



Ontario Medical Imaging HL7 v2 Implementation Guide v1.0.0-ballot1



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1. Introduction

This **Medical Imaging HL7® v2 Implementation Guide** outlines the standard for contribution of medical imaging orders and reports to the provincial Medical Imaging Clinical Data Repository (miCDR). It supports Health Information Custodians (HICs), including hospitals and Integrated Community Health Service Centres (ICHSCs), in contributing structured imaging data to the provincial Electronic Health Record (EHR).

This implementation guide (IG) uses Health Level Seven (HL7) v2 messaging (version 2.5) to enable the transmission of imaging orders using **Order Messages (ORM^O01)** and imaging reports using **Observation Result messages (ORU^R01)**, and defines the message structures, segments, and constraints required for consistent and interoperable data exchange.

This is a technical standard document, intended to be read by clinical system administrators and interface developers who are building interfaces for the purpose of transmitting data to the miCDR.

Background

The Medical Imaging (MI) HL7® v2 IG supports the direct contribution of medical imaging orders and reports from Health Information Custodians (HICs) to the Medical Imaging Clinical Data Repository (miCDR), for organizations that are not yet able to implement HL7 Fast Healthcare Interoperability Resources Standard (FHIR®).

Some contributing sites will continue to rely on HL7 v2–based integrations due to current system capabilities or readiness constraints. This specification ensures continued support and uninterrupted participation in provincial medical imaging data exchange for these sites.

As organizational capabilities mature, sites are expected to transition over time to FHIR-based medical imaging exchange, in alignment with Ontario Health’s long-term interoperability strategy.

Currently, this specification supports the direct contribution of medical imaging orders and reports. Direct contribution of imaging manifests is out of scope, as these are generated by Diagnostic Imaging Repositories (DIRs) or Vendor Neutral Archives (VNAs) and are provided to miCDR via HL7 FHIR–based mechanisms.

Relationship with Other Specifications

This specification is based on HL7 v2 and supports the message structure and content to meet Ontario miCDR business requirements and supports the direct contribution of MI data to Ontario EHR.

- Ontario Medical Imaging (Transition) HL7 FHIR Implementation Guide - v1.0.0 TU
 - This implementation guide supports the migration of diagnostic imaging data from Diagnostic Imaging Repositories (DIRs) to miCDR and enables ongoing DIR submissions during the transition period, as well as MI data retrieval for the Provincial Viewers and other Point of Service Systems.
 - This guide focuses on FHIR representations of MI reports, MI orders and image manifests. The profiles are based on OCINet data availability and do not represent a provincial FHIR model for medical imaging data.
- Ontario DICOM Implementation Guide v1.0.0-Final
 - This implementation guide provides guidance on how HICs submit imaging data using Digital Imaging and Communications in Medicine (DICOM) standard to miCDR and Vendor Neutral Archive (VNA) solutions while ensuring imaging data is submitted correctly, remains linked to the right patient and supports reliable interoperability across Ontario's enterprise imaging ecosystem.
- Ontario Medical Imaging FHIR Implementation Guide v1.0.0-Final
 - This implementation guide is developed to support data sharing of MI orders, reports and image manifests to Ontario Medical Imaging Clinical Data Repository (miCDR).
 - This specification supports hospitals and Integrated Community Health Service Centers (ICHSCs) to contribute their medical imaging data directly to the Electronic Health Record (EHR).
 - For Point of Service and other systems using this IG to query and retrieve imaging data, the IG defines interactions and FHIR profiles to support search and retrieval of MI data entities (i.e., orders, diagnostic reports, and imaging manifests)
- Ontario Clinical Report Exchange (OCRE) Implementation Guide v1.0.0-TU
 - Structure of the medical imaging reports described in the MI FHIR IG is aligned with OCRE FHIR IG to minimize impact on the systems that contribute data to both OCRE and MI.

Digital Health Information Exchange (DHIEX)

On January 1, 2021, Ontario Regulation 329/04 ("O. Reg. 329/04") under the Personal Health Information Protection Act, 2004 (PHIPA), was amended to provide a regulatory framework for Ontario Health, as directed by the Minister of Health ("the minister"), to establish, maintain and amend interoperability specifications. This regulatory framework, as set out in sections 26 to 34 of O. Reg. 329/04, is referred to by Ontario Health as the Digital Health Information Exchange (DHIEX) framework.

Ontario Health guides and supports the adoption of modern interoperability specifications applicable to digital health assets as defined in s. 26 of O. Reg. 329/04. A health information custodian (HIC) is required to ensure that every digital health asset that it selects, develops or uses complies with every applicable interoperability specification, as it may be amended from time to time, within the time period set out in the specification.

Compliance with the requirements of the DHIEX framework does not relieve a HIC of its obligation to comply with the other provisions of PHIPA and its regulations or under the Freedom of Information and Protection of Privacy Act (FIPPA).

Ontario Health is required to consult with and consider the recommendations of the Information and Privacy Commissioner of Ontario (where a specification relates to the confidentiality of personal health information, the privacy of individuals or the rights of individuals to access or correct records of their personal health information) prior to providing the specification to the Minister of Health for review and approval.

Ontario Health is also required to consult with any health care provider organizations, individuals, stakeholders and other parties as appropriate, in order to inform its decisions concerning the establishment, maintenance or amendment of interoperability specifications.

1.1.1 Applying the Medical Imaging HL7 v2 Specification

The following information is provided in accordance with O. Reg. 329/04 under Personal Health Information Protection Act (PHIPA), 2004, section 28 Application of Specifications.

Requirement	Details
Date on which the specification becomes effective	TBD
Name, description, or class of Health Information Custodians that must select, develop, or use digital health assets that comply with the specification:	Health Information Custodians (HICs) who contribute data to miCDR: - Hospitals as per the Public Hospitals Act, R.R.O. 1990, Reg. 965.

	- Integrated Community Health Service Centres (ICHSC) within the meaning of the Integrated Community Health Services Centres Act, 2023.
Types of digital health assets to which the specification applies	Digital health assets used by Health Information Custodians for the data contribution to miCDR: - Hospital Information Systems (HIS) and Radiology Information Systems (RIS)
Circumstances, if any, when a Health Information Custodian may be exempted from the requirement to select, develop or use digital health assets that comply with the specification:	HICs who are planning to contribute medical imaging data using the Ontario Medical Imaging HL7 FHIR Implementation Guide v1.0.0 and future releases. Note: Any exemptions will be defined by OH policy and approved through the DHIEX governance process.

1.1.2 Legal Disclaimer

Pursuant to O. Reg. 329/04, Ontario Health is required to, subject to the review and approval of the Minister, establish, maintain and amend interoperability specifications. The Minister may direct Ontario Health to establish or amend interoperability specifications, and Ontario Health is required to comply with such direction. In accordance with O. Reg. 329/04, Ontario Health makes the interoperability specification most recently approved by the Minister available to the public by posting it on Ontario Health’s website or by such other means as Ontario Health considers advisable.

As the Minister may direct Ontario Health to amend the interoperability specifications from time-to-time, Ontario Health advises the public and any other users of information concerning interoperability specifications to regularly review Ontario Health’s website where the interoperability specifications are posted, or such other means Ontario Health considers advisable, in order to confirm that they are accessing the interoperability specifications most recently approved by the Minister.

You understand and agree that: (i) This specification is provided “AS IS” without any warranties or representations of any kind, express or implied, in fact or in law; (ii) Ontario Health is not responsible for your use or reliance on the information in this specification or any costs associated with such use or

reliance; and (iii) Ontario Health has no liability to any party for that party's access, use or reliance on this specification or any of the information contained in it.

1.1.3 Privacy and Security

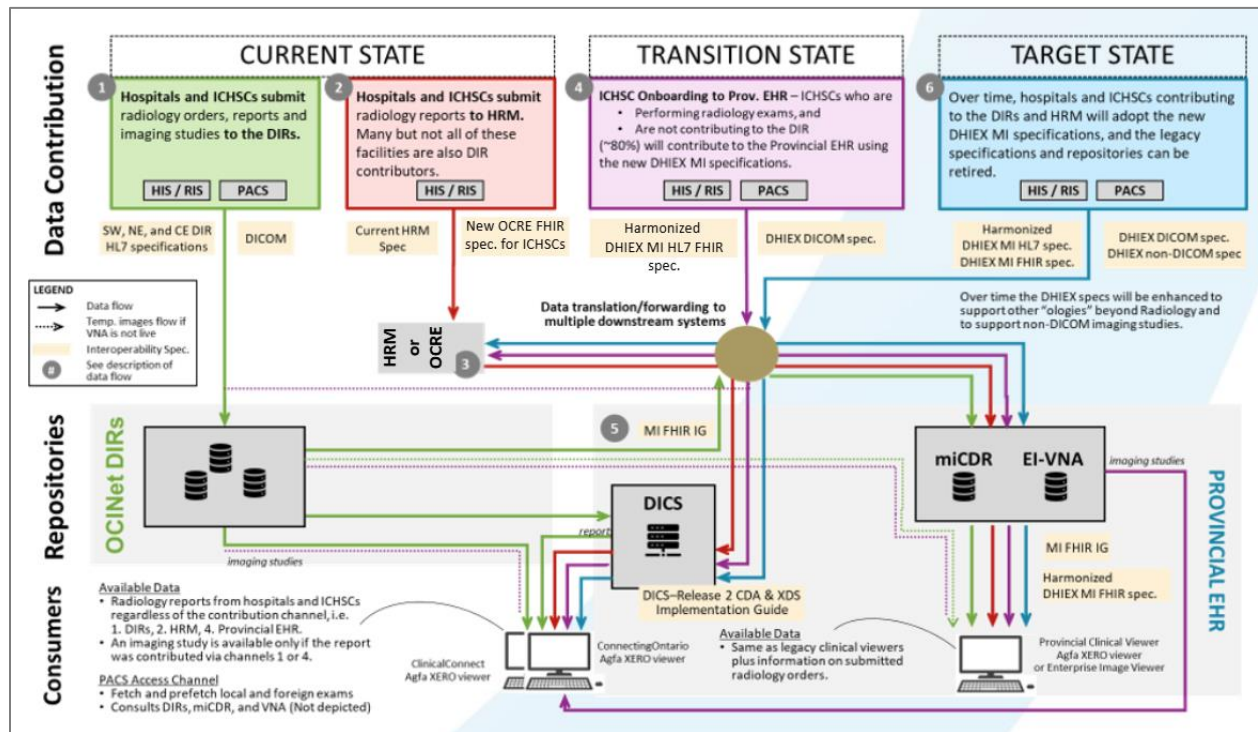
Prior to implementing this guide, an organization shall complete security and privacy risk assessments and address the recommendations of those assessments. Care should be taken to ensure the confidentiality, security and integrity of [Personal Health Information](#) in transit and at rest is maintained in accordance with the Personal Health Information Protection Act, 2004.

Under PHIPA, Ontario Health (OH) is a Prescribed Organization (PO) with the power and duty to develop and maintain the electronic health record. In doing so, OH manages and integrates personal health information (PHI) it receives from HICs and enables HICs to collect, use and disclose personal health information by means of the EHR.

HICs who contribute records of PHI to OH as a PO are not considered to be disclosing said records to OH, nor is OH as PO considered to be collecting same from the HIC. Despite this, HICs have responsibilities related to this contribution of PHI and are required to complete onboarding processes, comply with OH privacy and security policies, procedures, and standards, and contribute PHI in accordance with interoperability specifications established by OH. These and other requirements are set forth in the EHR Contributor Agreement (ECA) and other OH agreements as applicable, which OH executes with contributing HICs. For greater certainty, nothing within this interoperability specification relieves a HIC of its obligation to comply with any provisions of PHIPA and its regulations.

The information which adopters receive when contributing data to miCDR is considered Personal Information (PI) and Personal Health Information (PHI) within the meaning of PHIPA. As a result, access to this information must be provisioned in accordance with PHIPA and applicable agreements. Access to personal health information must be restricted to the Health Information Custodian (HIC) or an agent acting on behalf of the HIC and collected, used or disclosed on a need-to-know basis, as specified in data sharing agreements and legislation, including PHIPA. Furthermore, the HIC or the agent acting on behalf of the HIC must consider if PHI is necessary for the purposes of exchanging data with the miCDR solution. If PHI is necessary, the HIC or the agent acting on behalf of the HIC must consider how much PHI is reasonably necessary for the purpose. Under PHIPA, the HIC or an agent acting on behalf of the HIC must not collect, use or disclose PHI if other information will serve the identified purpose or collect, use or disclose more PHI than that is reasonably necessary to meet the purpose, among other requirements.

Architecture



Ontario's medical imaging landscape is currently fragmented, with legacy regional systems such as the three Diagnostic Imaging Repositories (DIRs) and Diagnostic Imaging Common Services (DI CS) operating on outdated technology and lacking a unified provincial standard for imaging contribution. As a result, approximately 80% of imaging-producing Integrated Community Health Services Centers (ICHSCs) still do not contribute to the provincial Electronic Health Record (EHR), leading to inconsistent clinical access, duplicated testing, and gaps in meeting the mandated regulatory requirements for contribution to provincial EHR.

