
Client is referred to an MHA program at	*HSP contacts client to arrange a*	*HSP assessment of client for program eligibility.* • *HSP may complete an initial*	*Delivery of services to client.*	*Client termination from service*

a coordinating organization or HSP providing service (including self-referral)	*first visit /eligibility screening*	*assessment for service. The date of this assessment would be the Initial Assessment Date.* • *If eligible, client is registered/enrolled into service, with an Eligibility Screening Date and Service Enrollment Date. If ineligible, an Eligibility Screening Date and Reason is noted.* • *If client is eligible, but service is at capacity, client is placed on a Waitlist. If client decides to dropout of waitlist, then reason and date is noted.*	• *Once service is available, HSP books client into 1st offered and accepted appointment slot. The first attended appointment is the Service Initiation Date.* • *Each interaction will be documented with an Encounter Date.*	*and HSP (if applicable)* • *Client completes program (successfully or terminated). Reason for service termination and date must be noted.*



The following definitions may help you to map how these elements are tracked in your system to the Episode of Care status definitions used in this specification:

Planned: *For many client scenarios, this will be the starting status of an Episode of Care. This status applies when the client is first referred to the HSP (including self-*

referral) and includes the period of eligibility screening up until a decision on eligibility is confirmed (documented as Eligibility Screening Date). After the Eligibility Screening Date, the client may have an Admission/Service Enrollment to the program, moving them to Active status, or they may be placed on a waitlist, moving them to Waitlist status. Alternatively, they may have been deemed ineligible for the program, or the client might have abandoned the process, in which case the status would move to Cancelled.

Cancelled: *The Episode of Care was Cancelled, usually during the Referral review and acceptance process. For example, if a client were deemed inappropriate for the referred program, or they declined or withdrew from service, or circumstances changed and the organization was unable to provide care, the Cancelled status would apply. This status would be considered an end to the Episode of Care.*

Waitlist: *This status applies when a client is formally placed on a Waitlist for a program, typically after the Referral being reviewed and the client being deemed eligible. This status is different than Planned, as the eligibility review and acceptance process for the program would have already been completed in this case. In the Waitlist scenario, there would not yet be a Service Enrollment Date/Admission Date, but there would be an Eligibility Screening Date.*

Active: *This status applies when a client is enrolled to a program (Admission/Service Enrollment date). This may be a starting status for an Episode of Care for some client scenarios where the Planned status was bypassed.*

Finished: *This status would apply after service termination of an Active service enrollment, for whatever reason. The Finished status differs from Cancelled in that it occurs after the client was enrolled/admitted to the program. This status would be considered an end to the Episode of Care.*

Entered in Error: *This status would apply for scenarios where the Episode of Care should not have been a part of the client's record. Whether at the Referral or the active service enrollment stage, as soon as the error is noted this status would apply.*

On Hold: *This status is available for scenarios where an organization has limited responsibility for a client (such as while on respite). If an equivalent status or logic to derive such a status is not currently available in your software, it is not required to be added at this stage.*

If you have further questions about Episode of Care status and how to determine it in your software, please contact cbisupport@reconnect.on.ca for assistance.

2.7.2 Dates Definitions

Within the Episode of Care category, the MHA PDS includes several data elements that correspond to dates of specific activities that occur with the client. Some of these dates may be entered directly into the vendor's CMS, and some may need to be derived based on other dates or activities that occur in the CMS. The vendor will be responsible for mapping of any required date data elements if not directly captured

in the CMS. For clarity of understanding when implementing this logic, the following table outlines the definitions for these dates:

Data Element	*Definition*
Referral Received Date	*The date the referral was received by the organization for a specific program/service. Includes the date of the self-referral. If there is more than one date for the same referral (e.g., a client phone call is accompanied by a written or electronic referral), record the earliest of the dates as the Referral Received Date.*
First Contact Date	*Date the client first experienced successful contact with an HSP regarding a specific program. This date should not include unsuccessful contact attempts. Note: this date may be derived by the CMS system based on the first documented contact (encounter/visit/interaction) on or after the Referral Received Date. This date can be on or after the Referral Received Date, but not before.*
Eligibility Screening Date	*The date at which an eligibility determination is done by the HSP and client is deemed accepted (eligible) or not accepted (ineligible) into program/service. After being deemed eligible, a client may be placed on a Waitlist, or they may be Enrolled/Admitted to a program. Note: this date may be derived by the CMS system based on other dates and information captured in the system (e.g. Referral status, Service Enrollment date/status, Waitlist date/status, etc.). This date can be on or after the Referral Received Date, but not before.*
Initial Assessment Date	*The date the client completed an "initial assessment" for service. The "initial assessment" is a process involving mutual investigation or exploration that provides the clinician with more detailed information for the purpose of determining specific client needs, goals, characteristics, problems and/or stage of change. Note: this may occur during the "Planned" Episode of Care status, where eligibility is being determined, or it may occur after Service Enrollment into an Intake program, if such a program exists at the HSP. Depending on the CMS system's functionality, this date may be derived based on the date a specific assessment was completed, or it may be a date that is entered directly into the system.* *If a formal Initial Assessment has not occurred, this date may be left blank.*
Service Enrollment Date	*The date the HSP deems the client eligible and enrolls the client in service. Also known as Admission date. Note: if a client had been deemed eligible and placed on a waitlist, this is the date the client was removed from the waitlist and enrolled in the service. This date can be on or after the Eligibility Screening Date, but not before.*

Scheduled Appointment Date	*The date of the first appointment offered by the HSP and accepted by the client following Service Enrollment. This date can be on or after the Service Enrollment Date, but not before. If the client attends this appointment, the Scheduled Appointment Date will be the same as the Service Initiation Date* ***and submission of this date to the repository is not required****.* *It may occur that the client no-shows or the client or HSP reschedules this appointment; in this scenario, the Scheduled Appointment Date would be the original first offered and accepted date; this date would be submitted to the repository and a Reschedule Reason would be submitted.*
Service Initiation Date	*The date the client started receiving direct service(s) after being accepted into a service. For greater clarity, Service Initiation Date refers to the date of the actual first visit by the service (meaning any contact with the client for providing service, including one-to-one support or attendance in group programs) and the client is no longer waiting. Note: in some CMSs, this date may be entered directly, in others it may be derived based on the first contact/encounter date following the Service Enrollment date.*
Encounter Date	*This date is part of the Health Service Event details, but has been included in this table for clarity. This is the date that the Health Service Event occurred.*
Service Termination Date	*The date when the client's need for service has ended or as part of the HSP service termination criteria. Also known as Discharge date or End Date. Note: this date refers to the service termination of the specific program, not necessarily the overall discharge from the HSP.*

2.8 Health Service Event

Each time a client has an interaction with the HSP (each Health Service Event or Encounter), a message with details of this interaction will send to the MHA PDS repository. This will include the date of the event (Encounter Date), the Service Modality (see further details below), the Workload time spent (Direct Minutes and Indirect Minutes), and a Group ID if the Health Service Event occurred as a group session. As there will be many Health Service Events occurring throughout a day, these will be submitted as a unique message type (see Section 3.1 Submission Data Packages for more information).

Note that Health Service Events associated with a Health Program should be submitted to the Repository regardless of whether the client has been enrolled or is not yet enrolled into a Health Program. In the event that the Referral and/or Episode of Care has not yet been established prior to a health service event, some elements in

the Health Service Event submission will not be included in the submission bundle such as Referral Resource or Episode of Care Resource. The detail of submissions is available in Section 3.1.

2.8.1 Service Modality

For Service Modality the submission of two separate codes will be required to conform with the HL7 FHIR standard (class code and type code). Client interactions (encounters) will be differentiated into individual or group. Encounters will be further defined by format: In-person, video, telephone, email or text. Vendors should map existing terminology used by HSPs to the available formats in the HL7 FHIR standard.

2.8.2 Encounter/Visit Identifier

A unique identifier in the Vendor's CMS should be assigned to each Health Service Event taking place either individually or in a group setting. This unique identifier of the Health Service Event, identified as "Encounter.ID" in the Health Service Event Resource in the FHIR specification, is required to be included in the health service event submission. The detail of the "Encounter.ID" will be available in Section 3.1.

2.8.3 Health Service Event Workload – Direct Minutes and Indirect Minutes

For individual Health Service Events with the client, Direct Minutes and Indirect minutes should be submitted as available. If multiple entries of Direct and Indirect minutes are supported in the vendor's CMS, these should be totaled so that only one submission of Direct Minutes and one of Indirect Minutes is submitted per Health Service Event.

When submitting workload minutes for Group encounters, the total number of Direct minutes should be divided by the number of clients in the Group, and similarly the total number of Indirect minutes should be divided by the number of clients in the Group.

2.8.4 Encounter Status

The encounter status allows for the indication of the validity of a Health Service Event that has been submitted. Only those Health Service Events that have occurred should be submitted. Health Service Events that were cancelled or no-showed should not be submitted. As such, a status of "finished" should be used for most submissions.

However, there may be scenarios where a Health Service Event was submitted that requires correction after the fact. The status of "cancelled" can be used to submit an update to an encounter that was previously submitted but has since been corrected to a "cancelled" status in the CMS.

A status of "entered in error" would be submitted for any encounter that was previously submitted as "finished" or "cancelled" but was entered in error (for example, the Health Service Event was documented on an incorrect client). Note that

if the CMS supports deleting a Health Service Event (a.k.a. encounter, visit, or contact), then that Health Service Event should be updated with a status of "entered in error."

