Health Report Manager (HRM)

Input Specification for Sending Facilities

January 25, 2024

Document Version: 1.1

Table of Contents

1. INTRODUCTION

1.1 Audience

This is a technical specification document, intended for clinical system administrators and interface developers who are building interfaces to transmit reports through the Health Report Manager (HRM) provincial EHR service.

1.2 Purpose

This document outlines the input specification to enable the distribution of reports through the HRM.

1.3 Version History

VERSION	DATE UPDATED	DESCRIPTION OF CHANGE
1.0	2023-09-15	Initial Publication
1.1	2024-01-25	a) Updated allowed recipient repetitions from 20 to 25 b) Updated several fields to emphasize fixed values for their usage.Re-organized document contents to standardized document format c) Removed production-related configuration information d) Added clarity to define the event dates and observation dates e) Removed connectivity parameters and referenced HRM Connectivity for Point of Service Clients instead. f) Corrected errata

1.4 Related Documents and References

1.4.1 Requisite Documents

The following table lists documents that should be reviewed to understand the concepts within this document.

DOCUMENT NAME	VERSION	PUBLICATION DATE

1.4.2 Supporting Documents

The following table lists suggested reading to better understand the context, background or further concepts identified within this document.

DOCUMENT NAME	VERSION	PUBLICATION DATE

2. BUSINESS VIEW

2.1 Business Driver

2.2 Key Benefits

2.3 What is HRM?

HRM is a provincial EHR service that enables clinicians using an OMD-certified EMR Offering to securely receive patient reports electronically from participating sending facilities (e.g., hospitals, specialty clinics and independent health facilities).

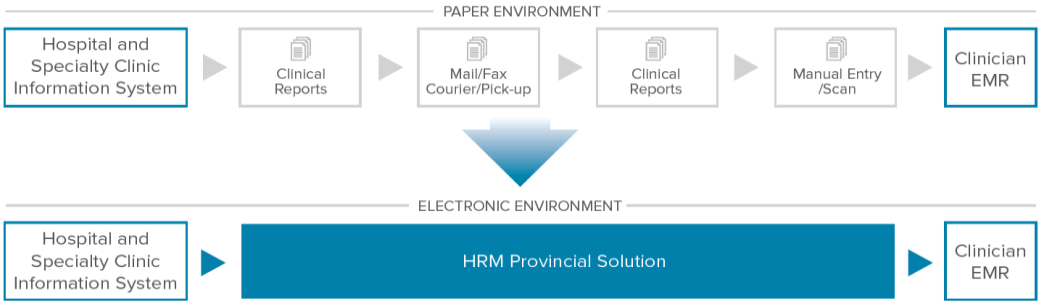
Traditionally, sending facilities have sent reports to primary care providers and specialists by producing a paper document and sending it by mail, fax or courier, or holding it for pick-up by clinicians. HRM electronically delivers the following report types from the sending facility directly into a patient's record within the clinician's EMR.

- Medical Record (e.g., Discharge Summary)
- Diagnostic Imaging (excluding image)
- eNotifications – near real-time messages to notify them when their patients are discharged from the Emergency Department or are admitted or discharged from in-patient units.

Note: The list of report types may expand or change in future.

2.4 What Does HRM Work?

The following diagram depicts how HRM works.

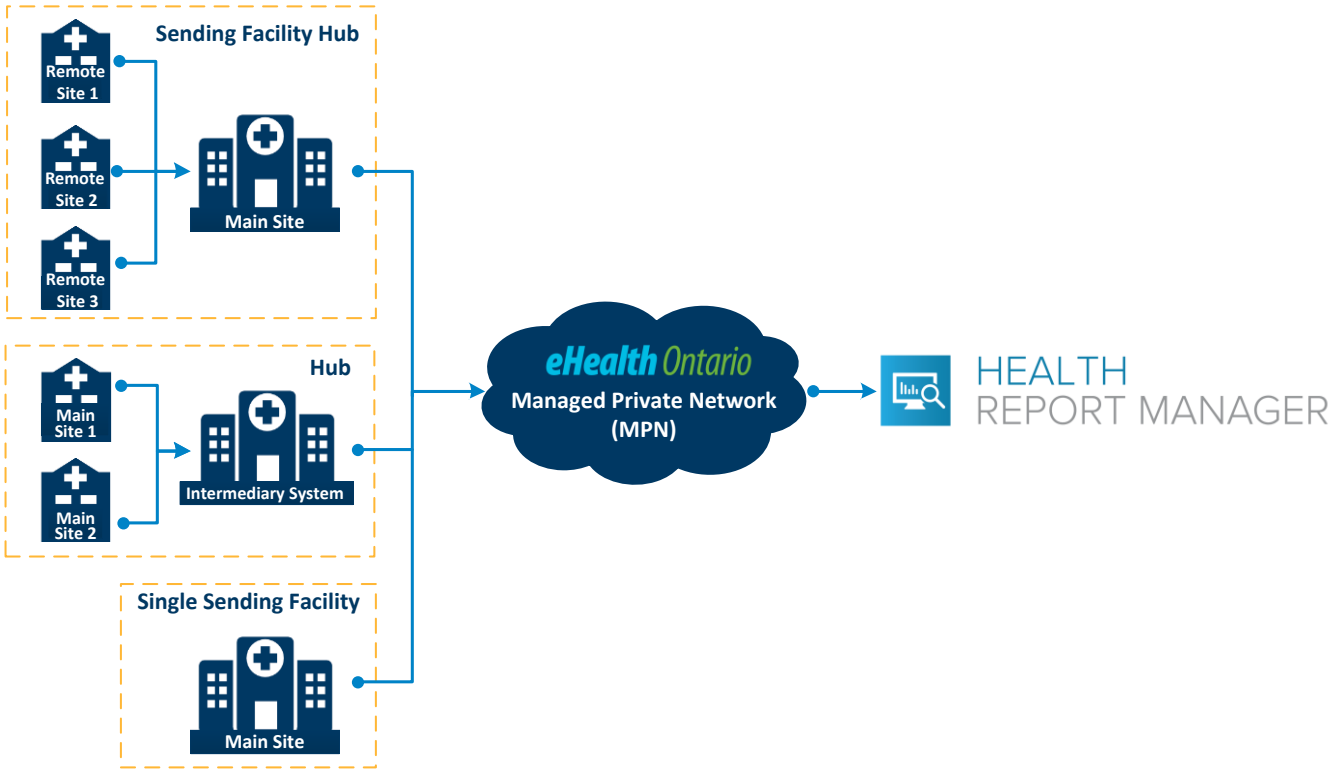


- The health information system (HIS) sends a patient report to the Health Report Manager using HL7 (a comprehensive framework and related standards for the exchange, integration, sharing, and retrieval of electronic health information that supports clinical practice and the management, delivery and evaluation of health service)
- HRM converts the patient report into the EMR standard message format, encrypts and stores the report in a Secure File Transfer Protocol (sFTP) folder for secure pickup by the intended OMD-certified EMR
- The clinician's EMR picks up the report, which is posted to the patient's record and the clinician's inbox for review and sign-off

3. SYSTEM VIEW

3.1 Background

HRM is typically deployed in two possible configurations. The single facility direct connection or the hub and spoke model. In both cases, there is a single connection to the HRM solution from the SF's main site to dedicated HRM ports.



3.2 Connectivity to HRM

OMD Maintains two separate environments utilized for SF integrations. Connectivity to HRM is provisioned through dedicated SF ports within the HRM solution. It is highly recommended that SF maintain a separation between their testing and production systems to ensure no cross-contamination occurs.

3.3 Workflow and Support Considerations

- Error Handling
    - Timeout or server-related errors should be reprocessed automatically for a specific number of reattempts. (this should not be infinite, however, manual retrigger of these messages to restart the reattempts is acceptable).

- Content-related errors should never be automatically reprocessed as these require review and correction of the error prior to reprocessing.

- HRM will provide a successful acknowledgement when a message has been successfully accepted by the system. This is not a confirmation of delivery, nor is it a confirmation that recipients are HRM subscribers.
- Each contributor is required to maintain a provider dictionary to ensure that messages sent to HRM match valid subscribers to the service (based on college identifiers).
    - OMD provides a “new user list” on a weekly basis to provide Clinician Subscriber updates which can be consumed. Any non-delivered reports either due to a misidentified recipient or to a non-HRM Subscriber are the responsibility of the sending facility.
    - Clinicians who request to be deactivated from HRM are identified with the “new user list” and contributors are given a two-week grace period, from the time of the list publication, to update their provider dictionaries to remove the identified clinicians.

4. DATA VIEW

4.1 Scope of Data

The HRM solution supports text-based Medical Record (MR) and Diagnostic Imaging (text only) reports.

Examples:

Medical Record (MR) Reports	**Diagnostic Imaging (DI) Reports *(text only)***
• Ambulatory Note • Consultation Note • Discharge Summary • Emergency Department Reports • Cardiovascular Reports	• BMD Transcription • Mammogram • CT Transcription • Radiology Transcription • Respiratory Reports

An HL7 data feed containing these clinical data types as well as any other clinical observations that would be considered useful to clinicians should be transmitted to HRM.