To address these challenges, the Medical Imaging Program will implement a single, integrated provincial imaging solution—Enterprise Imaging Vendor Neutral Archive (EI-VNA) and Ontario Medical Imaging Clinical Data Repository (miCDR) —supported by new FHIR-based medical imaging exchange specifications. This solution will enable province-wide onboarding of remaining ICHSCs, improve end-to-end interoperability, and replace aging infrastructure. Please note that the v2 IG supports only miCDR and is not used by the EI-VNA solution. EI-VNA solution may be included in the future state of miCDR and its authority is subject to further analysis.

Data Sources

Medical imaging data contributed under this HL7 v2 specification originates from clinical systems within HIC organizations such as hospitals and Integrated Community Health Services Centre (ICHSCs) that are responsible for ordering and reporting medical imaging services. Some of the source systems include:

- **For Hospitals:**
 - **Hospital Information Systems (HIS)** that manage patient demographics, encounters, and imaging orders; and
 - **Radiology Information Systems (RIS)** that manage imaging workflows and generate finalized imaging reports.
- **For ICHSCs:**
 - **ICHSC systems** - These systems act as the authoritative sources for medical imaging orders and reports and submit this data to the Medical Imaging Clinical Data Repository (miCDR) using HL7 v2 messages, as defined in this specification.

Previously Submitted Fields and Null Values in miCDR Feed

Contributing systems may submit updates or subsequent versions of medical imaging orders and reports that were previously submitted to the Medical Imaging Clinical Data Repository (miCDR). Please note that miCDR does not support “sparse messaging or non-populated RE (required or empty) or O (optional) fields” when submitting update messages (when a message sent to update specific data fields contains a blank value in RE or O fields because a valid value was previously sent in the original message). Therefore, sending systems must resubmit all previously submitted fields in all subsequent messages. Empty fields will be interpreted as being updated as blank (no data) and previously submitted data will be removed from miCDR.

2. Scope of Data

This document outlines a minimum data set to be transmitted by the participating HICs.

Data Covered

This standard covers the submission of selected medical imaging–related clinical data using HL7 v2 messages. The following clinical data types are within scope:

- **Medical Imaging (MI) Orders:** Orders originating from clinical systems (e.g., HIS or RIS) requesting diagnostic imaging services, including identifiers and supporting patient and encounter context.
- **Medical Imaging (MI) Reports:** Finalized diagnostic imaging reports containing clinical findings and interpretations generated by imaging departments or RIS and submitted to miCDR for downstream use.

The following clinical data types are not covered by this standard:

- **Medical Imaging (MI) Studies:** Imaging studies or manifests are described through messages that carry order and report information. The actual images are not exchanged in HL7 v2 and are managed separately using the *Ontario Medical Imaging DICOM Implementation Guide v1.0.0-ballot*.
- **Foreign Exam Management solutions (FEM):** is a workflow and integration approach that allows external diagnostic imaging studies and reports, acquired outside the local enterprise, to be discovered, retrieved, reconciled, displayed, and managed within the local PACS environment, while applying rules that distinguish foreign exams from local exams, including retention, purge, re-archiving prevention, and user notification.

Source Systems and Interfaces

- Ontario Health will work with the contributing HICs and service providers to determine which sending systems should be transmitting data and which interfaces the HICs will need to build.

Supported Functional Use Cases – Orders and Reports

1.1.4 Actors

Participant	Type	Description
HIC	Human or Organization	A Health Information Custodian (HIC) is a person or organization that has custody or control of personal health information, as a result of their duties or powers. This means they are responsible for collecting, using, and disclosing this information in accordance with PHIPA rules.
Data Contributor	Organization	Hospitals and ICHSCs
Data Contributor System	System	Hospital information system that generates medical imaging data and sends them to miCDR. In the following data contribution use cases, the data contributor systems include systems used by hospitals and ICHSCs.
miCDR	System	A centralized EHR repository that enables the contribution of MI report, order, and imaging study records from data contributors and the sharing of this information with authorized HICs using their EHR viewing channel
One Access Gateway	System	An interface layer that processes security and user-based information received from a system requesting access to miCDR. One Access Gateway authenticates the access request and authorizes the request to be processed by miCDR.

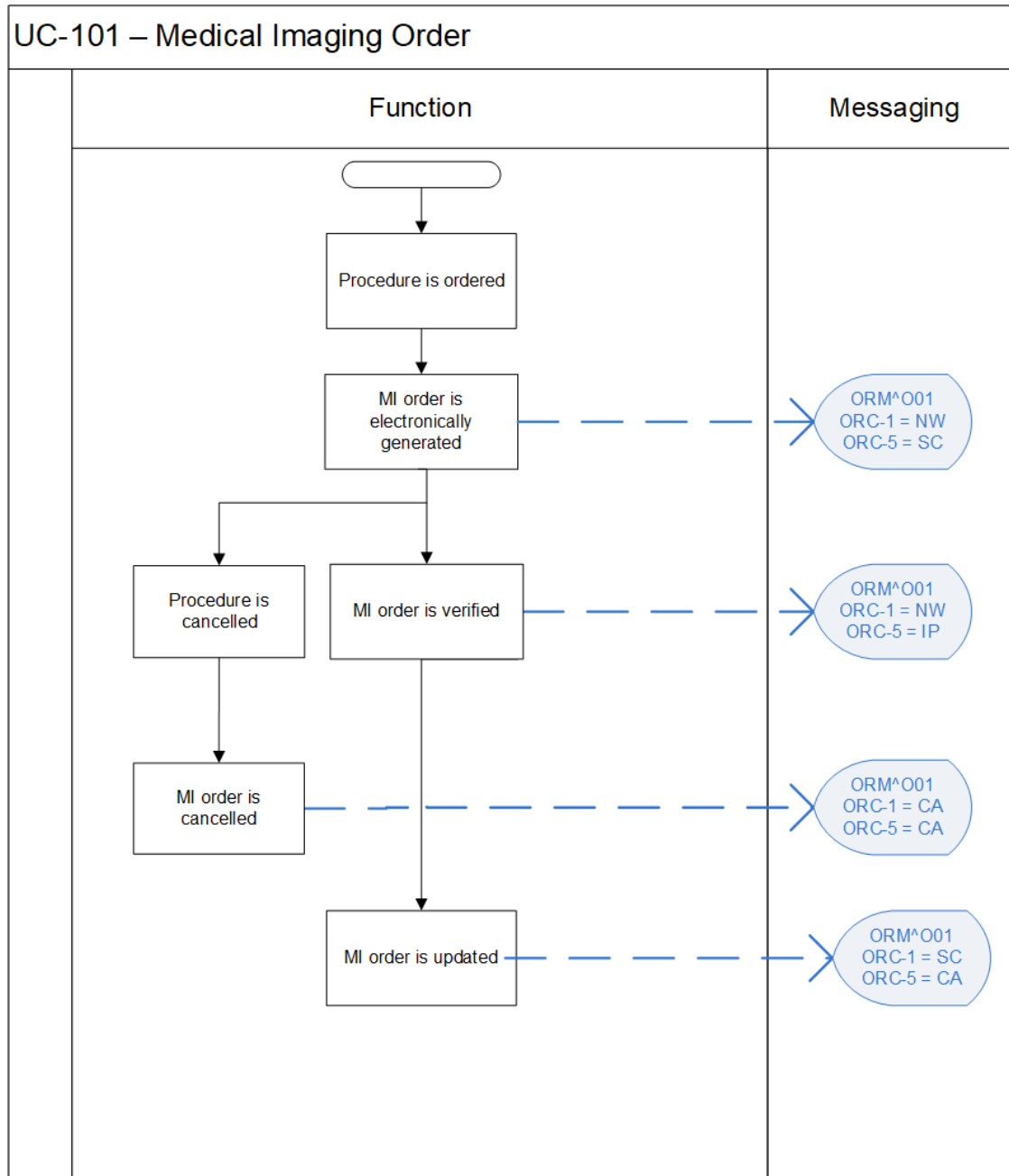
1.1.5 Use Cases

The following use cases from contributing hospitals and ICHSCs are supported.

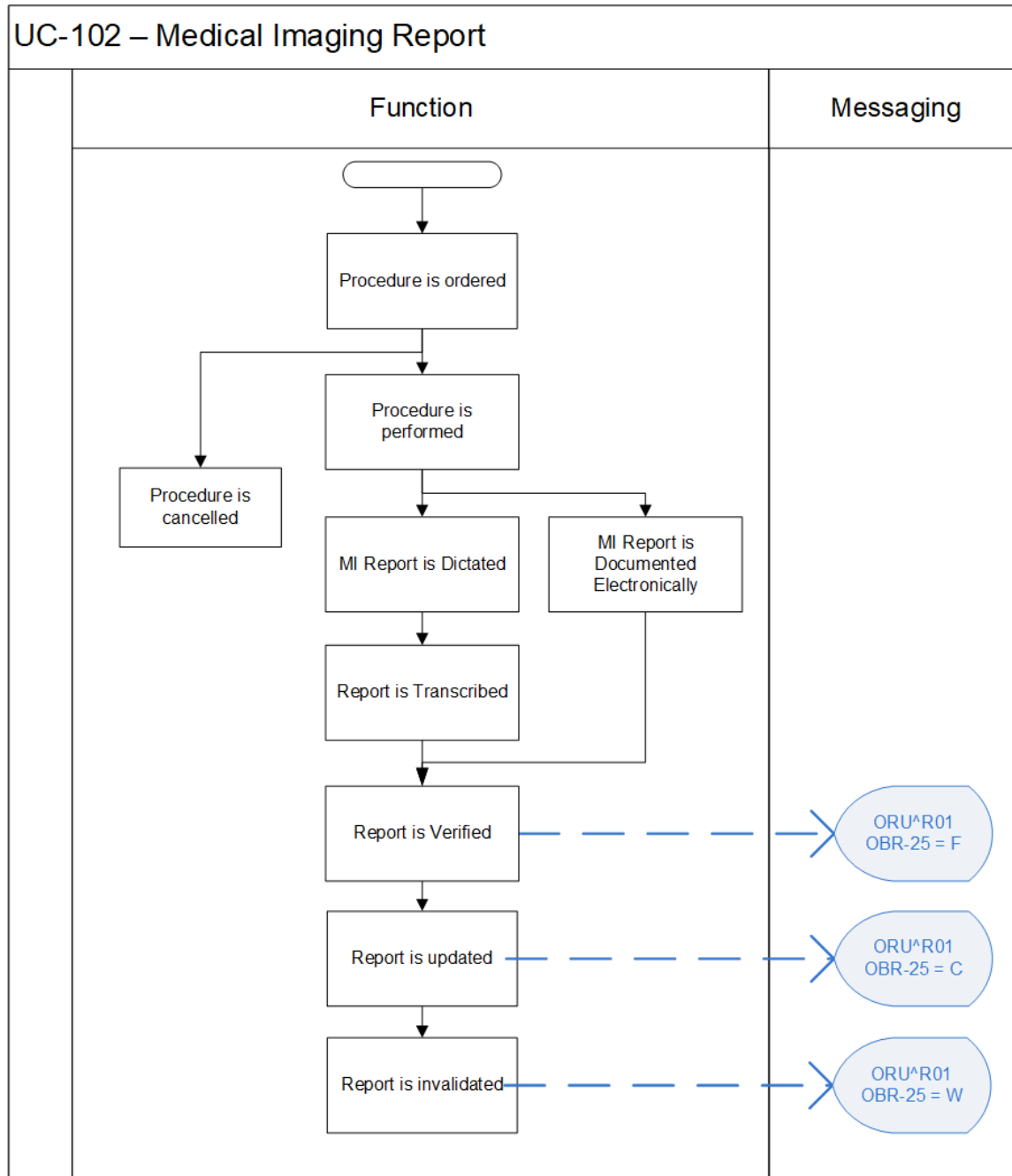
	Use Case	Description	Clinical Data Types	HL7 Messages
UC-101	Submitting imaging orders	This use case covers the submission of an initial imaging order or update of an existing order from contributing HICs to miCDR.	Imaging Orders	ORM^O01
UC-102	Submitting imaging reports	This use case covers the submission of an initial imaging report or update of an existing imaging report from contributing HICs to miCDR.	Imaging Reports	ORU^R01

The diagrams below describe the typical workflow in medical imaging setting and how events triggers HL7 v2 messages defined in this specification. Please note that these diagrams do not cover all possible workflow events.