2.9 Health Program & Site

Health Program details will need to be linked with each Referral and Episode of Care, as well as with each Health Service Event. The CMS should be able to establish the linkage of the Health Program which the client is referred to, is admitted to, is receiving services from, and is discharged from. The MHA PDS Repository will include only Ministry of Health funded Community Mental Health and Community Addictions programs with valid Functional Centre Codes, which are outlined in the OH MHA PDS Logical Dictionary. If other non-Ministry of Health funded programs are tracked using the CMS, these should not be included in the MHA PDS submission.

The Health Program Number and the Site Number in the OH MHA PDS are referred to the program number and site number assigned by an Ontario Government funded entity called ConnexOntario when the HSP registers its health programs with ConnexOntario. ConnexOntario assigns the Health Program Number based on the HSP's registered health program in connection with the HSP site(s) where the health program delivers to clients. It is possible that one or more HSP health programs are available in more than one HSP site. The CMS should have the capability to record the association of the Health Program Number and the Site Number with the HSP program. It is recommended that the CMHS supports the following feature:

1) *the HSP site (Site Number) is available to associate with the health program (Health Program Number) at the time when a client is admitted to a health program (Health Program Number)*
2) *The Health Program Number and the Site Number are only unique within the HSP but not across other HSPs in the province.*

The Health Program Number (unique identifier) that is required is the ConnexOntario Program Number, which is visible to HSPs through the ConnexOntario portal. If the ConnexOntario Program Number is not available, a value of "UNK" (unknown) may be submitted. (Note: it will be the Program Number and not the Program ID that should be submitted.)

The HSP Site Number where the health services are provided to clients should also be submitted to the repository when available. If unknown, a value of "UNK" will be submitted. If the HSP has multiple Sites registered in ConnexOntario but does not capture them in its CMS documentation, a value of "UNK" should be submitted.

Vendors will need to establish a mapping between each HSP's Site Number and the Site Name. If a value of UNK is submitted for the Site Number, then the Site Name of Unknown should be submitted.

It is our expectation that as part of the engagement with the HSP, the HSP will be responsible for providing the vendor with the ConnexOntario Program Numbers and Site Number(s) and Site Name(s).

2.10 HSP Organization

The data elements in these categories are used to identify the HSP which submits the data packages from its CMS to the Repository. It is important that these data elements should be administrated and managed from the administrative portal of the CMS by the authorized HSP or Vendor personnel. If the HSP is undergoing an integration with another organization after the Go-Live with OH MHA PDS Initiative, the Vendor and HSP should contact CBISupport@reconnect.on.ca for further details regarding the impacts of this integration on the OH MHA PDS submission.

In the event that the HSP operates two or more instances of the same CMS, the HSP Site Name should be unique to each instance.

It is our expectation that as part of the engagement with the HSP, the HSP will be responsible for providing the vendor with the ConnexOntario Organization ID.

2.11 Data Elements Not Included in MHA-PDS

HL7 FHIR uses a Resource to group determined data elements under that Resource for data exchange. HL7 FHIR specifications define additional attributes and data elements which are included in a Resource which is used to hold certain type of data elements, for example, Patient Resource – the Resource template includes not only the patient's first name and last name, but also addresses and photo.

Within the HL7 FHIR Guide of OH MHA PDS, each Resource, as detailed in Section 3.0, includes attributes and non-OH-MHA-PDS data elements which are not part of the data element collection. These non-OH-MHA-PDS attributes and data elements are not required to be included in the Resource when composing the submission bundle unless the HL7 FHIR specifications require them to be included in the JSON payload defined by the cardinality. Some examples of these non-OH-MHA-PDS attributes and data elements are:

- *statusHistory in Encounter Resource*
- *contact in Patient Resource*
- *photo in Patient Resource*
- *availablityException in Location Resource*
- *appointment status in Appointment Resource*

3 Function and Requirements

3.1 Submission Data Packages

As illustrated in Section 1.3 - Architecture, Ontario Health's Data Infrastructure utilizes the Web Service Gateway for secured data exchange between the HSP CMS and the OH MHA PDS Repository ("Repository"). The secured Web Service Gateway supports

the standardized data exchange or submission using HL7 FHIR Release 4 Framework and the JSON protocol. The vendor's CMS is to support the HL7 FHIR Release 4 Framework as well as the JSON protocol; however, this inclusion should not affect the vendor's CMS Current Build or configurations to support other reporting or data exchange initiatives.

For submission purposes, the MHA PDS Data Elements are to be separated into four data groups: the ***Client Information/Episode of Care Group, the Client SDOH Group,*** *the* ***Health Services/Encounters Group*** *and* ***Scheduled Appointment Date Group****. The data elements of each group are outlined in Tables 3.1, 3.2, 3.3 and 3.4 respectively. Each group contains a set of MHA PDS Data Elements including mandatory data elements to be included in each submission to the Repository. The mandatory data elements for each group are highlighted in blue in their respective tables, and they are available in Table 3.5 – Client Information/Referral Group, Table 3.6 Client SDOH Group, Table 3.7 – Health Services/Encounters Group, and Table 3.8 – Scheduled Appointment Date Group.*

The records from the HSP CMS queued for submission to the Repository should be the service records and encounter records from HSP's programs associated with the Functional Centre Codes stated in the MHA PDS.

Table 3.1 – Client Information/Episode of Care Group Data Elements

HSP Organization	Client Profile	Referral	Episode of Care	Health Program
Common Name	Common Name	Common Name	Common Name	Common Name
HSP Organization Number	Client Identifier – MRN	Referral ID	Episode of Care Identifier	HSP Program Number
MOH Organization ID	Client ID Issuing Vendor	Referral Received Date	Episode of Care Status	Health Program Name
HSP Organization Name	Identifier Type	Referral Source	First Contact Date	Functional Centre Code
HSP Site Number	Client First Name	Referral Source Type	Eligibility Screening Date	
HSP Site Name	Client Middle Name	Referral Type	Initial Assessment Date	
	Client Last Name or Single Name		Service Enrollment Date	
	Date of Birth		Service Initiation Date	
	Date of Birth Estimated Flag		Service Termination Date	

	Health Card Number		Service Termination Reason	
	HCN Issuing Authority			
	Address Use			
	City			
	Province (only required if Address is submitted)			
	Postal Code			

Table 3.2 - Client SDOH Group Data Elements

HSP Organization	Client Profile	Client SDOH
Common Name	Common Name	Common Name
HSP Organization Number	Client Identifier – MRN	SDOH Effective Date
MOH Organization ID	Client ID Issuing Vendor	Ethnicity
HSP Organization Name	Identifier Type	Religion and Spiritual Affiliation
HSP Site Number	Client First Name	Mother Tongue
HSP Site Name	Client Middle Name	Preferred Language to Receive Service
	Client Last Name or Single Name	Preferred Official Language
	Date of Birth	Gender Identity
	Date of Birth Estimated Flag	Sexual Orientation

	Health Card Number	*Year Arrived in Canada*
	HCN Issuing Authority	*Born in Canada*
	Address Use	*Citizenship Status*
	City	*Highest Level of Personal Education Attained*
	Province (only required if Address is submitted)	*Employment Status*
	Postal Code	*Personal Income Source*
		Marital Status
		Housing Status
		Total Household Income
		Number of People Household Income Supports
		Legal Status
		Pre-existing Conditions

Table 3.3 – Health Services/Encounters Group Data Elements

HSP Organization	*Client Profile*	*Referral*	*Episode of Care*	*Health Service Event/Encounter*	*Health Program*
Common Name	*Common Name*	*Common Name*	*Common Name*	*Common Name*	*Common Name*
HSP Organization Number	*Client Identifier - MRN*	*Referral ID*	*Episode of Care Identifier*	*Health Service Event ID*	*HSP Program Number*
MOH Organization ID	*Client ID Issuing Vendor*		*Episode of Care Status*	*Encounter Date*	*Health Program Name*
HSP Organization Name	*Identifier Type*		*First Contact Date*	*Service Modality*	*Functional Centre Code*
HSP Site Number	*Client First Name*		*Eligibility Screening Date*	*Health Service Group ID*	

HSP Site Name	Client Last Name or Single Name		Initial Assessment Date	Direct Minutes	
	Date of Birth		Service Enrollment Date	Indirect Minutes	
	Date of Birth Estimated Flag		Service Initiation Date	Encounter Status	
	Health Card Number		Service Termination Date		
	HCN Issuing Authority		Service Termination Reason		
	Address Use				
	City				
	Province (only required if Address is submitted)				
	Postal Code				

Table 3.4 – Scheduled Appointment Date Group Data Elements

HSP Organization	Client Profile	Episode of Care	Appointment
Common Name	Common Name	Common Name	Common Name
HSP Organization Number	Client Identifier – MRN	Episode of Care Identifier	Scheduled Appointment Date
MOH Organization ID	Client ID Issuing Vendor	Episode of Care Status	Appointment Reschedule Reason

HSP Organization Name	*Identifier Type*	*First Contact Date*	
HSP Site Number	*Client First Name*	*Eligibility Screening Date*	
HSP Site Name	*Client Last Name or Single Name*	*Initial Assessment Date*	
	Date of Birth	*Service Enrollment Date*	
	Date of Birth Estimated Flag	*Service Initiation Date*	
	Health Card Number	*Service Termination Date*	
	HCN Issuing Authority	*Service Termination Reason*	
	Address Use	*Episode of Care Identifier*	
	City	*Episode of Care Status*	
	Province (only required if Address is submitted)		
	Postal Code		

Table 3.5 – Mandatory Data Elements for the Client Information/Episode of Care Group Submission

Common_Name	*Mandatory for Client Information/Episode of Care Group*
HSP Organization Number	*Yes*
MOH Organization ID	*Yes*