4.2 Report Content

- **Connectivity** – Make sure that certificates are installed.
- **HTTP Headers** – Validate uao (UPI)and x-request-id during testing.
- **Medical Records** – Confirm which diagnostic category will be used. OTH (other) or PHY (Hx. Dx, admission note, etc.) are the only codes for MR.
- **LOINC Codes** – Every report must contain a valid LOINC code which should be the most specific code available related to the report content.
- **Diagnostic Report EffectiveDateTime** – the Date/time that the service occured or the Exam date.
- **Diagnostic Report Issued Date** – the Date/time the report was transcribed.
- **Diagnostic Report EffectiveDateTime and Encounter – Period – StartDate** can be the same value.

4.3 Message Structure

4.3.1 Message Format

Fast Healthcare Interoperability Resources (FHIR) is a standards framework developed by HL7. It allows electronic health information systems to speak to one another. For the HRM Implementation, all messages are based on the FHIR DSTU2 v1.0.2 version.

More information on FHIR standards can be found on their website (http://hl7.org/fhir/DSTU2/index.html)

Point of Service Systems connect to the Ontario Health ONE Access Gateway (OAG) to send HRM reports. For the Message Header structure, refer to the "ONE Access Gateway Parameters" in the "HRM Connectivity for Point of Service Clients" document.

4.3.2 General Structure

Message Header	The header for a message exchange that is either requesting or responding to an action.
Patient	The patient resource captures demographics and other administrative information about the individual receiving care or other health-related services.
Diagnostic Order	A Diagnostic Order is a record of a request for a set of diagnostic investigations to be performed.
Diagnostic Report	The Diagnostic Report contains the findings and interpretation of diagnostic tests performed on patients. The report includes clinical context such as requesting and provider information, and some mix of atomic results, images, textual and coded interpretations, and formatted representation of diagnostic reports
Document Manifest	The document manifest resource defines a set of documents.
Encounter	An interaction between a patient and healthcare provider(s) to provide healthcare service(s) or assess the health status of a patient.
Practitioner	A person who is directly or indirectly involved in the provisioning of healthcare.

5. REQUIREMENTS

5.1 How to Read this Section

5.1.1 Resource Tables

The following columns are found within each resource table:

- **Element Name**: Identifies the FHIR component
- **Cardinality (Card.):** Indicates the optionality of the field. The following values may be found:

VALUE	DESCRIPTION
R (1)	Required. A value must always be provided
0 (0..1)	Optional. Systems should transmit data in this field if they support it, but this is not required.
C	Conditionally required please see Description
CH	Choice of either field, however, at least one must be present.

- **Type**: Indicates the FHIR data type associated with this field
- **RP#**: Indicates whether the field may repeat, and if so, indicates the minimum and maximum number of repetitions
- **Len**: Maximum length of the field if one is defined.
- **Code Table#**: Indicates that there is a specific value or rule set applicable to the field. Please reference the associated Code table in the appendix for rules or acceptable values.
- **Description**: Contains a description of the field

5.1.2 Data Type Tables

The following columns are found within each data type table.

	**Element Name**	Identifies the data type
	**Card.**	Indicates the cardinality of the field
	**Type**	Indicates the FHIR data type associated with this field
	**Len**	Indicates the maximum length of the field
	**Code Tbl#**	For components where a code is expected a table is referenced in the appendix that outlines from which values the data must be drawn
	**Sample Data**	Shows an example of the data that may be found in this field

5.2 Bundle

The message bundle is the root of all messages to which all resources link up. The context-specific resources are maintained under the entry-resource sub-elements and are discussed in separate sections below.

ELEMENT NAME	CARD	TYPE	RP#	LEN	DESCRIPTION	SAMPLE DATA
Bundle	R	DomainResource	-	-	Contains a collection of resources entry	
id	R	id	1	64	Unique Bundle ID	PKG1-UC1-2-1
Type	R	code	1	-	Bundle type. FIXED: message	message
entry	R	BackboneElement	7..*	-	Entry in the bundle - will have a resource or information must be a resource unless there's a request or response	


```
{
  "resourceType": "Bundle",
  "id": "aad83f31-326d-4792-addb-3d40fedc6457",
  "type": "message",
  "entry": [
    {
      "resource": {
        "resourceType": "MessageHeader",
      }
    },
    {
      "resource": {
        "resourceType": "Patient",
      }
    },
```

5.2.1 entry

The entry element is a repeating element which can contain only a single resource element and the subsequent FHIR resource structure below. The possible sub-elements are constrained to HRM FHIR-specific elements only. All sub sub-elements must exist within the message at least once and full definitions can be found in subsequent sections of this document.

ELEMENT NAME	CARD	TYPE	RP#	LEN	DESCRIPTION	SAMPLE DATA
Entry		BackboneElement	7..*	-	Contains a collection of resource entries. The minimum number of repetitions is 7 with the expectation of at least 1 of each sub-element	
resource	R	resource	1	-	Entry in the bundle - will have a resource or information must be a resource unless there's a request or response The minimum number of repetitions is 7 with the expectation of at least 1 of each sub-element	resourceType: "MessageHeader"

5.2.2 resource

The resource element is the parent to all FHIR resources contained within the message bundle and must contain a minimum of 1 instance of each. The available FHIR resources are as follows.

ELEMENT NAME	RP#	DESCRIPTION
MessageHeader	1..1	Data related to the message exchange
Patient	1..1	Patient identification and demographic data
DiagnosticOrder	1..1	Ordering information related to the report data contained within the message.
DiagnosticReport	1..1	Report-related discrete data elements
DocumentManifest	1..1	Report-related attachments. (can be text or binary but must be base64 encoded)

ELEMENT NAME	RP#	DESCRIPTION
Encounter	1..1	Information related to the encounter or visit associated with the message
Practitioner	1..*	Identification of data related to clinicians referenced within the message, including recipients

5.3 Message Header

MessageHeader is the header for a message exchange that is either requesting or responding to an action. The reference(s) that are the subject of the action as well as other information related to the action are typically transmitted in a bundle in which the MessageHeader resource instance is the first resource in the bundle. The tables below define the various data elements that should be provided within the Message Header.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
MessageHeader						A resource that describes a message that is exchanged between systems	
id	R	id	1	64	-	Unique Message Header ID. This is utilized as the Message Control ID and will be used as the identifier in the message response.	aad83f31-326d-4792-addb-3d40fedc6457
timestamp	R	instant	1	-	0021	The time that the message was sent from the originating system to HRM	2017-01-09T11:36:55-05:00
event	R	coding	1	-	-	Code for the event this message represents	
source	R	BackboneElement	1	-	-	Message Source Application	
		BackboneElement	1	-	-	Message Destination Application(s)	

```
{
  "resource": {
    "resourceType": "MessageHeader",
    "id": "aad83f31-326d-4792-addb-3d40fedc6457",
    "timestamp": "2017-01-18T15:13:30.121-05:00",
    "event": {
        "system": "http://hl7.org/fhir/message-events",
        "code": "diagnosticreport-provide"
    },
    "source": {
        "name": "0123456789",
        "endpoint": "http://10.10.10.10:12345"
    },
    "destination": [
      {
        "name": "9876543210",
        "endpoint": "http://www.SFHub.com/HUBInterface"
      }
    ]
  }
},
```


5.3.1 event.coding

This field must contain the code for the event this message represents. For HRM purposes only “diagnosticreport-provide” events should be sent for report delivery.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
event.coding	R	Element					
system	R	uri	1	-	-	Code system used for the event coding. **This is a fixed value.**	http://hl7.org/fhir/message-events
code	R	code	1	-	0001	Message event code as referenced for the system. HRM currently only supports a single value of diagnosticreport-provide.	diagnosticreport-provide

5.3.2 source

The sending facility for HRM is the legal HSP that takes full responsibility for sending the message. The source for this unique identifier is the Provider Registry number assigned to your facility by Ontario Health.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
source	R						
name	R		1	12	-	UPI identifier for the original system of the message	1234567890
endpoint	R		1	-	-	URL endpoint for the source of the message	http://10.10.10.10:12345 OR http://www.sendingfacility.com/HIS

5.3.3 destination

The purpose of this segment is to denote the intermediary system and destination application for which the message is intended. OMD will inform your sending facility what to populate this field with.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
destination	R	Element					
name	R	string	1	12	-	UPI identifier for the system this message was originally sent to. This can be either an intermediate system (HUB) or directly to HRM.	1234567890 OR HRM
endpoint	R	uri	1	-	-	URL endpoint for the destination.	http://www.SFHub.com/HubInterface

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
							OR should we remove? In which scenario will this endpoint will be used? http://www.ontariomd.com/HRM

5.4 Patient

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Patient		DomainResource					
Id	R	id	1	-	-	Internal identifier used within the message as a reference to other resources. This must be unique per resource type.	Patient001
identifier	R	identifier	1..2	-	-	Identifier(s) for this patient	
name	R	HumanName	1	-	-	A name associated with the individual	
telecom	O	ContactPoint	0..5	-	-	A telephone number by which the individual may be contacted	
gender	R	code	1	-	0006	The gender that the patient is considered to have for administration and record-keeping purposes	Male
birthDate	R	date	1	-	-	The date of birth of the individual	1945-11-11