Workflow: UC-101 – Submitting Medical Imaging Orders



Workflow: UC-102 – Submitting Medical Imaging Report



3. Message Structure Definitions

Orders and Results Message Transactions

Message	Use Case	Description	miCDR Priority Data Types
ORM^O01	Order Entry	This allows sites to initiate the transmission of information about an order and forward it to miCDR. This includes new orders, cancellation of existing orders, discontinuation, and holding.	Imaging Orders from Hospitals and ICHSCs
ORU^R01	Unsolicited Result	Document or result is being transmitted to miCDR	Imaging Reports from hospitals and ICHSCs

1.1.6 General Order Message Structure (ORM^O01)

ORM^O01	ORM Message
MSH	Message Header
	-- PATIENT_RESULT begin
PID	Patient Identification
	-- VISIT begin
PV1	Patient Visit
[PV2]	Visit Additional Info
	-- VISIT end
{	-- ORDER begin
ORC	Order Common
	-- ORDER DETAIL begins
OBR	Observations Request
{{NTE }}	Order Notes and comments
{{	-- OBSERVATION begin
OBX	Observation related to OBR
{{NTE }}	Observation Notes and comments
}}	-- OBSERVATION end
	-- ORDER DETAIL end
}	-- ORDER end

-- PATIENT_RESULT end

1.1.7 General Observation Result Structure (ORU^R01)

ORU^R01	ORU Message
MSH	Message Header
{{	-- PATIENT_RESULT begin
PID	Patient Identification
	-- VISIT begin
PV1	Patient Visit
[PV2]	Visit Additional Info
	-- VISIT end
{	-- ORDER_OBSERVATION begins
[ORC]	Order Common (SHOULD be sent if the order has not been sent)
OBR	Observations Request
{{NTE }}	Order Notes and comments
{{	-- OBSERVATION begin
OBX	Observation related to OBR
{{NTE }}	Observation Notes and comments
}}	-- OBSERVATION end
}	-- ORDER_OBSERVATION end
}}	-- PATIENT_RESULT end

Acknowledgements and Acknowledgement Structure (ACK)

Messages supported in this specification are supported as asynchronous manner. In this flow, messages will be acknowledged with an acceptance ACK to indicate the message has been received successfully. The message will be placed in a queue and will be processed later.

Ontario Health Data Quality Solution (DQS) is a provincial service used to validate submitted data against conformance and business rules and to record data quality findings. When the message is validated against this specification, an application-level ACK will be generated to confirm the message has been validated, and the data has been stored in miCDR. The submission payload is placed in a queue waiting to be validated. If it is valid, the data is stored in miCDR. If validation fails, the associated errors and warnings are recorded in DQS. Access to DQS is outside the scope of this implementation guide. Applicable

information regarding validation findings and error resolution processes will be provided to HICs during onboarding.

Broadly speaking, the validation will check and log conformance issues in DQS in these categories:

1. **Message conformance errors:** These messages fail because one or more semantic elements inside the message do not adhere to the format defined in this standard. For example, text data might appear in a field marked as numeric only, a field length restriction might be exceeded, or required message segments may be missing altogether. There are many permutations and combinations of such errors, each represented by its own error code and description.
2. **Business logic violations:** These messages fail because the business activity described by the message is not allowed. Some examples include:
 - a. The report date/time cannot be earlier than the associated order date/time.
 - b. The patient cannot be uniquely identified,
 - c. The submitting provider is not authorized,
 - d. The referenced order/report cannot be found

Examples of warnings that may be recorded in DQS include:

- a. A mapping from a local code to a provincial code cannot be determined. The record may still be stored with a warning.
 - b. An MRN cannot be validated against PCR. The record may still be stored, and a warning may be recorded in DQS (e.g., MRN does not exist in PCR).
3. **Solution errors:** These are errors generated by miCDR solution itself, resulting in an inability to process messages correctly. These could relate to infrastructure failures, system connectivity issues, exceptions generated by faulty processing logic, and so on. The miCDR's normal approach to these errors is to cease processing, and resume processing when the underlying issue is corrected; thus, these errors should be infrequently occurred.

The structure of the Acknowledgement (ACK) message is as follows:

ACK^XXX	ACK Message
MSH	Message Header
MSA	Message Acknowledgement
{{ERR }}	Errors

4. How to Implement this Standard

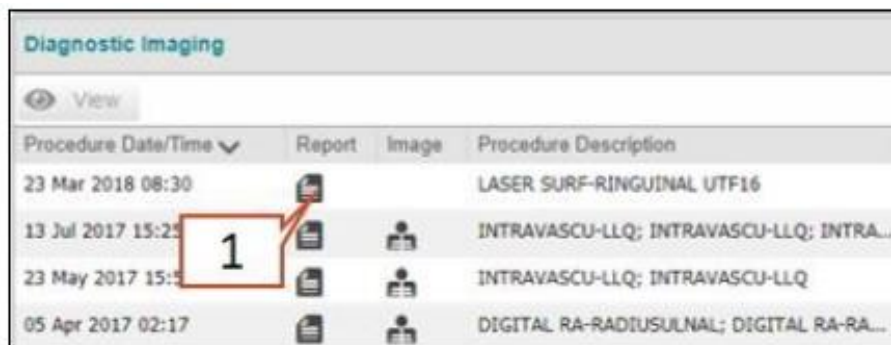
Transmitting Medical Imaging Reports

When a medical imaging report is transmitted using an ORU^R01 message, the clinical content is conveyed in the ORDER_OBSERVATION and OBSERVATION groups. The following section explains how these segments relate with each other.

Within a message can be found one or more ORDER_OBSERVATION blocks, which form a single logical result. An example of a logical result might be an MRI Study Report, or an X-Ray report.

A logical result (or report) is identified uniquely by [OBR-2 \(Placer Order Number\)](#). A group of reports may be identified as being inter-related (generally because they are as a result of the same order) using [ORC-4 \(Placer Group Number\)](#).

The following figure shows how a transmitted medical imaging report appears in a clinical viewer. The report displayed in the viewer is derived from the ORDER_OBSERVATION and OBSERVATION groups of an ORU^R01 message.



Diagnostic Imaging			
View			
Procedure Date/Time	Report	Image	Procedure Description
23 Mar 2018 08:30			LASER SURF-RINGUINAL UTF16
13 Jul 2017 15:25			INTRAVASCU-LLQ; INTRAVASCU-LLQ; INTRA...
23 May 2017 15:5			INTRAVASCU-LLQ; INTRAVASCU-LLQ
05 Apr 2017 02:17			DIGITAL RA-RADIUSULNAL; DIGITAL RA-RA...

View Diagnostic Imaging - Google Chrome

Not secure | devrhn7.dev.emergis/ProviderPortal/viewer/index.jsp

SMITH, DAN DOB: 08 Apr 1984 (35y) Male HCN: 9600953476 ConnectingOntario ClinicalViewer

Unknown - 13 Jul 2017 15:25 (St Michaels Hospital)

Accession Number: ACC IM R2:P1.20171220-0022; Organization: St Michaels Hospital

INTRAVASCU-LLQ (A) 2 U-LLQ

Final + Amended 3

Procedure Name: INTRAVASCU-LLQ
 Procedure Date/Time: 13 Jul 2017 19:25
 Document Custodian: St. Michael's Hospital
 Report Signed by: Tecked, Archie
 Report Signed off Date/Time: 05 Aug 2017 16:13

RE: Debra Jones
 DATE: 12/01/10
 MR: 240804
 DOB: 12/01/65

IMAGING SEQUENCES: Multiple pulsing sequences are performed at three planes with emphasis on T1, proton density, and T2 weighting.

FINDINGS: There are moderate intrameniscal myxoid changes in the medial meniscus. The intrameniscal myxoid changes are more pronounced in the posterior horn. There is no evidence of discrete meniscal tear extending to an articular surface in a linear fashion of either the medial or lateral meniscus. The anterior and posterior cruciate ligaments are intact. There is some edema medial to the MCL consistent with a grade I MCL sprain. There is also some fluid deep to the MCL below the joint line consistent with some TCL bursitis. There is a fairly large broad band of edema in the medial tibial plateau extending to the medial aspect of the lateral tibial plateau compatible with an area of edema, or contusion. There is some subchondral degenerative changes in the femoral condyle. A discrete fracture line is not identified. The lateral collateral ligament appears intact. The extensor mechanism appears intact. There is chondromalacia patella most pronounced along the lateral facet as well as the lateral aspect of the medial facet near the patellar apex. The chondromalacia patella is most pronounced at the level of the upper pole of the patella. A few small subchondral cysts are seen within the patella. There is a small joint effusion.

Privacy Disclaimer:
 This information is confidential and may only be used by the patient or individual listed in the footer. If you are not the patient or individual listed in the footer, please return to the organization listed in the footer. Shred when no longer needed.
 Generated from ConnectingOntario

4

Print Current Tab Close

1.1.8 Important Clinical Report Fields

Procedure Code: Every imaging report (or result, note, etc.) will have a procedure code associated with it. This type consists of both a code identifying the report, as well as a textual description. This element is found in **OBR-4 (Universal Service Identifier)**.

OBR|1|11723145885^HNAME_ORDERID|CN260004791^HNA_ACCN|18388642^CT
 Head/Neck^1.3.6.1.4.1.12201.3.1|...

In this example, the procedure code identifies a CT examination of the head and neck, where 18388642 is the local code and CT Head/Neck is the human-readable description. The OID of the source system assigning the local code must also be provided.

Patient Demographics: Each report will identify one person as subject. That subject (often a patient) must have at least one identifier which must be patient's medical record number (MRN). If a patient's province health card number such as Ontario health card number is available, it must be sent as well. The subject will also have several demographics including address, phone number, primary language, etc. The demographics are found in the PID Segment.

PID|1||40000150^^^^^TVHPP VH|25884143|Bunny^Funny^^^^^Current||20000101|M

In this example, 40000150 represents the patient MRN, while additional identifiers such as 25884143 are also included, along with demographics.

Visit/Referral Information: Each report will identify one visit or encounter which is associated with that report. This encounter includes details such as the clinician the clinic defines as responsible/ attending physician, the patient's location within the facility, **and a visit or encounter number**. This is conveyed in the PV1 segment.

PV1|1|O|V-WXY^^^LHSC-VC^^Ambulatory(s)^VH
Main|||RAD184366^Haddad^Richard^G^^Dr||RAD||Yes|||RAD184366^Haddad^Richard^G^^Dr|
OP|7010909996^^^Sub Visit Number^Visit Id|01

In this example, V-WXY identifies the patient location within the facility, RAD184366^Haddad^Richard^G^^Dr identifies the attending provider, O indicates an outpatient encounter, and 7010909996 represents the visit or encounter number (PV1-19).

Report Section: Discrete Data is the preferred approach for submitting medical imaging reports wherever possible. A report may have one or more sections in it. It is preferred for the report to be composed of sections of discrete results. Where discrete data is not achievable, it is acceptable for the report to have one section containing the entire report, or multiple sections.

The overall report procedure code and description shall be conveyed in [OBR-4 \(Universal Service Identifier\)](#) and remains the source of truth for the study being reported. Section-level identifiers may be conveyed using [OBX-3 \(Observation Identifier\)](#) to label or distinguish report content sections, but these do not replace or duplicate the procedure information in OBR-4.

Report content is conveyed in [OBX-5 \(Observation Value\)](#), most commonly using text data types (e.g., TX or FT). Reports may be sent as a single OBX or multiple OBX segments, with multiple OBX segments preferred for interoperability. Line breaks should not rely on spacing and should be represented using multiple OBX segments or supported HL7 mechanisms.

Example – multi-OBX (preferred)

OBX|1|TX|R^REPORT^L||Test addendum.~ADDITIONAL OR CORRECTED INFORMATION ADDED TO ORIGINAL REPORT|

OBX|2|TX|R^REPORT^L||CT BIOPSY~CLINICAL INFORMATION:~Test report for OCI Migration Testing.|

Example – Single OBX text block

OBX|1|TX|||Name: OCINETPACS,REGRESSION ~ Phys: HAY,DR. KEITH ~ DOB: 13/07/2000 Age: 25 Sex: M~|||||F|

Notes: Sections may also have notes. Notes are transmitted using an NTE segment immediately following the section to which they apply. These will be displayed below the section content in a way that visually distinguishes them from the content itself.

Example –

OBX|2|TX|R^REPORT^L||CT BIOPSY~CLINICAL INFORMATION:~Test report for OCI Migration Testing.|||||F|

NTE|1||Comparison made with prior imaging|

Discrete Data: It is preferred for reports to be submitted with discrete data using individual OBX segments, and that data may also have associated notes. Discrete elements represent structured values such as measurements or coded findings, while semi-discrete elements represent labeled narrative text.

A future version of this standard will detail how to transmit other types of discrete data relevant to medical imaging.