HSP Organization Name	Yes
HSP Site Number	Yes
HSP Site Name	Yes
HSP Client Identifier	Yes
Client ID Issuing Vendor	Yes
Identifier Type	Yes
Client First Name	Yes
Client Last Name or Single Name	Yes
Date of Birth	Yes
Date of Birth Estimate Flag	Yes
Episode of Care Identifier	Yes
Episode of Care Status	Yes
HSP Connex Program Number	Yes
Health Program Name	Yes
Functional Centre Code	Yes

Table 3.6 - Mandatory Data Elements for the Client SDOH Group Submission

Common_Name	Mandatory for Client SDOH Group
HSP Organization Number	Yes
MOH Organization ID	Yes
HSP Organization Name	Yes
HSP Site Number	Yes
HSP Site Name	Yes
HSP Client Identifier	Yes
Client ID Issuing Vendor	Yes
Identifier Type	Yes
Client First Name	Yes
Client Last Name or Single Name	Yes
Date of Birth	Yes

Date of Birth Estimate Flag	*Yes*

Table 3.7 - Mandatory Data Elements for the Health Services/Encounters Group Submission

Common_Name	*Mandatory for the Health Services/Encounters Group*
HSP Organization Number	*Yes*
MOH Organization ID	*Yes*
HSP Organization Name	*Yes*
HSP Site Number	*Yes*
HSP Site Name	*Yes*
Client Identifier – MRN	*Yes*
Client ID Issuing Vendor	*Yes*
Identifier Type	*Yes*
Client First Name	
Client Last Name or Single Name	*Yes*
Health Service Event ID	*Yes*
Encounter Date	*Yes*
Encounter Status	*Yes*
Episode of Care Identifier	*Yes*
Episode of Care Status	*Yes*
HSP Connex Program Number	*Yes*
Health Program Name	*Yes*
Functional Centre Code	*Yes*

Table 3.8 - Mandatory Data Elements for the Scheduled Appointment Date Group Submission

Common_Name	*Mandatory for the Scheduled Appointment Date Group*
HSP Organization Number	*Yes*
MOH Organization ID	*Yes*
HSP Organization Name	*Yes*
HSP Site Number	*Yes*
HSP Site Name	*Yes*
Client Identifier – MRN	*Yes*

Client ID Issuing Vendor	*Yes*
Identifier Type	*Yes*
Client First Name	
Client Last Name or Single Name	*Yes*
Episode of Care Identifier	*Yes*
Episode of Care Status	*Yes*
Scheduled Appointment Date	*Yes*
Appointment Reschedule Reason	*Yes*

Using the JSON protocol, it is not necessary to have all the data elements included in the submission package for each data package group. The JSON data message for each data package group should only include the mandatory data elements and the data elements which have new values or updated values.

Some data elements for the Client Information/Referral Group are considered dependent on one or more data elements. When one of these data elements has a new value or an updated value, all the dependent data elements should be included in the submission queue. The dependency of these data elements is available in Section 3.1.1 – Data Elements Dependencies.

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3.1.1 Data Elements Dependencies for the Client Information/Episode of Care Group

3.1.1.1 Date of Birth and Date of Birth Estimated Flag

Date of Birth Estimated Flag is dependent on the Date of Birth data element. When a value is recorded, collected or updated for Date of Birth, the TRUE/FALSE value for Date of Birth Estimated Flag should be collected or recorded as well. The values of both Date of Birth and Date of Birth Estimated Flag will be included in the record which is queued for submission. As Date of Birth is a mandatory data element, it should be defaulted to "1900-01-01" or earlier than 1900 if the client has been asked for the Date of Birth but it is unknown to the client or it is not provided by the client (not answered).

3.1.1.2 Health Card Number and HCN Issuing Authority

HCN Issuing Authority is dependent on the Health Card Number data element. When the Health Card Number is available to be recorded, collected or updated for a client, the value of HCN Issuing Authority should also be collected and recorded in the CMS.

The values of these two data elements will be included in the record which is queued for submission.

3.1.1.3 Data Elements related to Client's Address

In the Client Information/Referral Group, data elements related to a client's address are: Address Use, City, Province, and Postal Code.

When a value is available to be recorded, collected or updated for City, Province or Postal Code, the values of Address Use must be included in the record to be queued for submission.

When the CMS collects each client's address, such as home and office, each address (each type of address use) will be included in the Client Profile Resource as part of the Address Extension.

3.1.1.4 Scheduled Appointment Date and Appointment Rescheduled Reason

The Scheduled Appointment Date should reflect the first offered and accepted appointment date for the client following enrollment. It should be submitted only if this appointment is later rescheduled (by the client or the HSP) or the client does not attend (i.e., "no-shows"), and the reason why the appointment was not attended should be submitted to the Repository as the Appointment Rescheduled Reason. It is recommended that the capture of the Appointment Rescheduled Reason should be linked or connected to a workflow, process, or an event associated with the Scheduled Appointment Date.

It is recommended that the Scheduled Appointment Date be stored separately in the Vendor's CMS regardless of whether it meets the criteria for submission.

The Scheduled Appointment Date presents the original first service initiation date which was offered and accepted by the client. The re-scheduled appointment date is not required to be submitted to the Repository; however, other associated data elements such as 'status' of the Scheduled Appointment Date (no-show or cancelled), or Rescheduled Appointment Reason is to be submitted if the Scheduled Appointment Date is updated because the first offered and accepted appointment is cancelled/rescheduled or no-show. The Vendor's CMS should record the value of the Scheduled Appointment Date or the updated value of this data element.

For HL7 FHIR 4.0, the Appointment Status, an attribute called appointment.status, is used to include the status of the Scheduled Appointment, whether it is cancelled or the client is "no-show". The implemented version of HL7 FHIR 4.0 supports only "cancelled' as the value for the appointment.status attribute. For this reason, the Vendor should only include the value of "cancelled" for appointment.status even though the client did not show up the Scheduled Appointment (the first offered and accepted service appointment). More detail of the appointment.status is available in

the HL7 FHIR section, Section 3.9.6. The Rescheduled Appointment Reason will provide the reason why the Scheduled Appointment Date was rescheduled.

3.1.1.5 Born in Canada and Year Arrived in Canada

The availability of the value for 'Year Arrived in Canada' is conditional to the value of 'Born in Canada'. When the value (the answer) of 'Born in Canada' is "Yes", the data element of 'Year Arrived in Canada' will not be required to be submitted to the Repository. The CMS workflow should create conditional logic that when 'Born in Canada' value is chosen as "No", the logic will prompt the CMS user to continue to provide the value of 'Year Arrived in Canada' (in four digit numeric format).

3.1.2 Functional Centre Codes

The determinant of what client records are submitted to the Repository is the health service program which the clients are either referred to or are admitted to. The Ministry of Health provides Functional Centre Codes to group the HSP's health service programs into a standardized coding system. The Functional Centre Codes are in scope of the MHA PDS project are available in the OH MHA PDS Logical Dictionary accompanied with the Vendor Implementation Guide.

The CMS should have an existing function to establish the connection between a health service program and a Functional Centre Code. The CMS should have a user interface where the CMS administrator is able to add or update a health service program and its corresponding Functional Centre Code. This relationship mapping of a health service program and a Function Centre Code is a mandatory function for the CMS participated in the MHA PDS project.

For the purpose of MHA PDS Module, the vendor should incorporate a feature on the Health Service Program and the Functional Centre Code function which allows the CMS administrator to choose what health service programs are in scope of the MHA PDS submissions if this feature is not currently available in the CMS.

3.2 Records from Indigenous Clients

Records and data elements related to the clients who identify as First Nations, Inuit, Métis or Indigenous/Aboriginal ("Indigenous") are to be handled separately for submission purposes within the Vendor's CMS. The intention is to allow the engagement with Indigenous Communities to be completed and confirmed by Ontario Health before submitting any records originating from clients who identify as Indigenous or any values considered Indigenous identifiers from other data elements.

3.2.1 Indigenous Records Switch

The Vendor will include a configuration switch ("Indigenous Records Switch") to denote the status to submit records related to clients who identify as Indigenous based on the Ethnicity data element under SDOH. The "NO" status to submit means that the records from the Indigenous population should not be submitted to the Repository. The "YES" status to submit means that the records from the Indigenous population should be submitted to the Repository.

When a client identifies as Indigenous based on the Ethnicity data element, any of this client's records will be validated with the configuration switch to confirm whether the records are to be submitted to the Repository. When the Indigenous Records Switch is "NO" at the time of validation, new records or updated records (Client/Episode of Care Group and Health Service/Encounters Group) of this client will not be submitted to the Repository. The original value of the Ethnicity data element should be retained for the CMS-level record, reporting or other assessments' value mapping. The default setting of the configuration switch is "NO" – not to submit records for clients identifying as Indigenous.

3.2.2 Indigenous Identifier Switch

Before the engagement with the Indigenous Communities is complete and confirmed, any value considered an Indigenous identifier collected from the Vendor's CMS will be substituted with the value of "Other" before submission in the event that these Indigenous identifiable values are chosen or entered into the CMS for clients who do not self-identify as Indigenous. The original value should be retained for the CMS-level record, reporting or other assessments' value mapping. The Vendor will include a configuration switch ("Indigenous Identifier Switch"), either leveraging the same switch that controls the submission of records from the Indigenous population or a new configuration switch, to denote the status of the transformation of values considered Indigenous identifiers to the value of "Other" before submitting to the Repository.

If leveraging the "Indigenous Record Switch" to use as the Indigenous Identifier Switch, the "NO" status of "Indigenous Record Switch" indicates that the values of Indigenous identifiers should be transformed to "Other" when preparing the data element for submission.