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
deceasedBoolean		boolean	1	-	-	Indicates if the individual is deceased or not	false
deceasedDateTime	CH	dateTime	1	-	0021	To be included if the patient is deceased and the date/time of death is known.	2017-01-01T12:34:56-05:00
address	O	address	0..1	-	-	Home address for the individual	

```
{
  "resource": {
    "resourceType": "Patient",
    "id": "Patient001",
    "identifier": [
      {
        "type": {
          "coding": [
            {
              "system": "http://hl7.org/fhir/v2/0203",
              "code": "MR"
            }
          ]
        },
        "value": "ABC123"
      },
      {
        "extension":[
        {
            "url": "http://ehealthontario.ca/API/fhir/StructureDefinition/ext-hcn-version-code",
            "valueString": "AB"
        }
        ],
        "type": {
            "coding": [
                {
                    "system": "http://hl7.org/fhir/v2/0203",
                    "code": "JHN"
                }
            ]
        },
        "system": "http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-patient-hcn",
        "value": "1234567890"
      }
    ],
    "name": [
      {
        "family": [
          "Smith"
        ],
        "given": [
          "John"
        ]
      }
    ],
    "telecom":[
        {
            "system": "phone",
            "value": "416-555-5555",
            "use": "home",
            "rank": 1
        }

    ],
    "gender": "male",
    "birthDate": "1945-11-11",
    "deceasedBoolean": false,
    "address":[
        {
            "use": "home",
            "line": [
                "123 Somewhere St",
                "Suite 104"
            ],
            "city": "Toronto",
            "state": "ON",
            "postalCode": "M5S3C1",
            "country": "CAN"
        }
    ]
  }
},
```

5.4.1 Identifier

This field must contain at least one repetition identifying the patient. These repetitions must follow these rules:

- All messages must contain at least one repetition patient identifier with an identifier type code of MR (MRN).
- A provincial health number (e.g. OHIP number or other provincial HCN) must also be sent provided the patient has one.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Identifier		Element					
extension	O	extension	1	-	-	Extension used to contain the HCN Version code should one be necessary.	
type	R	coding	1	-	-	Categorization of the type of identifier being presented such as an MRN or HCN.	
system	C	Uri	0..1	-	0020	Only present for Health Card Numbers (JHN Type) URI reference to the system in which the value was assigned. This is typically used to specify the URI for the associated Health Ministry such as OHIP	http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-patient-hcn
Value	R	string	1	20	-	Actual identifier value such as the MRN or HCN number. (HCN Version code should not be present here)	MR01234 OR 1234567897

5.4.2 identifier.extension

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
extension	O	Element	1	-	-		
url	R	uri	1	-	-	URI associated with the extension use. In this case, this is a hardcoded value. **This is a FIXED value.**	http://ehealthontario.ca/API/fhir/StructureDefinition/ext-identifier-hcn-version-code
valueString	R	string	1	1..2	-	HCN version code.	AB

5.4.2.1 identifier.type.coding

The Identifier Type and subsequent coding element are designed to provide categorization of the type of identifier being provided such as a Jurisdictional HCN such as OHIP or an internal facility MRN.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
type.coding							
system	R	reference	1	-		URI reference to the coding system being used in the code element.	http://hl7.org/fhir/v2/0203
Code	R	string	1	-		Specific code to be used within the coding system identified. **For the Patient Identifier, this value should be either JHN or MR based on usage.**	JHN OR MR

Code: This component must identify which type of identifier this field repetition contains. For HRM purposes the following identifier types should be provided:

MR = Medical Record Number

JHN = Health Card Number

5.4.3 name

This component must contain the patient's name. For HRM purposes the clinicians are expecting to receive the patient's legal name.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
name		Element					
family	R	string	1	50	-	Patient's last name	Smith
given	R	string	1	50	-	Patient's first name	John

5.4.4 telecom

While the telecom element itself is optional, it should be noted that if the element itself is present. All sub-elements are required.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
telecom		Element					
system	R	code	1	-	0004		
Telecommunications form for contact point	phone						

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
value	R	string	1	-	-	Actual contact value	(416)555-1234

5.4.5 gender

This field must contain the gender that the patient is considered to have for administration and record-keeping purposes.

5.4.6 birthDate

This field must contain the date/time of birth of the patient. This is a required field for HRM purposes.

5.4.7 deceasedBoolean

This field indicates whether the individual is deceased or not. Valid values include true or false. This element should only be present if the deceasedDateTime element is absent.

5.4.8 deceasedDateTime

If recorded in the sending system, this field must contain the date and time of the patient's death with as much precision as is known. This element should only be present if the deceasedboolean element is absent.

5.4.9 address

This component must contain the patient's home address.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
address		Element					
Use	R	code	1	-	0007	The Purpose of this address	Home

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Line	O	string	0..3	50	-	Should include street name, number, direction & P.O. Box etc.	1 First Avenue
City	O	string	0..1	80	-	Identifies the name of city, town etc.	North York
State	O	string	0..1	2	0016	Identifies the sub-unit of the country	ON
postalCode	O	string	0..1	10	0021		M3C4M5
country	O	string	0..1	3	0018	Subset of Country designations as per ISO-3166-1 Alpha-3 standard.	CAN

5.5 DiagnosticOrder

The Diagnostic Order resource outlines the request for a diagnostic service and includes identifying information associated with the request.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
DiagnosticOrder		DomainResource					
id	R	id	1	64	-	Internal identifier used within the message as a reference to other resources. This must be unique per resource type.	Order001
orderer	R	reference	1	-	-	The practitioner that holds legal responsibility for ordering the investigation	
identifier	O	identifier	1	-	-	Identifiers assigned to this order instance by the orderer and/or	

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
						the receiver and/or order fulfiller	


```
{
  "resource": {
    "resourceType": "DiagnosticOrder",
    "id": "Order001",
    "orderer": {
        "reference": "Practitioner/DR001",
        "display": "Dr Jonah Jameson"
    },
    "identifier": [
      {
        "type": {
            "coding": [
                {
                    "system": "http://hl7.org/fhir/identifier-type",
                    "code": "PLAC"
                }
            ]
        },
        "value": "PLAC01234"
      }
    ]
  }
},
```


5.5.1 orderer

This field contains the identity of the provider who ordered this result, if applicable. This component includes the reference ID used within the Practitioner resource to identify the correct practitioner to retrieve additional details regarding the clinician (e.g., first and last name).

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
order							
reference	R	string	1	-	-	A reference to the Practitioner resource that holds legal	Practitioner/DR001

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
						responsibility for ordering the investigation	
display	O	string	1	-	-	Optional plain text representation of the ordering practitioner	Dr John Smith

5.5.2 identifier

This field contains the requisition identifier; the identifier associated with the person or service that requests or places an order.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Identifier		Element					
type.coding	R	coding	1	-	-	Identifier type coding	
value	R	string	1	50	-	The diagnostic order number associated with this request as generated by the source information system.	PLAC01234

5.5.2.1 identifier.type.coding

The Identifier Type and subsequent coding element are designed to provide categorization of the type of identifier being provided such as a Jurisdictional HCN such as OHIP or an internal facility MRN.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
type.coding							
system	R	reference	1	-	-	**FIXED VALUE:** URI reference to the coding system being used in the code element.	http://hl7.org/fhir/identifier-type

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
code	R	string	1	-	-	Specific code to be used within the coding system identified. **This is a FIXED value for the diagnosticOrder resource**	PLAC

5.6 DiagnosticReport

The Diagnostic Report contains the findings and interpretation of diagnostic tests performed on patients. The report includes clinical context such as requesting and provider information, some mix of atomic results, textual and coded interpretations, and formatted representation of diagnostic reports.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
DiagnosticReport		DomainResource					
id	R	id	1	64	-	Internal identifier used within the message as a reference to other resources. This must be unique per resource type	Report001
extension	C	extension	1	-	-	Optional extension field to specify the urgency of this report	
identifier	R	identifier	1	-	-	The local ID assigned to the report by the order filler, usually by the Information System of the diagnostic service provider	
status	R	code	1	-	0009	The status of the diagnostic report as a whole	final
category	R	CodeableConcept	1	-	0010	A code that classifies the clinical discipline, department or	