Example – Semi-discrete

OBX|2|TX|R^REPORT^L||CT BIOPSY~CLINICAL INFORMATION:~Test report for OCI Migration Testing.|

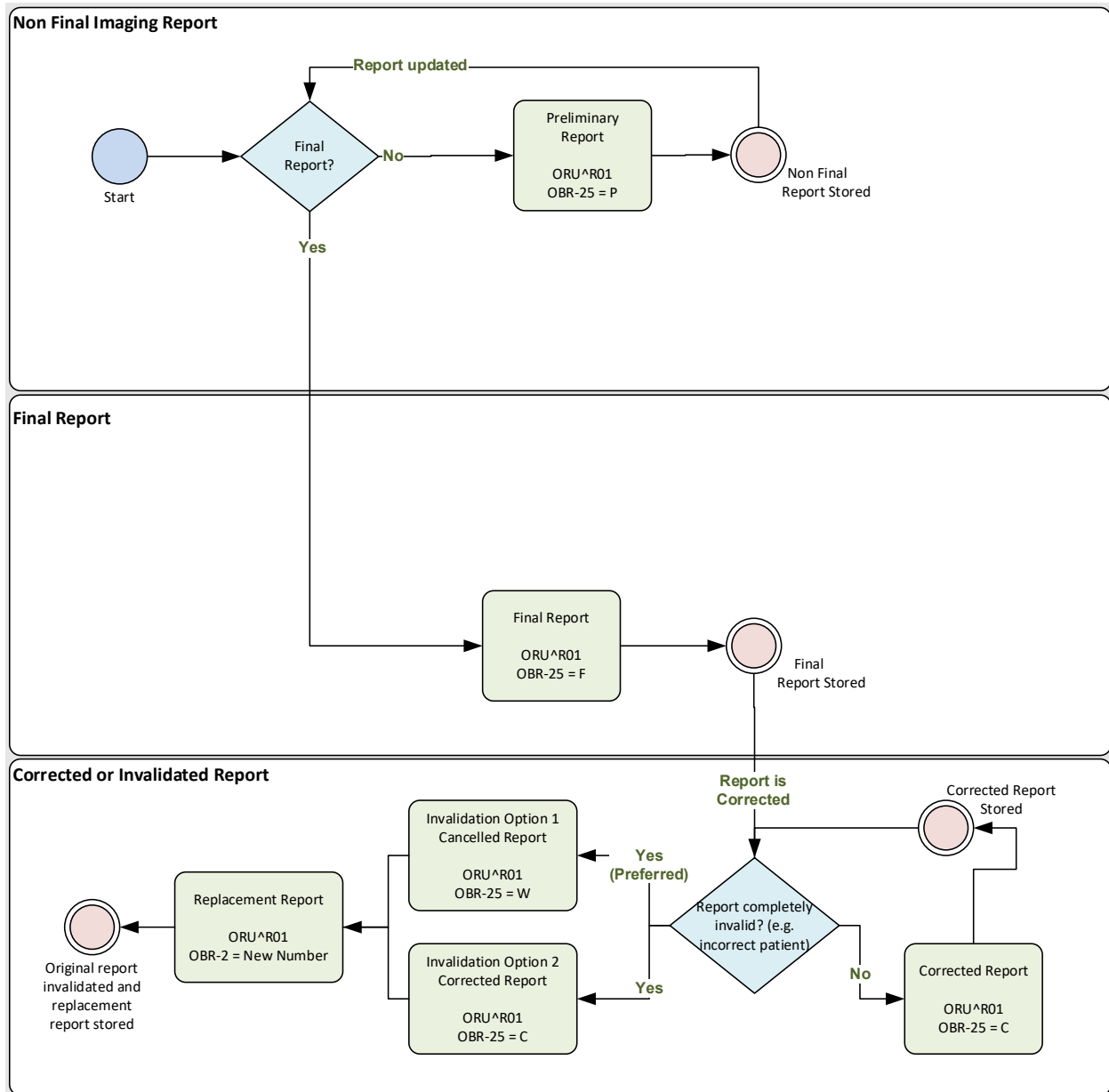
Example – Fully discrete

OBX|1|NM|89262-0^Maximum Lesion Diameter^LN||1.2|cm^^UCUM|||F|

OBX|2|CWE|24627-2^Impression^LN||LA12345-6^No acute intracranial abnormality^LN|||F|

1.1.9 Imaging Report Lifecycle

The following diagram illustrates the lifespan of a medical imaging report within the miCDR.



Final Report

If an imaging report is being transmitted once, and is considered complete and valid for clinical use, it must be transmitted to miCDR in Final state. This is done by transmitting the report with a status code (OBR-25) of "F".

Updates

If an imaging report was sent as preliminary and the final version is sent, the entire content (old and new) must be sent to replace the preliminary report. The report identifier in OBR-2 must be the same to perform the replacement. OBR-25 must contain “F”.

Corrections

If the imaging report is valid, but updated or amended, it is treated as a **correction**.

Corrections are transmitted using a standard ORU^R01 message with [OBR-22 \(Results Rpt/Status Chng - Date/Time\)](#)

This field is only used in ORU messages, and it is mandatory.

This field represents the date/time that the report was verified, signed, or issued. For a new report, it indicates the date/time the report was finalized. For updated reports, it reflects the most recent status change or update.

Example:

OBR |1|12345|67890|2211^Chest X-ray^LOCAL|||20260520103000|||...|||20260520114500|||F|

If a report has been finalized, any subsequent edits to demographic or non-clinical fields should not overwrite or update this timestamp. If this cannot be enforced, OBX-14 should be used to accurately capture preliminary, final, or addendum timestamps.

1.1.10 OBR-24 (Diagnostic Serv Sect ID)

This field is the section of the diagnostic service where the observation was performed. If the study was performed by an outside service, the identification of that service should be recorded here. Refer to HL7 Table 0074 - Diagnostic Service Section ID for valid entries.

OBR-25 (Result Status) set to “C” (corrected). The use of [OBX-11 \(Observation Result Status\)](#) is optional and may be set to “C” for only those report sections that have changed; however, OBR-25 remains the primary field used to determine overall report status.

Corrections are typically handled as addenda. While structure may vary by vendor or site, it must be consistent within an implementation.

Both the original final report and the addendum must be included to prevent loss of content in downstream systems. This can be done by sending separate OBX segments for the original report and addendum or a single OBX with clear delimiters identifying the addendum. In all cases, the full report context must be preserved, not just the changes.

Invalidations

If the report is invalid and should be entirely disregarded (for example, it was entered against the wrong patient), this is an **invalidation**.

Invalidation of a report may be required for the following reasons:

- The report submitted did not apply to the correct patient.
 - In this scenario the patient information for the patient brought into context does not align with the patient information in the content of the report. This can result in patient risk (where the information is used to produce a care plan for the wrong patient), and / or can create privacy breaches (where clinical data belonging to the wrong patient has been viewed).
- The report content submitted is not correct for the patient.
 - In this scenario the patient information for the patient brought into context and the patient information in the report align. However, the report content is not correct for the patient.

Invalidating a report is a two-step process.

The first step is (1) to ensure that the report is marked as no longer valid for clinical use. The second step is (2) the submission of the report containing the correct content and/or for the correct patient.

In ensuring the report is marked as 'no longer valid for clinical use', there are a couple of Mechanisms that can be used, with the preferred mechanism offering the greatest assurance that the invalid document is no longer viewable.

Step 1:

Preferred Invalidation Mechanism

The preferred mechanism for invalidating is to transmit a new ORU^R01 message with [OBR-22 \(Results Rpt/Status Chng - Date/Time\)](#)

This field is only used in ORU messages, and it is mandatory.

This field represents the date/time that the report was verified, signed, or issued. For a new report, it indicates the date/time the report was finalized. For updated reports, it reflects the most recent status change or update.

Example:

OBR |1|12345|67890|2211^Chest X-ray^LOCAL|||20260520103000||...|||20260520114500|||F|

If a report has been finalized, any subsequent edits to demographic or non-clinical fields should not overwrite or update this timestamp. If this cannot be enforced, OBX-14 should be used to accurately capture preliminary, final, or addendum timestamps.

1.1.11 OBR-24 (Diagnostic Serv Sect ID)

This field is the section of the diagnostic service where the observation was performed. If the study was performed by an outside service, the identification of that service should be recorded here. Refer to HL7 Table 0074 - Diagnostic Service Section ID for valid entries.

OBR-25 (Result Status) set to “W” (withdrawn). The contents of the report should contain an explanation of why the report is being invalidated (example: ‘Report submitted against wrong patient’).

If it is not possible to replace the contents of the report with an explanation of why it is being invalidated, the contents should be updated to include an addendum with an explanation of why the report is being invalidated.

In submitting a message with **OBR-22 (Results Rpt/Status Chng - Date/Time)**

This field is only used in ORU messages, and it is mandatory.

This field represents the date/time that the report was verified, signed, or issued. For a new report, it indicates the date/time the report was finalized. For updated reports, it reflects the most recent status change or update.

Example:

OBR |1|12345|67890|2211^Chest X-ray^LOCAL|||20260520103000||...|||20260520114500|||F|

If a report has been finalized, any subsequent edits to demographic or non-clinical fields should not overwrite or update this timestamp. If this cannot be enforced, OBX-14 should be used to accurately capture preliminary, final, or addendum timestamps.

1.1.12 OBR-24 (Diagnostic Serv Sect ID)

This field is the section of the diagnostic service where the observation was performed. If the study was performed by an outside service, the identification of that service should be recorded here. Refer to HL7 Table 0074 - Diagnostic Service Section ID for valid entries.

OBR-25 (Result Status) set to “W” (withdrawn), the option to view the report is no longer presented to users.

Alternate Invalidation Mechanism

If the sending system does not support the concept of a withdrawn or cancelled report, but rather an addendum workflow / or / if the workflow at the sending HIC does not support the transmission of invalidations as outlined above, the following workaround may be used:

A new ORU^R01 may be transmitted with [OBR-22 \(Results Rpt/Status Chng - Date/Time\)](#)

This field is only used in ORU messages, and it is mandatory.

This field represents the date/time that the report was verified, signed, or issued. For a new report, it indicates the date/time the report was finalized. For updated reports, it reflects the most recent status change or update.

Example:

OBR |1|12345|67890|2211^Chest X-ray^LOCAL|||20260520103000|||...|||20260520114500|||F|

If a report has been finalized, any subsequent edits to demographic or non-clinical fields should not overwrite or update this timestamp. If this cannot be enforced, OBX-14 should be used to accurately capture preliminary, final, or addendum timestamps.

1.1.13 OBR-24 (Diagnostic Serv Sect ID)

This field is the section of the diagnostic service where the observation was performed. If the study was performed by an outside service, the identification of that service should be recorded here. Refer to HL7 Table 0074 - Diagnostic Service Section ID for valid entries.

OBR-25 (Result Status) set to “C” (corrected).

In this case, it is mandatory for the corrected report to contain a **prominent explanation before the previous contents** that states the report was invalid and should be disregarded.

Depending on the organization, the previous contents may be completely removed and replaced with this explanation or kept for historical comparison/traceability purposes. The only requirement is that the explanatory text for the invalidation appears prominently, and before those previous contents, if any.

NOTE: In scenarios where the content of the report contains incorrect patient demographic data, meaning the invalidation is the result of the documentation filed against the wrong patient; the content of the report **MUST** be removed in its entirety, and a prominent explanation for the invalidation replacing the previous contents.

Step 2:

Replacement Report

If the report was invalidated, a new report may now be transmitted using a new ORU^R01 message.

This replacement report must have a new identifier in [OBR-2 \(Placer Order Number\)](#).

5. Message Segment Definitions

How to Read this Section

The following section contains definitions on the contents of the individual segments and fields within the messaging standards.

1.1.14 Segment Tables

The following columns are found within each segment table.

- **Seq:** Denotes the sequence within the message (e.g. PID-5 is the 5th field within PID)
- **Use:** Indicates which message type this field is applicable for. This column is included in some of the segments that have different conformance expectations between the two message types.
- **Opt:** Indicates the optionality of the field. The following values may be found:

R	Required. A value must always be provided
RE	Required or Empty. Systems must be capable of transmitting a value in this field but may transmit no value.
O	Optional. Systems should transmit data in this field if they support it, but this is not required. The absence of a value shall not cause message processing to fail.
C	Conditionally required please see field description.

- **Len:** Indicates the maximum length of the field.
- **DT:** Indicates the HL7 data type associated with this field (see HL7 Specification, Chapter 2)
- **RP:** Indicates that the field may repeat, and if so, indicates the minimum and maximum number of repetitions.
- **Vocab Tbl#:** If the field is a coded type (IS, ID), indicates the HL7 table from which values must be drawn. Table definitions are found in [Vocabulary Tables](#)
- **Field Description:** Contains a description of the field.
- **Sample Data:** Shows an example of the data that may be found in this field.

Data Type Notes

1.1.15 Dates with Times (TS)

Note that when a date and time is transmitted to the miCDR using a TS data type, the time zone offset must be noted.

The standard way to do this is to include a GMT offset to the time. This offset will vary during the year due to daylight savings. For example, a time in the summer (in Eastern Standard Time) and a time in the winter would appear as:

```
20120802220800-0400  
20120126220800-0500
```

If the sending system is not able to provide the offset due to technical limitations, and it can be guaranteed that times always reflect the appropriate offset during daylight savings time within a single time zone, the sending system may indicate the time zone using a custom value within [MSH-17 \(Country Code and Optional Time Zone\)](#).

For instance, if times being transmitted always represent offsets within Eastern Standard Time, an MSH-17 value of "CAN_EST" may be provided. In that case, the sending system can omit the offset in any TS data types it transmits.

MSH Segment

Seq	Opt	Len	DT	RP /#	Vocab Tbl#	Field Description	Sample Data
MSH-1	R	1	ST			Field Separator	<i>(Fixed Value)</i>
MSH-2	R	4	ST			Encoding Characters	^~\& <i>(Fixed Value)</i>
MSH-3	R	100	H D			Sending Application	`
MSH-4	RE	100	H D			Sending Facility	UPI of the facility assigned by OH
MSH-5	R	20	H D			Receiving Application	miCDR <i>(Fixed Value)</i>
MSH-6	R	20	H D			Receiving Facility	Ontario Health <i>(fixed value)</i>
MSH-7	R	26	TS			Date/Time Of Message	20120802220800-0400 YYYYMMDDhhmm-XXXX This field shall include the GMT/UTC offset.
..skip							

MSH-9	R	15	M SG	Message Type	ORU^R01^ORU_R01 (for reports) ORM^O01^ORM_O01 (for orders)
MSH-10	R	50	ST	Message Control ID	PKG1-UC1-2-1
MSH-11	R	3	PT	Processing ID	T <i>(Refers to data. T=Test, P=Production)</i>
MSH-12	R	8	ID	Version ID	2.5 <i>(Fixed Value)</i>
..skip..					
MSH-15	R	2	ID	Accept Acknowledgment Type	AL <i>(Fixed Value)</i>
MSH-16	R	2	ID	Application Acknowledgment Type	AL <i>(Fixed Value)</i>
MSH-17	R	7	ID	Country Code	CAN
MSH-18	R	16	ID	Character Set	8859/1 <i>(Fixed Value)</i>
MSH-21	R	20	EI	Message Identifier	Profile miCDR_1_0_0 <i>(Fixed Value)</i>

1.1.16 MSH-1 (Field Separator)

This field must define the character that serves as the field separator for the entire message. The HIAL accepts only the “pipe” as a field separator.