When the "Indigenous Identifier Switch" is on its own parameter, the "ON" status of the Switch indicates that the values of the Indigenous identifiers should be transformed to "Other" when preparing the data element for submission.

The default setting of the "Indigenous Identifier Switch" is set to transform the value of any Indigenous identifier to "Other" when preparing the data element for submission.

3.2.3 Configuration and Administration of the Switches

Both configuration switches should be managed through:

a) *a protected configuration page or a configuration file which is administered by the Vendor only, or*

b) *a configuration page within the CMS' Administrator's portal/section which access is restricted to the authorized HSP personnel. A warning prompt should be activated and acknowledged by the authorized HSP personnel when the configuration parameter is changed before the actual change is executed in the CMS. The change should also be recorded in the CMS' log for audit purposes.*

3.2.4 Data Elements Containing Indigenous Identifiers

The value set for Language (used for Mother Tongue and Preferred Language to Receive Service) in the MHA PDS includes Indigenous languages for code mapping purposes, but these are not required to be implemented into the Vendor's CMS if not currently existing. If, however, the Vendor's CMS includes Indigenous languages as values available for the Language data elements, the value of the Indigenous language should be substituted with "Other" when submitting to the Repository when the Indigenous Identifier Switch is "ON".

The following Table 3.6, includes the data elements containing Indigenous identifiable values in the MHA PDS or those that are commonly found in these data elements in Vendor's CMS systems, including the Language data element. These values should be transformed to "Other" or equivalent when preparing for submission.

Table 3.5 – Data Elements with Indigenous Identifiers Values

Data Element, Common Name	*Indigenous identifiable Value*	*Transformed Value*
Preferred Language to Receive Service	*Various Indigenous languages available in CMS*	*"Other"*
Mother Tongue	*Various Indigenous languages available in CMS*	*"Other"*
Sexual Orientation	*Two-Spirit*	*"Other"*
Gender Identity	*Two-Spirit*	*Other gender identity*
Health Card Issuing Authority	*Indigenous and Northern Affairs Canada number*	*"Other"*
Referral Source Type	*Native Treatment Services, Other Native Services, Traditional Healer/Elders*	*"Other Referral Source"*
Religion and Spiritual Affiliation	*Indigenous Spirituality; Native American*	*"Other"*

3.2.5 Activities after Engagement Confirmation

Once the Indigenous Communities engagement is completed, and confirmation is provided to the Vendors and HSPs that the records from clients who identify as Indigenous can start to be submitted to the Repository, the Vendor or the HSP's authorized administrator will change the status of the Indigenous Record Switch and Indigenous Identifier Switch.

3.2.5.1 Records from Indigenous Clients to be Submitted

Historical records prior to the confirmation date for clients who identify as Indigenous are not required to be submitted to the Repository upon the engagement completion and confirmation. Such historical records (Client Information/Episode of Care Group and Health Services/Encounters Group) include the terminated services provided to clients.

Upon the Indigenous Record Switch status being changed to "ON", the initial records (Client Information/Episode of Care Group and Health Services/Encounter Group) to be submitted will be those records for clients who identify as Indigenous and with Episode of Care statuses in one of the following states:

a) *ACTIVE*
b) *ON HOLD*
c) *PLANNED*
d) *WAITLIST*

After the initial records are submitted, the normal submission of records from clients who identify as Indigenous will follow the processes in Section 3.4.

3.2.5.2 Indigenous Record Switch Change

Prior to the engagement completion and confirmation, the Indigenous Record Switch will be in an "OFF" status indicating that records from Indigenous clients are not submitted to the Repository. Upon the engagement completion and confirmation, the Switch status should be changed to "ON", allowing records from clients who identify as Indigenous to be submitted. The Switch status change should be completed within a reasonable time period after the completion of the engagement and confirmation being provided.

3.2.5.3 Indigenous Identifier Switch

Prior to the engagement completion and confirmation, the Indigenous Identifier Switch will be in an "ON" status indicating that the transformation of values of Indigenous identifiers to "Other" is active. Upon the engagement completion and confirmation, the Switch status should be changed to "OFF," allowing the original values of the Indigenous identifiers to be submitted. The Switch status change should be completed within a reasonable time period after the completion of the engagement and confirmation being provided.

3.3 Automated Submission

The submission of MHA PDS Data Elements is an automated process built in the vendor's CMS.

The specifications of the automated submission process are:

1. *The submission process is an automated task which does not require the HSP's intervention to start the submission process.*
2. *The vendor's CMS where the submission happens must be connected to the Internet at all times.*
3. *The submission frequency should be configured to be no less than daily, Monday to Sunday, at a predetermined interval throughout the day, at a predetermined time of the day or in real time when the submissions are triggered as defined in Section 3.4. Whichever submission frequency is programmed for at the vendor's CMS, the submission process should not render the vendor's CMS to be non-responsive to regular functions or to have difficulties connecting to the vendor's CMS.*
4. *The automated submission should resubmit records that were not submitted to the Repository in the original submission due to an error or errors. The errors may be the result of an Internet connection issue, a CMS issue, an operation system issue, a submission process error, or an issue at the Web Services Gateway. The scheduled submission should always include records considered to be new records on the submission date.*
5. *A failed submission event should be recorded in the MHA PDS error log built within the vendor's CMS. The specifications of the MHA PDS error log are outlined in section 3.7 – OH MHA PDS User Interface.*
6. *If three (3) consecutive failed submissions occur, an alert notification, either on the GUI interface of the vendor's CMS or an email notification to the HSP's administrator, should be available. The notification should include the dates of failed submissions and error messages associated with each failed submission if available.*
7. *If a submission contains five (5) or more rejected records from the Web Services Gateway, an email alert notification to the HSP's administrator should be generated.*

3.4 Submission Logic

The submission of MHA PDS Data Elements to the Repository is an automated process built within the vendor's CMS. The logic to initiate or trigger the submission process to the Repository consists of the following:

I. *Initial Submission of Active Referrals and Active Episodes of Care on the day of Go-Live with OH MHA PDS,*
II. *New Episode of Care created (new Episode of Care ID initiated)*
III. *New or updated values to data elements in the Client Information/Episode of Care Group*
IV. *New or updated values to data elements in the Client SDOH Group*
V. *New or updated values to data elements in the Health Services/Encounters Group*
VI. *Scheduled Appointment Date that meets the criteria for submission*

Submissions of MHA PDS Data Elements should not include any data elements containing a future date or any data elements related to future events. As the submissions to the Repository happen daily, records for submissions should be prepared or created on the day that the Submission Logic I to VI happen.

3.4.1 Initial Submission

The Initial Submission to the Repository will occur on the Go-Live Date with the OH MHA PDS. The records include in the Initial Submission are those records related to those clients of the HSP going live who are actively referred to programs or are actively enrolled in programs provided by the HSP.

The values of the data elements from Client Information and SDOH will be the ones available in the CMS on the Go-Live date.

The Initial Submission will not include any Health Event records before the Go-Live Date.

3.4.2 New Episode of Care Created

When a new Episode of Care is created with the Episode of Care Status defined in the MDS-PDS Logical Data Dictionary for an existing or new client, this will trigger the values of data elements in Referral and Episode of Care to be entered, collected and/or created by the vendor's CMS.

As a result of the newly created Episode of Care, the values available in the Client information/Episode of Care Group of the client are to be queued for submission according to the submission process.

3.4.3 New or updated values to data elements in the Client Information/Episode of Care Group

New values or updated values of the Client Information/Episode of Care Group will be collected or recorded by the HSP from time to time. When a new value or an updated value is recorded for any of the data elements from this Group, the data should be queued for submission. Any dependent data elements related to those data elements with new values or updated values will also be included and queued for submission.

3.4.4 New or updated values to data elements in the Client SDOH Group

New values or updated values of the Client SDOH Group will be collected or recorded by the HSP from time to time. When a new value or an updated value is recorded for any of the data elements or a number of the data elements from this Group on the same instance, the data should be queued for submission. The date of the instance entered for the new value(s) or updated value(s) or a vendor's CMS supported SDOH Effective Date should be considered as the "SDOH Effective Date" data element.

3.4.5 New or updated values to data elements in the Health Services/Encounters Group

New values or updated values of the Health Services/Encounters Group will be collected or recorded by HSP from time to time. When a new value or an updated value is recorded for any of the data elements from this Group, the data should be queued for submission. Any dependent data elements related to those data elements with new values or updated values will also be included and queued for submission.

3.4.6 Scheduled Appointment Date that meets the criteria for submission

The Scheduled Appointment Date Group will capture the data elements of the status of the Scheduled Appointment Date, the Appointment Reschedule Reason for the Scheduled Appointment Date, the participant of the Scheduled Appointment (the client), and the participant's status being "accepted" (or other values available). The original Scheduled Appointment Date is required, however any subsequent revision on the Scheduled Appointment Date is not required.

The condition to submit the Scheduled Appointment Date Group occurs when the client's appointment scheduled for the original Scheduled Appointment Date is either no-show or cancelled/rescheduled. The values for 'status', Appointment Reschedule Reason, Patience Resource Reference and 'participant status' will be queued for submission.

This Scheduled Appointment Date Group will only be submitted once, if at all, for each unique Episode of Care where the original Scheduled Appointment Date is rescheduled or cancelled.

3.5 Extending the Database Schema

With reference to the MHA PDS Data Elements outlined in Section 2, the vendor will extend its database schema to include data elements not part of the vendor's database schema and to establish data dependencies, linkages, constraints, validations, and logic to support its application functionalities and the collection and submission of MHA PDS Data Elements to the Repository.

Upon the modification of the vendor's data schema, other auxiliary data elements, if required, are to be established by the vendor to support the MHA PDS Data Elements, the OH MHA PDS User Interface, the FHIR Framework, the JSON protocol, the alert

notification via its GUI interface or emails, and the event log related to submission activities and validation errors.