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
						diagnostic service that created the report	
code	R	CodeableConcept	1	-	-	Name/Code for this diagnostic report as presented within the LOINC code system	
effectiveDateTime	R	dateTime	1	-	0021	The time from which the observed values are valid. (Date/time of service)	2017-01-01T01:23:45-05:00
issued	R	instant	1	-	0021	The date and time that this version of the report was released from the source diagnostic service	2017-01-02T12:23:45-05:00
performer	R	reference	1	-	-	The Clinician responsible for the diagnostic content of this report.	
request	R	reference	1	-	-	Reference to the diagnosticOrder details associated with this report.	DiagnosticOrder/Order001
conclusion	O	string	0..1	-	-	Concise and clinically contextualized narrative interpretation of the diagnostic report including diagnosis information.	Elevated LDL
codedDiagnosis	O	CodeableConcept	0…10	-	-	SNOMED-CT representation of diagnosis information related to the report.	

```
{
  "resource": {
    "resourceType": "DiagnosticReport",
    "id": "Report001",
    "extension":[
        {
            "url": "http://ehealthontario.ca/API/fhir/StructureDefinition/ext-hrm-diagnosticReport-urgency-flag",
            "valueBoolean": true
        }
    ],
    "identifier": [
      {
        "type": {
            "coding": [
                {
                    "system": "http://hl7.org/fhir/identifier-type",
                    "code": "FILL"
                }
            ]
        },
        "value": "FILL01234"
      }
    ],
    "status": "corrected",
    "category": {
        "coding": [
            {
                "system": "http://hl7.org/fhir/v2/0074",
                "code": "RAD"
            }
        ]
    },
    "code": {
        "coding": [
            {
                "system": "http://loinc.org",
                "code": "10191-5"
            }
        ]
    },
    "effectiveDateTime": "2017-01-18T15:13:30-05:00",
    "issued": "2017-01-18T15:13:30.121-05:00",
    "performer": {
        "reference": "Practitioner/DR001"
    },
    "request": {
        "reference": "DiagnosticOrder/Order001"
    },
    "conclusion": "Elevated LDL",
    "codedDiagnosis": [
        {
            "coding": [
                {
                    "system": "http://snomed.info/sct",
                    "code": "447139008"
                }
            ]
        }
    ]
  }
},
```

5.6.1 id

This field must always be unique, except when a correction, amendment or cancellation is being sent for an existing report. Using non-unique report identifiers may lead to missed reports in the EMR as reports with the same identifier stack within the receiving EMR.

Report identifiers must be unique in these scenarios:

- When multiple tests are done on the same patient on the same day (e.g., patient has a chest x-ray done and ECG done on the same day), these reports must have unique report identifiers.
- When unique investigations of the same type were performed on a patient (e.g., lung test measurements before and after patient takes an inhaler); this is not an amendment, it is unique investigations, these reports must have unique report identifiers.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
id	R	id	1	64	-	Internal identifier used within the message as a reference to other resources. This must be unique per resource type	Report001

5.6.2 extension

This component is utilized to designate the urgency of the report attached. This element should only be included if the Urgency flag is set to TRUE.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
extension		Element					
url	R	uri	1	-	-	**FIXED VALUE:** URI associated with the extension use. In this case, this is a hardcoded value.	http://ehealthontario.ca/API/fhir/StructureDefinition/ext-hrm-diagnosticReport-urgency-flag

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
valueBoolean	R	boolean	1	-	-	Urgency Flag Boolean value.	true

5.6.3 identifier

This field contains the report identifier associated with the diagnostic report generated by the source system.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
identifier		Element					
type.coding	R	coding	1	-	-	Identifier type coding	
value	R	string	1	50	-	The diagnostic order number associated with this request and generated by the source system for the report.	FILL01234

5.6.3.1 identifier.type.coding

The Identifier Type and subsequent coding element are designed to provide categorization of the type of identifier being provided such as a Jurisdictional HCN such as OHIP or an internal facility MRN.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
type.coding							
system	R	reference	1	-	-	URI reference to the coding system being used in the code element. This is a fixed value	http://hl7.org/fhir/identifier-type
code	R	string	1	-	-	Specific code to be used within the coding system identified. This is a fixed value for the diagnosticReport resource.	FILL

5.6.4 status

A required field that indicates the current completion state of the document/result. This field must contain one of the following values which will be translated to the following for EMR vendors.

5.6.5 category.coding

Category enables contributors to provide granular content to HRM to specify key details about Diagnostic Imaging/Diagnostic Tests (DI) where there may be one or more modalities and their corresponding procedure(s) reported.
For HRM Only: This information is passed on to the recipient EMRs to assist them in categorizing reports received from the hospital or specialty clinic.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
category.coding		Element					
system	R	uri	1	-	-	URI reference to the coding system being used in the code element.	http://hl7.org/fhir/v2/0074
code	R	code	1	3	0010		

5.6.6 code.coding

This field represents the mnemonic/abbreviation for the report type.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
code.coding							
system	R	uri	1	-	-	URI reference to the coding system being used in the code element.	https://loinc.org/
code	R	code	1	-	-	Specific code to be used within the coding system identified.	10191-5

5.6.7 effectiveDateTime

This field contains the most relevant date/time for reports and observations.

For Medical Record Reports Types (e.g., Consult Reports), this field contains the date/time of service (e.g., date of consultation, date of encounter, date of surgery for an operative report). If a Medical Record report is being corrected, this field contains the date/time of service. Caution: Use of the date of transmission in the effectiveDateTime within an HRM report should be avoided as it may lead to issues with report management in the receiving clinician's EMR and delays in patient care.
For Diagnostic Images, this field contains the date/time of when the observations were taken and corresponds directly with the procedures and sub-procedures listed within the category and code fields (and not with the date of transmission of the report).

5.6.8 issued

This field indicates the date and time that this version of the report was released from the source diagnostic service.

5.6.9 performer

This field must contain the identity of the attending doctor for the patient visit, if appropriate and available. To capture the clinician this component should include the clinician's CPSO or CNO number and reference the Practitioner resource for additional details regarding the attending doctor (e.g., first and last name).

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
performer							
reference	R	string	1	-	-	A reference to the Practitioner resource that holds legal responsibility for performing the investigation.	Practitioner/DR001
display	O	string	0..1	-	-	Optional plain text representation of the assigning authority.	Dr John Smith

5.6.10 request

A reference to the Diagnostic Order that this report fulfills.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
request							
reference	R	string	1	-	-	A reference to the Practitioner resource that holds legal responsibility for performing the investigation.	diagnosticOrder/Order001

5.6.11 conclusion

The conclusion should capture a concise and clinically contextualized narrative interpretation of the diagnostic report.

5.6.12 codedDiagnosis.coding

The SNOMED-CT Canadian Edition represented the diagnostic code associated with the enclosed report. This is the Canada Health Infoway curated version which includes the Canadian extension added to the SNOMED-CT International Edition.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
coding		Element					
system	R	uri	1	-	-	URI reference to the coding system being used in the code element.	http://snomed.info/sct
code	R	code	1	-	-	Specific code to be used within the coding system identified.	447139008

5.7 DocumentManifest

The document manifest resource defines a set of documents.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
DocumentManifest							
id	R	id	1	-	-	Internal identifier used within the message as a reference to other resources. This must be unique per resource type.	Document001
recipient	R	reference	1…25	-	-	A practitioner for which this set of documents is intended	
author	R	reference	1	-	-	Identifies who is responsible for creating the manifest, and adding documents to it	

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
status	R	code	1		0015	The status of this document manifest	current
content	R	content	1		-	Document content attachments related to this message.	
related	R	reference	1		-	Reference to the corresponding DiagnosticReport associated with this document.	


```
{
  "resource": {
    "resourceType": "DocumentManifest",
    "id": "Document001",
    "recipient": [
      {
        "reference": "Practitioner/DR001"
      },
      {
        "reference": "Practitioner/DR002"
      }
    ],
    "author": [
      {
        "reference": "Practitioner/DR001"
      }
    ],
    "status": "current",
    "content": [
      {
        "pAttachment": {
          "contentType": "application/pdf",
          "language": "en",
          "data": "TWVzc2FnZSBTdWNjZXNzZnVsbHkgRGVjb2RlZA==",
          "title": "Patients LDL Report",
          "creation": "2017-01-18T15:13:30-05:00"
        }
      }
    ],
    "related":[
        {
            "ref":{
                "reference": "diagnosticReport/Report001"
            }
        }
    ]
  }
},
```

5.7.1 recipient

This field contains information designating the specific recipients of electronic reports. To capture the report recipients this component should include the clinician's ID number assigned within the Practitioner resource which will include additional details regarding the recipient (e.g., first and last name).

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
recipient							
reference	R	string	1	-	-	A reference to the Practitioner resource that holds legal responsibility for performing the investigation.	Practitioner/DR001
display	O	string	0..1	-	-	Optional plain text representation of the assigning authority.	Dr John Smith

5.7.2 Author

Identifies who is responsible for creating the manifest, and adding documents to it.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
author							
reference	R	string	1	-	-	A reference to the Practitioner resource that holds legal responsibility for performing the investigation.	Practitioner/DR002
display	O	string	0..1	-	-	Optional plain text representation of the assigning authority.	Dr. Bob Doe

5.7.3 status

The status of this document manifest as represented in Code Table # 0015.