1.1.17 MSH-2 (Encoding Characters)

This field must contain the four characters used as component separator, repetition separator, escape character and subcomponent separator. The miCDR accepts only the following characters, in this exact sequence: “^~\&”. If these characters are used in any text within the message (in other words, in any context other than as an HL7 separator), they must be represented using the escape sequences defined below:

HL7 Supported Message Delimiter Escape Sequences

Character	Escape Sequence
&	\T\
^	\S\
	\F\
~	\R\
\	\E\

HL7 Supported Message Delimiter Escape Sequences	
Character	Escape Sequence
&	\T\
^	\S\
	\F\
~	\R\
\	\E\

1.1.18 MSH-3 (Sending Application)

This field must identify the unique application sending the message.

Seq	Use	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
HD.1	cO	R	50	IS	9004	Namespace ID	1.3.6.1.4.1.12201 (<i>miCDR Provided</i>)
HD.2	cO	R	50	ST	9008	Universal ID	1.3.6.1.4.1.12201.1 (<i>miCDR Provided</i>)

MSH-3 HD.1 (Namespace ID)

This field must be populated with an identifier assigned by miCDR which identifies the HIC transmitting the message.

MSH-3 HD.2 (Universal ID)

This field must contain the identifier of the system within the HIC which is being used to generate this message and is considered to be the “source of truth”. Note that this component must contain only uppercase letters, numbers, and the underscore character (_). Spaces are not permitted.

1.1.19 MSH-4 (Sending Facility)

This field must contain the unique provider identifier (UPI) of the facility if applicable. The UPI is assigned by Ontario Health as indicated by fixed value OID in HD.2 below.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
-----	-----	-----	----	------------	-------------------	---------------------

HD.1	R	4	NM		Namespace ID	UPI of the facility assigned by OH (e.g. 101473083042 which is the UPI for University Health Network)
HD.2	R	50	ST		Universal ID	2.16.840.1.113883.3.239.9 <i>(fixed value)</i>

1.1.20 MSH-5 (Receiving Application)

This field must contain the text “miCDR”.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
HD.1	R	20	IS	0300	Namespace ID	miCDR <i>(Fixed Value)</i>

1.1.21 MSH-6 (Receiving Facility)

This field must contain the text “Ontario Health”.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
HD.1	R	20	IS		Namespace ID	Ontario Health <i>(Fixed Value)</i>

1.1.22 MSH-7 (Date/Time of Message)

This field must contain the date and time the message was created. The time zone offset shall be included in accordance with the requirements in section [1.1.15 Dates with Times \(TS\)](#) to ensure consistent interpretation of timestamps across participating systems operating in different time zones.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
TS.1	R	24	DT M		Time	201201250101-0400

1.1.23 MSH-9 (Message Type)

This field must contain the message type, trigger event and message structure ID. It may be used to recognize data segments and route messages to specific applications. For queries with more than one single response type, this field may contain the response event type.

Seq	Use	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
MSG.1	All	R	3	ID	0076	Message Code	ORU
MSG.2	All	R	3	ID	0003	Trigger Event	R01
MSG.3	All	R	7	ID	0354	Message Structure	ORU_R01

1.1.24 MSH-10 (Message Control ID)

This field must contain the unique message identifier that is echoed back to the sending system in the message acknowledgement segment (MSA).

It is expected that for each unique message, a new unique control ID will be generated. If a report is updated and a new version is transmitted, a new control ID would be expected in this field. If an identical message is being retransmitted (e.g. for troubleshooting purposes) the sending system is expected to generate a new control ID.

1.1.25 MSH-11 (Processing ID)

This field must contain the character “P” for production or “T” otherwise.

1.1.26 MSH-12 (Version ID)

This field must contain the string “2.5”.

1.1.27 MSH-15 (Accept Acknowledgement Type)

This field must contain the string “AL”.

1.1.28 MSH-16 (Application Acknowledgement Type)

This field must contain the string “AL”.

1.1.29 MSH-17 (Country Code and Optional Time Zone)

This field must contain the country where the message originated. Under all current sources this would be “CAN”.

1.1.30 MSH-18 (Character Set)

This field must contain the character set for the message. This field must be fixed to “8859/1”. Note that it is important to ensure that your system is actually transmitting using this encoding; it is not sufficient to simply fix the string to “8859/1”.

1.1.31 MSH-21 (Message Profile Identifier)

This field must contain an identifier which indicates which version of the miCDR HL7 v2 Specification is being transmitted by the sending system. As of this version of the standard, this must be hard coded to “miCDR_1_0_0”, which indicates that the current major version of the standard is being targeted. When the standard undergoes major revisions in future, it will be necessary to edit this field to indicate the version a site is adhering to. Further instructions will be provided to participating organizations should revisions of this type become necessary.

PID Segment

Seq	Opt	Len	DT	RP/#	Vocab Tbl#	Field Description	Sample Data (Notes)
PID-1	O	4	SI			Set ID – PID	1 <i>(Fixed Value)</i>
..skip..							
PID-3	R	387	CX	1..10		Patient ID	7005728^^^2.16.840.1.113883 .3.239.18.148&1.3.6.1.4.1.122 01.1^MR <i>(Only patient identifiers should be placed here, not visit identifiers)</i>
..skip..							
PID-5	R	211	XP N	1..10		Patient Name (Legal Name)	ABIDI^Muhammad^^^^^L
..skip							
PID-7	RE	26	TS			Date/Time of Birth	YYYYMMDDhhmm-XXXX
PID-8	R	1	ID		0001	Administrative Sex	M
..skip..							

PID-11	RE	293	XAD	0..10	Patient Address	17 RD^^Toronto^CANON^M5G1H 1^CAN^C (Both home and business addresses are placed in PID-11 as separate instances)	PARK
..skip..							
PID-13	RE	466	XTN	0..10	Phone Number	Both home and business phone numbers are placed in PID-13 as separate instances	
..skip..							
PID-15	O	226	CE		Primary Language	ENG^English^HL70296	

1.1.32 PID-1 (Set ID)

This field may be hard coded to “1”.

1.1.33 PID-3 (Patient ID)

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 of PID-3 with an identifier type code of MR (MRN).
- If the HIC collects a provincial health number (e.g. OHIP number or other province health card number) this must be sent.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
CX.1	R	50	ST		Identifier	12345
..skip..						
CX.4	C	100	HD		Assigning Authority	
4.1	R	50	IS	9004M (MRN only)	Namespace ID	For MRNs, 2.16.840.1.113883.3.239.18.148 (UHN MRN OID)
4.2	R	50	ST	9008	Universal ID	1.3.6.1.4.1.12201.1

CX.5	R	5	ID	0203	Identifier Code	Type	MR <i>miCDR to use codes:</i> MR JHN (If JHN is present, provide CX.2 if available)
..skip..							
CX.9	C	211	CW E		Assigning Jurisdiction		
9.1	R	5	ST	0363	Identifier		CANON
9.2	O	199	ST		Text		Ontario Canada
9.3	R	7	ID		Name of Coding System		HL70363 <i>(Fixed Value)</i>

PID-3 CX.1 (Identifier)

This component must contain the identifier associated with the patient, e.g., MRN or OHIP number.

PID-3 CX.4 (Assigning Authority)

If the identifier is a local identifier assigned by an HIC (such as an MRN) this component must contain the identity of the identifier assigning authority. If present, it must contain the following subcomponents:

- CX4.1 (Namespace ID):** This field must contain the assigning authority identifier of the HIC which assigns this identifier. The correct value for this field will be provided by the miCDR.
 - If Identifier Type Code is “MR”, this identifier should be the MRN assigning authority from Table 9004M.
 - If Identifier Type Code is a secondary local identifier type (e.g. MRS, PI), this identifier should be the HIC identifier from Table 9004.
- CX4.2 (Universal ID):** This field must contain the identifier of the system within the HIC which is being used to generate this identifier and is considered to be the “source of truth” for it.

PID-3 CX.5 (Identifier Type Code)

This component must identify which type of identifier this field repetition contains. Values must be drawn from [Table 20: HL7 Table 0203 \(Identifier Type Code\)](#).

PID-3 CX.7 (Effective Date)

If this identifier is effective only from a specific date, and that date is known, this field may contain that date.

PID-3 CX.8 (Expiration Date)

If this identifier is effective only until a specific date, and that date is known, this field may contain that date.

PID-3 CX.9 (Assigning Jurisdiction)

If the identifier is a regional or jurisdictional identifier (such as an OHIP number) this component must contain the identity of the jurisdiction. If present, it must contain the following subcomponents:

- **CX9.1 (Identifier):** This field must contain the identifier of the jurisdiction which assigns this identifier. Values for this field must be drawn from [Table 0363 \(Assigning Authority\)](#).
- **CX9.2 (Text, Optional):** This field may be a textual description of the jurisdiction.
- **CX9.3 (Name of Coding System):** This field must contain the string “HL70363”.

PID-3 Examples

The following is an example of PID-3, containing three repetitions showing different scenarios:

```
7005728^^^2.16.840.1.113883.3.239.18.148
&1.3.6.1.4.1.12201.1^MR~
0000000000^AA^^^JHN^^^CANON&Ontario&HL70363~
```

- In the first repetition, an MRN (7005728) for the hospital University Health Network (which has been assigned MRN OID “2.16.840.1.113883.3.239.18.148”) is found. This hospital uses an HIS as the MRN authority, so it has assigned a code of “1.3.6.1.4.1.12201.1” to identify it.
- In the second repetition, an OHIP number (0000000000) with a version code of AA.

1.1.34 PID-5 (Patient Name)

Seq	Use	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
XPN.1	All	R	50	ST		Family Name	
FN.1		R	50	ST		Surname	Smith

XPN.2	All	RE	50	ST		Given Name	John
XPN.3	All	RE	50	ST		Second and Further Names	Joseph
XPN.4	cO	O	20	ST		Suffix	Sr.
XPN.5	cO	O	20	ST		Prefix	Mr.
XPN.6	cO	O	20	ST		Degree	MD
XPN.7	All	R	1	ID	0200	Name Type Code	L

PID-5 Examples

The following example shows two repetitions of PID-5. First, a legal name with all components represented. Second, an alias name with only two components represented.

```
Smith^Joseph^John^Junior^Mr^MD^L~
Smith^Joe^^^^^A
```

1.1.35 PID-7 (Date/Time of Birth)

This field must contain the date/time of birth if it is known. It is acceptable to leave this field blank only in cases where the date of birth is not known at the time that the message is being transmitted, such as with emergency patients.

This field should contain as much precision as is stored in the source system. If the source system stores only a date, it is acceptable to pad the time with zeros, e.g. "20121224000000".

1.1.36 PID-8 (Administrative Sex)

This field must contain the administrative sex. Values must be drawn from [Table 1: HL7 Table 0001 \(Administrative Sex\)](#).

1.1.37 PID-11 (Patient Address)

This field may contain one or more repetitions of patient addresses. The first instance is considered the primary address.

Seq	Use	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
XAD.1	All	RE	50	SA D		Street Address	
SAD.1		RE	50	ST		Street or Mailing Address	201-123 Fake Street
XAD.2	All	RE	50	ST		Other Designation	Clark Building
XAD.3	All	RE	80	ST		City	Toronto
XAD.4	All	RE	50	ST	9003	Province or State	CANON
XAD.5	All	RE	12	ST		Postal Code	M5A 1A1
XAD.6	All	RE	50	ID		Country	Canada <i>(Not validated)</i>
XAD.7	All	R	1	ID	0190	Address Type	H <i>(HRM will only use address type H)</i>
..skip..							
XAD.13	cO	O	19	TS		Effective Date	20120301120000-0400
XAD.14	cO	O	19	TS		Expiration Date	20140101 <i>(Time information optional)</i>

PID-11.4 (Province or State)

If the address is for a Canadian province or US state, the value should be drawn from [Table 29: HL7 Table 9003 \(Province and State Codes\)](#).

PID-11.5 (Postal Code)

Note that any space and punctuation will be ignored in this value. As such, the following are equivalent: "A8A 8A8", "A8A8A8", and "A8A-8A8".

PID-11.13 (Effective Date)

This component may be used to indicate an effective date for this address. No specific level of precision is required.

PID-11.14 (Expiration Date)

This component may be used to indicate an expiration date for this address. No specific level of precision is required.