The logic, requirements, and processes to trigger and to establish the submission to the Repository are available in Sections 3.2 – Automated Submission and 3.3 – Submission Logic.

3.6 Deleting Client Records

At the current implementation, Deletion function is not available from HL7 FHIR. A Deletion Request from the vendor's CMS generally is related to situations where the client's records previously submitted were entered into the vendor's CMS in error or the Deletion Request is to delete the client profile and other related service records when two client profiles are merged as one client profile. The Deletion Request should not be used to correct or to replace data values of previously submitted data elements. An update submission of such data elements is sufficient to provide the updated values to the Repository. In the event that one or more data elements was (were) submitted previously in error, the MHA-PDS HL7 FHIR Implementation Guide provides an option called "status" in selected resources which can be used to indicate the state of the data element in the particular resource. The "status" is available for:

a) *Client's status at the HSP*
b) *Organization's status*
c) *Organization's service location status*
d) *Episode of Care's status*
e) *Program's status*
f) *Enounter's status*
g) *Condition's clinical status*
h) *Status in SDOH data elements*

Not all "status" options contain the value "Entered in error" to indicate that the value of such data element was entered in error; however, further revision will be provided when available. At the current implementation, in the event that a client's profile was submitted to the Repository in error, the vendor's CMS can send a "status" equal to "Inactive." The detail related to the HL7 FHIR implementation will be available in Section 3.9.

3.7 Web Services Gateway Authentication – OAuth from OAG

To establish the secured channel to submit the MHA PDS Data Elements to the Web Services Gateway, the web services authentication is processed via the ONE Access Provider Gateway (OAG) managed by Ontario Health. OAG uses the Open

Authentication (OAuth) protocol and a digitally-signed PKI certificate ('PKI certificate') using the public and private key exchange protocol to establish the identity, authentication and authorization between the HSP's CMS and the OAG enabling the secured data exchange between the CMS and Web Services Gateway. The secured communication channel between the HSP's CMS and the Web Service Gateway is maintained using a generated token which has a limited validity period. The limited validity period of the token is 60 minutes when generated the first time and its validity period 180 minutes subsequent renewal. The Vendor should include a process to renew or to refresh the token every 180 minutes to ensure the submission is ongoing.

The OAG and OAuth system uses the PKI certificate to establish the trusted and authorized relationship between the vendor's CMS where the submission happens and the OAG's Web Services Gateway. The deployment of such PKI certificate is applicable to both production and the testing/UAT environments.

Vendors will use the following guidelines to provision and to deploy the certificate:

a) *The certificate deployed to the production and the testing/UAT environment should be unique to the environment, which means using one CSR for the production environment and a different CSR for the testing/UAT environment;*

b) *When the vendor hosts multiple instances or nodes of its one type of CMS (one product) for a number of different HSPs (called ASP model), the vendor will provision and deploy one unique certificate generated for the shared system. This type of certificate provision and deployment is referred as the "vendor certificate" throughout this Implementation Guide;*

c) *When one type of CMS is hosted in an independent system locally or in a cloud environment (such as SaaS) administrated by the HSP or the Vendor, the vendor will provision and deploy one unique certificate generated for this independent system. This type of certificate and deployment is referred as the "HSP certificate" throughout this Implementation Guide; and*

d) *The vendor should generate a unique vendor certificate or a unique HSP certificate for each type of CMS (product) the vendor offers.*

OAG's OAuth layer uses the tokens created by the OAuth services to validate user/client identity and authorizations before allowing submission to the Web Services Gateway.

Prior to the vendor's implementation of the OAG's OAuth in the vendor's CMS, an onboarding session will be scheduled between the vendor and the OAG Team. The OAG and OAuth implementation guide has been provided along with this document. Vendors should review this guide and anticipate that sessions with OAG team will be required to work on this component of the integration. Three (3) to four (4) weeks lead time should be estimated when planning the OAG integration process.

3.7.1 Issuance and Deployment of PKI Certificates

The issuance of the PKI certificate for vendor or HSP certificates is managed by ONEID Team from Ontario Health. The procedures to have one certificate issued to a HSP's CMS are as follows:

a) *A request included with a completed Computer Application Form (CAF) is submitted from the Vendor to OH ONEID Team for issuing a certificate (vendor certificate or HSP certificate),*
b) *ONEID Team provides the information required for the CSR generation, such as Common Name ('CN') and other related parameters,*
c) *The Vendor generates the CSR from the CMS system and the private key should be protected for only authorized access,*
d) *The CSR is returned to ONEID Team for the PKI certificate issuance,*
e) *The Vendor will install the PKI certificate in the CMS system once available.*

3.7.2 Token Generation for Submission

The vendor will implement the OAG's OAuth token infrastructure at each HSP's instance of the vendor's CMS environment. In a shared system environment, the token generated for each HSP should be kept separated from other HSP tokens. The submission instance of each HSP to the Repository should be programmed to use the HSP token only.

3.8 OH MHA PDS User Interface

3.8.1 Building the OH MHA PDS User Interface

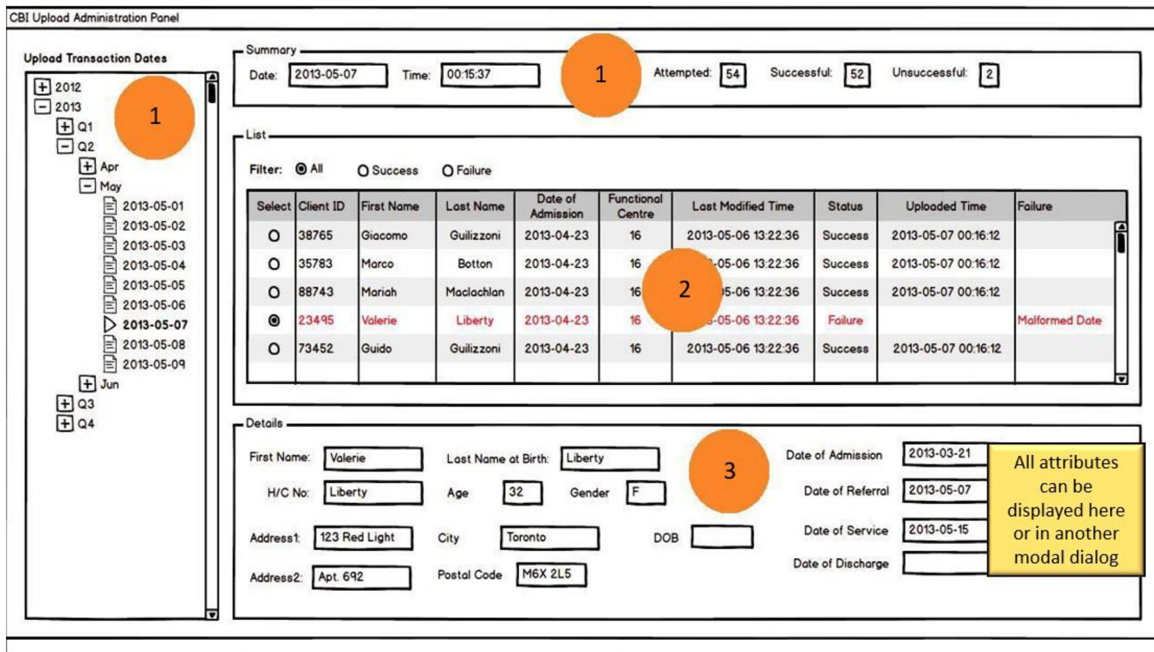
The User interface enables you to track your uploads, monitor their success and perform the following tasks:

- *View uploads by date*
- *View a summary of an upload*
- *View a list of all records, successful records or failed records included in an upload*
- *View details of any record*

The Client ID field sent to OH MHA PDS is required for OH MHA PDS reports end users to identify a client in reports. Data selected for this field needs to be available for quick reference from the program user interface so OH MHA PDS reports users can match a client to a report.

To be built by the CMS vendor, the user interface will enable the administrator/operator of the HSP to verify that all their records are being successfully uploaded, to identify which records failed to upload and to see the reason for the failure and know where to focus work on fixing faulty records.

The following diagram is an example of an administrator interface. The one developed by the vendor in the CMS system is not required to exactly replicate this example, but it is recommended that you emulate the functionality in this example as much as possible.



The following is a description of each section of the diagram:

1) *The Upload Search Dates section enables you to find an upload by the date on which it occurred. Administrators will fill in the search criteria, search, and the details will be populated.*
2) *The List section displays all the records that were included in an upload. You can filter the view to see all records, only successfully uploaded records, or only unsuccessful records. Unsuccessful records are highlighted in another colour and provide a reason for the failure.*
3) *The Details selection displays when a record is selected. All attributes of the submission could display here, or in a separate modal dialog. The OH MHA PDS user interface should display this information to the Administrator to enable her/him to quickly identify why a record failed to upload and which client the record belonged to.*

For more information on the web service response codes and response elements, see section 4.1 – Results and Status Codes. This enables you to identify which record to work on and what should be corrected. Once you have changed a record (for example, to correct an issue identified in the List section), it will be included in the next upload.

Authorized users of HSPs can access the OH MHA PDS user interface. The MHA PDS user interface access should be integrated with the user access management provided by the CMS and according to the requirements of the HSP's IT policies.

3.8.2 HSP Web Services Configuration Screen

A user interface ("Web Services Configuration Screen") within the administration portal of the vendor's CMS will be available to record the URL address of the Web Services Gateway and other settings for the OAG's OAuth infrastructure. The steps to make changes in Web Services Configuration Screen should be streamlined to allow HSP's administrator to make changes if required.