5.7.4 content.pAttachment

This field contains the value or text of the patient-related observation or documents.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
content.pAttachment		Element					
contentType	R	code	1	-	0019	MIME-type associated with the base64 encoded data based on RFC 4648	application/pdf
language	O	code	0..1	-	-	ISO 639-1 representation of the language in which the document was written. **Currently, only English and French are supported.**	en Or fr
data	R	Base64Binary	1	-	-	Base64 encoded binary of the report content that has been attached within the message as per **RFC 4648**	
title	O	string	0..1	-	-	Title for the attached document	X-ray right leg
creation	R	dateTime	1	-	0021	The date that the attachment was created	2017-01-01T00:00:00-05:00

Transmitting Binary Contents (e.g., Scanned Images, PDFs)

The CDR supports the storage of binary attachments as a part of a document. This may serve several purposes (the following list is only to provide examples; it is not an exclusive list):

- A PDF document or Microsoft Word document may be transmitted which contains the entire contents of a report

- An image file can be transmitted which supplements the contents of a report
- A diagram can be transmitted which explains a portion of a report
- A sound file can be transmitted which provides interpretation
- An HTML document can be transmitted which contains the body of a report

Binary content is transmitted using the encapsulated data (ED) HL7 data type. To be transmitted in an FHIR message, binary contents must be Base 64 encoded. See the following URL for a description of Base 64 encoding: http://en.wikipedia.org/wiki/Base64

5.7.5 related.ref

Reference to the diagnostic report resource that this attachment is related too.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
related.ref		Element					
reference	R	string	1	-	-	Reference to the diagnostic report that this attachment documents.	DiagnosticReport/Report001

5.8 Encounter

The Encounter resource describes an interaction between a patient and healthcare provider(s) to provide healthcare service(s) or assess the health status of a patient.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Encounter							
id	R	id	1	-	-	Internal identifier used within the message as a reference to other resources. This must be unique per resource type.	Visit001

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
identifier	R	identifier	1	-	-	Identifier(s) by which this encounter is known. Visit Number.	
status	R	code	1	-	0011	Current state or status of the encounter	finished
class	R	code	1	-	0012		outpatient
period	R	period	1	-	-	The start and end time of the encounter	


```
{
  "resource": {
    "resourceType": "Encounter",
    "id": "Visit001",
    "identifier": [
      {
        "type": {
            "coding": [
                {
                    "system": "http://hl7.org/fhir/v2/0203",
                    "code": "VN"
                }
            ]
        },
        "value": "VN43210"
      }
    ],
    "status": "finished",
    "class": "outpatient",
    "period": {
      "start": "2017-01-01T08:34:56.789-05:00",
      "end": "2017-01-02T12:34:56.789-05:00"
    }
  }
},
```

5.8.1 identifier

This field contains the requisition identifier; the identifier associated with the encounter or visit.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Identifier		Element					
type.coding	R	coding	1	-	-	Identifier type coding	
value	R	string	1	50	-	Visit or encounter number associated with this request and generated by the source report system.	VN43210

5.8.1.1 identifier.type.coding

The Identifier Type and subsequent coding element are designed to provide categorization of the type of identifier being provided such as a Jurisdictional HCN such as OHIP or an internal facility MRN.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
type.coding							
system	R	reference	1	-	-	URI reference to the coding system being used in the code element.	http://hl7.org/fhir/v2/0203
code	R	string	1	-	-	Specific code to be used within the coding system identified. For the Encounter resource, this is fixed to VN.	VN

5.8.2 status

The status component defines the state of the encounter. The valid values for this element can be found in Code Table # 0011.
For the majority of HRM reports the encounter status is expected to be finished.

5.8.3 class

This component should contain the classification of the encounter. The valid values for this element can be found in Code Table # 0012.

5.8.4 period

This component includes the start and end time of the encounter. The end time will be considered the discharge date and time.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
period							
start	O	dateTime	0…1	-	0021	Admit DateTime of the encounter	2017-01-01T08:34:56-05:00
end	R	dateTime	1	-	0021	Discharge DateTime of the encounter	2017-01-02T12:34:56-05:00

5.9 Practitioner

A person who is directly or indirectly involved in the provisioning of healthcare.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Practitioner							
id	R	id	1	64	-	Unique Identifier for the practitioner resource within the FHIR construct (NOT the CPSO/CNO identifier)	DR001
identifier	R	identifier	1	-	-	Identifier construct to contain the Clinician's college-issued identifier	

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
name	R	HumanName	1	-	-	Clinician's First/Last Name	htt


```
{
  "resource": {
    "resourceType": "Practitioner",
    "id": "DR001",
    "identifier": [
      {
        "type": {
          "coding": [
            {
              "system": "http://hl7.org/fhir/v2/0203",
              "code": "MD"
            }
          ]
        },
        "system": "http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-license-physician"
        "value": "12345"
      }
    ],
    "name": {
      "family": [
        "Jameson"
      ],
      "given": [
        "Jonah"
      ]
    }
  }
},
```

5.9.1 identifier

This field contains the requisition identifier; the identifier associated with the encounter or visit.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
identifier		Element					
type.coding	R	coding	1	-	-	Identifier type coding	
system	R	uri	1	-	0017	URI associated with the regulatory body the practitioner is authorized by	http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-license-physician
value	R	string	1	50	-	The college-specific (CPSO/CNO) numerical identifier associated with the clinician.	12345

5.9.1.1 identifier.type.coding

The Identifier Type and subsequent coding element are designed to provide categorization of the type of identifier being provided such as a Jurisdictional HCN such as OHIP or an internal facility MRN.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
type.coding							
system	R	reference	1	-	-	URI reference to the coding system being used in the code element. **This is a fixed value**	http://hl7.org/fhir/v2/0203
code	R	string	1	-	-	Specific code to be used within the coding system identified. **For the Practitioner resource, this should be either MD or NP**	MD or NP

5.9.2 name

This component must contain the practitioner's name.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
name							
family	R	string	1	50	-	Clinician's Last Name	Smith
given	R	string	1	50	-	Clinician's First Name	John

5.10 Response Messages

5.10.1 Bundle

The message bundle is the root of all messages to which all resources link up.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Bundle	R	DomainResource	-	-	Contains a collection of resources	Contains a collection of resources entry	
id	R	id	1	64	Unique Bundle ID	Unique Bundle ID	42128718-5199-42d0-8ad2-90623ef534d3
type	R	coding	1	-	Bundle type. Default: message	Bundle type. Default: message	message
entry	R	BackboneElement	1	-	Entry in the bundle - will have a resource or information	Entry in the bundle - will have a resource or information must be a resource unless there's a request or response	

```
{
   "resourceType": "Bundle",
   "id": "76634ca5-9949-4e14-adbe-f81479d1002d",
   "type": "message",
   "entry":    [
      {"resource":       {
         "resourceType": "MessageHeader",
         "id": "3561",
         "timestamp": "2017-05-19T15:45:15.371-04:00",
         "event":          {
            "system": "http://hl7.org/fhir/message-events",
            "code": "diagnosticreport-provide"
         },
         "response":          {
            "identifier": "aad83f31-326d-4792-addb-3d40fedc6457",
            "code": "ok",
            "details": {"reference": "OperationOutcome/9ffc4f11-e96f-49e5-a765-6776eaa1d115"}
         },
         "source":          {
            "name": "HRM",
            "endpoint": "http:/www.ontariomd.com/HRM"
         },
         "destination": [         {
            "name": "9876543210",
            "target": {"display": "0123456789"},
            "endpoint": "http://www.SFHub.com/HUBInterface"
         }]
      }},
      {"resource":       {
         "resourceType": "OperationOutcome",
         "id": "9ffc4f11-e96f-49e5-a765-6776eaa1d115",
         "issue": [         {
            "severity": "information",
            "code": "informational",
            "details": {"text": "Successfully connected to AIMS Web Services!"}
         }]
      }}
   ]
}
```

5.10.1.1 entry

The entry element is a repeating element which can contain only a single resource element and the subsequent FHIR resource structure below. The possible sub-elements are constrained to HRM FHIR-specific elements only. All sub-elements must exist within the message at least once and full definitions can be found in subsequent sections of this document.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
entry		DomainResource	1	-		Contains a collection of resource entries. The minimum number of repetitions is 7 with the expectation of at least 1 of each subelement	
resource	R	resource	2	-		Entry in the bundle - will have a resource or information	"resourceType": "MessageHeader"

5.10.1.2 resource

The resource element is the parent to all FHIR resources contained within the message bundle and must contain a minimum of 1 instance of each. The available FHIR resources are as follows.

ELEMENT NAME	RP#	DESCRIPTION
MessageHeader	1..1	Data related to the message exchange
OperationOutcome	1..1	Operation ACK or NACK response details including error details (if applicable).

5.10.2 Message Header

MessageHeader is the header for a message exchange that is either requesting or responding to an action. The reference(s) that are the subject of the action as well as other information related to the action are typically transmitted in a bundle in which the MessageHeader resource instance is the first resource in the bundle. The tables below define the various data elements that should be provided within the Message Header.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
MessageHeader						A resource that describes a message that is exchanged between systems	
id	R	id	1	64	-	Unique Message Header ID. This is utilized as the Message Control ID and will be used as the identifier in the message response.	297
Timestamp	297		1	-	0021	The time that the message was sent from the originating system to HRM.	2017-01-09T11:36:55-05:00
event	R	instant	1	-	-	Code for the event this message represents	
response	2017-01-09T11:36:55-05:00		1	-	-	The response details as references from the original message sent and referenced to the operation outcome.	
source	R	coding	1	-	-	Message Source Application	
destination	R	BackboneElement	1	-	-	Message Destination Application(s)	

```
{
   "resource":{
      "resourceType": "MessageHeader",
      "id": "3561",
      "timestamp": "2017-05-19T15:45:15.371-04:00",
      "event":          {
         "system": "http://hl7.org/fhir/message-events",
         "code": "diagnosticreport-provide"
      },
      "response":          {
         "identifier": "aad83f31-326d-4792-addb-3d40fedc6457",
         "code": "ok",
         "details": {"reference": "OperationOutcome/9ffc4f11-e96f-49e5-a765-6776eaa1d115"}
      },
      "source":          {
         "name": "HRM",
         "endpoint": "http:/www.ontariomd.com/HRM"
      },
      "destination": [         {
         "name": "9876543210",
         "target": {"display": "0123456789"},
         "endpoint": "http://www.SFHub.com/HUBInterface"
      }]
   }
}
```


5.10.2.1 id

Message unique identifier for this resource. In the case of the message header, this id is utilized as the message control ID that will be included within the message response.