PID-11 Examples

The following example shows two repetitions of PID-11, one for a home address and one for a mailing address.

```
6 RIVINGTON AVE^^Goderich^CANON^N7A3Y2^CAN^H~
```

```
7 WOODPLUMPTON ROAD^^Port Stanley^CANON^N0L2A0^CAN^M
```

1.1.38 PID-13 (Phone Number)

This field must contain the patient's personal telephone numbers, with their primary personal number listed first.

Seq	Use	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
XTN.1	All	C	25	ST		Telephone Number	1(416)340-4800 x 4357
XTN.2	All	R	3	ID	0201	Telecommunication Use Code	PRN <i>(HRM supports PRN code only)</i>
XTN.3	cO	O	10	ID	0202	Telecommunication Equipment Code	PH
XTN.4	cO	O	199	ST		Email Address	test@example.com
XTN.5	cO	O	3	NM		Country Code	1
XTN.6	cO	O	5	NM		Area Code	416
XTN.7	cO	O	9	NM		Local Number	3404800
XTN.8	cO	O	10	NM		Extension	4357
XTN.9	cO	O	199	ST		Any Text / Notes	Do not call after 5

PID-13 Examples

The following is an example for a phone number:

```
(416) 340-4800^PRN^PH^^1^416^3404800^^Do not call after 5
```

The following is an example for an email address:

```
| ^NET^Internet^test@example.com^^^^^
```

1.1.39 PID-15 (Primary Language)

This field may contain the client's primary language. ISO table 639-3 is recommended for the User-Defined Table 0296 – Primary Language, but this is not required. If a textual description is provided using CE.2, an Identifier must be supplied in CE.1 as well.

Seq	Use	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
CE.1	cO	O	20	ST		Identifier	ENG
CE.2	cO	O	199	ST		Text	English
CE.3	cO	R	7	ID		Name of Coding System	HL70296 <i>(Fixed Value)</i>

PV1 Segment

Seq	Opt	Len	DT	RP/#	Vocab Tbl#	Field Description	Sample Data
PV1-1	O	4	SI			Set ID - PV1	1
PV1-2	R	2	ID		0004	Patient Class	0
PV1-3	RE	519	PL			Assigned Patient Location	
PV1-4	RE	10	IS		0007	Admission Type	
PV1-6	RE	519	PL			Prior Patient Location	
..skip..							
PV1-7	RE	525	XCN			Attending Doctor	
PV1-8	RE	525	XCN			Referring Doctor	
PV1-9	RE	525	XCN	0..10		Consulting Doctor	
PV1-10	RE	310	CNE		0069	Hospital Service Name	124^Cardiology
..skip..							
PV1-17	RE	525	XCN			Admitting Doctor	
..skip..							
PV1-19	R	155	CX			Visit Number	

..skip..							
PV1-44	RE	26	TS			Admit Date/Time	200611291617-0400
PV1-45	RE	26	TS	0..10		Discharge Date/Time	YYYYMMDDhhmm-XXXX

1.1.40 PV1-1 (Set ID)

The PV1 segment conveys visit or encounter context associated with the patient. For miCDR, visit information is optional and may be included where available to provide additional clinical context for imaging orders or reports. The absence of PV1 SHALL not prevent processing of submissions.

1.1.41 PV1-2 (Patient Class)

This field must contain a category or class of patients. For expected values, please refer to [Table 2: HL7 Table 0004 \(Patient Class\)](#).

1.1.42 PV1-3 (Assigned Patient Location)

This field must contain the current location of the patient at the time of the encounter, if applicable, as it is stored in the sending system.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
PL.1	RE	50	IS		Point of care	JS12 (<i>Jones Wing South, 12 floor</i>)
PL.2	RE	50	IS		Room	123 (<i>Room 123</i>)
PL.3	RE	50	IS		Bed	4 (<i>Bed 4</i>)
PL.4	R	100	HD		Facility	
4.1	R	50	IS		Namespace ID	UPI of the facility/organization if applicable e.g. (<i>miCDR Provided</i>)
4.2	R	50	ST		Universal ID	2.16.840.1.113883.3.239.9 (<i>fixed value</i>)
..skip..						
PL.7	O	50	IS		Building	Q Building
PL.8	O	20	IS		Floor	12
PL.9	RE	199	ST		Location Description	Acute Medical

5.5.3.1 PL.1 (Point of Care)

This is the most general classification for a specific location. It will generally refer to a floor number and possibly a wing name and/or direction. It might instead refer to a specific clinic or department code.

5.5.3.2 PL.2 (Room)

This is the second most general classification for a specific location. It refers to a specific room within the point of care identified in PL.1.

5.5.3.3 PL.3 (Bed)

This is the most specific classification for a specific location. It refers to an individual bed, seat, or other subdivision within the room identified in PL.2.

5.5.3.4 PL.4 (Facility)

This component must contain the identity of the facility and will be provided by the miCDR.

- **PL.4.1** (Namespace ID) must contain the unique provider identifier (UPI) for the HIC facility providing the data if the HIC is a multi-facility entity (such as a multi-site hospital). This value is assigned by OH. If the HIC is a single facility entity, the UPI of the HIC must be provided.
- **PL.4.2** (Universal ID) must contain the fixed value of 2.16.840.1.113883.3.239.9. This is the OID of the UPI used in PL.4.1.

5.5.3.5 PL.7 (Building)

This component may contain a building identifier, if appropriate.

5.5.3.6 PL.8 (Floor)

This component may contain a floor identifier, if appropriate.

5.5.3.7 PL.9 (Description)

This field may contain a free text description of the patient's location, in addition to the previous fields (e.g. "Acute Medical" to indicate the bed type).

5.5.3.8 PV1-3 Examples

The following is an example for a specific bed within an inpatient unit.

```
JS12^123^4^1.3.6.1.4.1.12201&1.3.6.1.4.1.12201.3.1^^^Q  
Building^12^ACUTE - Medical
```

The following is an example for a clinic with no further location information available.

```
Sleep Clinic^^^1.3.6.1.4.1.12201&1.3.6.1.4.1.12201.3.1
```

1.1.43 PV1-4 (Admission Type)

This field must contain the admission type, if appropriate and available. Codes are defined by individual HICs and are not restricted solely to the suggested values in table 0007.

1.1.44 PV1-6 (Prior Patient Location)

This field should contain the prior location in the event that the location is changing. The format should be exactly as in .

PV1-3 (Assigned Patient Location).

1.1.45 PV1-7 (Attending Doctor)

This field must contain the identity of the attending doctor for the patient visit, if appropriate and available.

This field must follow the format outlined in [XCN: Composite ID for Provider](#).

1.1.46 PV1-8 (Referring Doctor)

This field must contain the identity of the referring doctor for the patient visit, if appropriate and available.

This field must follow the format outlined in [6.2 XCN: Composite ID for Provider](#).

1.1.47 PV1-9 (Consulting Doctor)

This field must contain the identity of the consulting doctor for the patient visit, if appropriate and available.

This field must follow the format outlined in [6.2 XCN: Composite ID for Provider](#).

1.1.48 PV1-10 (Hospital Service)

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
CNE.1	RE	60	ST	0069	Identifier	12
CNE.2	R	250	ST		Text	Cardiology

Hospital Service (PV1-10) is strongly recommended for Medical Imaging submissions. When a coded value is unavailable, the field may be populated using a free-text description or omitted. If provided for inpatient encounters, contributing systems SHALL use a code and a display value from HL7 Table 0069 in accordance with the specification. For outpatient encounters, local descriptions MAY be sent in CNE.2 and CNE.1 can be left blank.

1.1.49 PV1-17 (Admitting Doctor)

This field must contain the identity of the admitting doctor for the patient visit, if appropriate and available.

This field must follow the format outlined in [6.2 XCN: Composite ID for Provider](#).

1.1.50 PV1-19 (Visit Number)

This field must contain one or more unique identifiers for the patient visit/encounter.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
CX.1	R	50	ST		Identifier	123453545
..skip..						
CX.4	C	100	HD		Assigning Authority	
4.1	R	50	IS	9004V	Namespace ID	1.3.6.1.4.1.12201.2(<i>miCDR Provided</i>)
4.2	R	50	ST	9008	Universal ID	1.3.6.1.4.1.12201.1(<i>miCDR Provided</i>)

CX.5	R	5	ID	0203	Identifier Code	Type	VN
------	---	---	----	------	-----------------	------	----

5.5.11.1 PV1-19 CX.1 (Identifier)

This component must contain the identifier associated with the visit/encounter.

5.5.11.2 PV1-19 CX.4 (Assigning Authority)

This component must contain the identifier of the visit number assigning authority. It must contain the following subcomponents:

- **CX4.1 (Namespace ID):** This field must contain the identifier of the visit number assigning authority of the HIC. The correct value for this field will be provided by the miCDR.
- **CX4.2 (Universal ID):** This field must contain the identifier of the system within the HIC which is being used to generate this identifier and is considered to be the “source of truth” for it.

5.5.11.3 PV1-19 CX.5 (Identifier Type Code)

This component must identify which type of identifier this field repetition contains. Values must be drawn from [Table 20: HL7 Table 0203 \(Identifier Type Code\)](#).

1.1.51 PV1-44 (Admit Date/Time)

This field contains the admit date and time and is used for retroactive updates to the original admit date and time. This field is also used to store the registration date and time of an outpatient or emergency patient.

1.1.52 PV1-45 (Discharge Date/Time)

This field contains the discharge date and time and is used for retroactive updates to the discharge date and time. Similarly to the PV1-44, it is also used for the discharge date and time of an outpatient or emergency patient.

PV2 Segment

The PV2 segment is a continuation of information contained on the PV1 segment.

Seq	Use	Opt	Len	DT	RP/#	Vocab Tbl#	Field Description	Sample Data (Notes)
PV2- 3	All	O	310	CWE			Admit Reason	SOB^Shortness of Breath

1.1.53 PV2-3 (Admit Reason)

If applicable, this field may contain a presenting complaint if it is captured and available. If a coded value is available (e.g. CEDIS, ICD-10) it should be transmitted, otherwise a local identifier must be provided.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
CWE.1	R	60	ST		Identifier	SOB
CWE.2	R	250	ST		Text	Shortness of Breath

ORC Segment

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). The ORC segment is required in the Order (ORM) message. For ORU messages, ORC should only be sent when the order has not been previously sent.

Seq	Use	Opt	Len	DT	RP/#	Vocab Tbl#	Field Description	Sample Data (Notes)
ORC-1	All	R	2	ID		0119	Order Control	NW
ORC-2	All	R	175	EI			Placer Order Number	12345^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1
ORC-3	All	C	175	EI			Filler Order Number	12345^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1
ORC-4	All	RE	175	EI			Placer Group Number	2233^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1
ORC-5	ORM	R	2	ID			Order Status	S (meaning Order Status = Scheduled)
..skip. .								
ORC-9	ORM	R	26	TS			Order Date/Time	200611291617-0400

..skip.								
ORC-12	ORM	R	525	XCN			Ordering Provider	

1.1.54 ORC-1 (Order Control)

ORC-1 identifies the order control action associated with an order group and is defined using codes from [HL7 Table 0119 \(Order Control Codes\)](#).

In combination with ORC-5, these two fields specify the action and status of the order. These are some examples:

Scenario (ORM Message)	ORC-1 Value
Sending new order	NW
Cancelling an existing order (e.g. change in scheduled date, procedure, etc)	CA
Updating the status of an existing order	SC

Scenario (ORU Message)	ORC-1 Value
Sending new report	RE

1.1.55 ORC-2 (Placer Order Number)

This field contains a unique identifier that the placing system generates for the order. If this is not applicable, it must contain the accession number from ORC-3.

This field must follow the format outlined in [6.1 Entity Identifier](#)

1.1.56 ORC-3 (Filler Order Number)

This field is the order number associated with the filling application. It should contain the accession number assigned by the RIS system.

This field must follow the format outlined in [o below, EI: Entity Identifier for Order and Report Numbers](#).

1.1.57 ORC-4 (Placer Group Number)

This field may contain a placer group number identifying the group identity that the order is a part of. For imaging order, this can contain the identifier of the requisition.

This field must follow the format outlined in EI: Entity Identifier for Order and Report Numbers, [EI: Entity Identifier for Order](#) and Report Numbers.

1.1.58 ORC-5 (Order Status)

This field contains the status of the order and indicates its current state within the order workflow. It is only mandatory in ORM messages.

This field must follow the format outlined in Section 6.1 and the use the coded value from [HL7 Table 0038 \(Order Status\)](#).

The code used in ORC-5 should align ORC-1 as indicated in the examples provided in ORC-1.

1.1.59 ORC-9 (Order Date/Time)

This field is only mandatory in ORM messages. It should not be used in ORU messages.

This field should contain the date and time of the event that initiated the current order transaction, as indicated by ORC-1 (Order Control Code). It is not equivalent to MSH-7, which represents the date/time the message was created.

1.1.60 ORC-12 (Ordering Provider)

This field is only mandatory in ORM messages. It should not be used in ORU messages.

This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician, referring physician).

This field must follow the format outlined in 0 below, [XCN: Composite ID for Provider](#).

OBR Segment

For Medical Imaging, the OBR segment identifies the imaging procedure and provides the context for the associated imaging report and results.

Each OBR corresponds to a single imaging procedure or logical report and may be associated with one or more observations (OBX segments) that represent the report content.