3.9 HL7 FHIR Specifications

The HL7 FHIR version 4.0.1 Framework is the standardized framework used to organize and present the MHA PDS Data Elements to the Repository. Using the JSON protocol and the OAG's OAuth infrastructure, the HL7 FHIR standardized MHA PDS Data Elements will be securely submitted to the Web Services Gateway via the Internet.

This section provides guidelines and specifications related to how the data elements are included and presented in the Submission packages following the HL7 FHIR specifications. Incorporated with the submission packages, other additional syntaxes, requirements, constraints, mandatory elements to meet the JSON validation and HL7 FHIR specifications are available in the Ontario Mental Health and Addictions Provincial Data Set – HL7® FHIR® Implementation Guide | eHealth Ontario | It's Working For You.

19 FHIR Resources are defined in the OH MHA PDS FHIR Implementation, which are combined to form the Submission Data Packages. Details of the Submission Data Packages and FHIR Submission Bundles are available in Section 3.1 and 3.9.2 respectively. The 19 FHIR Resources are tabulated in Appendix E.

3.9.1 Submission Operations

The Web Services Gateway accepts one type of HL7 FHIR submission operation, which is called "Submit Client Data". The HTTP method used to complete the "Submit Client Data" is "POST".

*"**Submit Client Data**" operation in the FHIR Implementation is to submit clients' MHA PDS Data Elements to the Repository. The submitted data elements can contain new values or updated values for data elements from:*

1) *new clients whose demographic profiles and Episode of Care information have never been submitted to the Repository,*

2) *existing clients who have had their client profile submitted previously to the Repository. The submission can contain data elements for:*

    a. *new enrolments to health service programs,*
    b. *updates to existing enrolments, and*
    c. *new or updates to health services events.*

The format of the POST HTTP message is:

POST [base]/Bundle/

The Web Services Gateway will consider the HTTP messages using "PUT" as "Submit Client Data" submission. Upon receiving the "Submit Client Data" PUT HTTP request, the HL7 FHIR module performs a search using the parameters provided to identify the Client within the Repository, or to create a new record in the Repository in the case of a new client, and updates the data elements contained in the JSON payload.

The HL7 FHIR Module from the Web Services Gateway will validate the JSON payload from "Submit Client Data" submission and will return a HTTP Status Code corresponding to the state of the submission. Please refer to Appendix C for HTTP Status Codes.

3.9.2 HL7 FHIR Bundles – Data Elements Submission Packages

As outlined in Section 3.1, the MHA-PDS data elements are submitted to the Repository in four different Submission Data Groups. Each Submission Data Group will be presented/submitted to the Web Services Gateway in JSON payloads prepared using HL7 FHIR specifications and the guidelines from the Ontario Mental Health and Addictions Provincial Data Set – HL7® FHIR® Implementation Guide | eHealth Ontario | It's Working For You.

HL7 FHIR specifications allows bundling of resources to form a data submission package, called "Bundle". A Bundle will be used to form each Submission Data Group. In the MHA-PDS HL7 FHIR Implementation Guide, 19 resources are available to be included to form a HL7 FHIR Bundle. Additional information specific to each Resource is available in the Note Section of each Resource.

The 19 Resources available from MHA-PDS HL7 FHIR Implementation Guide are in Table 3.6.

Table 3.6 – HL7 FHIR Resources Bundles and Submission Data Packages

Resource Name	*Submission Data Group*	*Bundle*
Patient	*Client Information/Episode of Care Group* *Client SDOH Group* *Health Services/Encounters*	*ServiceRequest/Episode of Care Bundle* *Client SDOH Bundle* *HealthServices/Encounters Bundle* *Scheduled Appointment Bundle*

Organization	*Client Information/Episode of Care Group* *Client SDOH Group* *Health Services/Encounters*	*ServiceRequest/Episode of Care Bundle* *Client SDOH Bundle* *HealthServices/Encounters Bundle* *Scheduled Appointment Bundle*
Location	*Client Information/Episode of Care Group* *Client SDOH Group* *Health Services/Encounters Group*	*ServiceRequest/Episode of Care Bundle* *Client SDOH Bundle* *HealthServices/Encounters Bundle* *Scheduled Appointment Bundle*
ServiceRequest	*Client Information/Episode of Care Group* *Health Services/Encounters Group*	*ServiceRequest/Episode of Care Bundle* *HealthServices/Encounters Bundle*
EpisodeofCare	*Client Information/Episode of Care Group* *Health Services/Encounters Group*	*ServiceRequest/Episode of Care Bundle* *HealthServices/Encounters Bundle* *Scheduled Appointment Bundle*
HealthCareServices	*Client Information/Episode of Care Group* *Health Services/Encounters*	*ServiceRequest/Episode of Care Bundle* *HealthServices/Encounters Bundle*
Appointment	*Client Information/Appointment*	*Scheduled Appointment Date Bundle*
Encounter	*Health Services/Encounters*	*HealthServices/Encounters Bundle*
Condition	*Client SDOH Group*	*Client SDOH Bundle*
Observation-SexualOrientation	*Client SDOH Group*	*Client SDOH Bundle*
Observation-CitizenshipStatus	*Client SDOH Group*	*Client SDOH Bundle*
Observation-EmploymentStatus	*Client SDOH Group*	*Client SDOH Bundle*
Observation-LegalStatus	*Client SDOH Group*	*Client SDOH Bundle*
Observation-LevelOfEducation	*Client SDOH Group*	*Client SDOH Bundle*
Observation-NumberOfPeopleIncomeSupports	*Client SDOH Group*	*Client SDOH Bundle*

Observation-PersonalIncomeSource	*Client SDOH Group*	*Client SDOH Bundle*
Observation-HousingStatus	*Client SDOH Group*	*Client SDOH Bundle*
Observation-TotalHouseholdIncome	*Client SDOH Group*	*Client SDOH Bundle*
Observation-GenderIdentity	*Client SDOH Group*	*Client SDOH Bundle*

The following 3 Resources must be included in each of the Bundles specified in this Guide. A Bundle missing any one or more of these Resources will fail the validation with the Web Services Gateway. The 3 mandatory Resources are:

a) Patient Resource
b) Organization Resource
c) Location Resource

By combining the appropriate resources and the three mandatory resources, 4 Bundles are defined to form the JSON payloads for the Submission Data Groups. The 4 Bundles are:

a) Service Request/Episode of Care Bundle
b) Client SDOH Bundle
c) HealthServices/Encounters Bundle
d) Scheduled Appointment Date Bundle

A Bundle requires certain HL7 FHIR elements in order to conform as a Bundle in addition to resources (which are referred to as 'entry'), these elements are 'meta', 'identifier', 'type', 'timestamp', 'entry', ' and entry.fullurl'. The definitions and usages of these elements are available at "Structure: Bundle" of "Profiles & Operations" in MHA-PDS HL7 FHIR Implementation Guide.

If any data elements and attributes within each Resource are not part of the MHA-PDS Logical Data Dictionary, they are not required to be included in the JSON payloads unless they are mandatory as specified in the MHA-PDS HL7 FHIR Implementation Guide.

3.9.3 HL7 FHIR Bundle – Service Request/Episode of Care Bundle

The Service Request/Episode of Care Bundle is prepared for the submission of date elements in the Client Information/Episode of Care Group.

This Bundle contains the following resources:

a) Patient Resource
b) Organization Resource
c) Location Resource
d) ServiceRequest Resource

e) *EpisodeofCare Resource*
f) *HealthCareService Resource*

3.9.4 HL7 FHIR Bundle – Client SDOH Bundle

The Client SDOH Bundle is prepared for the submission of data elements in the Client SDOH Group.

This Bundle contains the following resources:

a) *Patient Resource*
b) *Organization Resource*
c) *Location Resource*
d) *Condition Resource*
e) *Observation-SexualOrietation Resource*
f) *Observation-CitizenshipStatus*
g) *Observation-EmploymentStatus*
h) *Observation-LegalStatus*
i) *Observation-LevelOfEducation*
j) *Observation-NumberOfPeopleIncomeSupports*
k) *Observation-PersonalIncomeSource*
l) *Observation-HousingStatus*
m) *Observation-TotalHouseholdIncome*
n) *Observation-GenderIdentity*

As data elements of any the SDOH Resources can be collected by the HSP in different time periods, it is not required to include all SDOH Resources (Resources from d) to n)) in this Bundle but only those SDOH Resources have new values or updates to existing values.

3.9.5 HL7 FHIR Bundle - HealthServices/Encounters Bundle

The HealthServices/Encounters Bundle is prepared for the submission of data elements in the HealthServices/Encounters Group.

This Bundle contains the following resources:

a) *Patient Resource*
b) *Organization Resource*
c) *Location Resource*
d) *ServiceRequest Resource*
e) *EpisodeofCare Resource*
f) *Encounter Resource*
g) *HealthCareService Resource*

As specified in the OH MHA PDS HL7 FHIR Implementation Guide, the Episode of Care Resource and ServiceRequest Resource can be omitted from the Bundle but the Bundle must include the Episode of Care Reference linked back to the originated Episode of

Care and/or the ServiceRequest Reference linked back to the originated Referral. Using the reference links for both Episode of Care and Referral is applicable when Referral and Episode of Care are established (the client has been referred to the program and has been enrolled into the program). It is strongly recommended that the Vendor's module should include the Episode of Care Resource and ServiceRequest Resource in this Bundle rather than adapting to the Episode of Care Reference link and ServiceRequest Reference Link.

3.9.6 HL7 FHIR Bundle – Scheduled Appointment Bundle

The Scheduled Appointment Bundle is prepared for the submission of data elements in the Scheduled Appointment Group.