5.10.2.2 timestamp

This field must contain the date/time the message was created, including GMT offset such as:
2017-01-09T11:36:55-05:00

5.10.2.3 event.coding

This field must contain the code for the event this message represents. For HRM purposes only “diagnosticreport-provide” events should be sent for report delivery.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
event.coding	R	Element		-			
system	R	uri	1	-	-	http://hl7.org/fhir/message-events	https://hl7.org/fhir/codesystem-message-events.html
code	R	code	1	-	0001		diagnosticreport-provide

5.10.2.4 response

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
response	R			-			
identifier	R	id	1	1..64	-	Reference to the original messages ID within the MessageHeader resource.	aad83f31-326d-4792-addb-3d40fedc6457
code	R	code	1	-	0022	Response type	ok
details	R	reference	1	-	-	Reference to the OperationOutcome resource that contains the full response details.	

5.10.2.4.1 response.details

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
details							
reference	R	string	1	-	-	Reference to response details	OperationOutcome/cf244b87-9e5c-469d-8aa9-a671e8c2b2bc

5.10.2.5 source

The sending facility for HRM is the legal HSP that takes full responsibility for sending the message. The source for this unique identifier is the Provider Registry number assigned to your facility by Ontario Health.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
source	R	Element					
endpoint	R	uri	1	-	-		https://www.ontariomd.ca

5.10.2.6 destination

The purpose of this segment is to denote the intermediary system and destination application for which the message is intended. OMD will inform your sending facility what to populate this field with.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
name	R	string	1	-	-		1234567890 OR 0987654321
target	R	reference	1	-	-		

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
endpoint	R	uri	1	-	-		http://10.10.10.10:12345 OR http://www.SFHub.com/HubInterface

- **Name**: Human-readable name for the target system; in this case HRM.
- **Target**: Identifies the target end system, in this case, HRM will always be the target.
- **Endpoint**: Indicates where the message should be routed to. This will indicate the URI for either HRM or the Intermediary HUB being routed through.

5.10.2.6.1 destination.Target

The target element contained within the Destination information is always defined as HRM as the true target destination and must contain the HRM URI endpoint data.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
target							
display	R	string	1	-	-	Display name of the target system	OMD Health Sciences

5.10.3 Operation Outcome

Operation Outcomes are sets of error, warning and information messages that provide detailed information about the outcome of some attempted system operation. They are provided as a direct system response, or component of one, where they provide information about the outcome of the operation.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
Operation Outcome						A resource that describes a message that is exchanged between systems	
id	R	id	1	64	-	Internal identifier used within the message as a reference to other resources. This must be unique per resource type	cf244b87-9e5c-469d-8aa9-a671e8c2b2bc
issue	R	BackboneElement	1..*	-	-	A single issue associated with the action	


```
{"resource":       {
        "resourceType": "OperationOutcome",
        "id": "9ffc4f11-e96f-49e5-a765-6776eaa1d115",
        "issue": [          {
           "severity": "information",
           "code": "informational",
           "details": {"text": "Successfully connected to AIMS Web Services!"}
        }]
    }}
```


5.10.3.1 issue

A repeating element that will provide details as to the response of the submitted message. This element will either contain details that the message was received successfully or will provide details as to why the message was rejected.

ELEMENT NAME	CARD	TYPE	RP#	LEN	Code Tbl#	DESCRIPTION	SAMPLE DATA
details							
text	R	reference	1	-	-	Additional details about the error	Patient Resource must be present and only exists once

APPENDIX A: MESSAGE EXAMPLE


```
{
  "resourceType": "Bundle",
  "id": "PKG1-UC1-2-1",
  "type": "message",
  "entry": [
    {
      "resource": {
        "resourceType": "MessageHeader",
        "id": "aad83f31-326d-4792-addb-3d40fedc6457",
        "timestamp": "2017-01-18T15:13:30.121-05:00",
        "event": {
                      "system": "http://hl7.org/fhir/message-events",
                      "code": "diagnosticreport-provide"
        },
        "source": {
                      "name": "0123456789",
                      "endpoint": "http://10.10.10.10:12345"
        },
        "destination": [
          {
            "name": "9876543210",
            "endpoint": "http://www.SFHub.com/HUBInterface"
          }
        ]
      }
    },
    {
      "resource": {
        "resourceType": "Patient",
        "id": "Patient001",
```

```
"identifier": [
  {
    "type": {
      "coding": [
        {
          "system": "http://hl7.org/fhir/v2/0203",
          "code": "MR"
        }
      ]
    },
    "value": "ABC123"
  },
  {
              "extension":[
       {
              "url": "http://ehealthontario.ca/API/fhir/StructureDefinition/ext-identifier-hcn-version-code",
              "valueString": "AB"
       }
              ],
       "type": {
              "coding": [
                     {
                            "system": "http://hl7.org/fhir/v2/0203",
                            "code": "JHN"
                     }
              ]
       },
       "system": "http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-patient-hcn",
    "value": "1234567890"
  }
],
"name": [
  {
```

```
      "family": [
        "Smith"
      ],
      "given": [
        "John"
      ]
    }
  ],
  "telecom":[
        {
              "system": "phone",
              "value": "416-555-5555",
              "use": "home",
              "rank": 1
        }

  ],
  "gender": "male",
  "birthDate": "1945-11-11",
  "deceasedBoolean": false,
  "address":[
        {
              "use": "home",
              "line": [
                    "123 Somewhere St",
                    "Suite 104"
              ],
              "city": "Toronto",
              "state": "ON",
              "postalCode": "M5S3C1",
              "country": "CAN"
        }
  ]
```

```
    }
  },
  {
    "resource": {
      "resourceType": "DiagnosticOrder",
      "id": "Order001",
      "orderer": {
            "reference": "Practitioner/DR001",
                  "display": "Dr Jonah Jameson"
      },
      "identifier": [
        {
            "type": {
                  "coding": [
                        {
                              "system": "http://hl7.org/fhir/identifier-type",
                              "code": "PLAC"
                        }
                  ]
            },
          "value": "PLAC01234"
        }
      ]
    }
  },
  {
    "resource": {
      "resourceType": "DiagnosticReport",
      "id": "Report001",
      "extension":[
            {
                  "url": "http://ehealthontario.ca/API/fhir/StructureDefinition/ext-hrm-diagnosticReport-urgency-flag",
                  "valueBoolean": true
```

```
        }
    ],
    "identifier": [
      {
            "type": {
                    "coding": [
                            {
                                    "system": "http://hl7.org/fhir/identifier-type",
                                    "code": "FILL"
                            }
                    ]
            },
        "value": "FILL01234"
      }
    ],
    "status": "corrected",
    "category": {
                    "coding": [
                            {
                                    "system": "http://hl7.org/fhir/v2/0074",
                                    "code": "RAD"
                            }
                    ]
    },
    "code": {
                    "coding": [
                            {
                                      "system": "http://loinc.org",
                                      "code": "10191-5"
                            }
                    ]
    },
    "effectiveDateTime": "2017-01-18T15:13:30-05:00",
```

```
    "issued": "2017-01-18T15:13:30.121-05:00",
    "performer": {
                "reference": "Practitioner/DR001"
    },
    "request": {
          "reference": "DiagnosticOrder/Order001"
    },
    "conclusion": "Elevated LDL",
    "codedDiagnosis": [
          {
                "coding": [
                      {
                            "system": "http://snomed.info/sct",
                            "code": "447139008"
                      }
                ]
          }
    ]
  }
},
{
  "resource": {
    "resourceType": "DocumentManifest",
    "id": "Document001",
    "recipient": [
      {
        "reference": "Practitioner/DR001"
      },
      {
          "reference": "Practitioner/DR002"
      }
    ],
    "author": [
```

```
      {
        "reference": "Practitioner/DR001"
      }
    ],
    "status": "current",
    "content": [
      {
        "pAttachment": {
          "contentType": "application/pdf",
          "language": "en",
          "data": "TWVzc2FnZSBTdWNjZXNzZnVsbHkgRGVjb2RlZA==",
          "title": "Patients LDL Report",
          "creation": "2017-01-18T15:13:30-05:00"
        }
      }
    ],
    "related":[
                  {
                  "ref":{
                         "reference": "diagnosticReport/Report001"
                  }
                  }
           ]
  }
},
{
  "resource": {
    "resourceType": "Encounter",
    "id": "Visit001",
    "identifier": [
      {
           "type": {
                  "coding": [
```

```
                        {
                                "system": "http://hl7.org/fhir/v2/0203",
                                "code": "VN"
                        }
                ]
            },
          "value": "VN43210"
        }
      ],
      "status": "finished",
      "class": "outpatient",
      "period": {
        "start": "2017-01-01T08:34:56.789-05:00",
        "end": "2017-01-02T12:34:56.789-05:00"
      }
    }
  },
  {
    "resource": {
      "resourceType": "Practitioner",
            "id": "DR001",
      "identifier": [
        {
            "type":{
                        "coding": [
                                {
                                        "system": "http://hl7.org/fhir/v2/0203",
                                        "code": "MD"
                                }
                        ]
            },
            "system": "http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-license-physician",
          "value": "12345"
```

```
      }
    ],
    "name": {
      "family": [
        "Jameson"
      ],
      "given": [
        "Jonah"
      ]
    }
  }
},
{
   "resource": {
    "resourceType": "Practitioner",
          "id": "DR002",
    "identifier": [
      {
          "type":{
                        "coding": [
                              {
                                    "system": "http://hl7.org/fhir/v2/0203",
                                    "code": "MD"
                              }
                        ]
          },
          "system": "http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-license-physician",
        "value": "54321"
      }
    ],
    "name": {
      "family": [
        "Smith"
```

```
        ],
        "given": [
          "John"
        ]
      }
    }
  }
 ]
}
```