Seq	Use	Opt	Len	DT	RP/#	Vocab Tbl#	Field Description	Sample Data (Notes)
OBR-1	All	R	4	SI			Set ID	1
OBR-2	All	RE	175	EI			Placer Order Number	2233^1.3.6.1.4.1.12 201^1.3.6.1.4.1.122 01.1
OBR-3	All	R	175	EI			Filler Order Number	2233^1.3.6.1.4.1.12 201^1.3.6.1.4.1.122 01.1
OBR-4	All	R	820 0	CN E	1..10		Universal Service Identifier	5049^Procedure Note^1.3.6.1.4.1.12 201.2.1^28570- 0^Procedure note^LN
..skip..								
OBR-7	All	R	19	TS	1..10		Observation Date/Time	YYYYMMDDhhmm e.g., 20260520103000
OBR-8	ORU	RE	19	TS			Observation End Date/Time	
..skip..								
OBR-16	All	RE	525	XC N	0..10		Ordering Provider	
..skip..								
OBR-22	ORU	C	20	TS			Results Rpt/Status Chng - Date/Time	
OBR-24	ORU	R	10	ID		0074	Diagnostic Serv Sect ID	RAD (Radiology)
OBR-25	ORU	C	1	ID		0271	Result Status	F
OBR-26	ORU	O	175	PR L			Parent Result	2222&1.3.6.1.4.1.12 201&1.3.6.1.4.1.122 01.1
OBR-27	OR M	RE	10	TQ			Quantity/Timing	

OBR-28	ORU	O	525	XCN	0..10		Result copies to	
..skip..								
OBR-32	ORU	RE	525	NDL			Principal Result Interpreter	
..skip..								
OBR-34	ORU	O	200	NDL			Technician	

1.1.61 OBR-1 (Set ID)

This field must contain the correct sequential set ID. It should start with “1”, and next OBR should continue with “2”, “3” etc.

1.1.62 OBR-2 (Placer Order Number)

This field contains a number assigned by the placing system to uniquely identify the order. If this is applicable, it should be sent in this field. If a sending system creates just a filler order number (in OBR-3), it is acceptable to copy that value into OBR-2.

This field must follow the format outlined in [o below](#), [EI: Entity Identifier for Order](#) and Report Numbers.

1.1.63 OBR-3 (Filler Order Number)

This field must contain the accession number of the order or report assigned by the RIS system.

This field must follow the format outlined in [o below](#), [EI: Entity Identifier for Order](#) and Report Numbers.

1.1.64 OBR-4 (Universal Service Identifier)

This field is mandatory in both order and report messages, and it has different conformance expectations for different types of HICs.

For **hospitals** sending imaging orders and reports:

This field must contain a local procedure code, description (text) and code system in CNE1, 2, 3. The example below contains a result for a chest X-ray:

| 2211^Chest 1 View^1.3.6.1.4.1.12201.2.1

For **ICHSCs**: send local code in ORM messages, and LOINC report codes in ORU messages.

This field contains a standardized LOINC code, description (text), and code system in components 1, 2, and 3 (CNE). The example below represents a diagnostic imaging report:

| 24627-2^Imaging study report^LN

This field must follow the following format:

Seq	Use	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
CNE.1	All	R	60	ST	9013 (for LOINC codes only).	Identifier	For hospitals, this is the local procedure code in both order and report messages. For ICHSCs, this is the local procedure code in order message, and LOINC report code in report messages. Local code example: X-Ray/ <i>(HIC Defined)</i> <i>LOINC report code example: 69143-6</i>
CNE.2	All	R	200	ST		Text	This must contain the textual description of the code in CNE.1, which may be local or LOINC.
CNE.3	All	R	50	ID	9007	Name of Coding System	For local codes in imaging orders and reports: 1.3.6.1.4.1.12201.2.1 <i>(miCDR Provided)</i> For LOINC codes in ICHSC reports: "LN" <i>(fixed value)</i>

OBR-4 CNE.1 (Identifier)

OBR-4 CE1 must contain a code identifying procedure or the type of report. These codes are case-sensitive and should not contain any wildcards characters such as the asterisk (*).

For ORM messages, this field must contain the local procedure code of the order.

For ORU messages, this field will contain different codes from contributing HICs:

- From hospitals, they will contribute the local RIS procedure codes.
- From ICHSCs, they will contribute LOINC report codes. The information can be found in Table 9013

OBR-4 CNE.2 (Text)

This field must contain the textual description of order or report code used in CNE.1. The value here must be appropriate for display to an end user as a label.

OBR-4 CNE.3 (Name of Coding System)

This field must contain an identifier for the coding system used in CNE.1. This identifier shows from which code table the code in CNE.1 is drawn. For local codes, values must be drawn from Table 9007, and new values will be assigned by Ontario Health as required. For LOINC codes, this field must contain the code "LN".

1.1.65 OBR-7 (Observation Date/Time)

OBR-7 (Observation Date/Time) is used in both order (ORM) and report (ORU) messages. In diagnostic imaging reports, it shall represent the date/time the study was performed (i.e., when the observation was acquired). Each OBR segment carries a single timestamp that aligns with the procedure identified in OBR-4. In order messages, it may represent the scheduled or expected date/time, depending on system implementation. Where multiple procedures or accessions exist, they may be represented using separate OBR segments.

OBR-7 Examples

This is an example message for a CT imaging order.

OBR|||CT^CT Order^1.3.6.1.4.1.12201.2.1|||200910141545-0400|||

A sample message for a medical imaging report is shown below. The OBR-4 field identifies the MI procedure (e.g., Cervical Spine X-ray). The OBR-7 field contains a single timestamp representing the date/time the study was performed.

OBR|||CSP5^CERV SP 5 VIEWS OP-ROUTINE^1.3.6.1.4.1.12201.2.1|||200910141545-0400|||

1.1.66 OBR-8 (Observation End Date/Time)

OBR-8 (Observation End Date/Time) is used in both order (ORM) and report (ORU) messages. In diagnostic imaging reports, it represents the date/time the imaging study or procedure was completed. In order messages, it may represent the expected or scheduled completion time. Its use is optional and may vary by system implementation.

Example:

OBR |1|12345|67890|2211^Chest X-ray^LOCAL|||20260520103000|20260520104500|

1.1.67 OBR-16 (Ordering Provider)

This field contains the identity of the health care practitioner who ordered this result, if applicable.

This field must follow the format outlined in [o below](#), [XCN: Composite ID for Provider](#).

1.1.68 OBR-22 (Results Rpt/Status Chng - Date/Time)

This field is only used in ORU messages, and it is mandatory.

This field represents the date/time that the report was verified, signed, or issued. For a new report, it indicates the date/time the report was finalized. For updated reports, it reflects the most recent status change or update.

Example:

OBR |1|12345|67890|2211^Chest X-ray^LOCAL|||20260520103000||...|||20260520114500|||F|

If a report has been finalized, any subsequent edits to demographic or non-clinical fields should not overwrite or update this timestamp. If this cannot be enforced, OBX-14 should be used to accurately capture preliminary, final, or addendum timestamps.

1.1.69 OBR-24 (Diagnostic Serv Sect ID)

This field is the section of the diagnostic service where the observation was performed. If the study was performed by an outside service, the identification of that service should be recorded here. Refer to [HL7 Table 0074 - Diagnostic Service Section ID](#) for valid entries.

1.1.70 OBR-25 (Result Status)

This field is mandatory in ORU^R01 message. It should not be used in ORM messages.

A required field that indicates the current completion state of the report. This field must contain a value drawn from [Table 21: HL7 Table 0271 \(Document / Result Completion Status\)](#) Please refer to Section 4.1.2 for a visual depiction of various stages in the report status workflow.

1.1.71 OBR-26 (Parent Result)

This field may contain a reference to the identifier of a parent result, if one exists. This identifier must refer to the identifier which was used in OBR-2 (Placer Order Number) when the parent result is transmitted.

This field must follow a similar format to the format outlined in [o](#) below, [EI: Entity Identifier for Order and Report Numbers](#), but with one crucial distinction. This field uses the PRL data type and places all EI components as subcomponents in the first component of the PRL. This means in effect that for a placer order number of “2233^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1”, a child order would refer to its parent as “2233&1.3.6.1.4.1.12201&1.3.6.1.4.1.12201.1”.

1.1.72 OBR-27 (Quantity/Timing)

This field is used to support priority of the order. Only OBR-27.4 (Start Date/Time) and OBR-27.6 (Priority) will be expected if this field is populated. Other subfields should be left blank.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
OBR-27.4	O	0	TS		Start Date/Time	20260520103000
..skip						
OBR-27.6	O	1	ST	Table 0485 - Extended Priority Codes	Priority	Valid values include A (ASAP), R (Routine), and S (Stat). For example, “S” may be used to indicate an urgent

						(stat) request. If not used, this component may be left blank.
..skip						

Example:

If the report is urgent, the field should be “^^^^^T”

If the report is not urgent, the field can be “^^^^^F”. If OBR-27 is not populated, report is considered non-urgent.

1.1.73 OBR-28 (Result Copies To)

This field contains the identity of any providers who have been copied on this result, if applicable. Note that use of this field does not indicate that miCDR should attempt to deliver the result to the named provider, only that the provider has been named as someone who should or may read it.

This field must follow the format outlined in o below, [XCN: Composite ID for Provider](#).

1.1.74 OBR-32 (Principal Result Interpreter)

This field may be used to transmit the principal result interpreter, if appropriate. For Medical Records and Diagnostic Imaging reports, this would be the author of the report.

This field must follow the format outlined in 0 below, [NDL: Composite ID for Provider](#).

1.1.75 OBR-34 (Technician)

This field identifies the performing technician who performed or assisted in the imaging procedure. This field is optional.

OBX Segment

Seq	Op t	Len	DT	RP/#	Vocab Tbl#	Field Description	Sample Data (Notes)
OBX-1	RE	10	SI			Set ID	1
OBX-2	R	3	ID		0125	Value Type	TX, FT, ED
OBX-3	R	350	CE			Observation Identifier	

OBX-4	C	20	ST			Observation Sub-ID	
OBX-5	R	*	*	1..*		Observation Value	
OBX-6	O	350	CE			Units	
OBX-7	O	60	ST			Reference Range	
OBX-8	O	5	IS	0..5	0078	Abnormal Flags	
..skip..							
OBX-11	R	1	ID		0085	Observation Result Status	F
..skip..							
OBX-14	RE	19	TS			Date/Time of Observation	

1.1.76 OBX-1 (Set ID)

This field should be populated with a sequential integer number which indicates the sequence of this OBX within the report.

Note that sequence is important when there are multiple OBXs present. miCDR preserves the sequence in which OBX segments are transmitted and will ensure that the order is preserved when data is extracted.

1.1.77 OBX-2 (Value Type)

This field must contain the ID of the data type found in [OBX-5 \(Observation Value\)](#).

1.1.78 OBX-3 (Observation Identifier)

This field must contain a code and description indicating the type of observation which may indicate the clinical code, or the report section code. The following definition must be used.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
CE.1	R	50	ST		Identifier	XRay <i>(HIC Defined)</i>
CE.2	R	250	ST		Text	Xray Report <i>(HIC Defined)</i>
CE.3	R	50	ID	9007	Name of Coding System	1.3.6.1.4.1.12201.2.2 <i>(miCDR Provided)</i>

OBX-3 CE.1 (Identifier)

This field must contain either an HIC-defined code or a standardized code (e.g. SNOMED CT) identifying this observation. No specific codes are required, but any codes used should be consistent between reports.

OBX-3 CE.2 (Text)

This field must contain an HIC-defined textual description of this observation. The value here does not need to be consistent between reports but must be appropriate for display to an end user as a label for this observation.

OBX-3 CE.3 (Name of Coding System)

This field must contain an identifier for the coding system used. The identifier here shows from which code table the code in CE.1 is drawn. Values will be provided by miCDR.

1.1.79 OBX-4 (Observation Sub-ID)

This field contains a unique integer assigned to the discrete OBX segments within one OBR and is used to group related components in each report. For example, a chest X-ray report might include three separate diagnostic impressions. There will be three OBX segments, one for each impression. By putting a 1 in the Sub-ID of the first of these OBX segments, 2 in the second, and 3 in the third, we can uniquely identify each OBX segment for editing or replacement.

1.1.80 OBX-5 (Observation Value)

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

See [o HL7 Data Types for OBX-5](#) for information on permitted data types.

Transmitting Textual Reports

When transmitting textual reports, the TX or FT data type should be used. If FT data type is used, report content may contain the following HL7 formatting escape sequences. These shall be interpreted only as line-break instructions and preserved when storing or displaying the report.

Escape Sequence	Description
~	New line (e.g., OBX repetition or segment-based line break)

\.br\	Line break (where supported)
-------	------------------------------

Report content shall be treated as pre-formatted text, and receiving systems shall not modify, reinterpret, or apply additional formatting beyond what is explicitly supported in this specification.

Only the formatting mechanisms defined below are supported. No additional formatting (e.g., spacing, alignment, highlighting, or styling) shall be introduced, as this may lead to inconsistent rendering and potential clinical risk.

Sending systems may use either a single OBX segment with sections (i.e., lines/paragraphs) separated by the repeating fields separator (~ or tilde), or multiple OBX segments, where each OBX contains a separate line or paragraph.

Each repetition or OBX segment will be treated as a separate line of the report text.