This Bundle contains the following resources:

- *a) Patient Resource*
- *b) Organization Resource*
- *c) Location Resource*
- *d) Episode of Care Resource*
- *e) Appointment Resource*

In the Appointment Resource, the Patience Reference is included under the Appointment.participant attribute.

As previously mentioned in Section 3.1.1.4, the Rescheduled Reason contains the reason why the Scheduled Appointment Date was rescheduled. In HL7 FHIR, the Appointment Resource also provide an attribute called appointment.status which can be used to indicate the rescheduled reason. Under a normal circumstance, the value of the Rescheduled Reason and the value of appointment.status can both indicate the same rescheduled reason only for "cancelled" or "no-show". Since the HL7 FHIR 4.0 only supports the value of "cancelled" in the appointment.status attribute even though the Rescheduled Reason is "no-show", the Vendor will implement "cancelled" as the value of the appointment.status regardless of what the Resheduled Reason is.

3.9.7 HL7 FHIR – Identifiers, URI and Codes

The "identifier", presented in URI, in each of the resources is not a mandatory item when preparing the JSON payload however the "identifier" of several resources are available in the Terminology/Identifiers page in the MHA-PDS HL7 FHIR Implementation Guide. Other URI values are available on the Note Section of each Resource. Any URI values of "identifiers" will be provided to Vendors if they are not currently available in the OH MHA-PDS FHIR Implementation Guide.

The value set for each applicable data element available in the MHA-PDS Logical Data Dictionary should be considered the sole source of the values. If the reference of "Code" of data elements in the MHA-PDS HL7 FHIR Implementation Guide is not consistent with the value set in the MHA-PDS Logical Data Dictionary, the value set

from the MHA-PDS Logical Data Dictionary shall be the values for the data element as presented in the JSON payload.

4 Operation

4.1 Results and Status Codes

Upon the successful authentication and authorization with the OAG's OAuth infrastructure, each JSON package containing the data elements and values payload will interact with the Web Services Gateway. The Web Services Gateway provides the interface messages and status related to the received JSON packages, from both HTTP and FHIR layers. The HTTP status code will return from the HTTP layer and the FHIR status code will be from the OperationOutcome resource.

Upon receiving the status codes and FHIR OperationOutcome resources, the vendor's CMS should record these codes and resources in the submission log corresponding to the original submission records.

The Result and Status Codes of both HTTP and FHIR layers from the Web Services Gateway is available from Appendix C.

4.2 Security Requirements

Security controls are established at OAG to secure the transmission of the personal health information from the Vendor's CMS to the Repository, they include, but are not limited to, the PKI certificate, Client Profile, token authentication, and TLS protocol. The participating Vendors to OH MHA PDS project to provide the Client Management System to health care providers in scope is required to provide the following security assessments or reports completed for the Vendor CMS and the 3rd-party hosting environment where the CMS is hosted before the CMS with the OH MHA PDS module is deployed for go-live submissions:

I. *Vendor's Client Management System*

   a. *Browsed-Based Application*

   An Application Penetration Test is completed for the CMS within one year from the Vendor enters the Vendor Agreement to build the OH MHA PDS module. Any defect or vulnerability identified as critical or high risks must be resolved prior to the CMS with the OH MHA PDS module is deployed for submissions.

   b. *Non-browser-based Application running on Windows OS, Linux Desktop or MacOS*

   A Static Code Analysis is completed for the CMS within one year from the Vendor enters the Vendor Agreement to build the OH MHA PDS module. Any defect or vulnerability identified as critical or high risks must be resolved prior to the CMS with the OH MHA PDS module is deployed for submissions.

II. Vendor's Hosting Environment

When the Vendor's CMS is hosted in a 3rd-party environment/computer infrastructure such as a System-as-a-Service (SaaS) or Infrastructure-as-a-Service (IaaS), the Vendor is required to provide a SOC 2 Type 2 report or a Treat Risk Analysis (TRA) report prepared for the 3rd-party environment/computer infrastructure. Such report is completed within two years from the Vendor enters the Vendor Agreement to build the OH MHA PDS module.

4.2.1 TLS Protocol and PKI Certificate

*The Web Services Gateway is WS-Security compliant. Communication between each web service client and the Web Services Gateway will be encrypted using TLS 1.2 or above protocol over the HTTPS connections. If the HSP CMS is managed by the Vendor, the Vendor should **DISABLE** the following protocols from the CMS system acting as a Client or as a Server:*

1) *SSL 1.0*
2) *SSL 2.0*
3) *SSL 3.0*
4) *TLS 1.0*
5) *TLS 1.1*

The Web Service client of the HSP's CMS system should be kept up-to-dated with the authoritative CA root and intermediate certificates allowing the authentication of the certificate and the key exchange with the Web Services Gateway and the OAG's OAuth Interface. The PKI certificate issued for the HSP system should be deployed to the intended CMS environment. In any event the private key used to issue the PKI certificate or the PKI certificate is compromised, the Vendor must contact the Ontario Health Service Desk immediately to report the breach. The root certificate provided by ONEID Team must be presented in the HSP CMS system.

4.3 Validation

The validation of the OH MHA PDS module will be done in phases. Documents, data and recommendations for specific validation steps will be released to the Vendor as they become available. Individual elements that may be validated may change as circumstances require.

4.3.1 Validation Objectives

The following is a list of objectives for validating the vendors' OH MHA PDS module:

- *Uploads should include all qualifying records and no other records.*
- *Submission logic is tested and verified.*
- *Data that appear in the Repository should match the data found in the HSP's CMS, except for converted dates and times, and where data mapping to values sets with minimum conformance requirements has been implemented.*
- *Standardized names of the data elements should be checked and verified with the HL7 FHIR specification.*
- *JSON packages should be valid and well-formed.*
- *HTTPS is the only transmission protocol used for the data exchange with the Web Services Gateway.*

4.3.2 OAG's OAuth Testing

Upon the completion of the OAG's OAuth onboarding with OneID Team, the vendor should generate the token for its testing environment (also known as QA or UAT) , which should be secured.

The vendor should conduct and complete successful connectivity and authentication testing with the OAG's OAuth infrastructure from its testing environment.

4.3.3 Web Services Gateway Connectivity Testing

Each Vendor will be required to conduct connectivity testing to both the PST and Production environments of the Repository via the Web Services Gateway from OAG. The PKI certificate issued to the Vendor testing purpose and the certificate issued for the HSP production system should be installed properly to the respective system prior to the connectivity testing.

4.3.4 OH MHA PDS Module - Vendor Conformance and Validation

The Vendor OH MHA PDS module must be validated for conformance and functionalities before the module can be deployed to any HSP production system. The Vendor Testing Guide will be available to the Vendor whose CMS is ready for conformance and validation testing. The Vendor should start the rectification to any defects or non-conformance functions as soon as the validation results and findings are provided to the Vendor.

4.4 Go-Live

Upon the successful conformance and validation of the Vendor's module, the Vendor can initiate the deployment of its module to HSPs which have submitted required forms and signed agreements to Ontario Health. The Go-Live activities for each HSP is available in Appendix F.

4.5 Post-Go-Live Support

Following implementation on Production, the vendor will be responsible for providing ongoing support to its HSP customers. Ontario Health support will be available to the vendors for any issues related to the OH MHA PDS that require escalation to Ontario Health to troubleshoot or resolve. A detailed Support Process has been included in Appendix G.

Appendix A – MHA PDS Data Dictionary

Mental Health and Addictions Primary Data Set (MHA PDS) v0.9.2 has been included with this Vendor Implementation Guide.

Appendix B – OAuth & ONE Access Gateway Provider Integration Guide

The OAuth & ONE Access Gateway Provider Integration Guide has been included with this Vendor Implementation Guide.

Appendix C – HTTP and FHIR Layers Status Codes

The following table contains the HTTP status codes and OperationOutcome resource codes from the FHIR protocol after the Web Services Gateway receives the POST and PUT from HTTP requests.

Table Appendix C.1

Code	Circumstances	OperationOutcome?	Client Expected Behavior
201 Created	A valid new client record bundle is submitted, accepted, and published to the repository	No	
400 Bad Request	This indicates that the submitted request is invalid. For example, the URL is malformed, the query parameters are badly formatted or do not match the required data type. Typically, this indicates an error with the software design of the client system, but in cases where the client does not validate inputs (e.g. dates) before submission, it is possible that allowing the user to correct search parameters could result in a successful response.	Yes	Display the message associated with the OperationOutcome to the user and also provide information for how to contact system support for the client software. The OperationOutcome.issue.diagnostics and location should be made available as well.
401 Unauthorized	Indicates the request has been made without the appropriate authorization token. This should only occur if the authorization token in use has expired - as no system should make a query without having an authorization token in place.	No	The client system should re-authenticate and re-transmit the request once a new token is received
403 Forbidden	The request was valid, but the server is refusing action. The user might not have the necessary permissions for a resource, or may need an account of some sort	No	Information allowing the user to contact support for their Client system should be displayed and they should be able to cancel out of the process
404 Not found	This will only be returned in the event of a specified resource does not exist.	No	Information allowing the user to contact support for their Client system should be displayed and they should be able to

			cancel out of the process
405 Method Not Allowed	A request method is not supported for the requested resource; for example, a GET request on a form that requires data to be presented via POST, or a PUT request on a read-only resource.	No	Information allowing the user to contact support for their Client system should be displayed and they should be able to cancel out of the process
415 Unsupported Media Type	The request entity has a media type which the server or resource does not support. For example, the client uploads an image as image/svg+xml, but the server requires that images use a different format.	No	Information allowing the user to contact support for their Client system should be displayed and they should be able to cancel out of the process
422 Unprocessable Entity	The submitted new client record bundle does not conform to the specification	Yes	Returns an OperationOutcome resource indicating an issue. The client must fix the request and try again.
500 Internal Server Error	Indicates that the server encountered an Internal error during the process of response message	No	
503 Service Unavailable	Indicates that the services has been temporarily taken down (on purpose)	Yes	The OperationOutcome message should be displayed to the user indicating when they should expect to be able to successfully retry the request and be able to cancel out. There's no need to expose system support information
504 Gateway Timeout	Indicates that one server did not receive a timely response from another server that it was accessing while attempting to load the web page or fill another request by the browser.	No	