APPENDIX B: CODE TABLES

Table 0001 – Event Code

CODE	DISPLAY	DEFINITION
MedicationAdministration-Complete		Change the status of a Medication Administration to show that it is complete.
MedicationAdministration-Nullification		Someone wishes to record that the record of administration of a medication is in error and should be ignored.
MedicationAdministration-Recording		Indicates that a medication has been recorded against the patient's record.
MedicationAdministration-Update		Update a Medication Administration record.
admin-notify		Notification of a change to an administrative resource (either create or update). Note that there is no delete, though some administrative resources have status or period elements for this use.
diagnosticreport-provide		Provide a diagnostic report or update a previously provided diagnostic report.
observation-provide		Provide a simple observation or update a previously provided simple observation.
patient-link		Notification that two patient records identify the same patient.
patient-unlink		Notification that previous advice that two patient records concern the same patient is now considered incorrect.
valueset-expand		The definition of a value set is used to create a simple collection of codes suitable for use for data entry or validation. An expanded value set will be returned, or an error message.

Table 0002 – Identifier Use

CODE	DISPLAY	DEFINITION
usual		The identifier recommended for display and use in real-world interactions.
official		The identifier considered to be most trusted for the identification of this item.
temp		A temporary identifier.
secondary		An identifier that was assigned in secondary use - it serves to identify the object in a relative context but cannot be consistently assigned to the same object again in a different context.

Table 0003 – Identifier Type Codes

http://hl7.org/fhir/ValueSet/identifier-type

CODE	DISPLAY	DEFINITION
UDI		An identifier assigned to a device using the Universal Device Identifier framework as defined by FDA
SNO		An identifier affixed to an item by the manufacturer when it is first made, where each item has a different identifier.
SB		An identifier issued by a governmental organization to an individual for the purpose of the receipt of social services and benefits.
PLAC		The identifier associated with the person or service that requests or places an order.
FILL		The Identifier associated with the person, or service, who produces the observations or fulfills the order requested by the requestor.

https://www.hl7.org/fhir/DSTU2/v2/0203/

CODE	DISPLAY	DEFINITION
DL	Driver's license number	
PPN	Passport number	
BRN	Breed Registry Number	
MR	Medical record number	
MCN	Microchip Number	
EN	Employer number	
TAX	Tax ID number	
NIIP	National Insurance Payor Identifier (Payor)	
PRN	Provider number	
MD	Medical License number	
DR	Donor Registration Number	
VN	Visit Number	
LN	License Number	

Table 0004 – Contact Point System

CODE	DISPLAY	DEFINITION
phone		The value is a telephone number used for voice calls. The use of full international numbers starting with + is recommended to enable automatic dialling support but is not required.
fax		The value is a fax machine. The use of full international numbers starting with + is recommended to enable automatic dialling support but is not required.
email		The value is an email address.
pager		The value is a pager number. These may be local pager numbers that are only usable on a particular pager system.
other		A contact that is not a phone, fax, or email address. The format of the value SHOULD be a URL. This is intended for various personal contacts including blogs, Twitter, Facebook, etc. Do not use for email addresses. If this is not a URL, then it will require human interpretation.

Table 0005 – Contact Point Use

CODE	DISPLAY	DEFINITION
home		A communication contact point at a home; attempted contacts for business purposes might intrude on privacy and chances are one will contact family or other household members instead of the person one wishes to call. Typically used with urgent cases, or if no other contacts are available.
work		An office contact point. First choice for business-related contacts during business hours.
temp		A temporary contact point. The period can provide more detailed information.

CODE	DISPLAY	DEFINITION
old		This contact point is no longer in use (or was never correct, but retained for records).
mobile		A telecommunication device that moves and stays with its owner. May have characteristics of all other use codes, suitable for urgent matters, not the first choice for routine business.

Table 0006 – Administrative Gender

CODE	DISPLAY	DEFINITION
male		Male
female		Female
other		Other
unknown		Unknown

Table 0007 – Address Use

CODE	DISPLAY	DEFINITION
home		A communication address at a home.
work		An office address. First choice for business-related contacts during business hours.
temp		A temporary address. The period can provide more detailed information.
Old		This address is no longer in use (or was never correct but retained for records).

Table 0008 – Address Type

CODE	DISPLAY	DEFINITION
postal	Postal	Mailing addresses - PO Boxes and care-of addresses
physical	Physical	A physical address that can be visited
both	Postal & Physical	An address that is both physical and postal

Table 0009 – Diagnostic Report Status

CODE	DISPLAY	DEFINITION
registered		The existence of the report is registered, but there is nothing yet available.
partial		This is a partial (e.g. initial, interim or preliminary) report: data in the report may be incomplete or unverified.
final		The report is complete and verified by an authorized person.
corrected		Subsequent to being final, the report has been modified to correct an error in the report or referenced results.
appended		The report has been modified subsequent to being Final, and is complete and verified by an authorized person. New content has been added, but existing content hasn't changed.
cancelled		The report is unavailable because the measurement was not started or not completed (also sometimes called "aborted").
entered-in-error		The report has been withdrawn following a previous final release.

Table 0010 – Diagnostic Report Category

CODE	DISPLAY	DEFINITION
AU		Audiology
BG		Blood Gases
BLB		Blood Bank
CG		Cytogenetics
CH		Chemistry
CP		Cytopathology
CT		CAT Scan
CTH		Cardiac Catheterization
CUS		Cardiac Ultrasound
EC		Electrocardiac (e.g. EKG, EEC, Holter)
EN		Electroneuro (EEG, EMG, EP, PSG)
GE		Genetics
HM		Hematology
ICU		Bedside ICU Monitoring
IMM		Immunology
LAB		Laboratory

CODE	DISPLAY	DEFINITION
MB		Microbiology
MCB		Mycobacteriology
MYC		Mycology
NMR		Nuclear Magnetic Resonance
NMS		Nuclear Medicine Scan
NRS		Nursing Service Measures
OSL		Outside Lab
OT		Occupational Therapy
OTH		Other
OUS		OB Ultrasound
PF		Pulmonary Function
PHR		Pharmacy
PHY		Physician (Hx. Dx, admission note, etc.)
PT		Physical Therapy
RAD		Radiology
RC		Respiratory Care (therapy)
RT		Radiation Therapy
RUS		Radiology Ultrasound

CODE	DISPLAY	DEFINITION
RX		Radiograph
SP		Surgical Pathology
SR		Serology
TX		Toxicology
VR		Virology
VUS		Vascular Ultrasound
XRC		Cineradiograph

Table 0011 – Encounter Status

CODE	DISPLAY	DEFINITION
planned		The Encounter has not yet started.
arrived		The Patient is present for the encounter, however, is not currently meeting with a practitioner.
in-progress		The Encounter has begun and the patient is present / the practitioner and the patient are meeting.
onleave		The Encounter has begun, but the patient is temporarily on leave.
finished		The Encounter has ended.
cancelled		The Encounter has ended before it has begun.

Table 0012 – Encounter Class

CODE	DISPLAY	DEFINITION
inpatient		An encounter during which the patient is hospitalized and stays overnight.
outpatient		An encounter during which the patient is not hospitalized overnight.
ambulatory		An encounter where the patient visits the practitioner in his/her office, e.g. a G.P. visit.
emergency		An encounter in the Emergency Care Department.
home		An encounter where the practitioner visits the patient at his/her home.
field		An encounter taking place outside the regular environment for giving care.
daytime		An encounter where the patient needs more prolonged treatment or investigations than outpatients, but who do not need to stay in the hospital overnight.
virtual		An encounter that takes place where the patient and practitioner do not physically meet but use electronic means for contact.
other		Any other encounter type that is not described by one of the other values. Where this is used it is expected that an implementer will include an extension value to define what the actual other type is.