APPENDIX D - OAG's OAuth Onboarding Supplementary

1. *Each vendor will be provided with an OAG's OneID which will be used for the authentication process when connecting to the Repository via OAG. As the OneID is provisioned for the vendor, it is recommended to use a service name for identification. If the vendor has been assigned with an OAG's OneID from other Ontario Health projects, the vendor should provide the existing OneID to the OAG's onboarding team.*

2. *A Client Credential is used to authenticate each HSP source system for submission to OH's Repository. As OAG will configure the system profile associated with each HSP, the vendor will register its existing HSPs and new HSPs when available with OAG.*

3. *The OAuth authentication requires a client-side PKI certificate to be deployed to the HSP source system (the guide to provision and to deploy the client-side PKI certificate is available in the OAG Onboarding package). The PKI certificate is a self-signed certificate and is provisioned by the vendor for each vendor's application which will interface with the Repository via OAG (the detail of the PKI certificate provision is available from the OAuth Onboarding package). The application-specific PKI certificate will be deployed to each HSP source system prior to go-live.*

4. *The OAG uses a session token to maintain the logical channel/connectivity to the OAG environment with the HSP source system after the authentication is validated and established. The validity period of the initial session token is 60 minutes and the validity period of the subsequent renewal is 180 minutes.*

Appendix E – HL7 FHIR Resources for MHA PDS

1. *Patient*
2. *Organization*
3. *Location*
4. *Service Request*
5. *Episode of Care*
6. *HealthCareService*
7. *Appointment*
8. *Encounter*
9. *Condition*
10. *Observation-SexualOrientation*
11. *Obervation-CitizenshipStatus*
12. *Obervation-EmploymentStatus*
13. *Observation-LegalStatus*
14. *Observation-LevelOfEducation*
15. *Observation-NumberOfPeopleIncomeSupports*
16. *Observation-PersonalIncomeSource*
17. *Observation-HousingStatus*
18. *Observation-TotalHouseholdIncome*
19. *Observation-GenderIdentity*

Appendix F – Go-Live Activities

Before an HSP can go live and initiate the submission to OH MHA PDS, the following prerequisites must be completed:

1) *HSP and Vendor Forms and Agreements Completed*
2) *Vendor Conformance and Validation Activities Completed*
3) *HSP Training (train-the-trainer) delivered by the Vendor to the HSP*
4) *OAG production certificate and client profile completed*
5) *HSP Production certificate received and installed (requirements will vary based on HSP production system configuration, independently hosted or hosted through vendor's ASP environment)*
6) *HSP's CMS updated to version with OH MHA PDS module*
7) *HSP's CMS configuration completed for OH MHA PDS submission readiness*
8) *Indigenous' records exclusion function – Turn-On Confirmation*
9) *Production Connectivity test completed*
10) *Go-Live Notice (Readiness and Go-Live Date) sent to HSP and confirmed by HSP*

Following implementation on Production, the vendor will be responsible for providing ongoing support to its HSP customers. Ontario Health support will be available to the vendors for any issues related to the OH MHA PDS that require escalation to Ontario Health to troubleshoot or resolve. This process is outlined below.

Contacting the Service Desk for Vendor Support

The Ontario Health Service Desk is the single point of contact for reporting incidents and making service requests related to MHA PDS.

Vendor helpdesk support group accountabilities

When any issues with the interface used to contribute data to the MHA PDS are detected, the vendor support team will be responsible for the following:

- Initial troubleshooting of issues;
  - Providing a resolution where possible;
  - Determining potential impact of the issues; and
  - Escalating to the appropriate support internal groups and/or Ontario Health Service Desk

When should you call Ontario Health Service Desk?

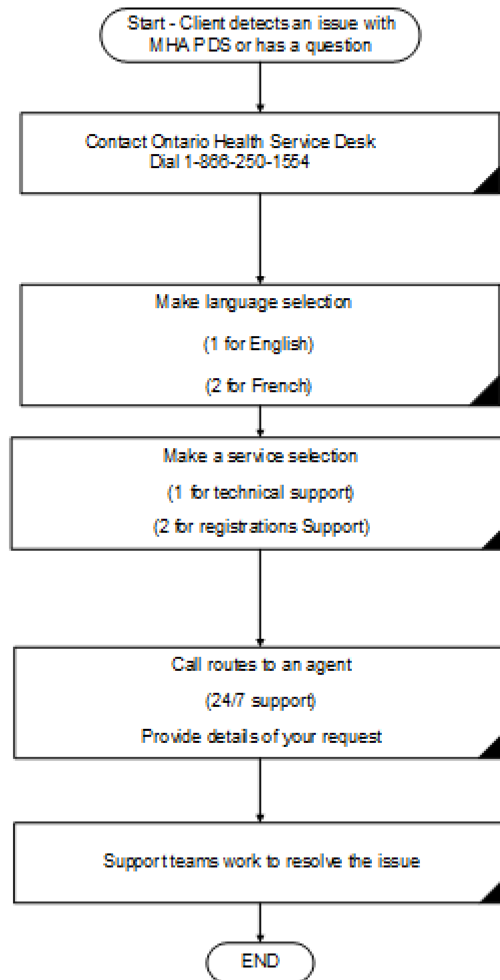
The Ontario Health Service Desk is the single point of contact for opening tickets for MHA PDS-related issues. Contact the Ontario Health Service Desk when you require information or have questions regarding:

- Requesting assistance with troubleshooting MHA PDS public key infrastructure PKI certificate issues
- Requesting assistance with troubleshooting issues contributing data to MHA PDS (e.g., application error or service availability issues)
- Reporting a privacy or security breach

How to reach Ontario Health Service Desk

The Service Desk can be reached 7/24/365:

Email: OH-DS_servicedesk@ontariohealth.ca
Phone: 1-866-250-1554
Fax: 416-586-4040
(Please phone the Service Desk to notify them when faxing any information related to an incident or service request.)



Reporting an incident or creating a service request

The fastest way to report a high severity issue/incident (e.g., service unavailable or severely degraded) is to contact Ontario Health Service Desk via telephone to open an incident ticket.

Email is best for service requests (i.e., medium, and low severity issues). Note that while higher severity issues can be reported via email, service level targets for response and resolution will be longer than those reported by phone.

Checklist to help expedite your ticket

The following details will assist with troubleshooting:

- Your name
- HSP Organization Name
- Vendor Product Name
- Certificate Common Name (CN)
- Bundle ID (if available)
- Your contact information, include backup contacts where applicable
- Indicate the Ontario Health service environment affected e.g., production or testing

- Description of issue <include date and time the issue occurred; the number of users impacted if known>
- Steps to reproduce issue and troubleshooting diagnostic steps taken

Note: Do not provide any personal health information (PHI) to the Service Desk. Refer to *Procedures for Communicating Sensitive Files via Email*

Incident, Service Request and Technical Escalation Process

Step 1 Open ticket	• Contact Ontario Health to open a ticket at 1-866-250-1554 • Choose "technical support" option from phone prompt
Step 2 Engagement with frontline Service Desk team	• A Service Desk agent works with you to identify issue(s) and commences troubleshooting steps • A Service Desk agent may engage with an Ontario Health Technical Support Team as necessary • The support agent may request additional information from you to assist in troubleshooting process • Once all action items have been completed, if the Service Desk agent cannot resolve the problem, it will be escalated to Ontario Health's and other next level support teams
Step 3 Issue escalated to Ontario Health's and other next level support teams	• Incident is assigned to the next level of support • Assigned next level of support contacts you • The next level of support reviews incident and continues troubleshooting activities where required, other support teams are engaged to continue efforts to resolve your issue

Progress of your incident ticket

Updates - Automated updates are provided as the incident is escalated among teams. Feel free to review the progress of your incident ticket by contacting the Ontario Health Service Desk anytime.
Incident priority - The incident priority is determined mutually by the support agent and you, the client.
Incident ticket closure - Your incident ticket will be closed 15 days after the incident ticket is resolved, no further troubleshooting is possible, or you authorize the Ontario Health support team to close the ticket. Your ticket will be closed if no feedback has been received after three attempts to contact you. During this time, you will receive three reminders with the final reminder stating that your ticket will be closed the next day.

Client satisfaction

Ontario Health Service Desk values and promotes client satisfaction. We welcome client feedback and encourage you to get involved through the following channels:

Client satisfaction survey

Upon closing a ticket, Ontario Health randomly selects incidents to be surveyed. You may receive a request to complete an online questionnaire. We would very much appreciate it if you would help us ensure the quality of our service by completing a brief, five-minute survey.

General feedback

If you wish to provide us your comments or suggestions, please email us any time at: OH-DS_servicedesk@ontariohealth.ca.

When does Ontario Health Service Desk contact you?

- For clarification regarding an incident or request you have reported
- To notify you of maintenance activities at our site that may impact service
- To report MHA PDS service disruptions
- To provide information regarding release dates and application improvement activities

When does the Ontario Health privacy/security office contact you?

- For requesting additional information to fulfill MHA PDS audit reports and patient access requests
- For incident management purposes