Table 0013 – Practitioner Role

CODE	DISPLAY	DEFINITION
doctor		
nurse		

CODE	DISPLAY	DEFINITION
pharmacist		
researcher		
teacher		
ict		

Table 0014 – Assigning Authority

CODE	DISPLAY	DEFINITION
CA		Canada
CA-AB		Alberta
CA-BC		British Columbia
CA-MB		Manitoba
CA-NB		New Brunswick
CA-NF		Newfoundland
CA-NS		Nova Scotia
CA-NT		Northwest Territories
CA-NU		Nunavut
CA-ON		Ontario
CA-PE		Prince Edward Island

CODE	DISPLAY	DEFINITION
CA-QC		Quebec
CA-SK		Saskatchewan
CA-YT		Yukon

Table 0015 – DocumentManifest Status

CODE	DISPLAY	DEFINITION
current	Current	This is the current reference for this document.
superseded	Superseded	This reference has been superseded by another reference.
entered-in-error	Entered in Error	This reference was created in error.

Table 0016 – Address State

CODE	DISPLAY	DEFINITION
AB		Alberta
BC		British Columbia
MB		Manitoba
NB		New Brunswick
NF		Newfoundland

CODE	DISPLAY	DEFINITION
NS		Nova Scotia
NT		Northwest Territories
NU		Nunavut
ON		Ontario
PE		Prince Edward Island
QC		Quebec
SK		Saskatchewan
YT		Yukon
AK		Alaska
AL		Alabama
AR		Arkansas
AS		American Samoa
CA		California
CO		Colorado
CT		Connecticut
DC		District of Columbia
DE		Delaware
FL		Florida

CODE	DISPLAY	DEFINITION
GA		Georgia
GU		Guam
HI		Hawaii
IA		Iowa
ID		Idaho
IL		Illinois
IN		Indiana
KS		Kansas
KY		Kentucky
LA		Louisiana
MA		Massachusetts
MD		Maryland
ME		Maine
MI		Michigan
MO		Missouri
MP		Northern Mariana Islands
MS		Mississippi
MT		Montana

CODE	DISPLAY	DEFINITION
NC		North Carolina
ND		North Dakota
NE		Nebraska
NH		New Hampshire
NJ		New Jersey
NM		New Mexico
NV		Nevada
NY		New York
OH		Ohio
OK		Oklahoma
OR		Oregon
PA		Pennsylvania
PR		Puerto Rico
RI		Rhode Island
SC		South Carolina
SD		South Dakota
TN		Tennessee
TX		Texas

CODE	DISPLAY	DEFINITION
UM		United States Minor Outlying Islands
UT		Utah
VA		Virginia
VI		Virgin Islands, U.S.
VT		Vermont
WA		Washington
WI		Wisconsin
WV		West Virginia
WY		Wyoming

Table 0017 – Physician Systems

CODE	DISPLAY	DEFINITION
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-license-physician		College of Physicians and Surgeons of Ontario
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-ab-license-physician		College of Physicians and Surgeons of Alberta
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-license-physician		College of Physicians and Surgeons of British Columbia
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-mb-license-physician		College of Physicians and Surgeons of Manitoba

CODE	DISPLAY	DEFINITION
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nb-license-physician		College of Physicians and Surgeons of New Brunswick
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nl-license-physician		College of Physicians and Surgeons of Newfoundland & Labrador
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-ns-license-physician		College of Physicians and Surgeons of Nova Scotia
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nt-license-physician		Health and Social Services - Government of the Northwest Territories
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nu-license-physician		Department of Health and Social Services – Government t of Nunavut
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-pe-license-physician		College of Physicians and Surgeons of Prince Edward Island
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-qc-license-physician		Collège des médecins du Québec
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-sk-license-physician		College of Physicians and Surgeons of Saskatchewan
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-yt-license-physician		Yukon Medical Council
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-license-nurse		College of Nurses of Ontario
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-ab-license-nurse		College and Association of Registered Nurses of Alberta
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-bc-license-nurse		College of Registered Nurses of British Columbia

CODE	DISPLAY	DEFINITION
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-mb-license-nurse		College of Registered Nurses of Manitoba
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nb-license-nurse		Nurses Association of New Brunswick
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nl-license-nurse		Association of Registered Nurses of Newfoundland and Labrador
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-ns-license-nurse		College of Registered Nurses of Nova Scotia
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nt-license-nurse		Registered Nurses Association of the Northwest Territories and Nunavut
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nu-license-nurse		Registered Nurses Association of the Northwest Territories and Nunavut
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-pe-license-nurse		Association of Registered Nurses of Prince Edward Island
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-qc-license-nurse		Ordre des infirmières et infirmiers du Québec
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-sk-license-nurse		Saskatchewan Registered Nurses' Association
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-yt-license-nurse		Yukon Registered Nurses Association

Table 0018 – Countries

CODE	DISPLAY	DEFINITION
CAN		Canada
USA		United States of America
OTH		Other/Undefined

Table 0019 – Document MIME Types

CODE	DISPLAY	DEFINITION
text/plain		Represents any document that contains text and is theoretically human-readable
application/pdf		PDF encoded document
image/jpeg		JPEG encoded image
image/png		PNG encoded image
image/gif		GIF encoded image
application/rtf		RTF encoded document

Table 0020 – Health Card Provincial Systems

CODE	DISPLAY	DEFINITION
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-on-patient-hcn		Ontario

CODE	DISPLAY	DEFINITION
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-ab-patient-hcn		Alberta
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-bc-patient-hcn		British Columbia
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-mb-patient-hcn		Manitoba
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nb-patient-hcn		New Brunswick
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nl-patient-hcn		Newfoundland and Labrador
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-ns-patient-hcn		Nova Scotia
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nt-patient-hcn		Northwest Territories
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-nu-patient-hcn		Nunavut
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-pe-patient-hcn		Prince Edward Island
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-qc-patient-hcn		Quebec
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-sk-patient-hcn		Saskatchewan
http://ehealthontario.ca/API/FHIR/NamingSystem/ca-yt-patient-hcn		Yukon

Table 0021 - Special Rules

CODE	RULES	CODE DETAILS
DateTime	Time values and GMT offset shall be enforced for all instances of the DateTime data type.	Regex: (([1-9][0-9]{3})-((0[1-9])|(1[012]))-((0[1-9])|([12][0-9])|(3[01]))T(([01][0-9])|(2[0-3]))(:[0-5][0-9]){2}(\.[0-9]+)?(([\+|\-]((0[0-9])|(1[0-2]))(:[0-5][0-9]))|(\+13(:[0-5][0-9]))|\+14:00|Z))
Instant	GMT offset shall be enforced	Regex: (([1-9][0-9]{3})-((0[1-9])|(1[012]))-((0[1-9])|([12][0-9])|(3[01]))T(([01][0-9])|(2[0-3]))(:[0-5][0-9]){2}(\.[0-9]+)?(([\+|\-]((0[0-9])|(1[0-2]))(:[0-5][0-9]))|(\+13(:[0-5][0-9]))|\+14:00|Z))
PostalCode	Postal or Zip code associated with the Patient's Address	Regex: (([a-zA-Z][0-9][a-zA-Z][0-9][a-zA-Z][0-9])|[0-9]{5}(-[0-9]{4})?)

Table 0022 – Response Codes

CODE	DISPLAY	DEFINITION
ok		The message was accepted and processed without error.
transient-error		Some internal unexpected error occurred - wait and try again. Note - this is usually used for things like database unavailable, which may be expected to resolve, though human intervention may be required.
fatal-error		The message was rejected because of some content in it. There is no point in re-sending without change. The response narrative SHALL describe the issue.

Table 0023 – Issue Severity

Defining URL: https://hl7.org/fhir/valueset-issue-severity.html

CODE	DISPLAY	DEFINITION
fatal		The issue caused the action to fail, and no further checking could be performed.
error		The issue is sufficiently important to cause the action to fail.
warning		The issue is not important enough to cause the action to fail but may cause it to be performed sub-optimally or in a way that is not as desired.
information		The issue has no relation to the degree of success of the action.

Table 0024 – Issue Type

Defining URL: https://hl7.org/fhir/valueset-issue-type.html

CODE	DISPLAY	DEFINITION
invalid		Content invalid against the specification or a profile.
structure		A structural issue in the content such as the wrong namespace, or unable to parse the content completely, or invalid json syntax.
required		A required element is missing.
value		An element value is invalid.
invariant		A content validation rule failed - e.g. a schematron rule.
security		An authentication/authorization/permissions issue of some kind.
login		The client needs to initiate an authentication process.

CODE	DISPLAY	DEFINITION
unknown		The user or system was not able to be authenticated (either there is no process, or the preferred token is unacceptable).
expired		The user session expired; a login may be required.
forbidden		The user does not have the right to perform this action.
suppressed		Some information was not or may not have been returned due to business rules, consent or privacy rules, or access permission constraints. This information may be accessible through alternate processes.
processing		Processing issues. These are expected to be final e.g. there is no point in resubmitting the same content unchanged.
not-supported		The resource or profile is not supported.
duplicate		An attempt was made to create a duplicate record.
not-found		The reference provided was not found. In a pure RESTful environment, this would be an HTTP 404 error, but this code may be used where the content is not found further into the application architecture.
too-long		Provided content is too long (typically, this is a denial of service protection type of error).