Special characters within report text must be represented using the escape sequences as recommended in [MSH-2 \(Encoding Characters\)](#).

Reports larger than 64K characters must be transmitted using one or more OBX segments with the TX data type, with each report section (i.e., lines/paragraphs) represented in a separate repetition or OBX segment.

If the report contains multiple sections, these may be transmitted in separate OBX repetitions or sequential OBX segments. The OBX-3 (Observation Identifier) may be used to identify section names to improve readability, but its use is optional.

Transmitting Binary Contents (Scanned Images, PDFs, etc.)

The miCDR 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 (e.g. jpeg, jpg) can be transmitted which supplements the contents of a report

- A diagram can be transmitted which explains a portion of a report
- 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. In order to be transmitted in an HL7 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>

As with other types of content, binary content is transmitted in an OBX segment within a message. The value of **OBX-2 (Value Type)** must be set to “ED”, and the value of OBX-5 must be defined as follows:

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
..skip..						
ED.2	R	20	ID	0191	Type of Data	TEXT
ED.3	R	20	ID	0291	Data Subtype	PDF
ED.4	R	20	ID		Encoding	Base64 <i>(Fixed Value)</i>
ED.5	R	*	ST		Encoded Data	

Binary Contents Examples

Note that in the following examples **the Base 64 portion has been truncated**. In a real message the contents of OBX-5-5 would be much longer. The OBX segments below could be the only OBX segment within a message or could come at the appropriate position within a larger collection of content spanning multiple OBX segments.

The following example shows a PDF document:

```
OBX|1|ED| 11528-7^Radiology Report^LN||
^Application^PDF^Base64^Ui9QYWdlcyAxMiAwIFIvVHlwZS9DYXRhbG9nL1Bh.
..
```

Additional details regarding transmission size limits for large binary files

At the time of publication, the miCDR solution is limited to accepting message transmissions of 7 MB or less in size (for a single message), for both storage and retrieval. This is sufficient for the large majority of HL7 binary transmissions, but some files may exceed this threshold. For example, a scanned copy of an ultrasound report could be many pages and could be quite large in size.

A participant's first course of action should be to examine if the file(s) exceeding the 7MB threshold can be reduced in size. For example, the message output of a document scanning system may be inadvertently set to an extremely high DPI resolution, resulting in unnecessarily large image transmissions.

If the binary content cannot or should not be reduced in size before transmitting to miCDR, then the document must be 'split' so each individual transmission does not exceed 7MB in size. For example, a 10MB file might be split into two transmissions of 5MB each. This document splitting invokes several additional considerations, detailed below. However, in all cases, *the individually-transmitted components must be valid files in their own right*. In the case of a 6-page scanned document, split into two parts for transmission, each part should be capable of opening independently. It is not acceptable to merely split the same Base64-encoded content across two messages, as two corrupted/invalid files would result. In practice, this often means the 'splitting' behavior, if applicable, must take place at the source system, rather than in a site's integration engine

Parent/Child relationships for multi-part reports, and other considerations

If a report has been 'split' into several parts, these parts should be electronically linked via field OBR-26, which is used to specify the 'parent result' of a report. The first part in a set should leave this field blank, while subsequent parts should specify the first part as their parent.

Each part of the split set must also contain a unique report number in field OBR-2.1 (this despite the fact they are all components of a single file with a single report number in the source system). This is accomplished by appending a hyphen and the part number to the original report number. For example, a report originally identified with the number '1234', would have two parts identified as '1234-1' and '1234-2' if split across two transmissions. It is also important to change the report description from field OBR-4.2

The following example shows two minimalistic OBR segments, representing a split in two parts. Note the contents of OBR-2.1, OBR-4.2, and OBR-26:

```
OBR|1|2233-1^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1||5049^Xray  
report - Part 1^1.3.6.1.4.1.12201.2.1||201402030830-  
0400|||||||||N|N|||||F|||||||  
  
OBR|1|2233-2^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1||5049^Xray  
report - Part 2^1.3.6.1.4.1.12201.2.1||201402030830-  
0400|||||||||N|N|||||F|2233-  
1&1.3.6.1.4.1.12201&1.3.6.1.4.1.12201.1|||||||
```

Invalidation procedures for multi-part reports

If the parent/child relationships between parts of the same root report have been properly described using field OBR-26, then invalidation (marking OBR-25 with a status 'W') of the parent report will also invalidate all its children. Individual invalidation messages may also be sent for each part, but this is not necessary.

Note that at present, this invalidation logic is only implemented for data of the 'ED' binary subtype, pending a more fulsome analysis of parent/child result behavior across sending systems. Purely textual documents transmitted with parent/child relationships will not currently display this invalidation behavior – these documents must be invalidated individually.

Change/Update procedures for multi-part reports

Under most circumstances, updating a multi-part report is no different than updating a single document. The components of the multi-part report would be transmitted to miCDR with the changes included, and OBR-25 set to a status of 'C' (for changed/corrected). In many implementations all the components would be re-transmitted, even if the change only affected a small portion of the report, though this is not strictly necessary. A participant could, in theory, only transmit the part of the multi-part set that included changes, provided the report identifier in OBR-2.1 correctly represented the part of the set that needed to change.

A special circumstance arises when:

- a. A multi-part report changes due to corrections or other edits

-and-

- b. The change results in the report set *reducing in size*. For instance, a large report that was split into four parts, and then edited with multiple redactions, might (in theory) be small enough to only take up three parts after the change.

If this workflow is possible with the sending system in question, then miCDR requires additional information in order to ensure the 'orphan' component of the set is marked as obsolete, and not accidentally returned to users as if it was still valid.

*****Note: If it is impossible for a report set to reduce in size, and thus the number of parts in which it has been split, then the following procedures do not need to be followed***

Multi-part reports potentially affected by this workflow should adhere to the following logic:

1. The report number, in field OBR-2.1, should include an indicator stating which part of the multi-part report is referenced by the message that follows, in the form of a “-#” syntax. In other words, a report with an ID of ‘abc123’, split into two parts, should have IDs of ‘abc123-1’ and ‘abc123-2’ in those two parts. There should be no spaces between the dash and the position indicator.
2. The report description, in field OBR-4.2, must include a special syntax describing the report set position, and report set size, using the following syntax
 - a. The special syntax region will begin with a curly brace (‘{’)
 - b. The report part position indicator will be noted with an integer (‘{1’)
 - c. The position and set size indicators will be separated by a colon (‘{1:’)
 - d. The report set size indicator will be indicated by a second indicator, indicating the current size of the report set (‘{1:3’)
 - e. The special syntax region will end with a second curly brace
 - f. Thus, for a report with a name in OBR-4.2 of “XRay Report”, the second component of a four-part split report might have a full OBR-4.2 value of ‘ED Report{2:4}’

The following example shows two minimalistic OBR segments, representing a split in two parts, including the special syntax for set position and set size:

```
OBR|1|2233-1^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1||5049^Xray report -
Part 1{1:2}^1.3.6.1.4.1.12201.2.1|||201402030830-
0400|||||||||N|N|||||C|||||||

OBR|1|2233-2^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1||5049^Xray report -
Part 2{2:2}^1.3.6.1.4.1.12201.2.1|||201402030830-
0400|||||||||N|N|||||C|2233-
1&1.3.6.1.4.1.12201&1.3.6.1.4.12201.1|||||||
```

1.1.81 OBX-6 (Units)

OBX.6, 7, and 8 are optional elements that are relevant if there are ancillary results in the report, such as patient vital signs, height and weight, test results etc. If ancillary results are not present, these fields can be skipped.

This field must contain the units relating to this observation, if applicable. Standard SI units are recommended, but this is not required. The format should be similar to the CE data type as defined in OBX-3 (Observation Identifier) above.

1.1.82 OBX-7 (Reference Range)

This field must contain the lower and upper limits of the observation, if applicable. The following formats are recommended, but not required:

- [lower limit] – [upper limit]
- > [lower limit]
- < [upper limit]

1.1.83 OBX-8 (Abnormal Flags)

This field may contain the codes that flag abnormal observations. Values are drawn from [HL7 Table 0078 – Abnormal Flags](#).

1.1.84 OBX-11 (Observation Result Status)

This field must contain the status of the observation. Values are drawn from [HL7 Table 0085 \(Observation Result Status\)](#)

1.1.85 OBX-14 (Observation Date/Time)

This field may contain the date and time that the observation was performed.

NTE Segment

Seq	Opt	Len	DT	RP/#	Vocab Tbl#	Field Description	Sample Data
1	O	4	SI			Set ID - NTE	
2	O	8	ID		0105	Source of Comment	
3	R	65536	FT	Y		Comment	

1.1.86 NTE-1 (Set ID – NTE)

This field may contain the sequential numeric identifier for this NTE repetition.

1.1.87 NTE-2 (Source of Comment)

This field may be used to identify the source of the comment. Although based on [HL7 Table 0105](#), additional values may be added locally.

1.1.88 NTE-3 (Comment)

This field must contain textual comments.

6. Data Types

El: Entity Identifier for Order and Report Numbers

The following format is used for identifiers used to identify individual orders and reports

Seq	Use	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
El.1	All	R	75	ST		Entity Identifier	12345
El.2	cO	R	50	IS	9004	Namespace ID	1.3.6.1.4.1.12201
El.3	cO	R	50	ST	9008	Universal ID	1.3.6.1.4.1.12201.1

1.1.89 El.1 (Entity Identifier)

This field must contain the number which uniquely identifies the order and report, according to the system which assigns this ID.

1.1.90 El.2 (Namespace ID)

This field must contain the OID which has been assigned to your HIC to identify it as an assigning authority for orders and reports. In other words, this component identifies the sending organization.

The OH Standards team SHALL assign the miCDR OID, which is used to identify the contributing organization in all cases.

1.1.91 EI.3 (Universal ID)

This field must contain an OID which has been assigned to your HIC to identify the specific system which assigns the ID in EI-1. This component is useful in cases where IDs are generated by more than one system at a given HIC, as each system can have a different universal ID and ID/number collisions will not be an issue.

The OH Standards team SHALL assign the miCDR OID, which is used to identify the contributing organization in all cases.

1.1.92 EI: Entity Identifier for Orders and Report Number Examples

The following is an example of an order or report being transmitted by University Health Network. It has been assigned a unique number of 2233 by the UHN HIS, which is identified as “1.3.6.1.4.1.12201.1”.

| 2233^1.3.6.1.4.1.12201^1.3.6.1.4.1.12201.1

XCN: Composite ID for Provider

Where the XCN data type is used to identify a provider, the following definition must be used:

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
XCN.1	R	15	ST		ID Number	12345
XCN.2	R	60	FN		Family Name	Smith
XCN.3	R	60	ST		Given Name	John
XCN.4	O	60	ST		Second and Further Given Names	Robert Homer <i>(Initials are also acceptable)</i>
XCN.5	O	60	ST		Suffix	Junior
XCN.6	O	60	ST		Prefix	Captain
XCN.7	O	60	ST		Degree	FRCPC
..skip..						
XCN.9	R	150	HD		Assigning Authority	
9.1	R	50	IS	9001	Namespace ID	1.3.6.1.4.1.12201.1.2.1.5
9.2	C	50	ST	9004P	Universal ID	1.3.6.1.4.1.12201
9.3	C	50	ST	9008	Universal ID Type	1.3.6.1.4.1.12201.1

1.1.93 XCN: Composite ID for Provider Notes

XCN-1 (ID Number)

When identifying providers, there are two types of identifiers which are acceptable to miCDR:

- Provincial Licensed Numbers such as CPSO Number, CNO Number, etc. This is the preferred approach if your system is able to comply.
- Locally assigned user/provider IDs, which are designated by the HIC and are local to that HIC.

XCN-9 (Assigning Authority)

This field is used to identify the entity that assigns this identifier.

- If the ID being transmitted is an Ontario license number
 - XCN-9-1 must be populated with the appropriate value identifying which type of license is being used from [Table 9001](#).
 - XCN-9-2 must be blank.
 - XCN-9-3 must be blank.
- If the ID being transmitted is a locally assigned identifier:
 - XCN-9-1 must be populated with the value “1.3.6.1.4.1.12201.1.2.1.5”
 - XCN-9-2 must be populated with the OID which has been assigned to your HIC for the local provider identifier assigning authority.
 - XCN-9-3 must contain the identifier of the system within the HIC which is being used to generate this identifier and is considered to be the “source of truth” for it.

1.1.94 XCN: Composite ID for Provider Examples

The following is an example of a Doctor John Q Smith, who has a CPSO number of 12345:

```
12345^Smith^John^Q^^FRCPC^2.16.840.1.113883.4.347
```

The following is an example of a Frances Smith, who has an ID of 9876 which was assigned by St. Michael's Hospital:

```
9876^Smith^Frances^^^^^
1.3.6.1.4.1.12201.1.2.1.5&
```

2.16.840.1.113883.3.239.23.5.1&
2.16.840.1.113883.3.239.23.5.101.1

NDL: Composite ID for Provider

Where the NDL data type is used to identify a provider, the following definition must be used. Note that only the first component of NDL is used, and all elements are subcomponents within NDL.1.

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
NDL.1						
1.1	R	60	ST		ID Number	12345
1.2	R	60	FN		Family Name	Smith
1.3	R	60	ST		Given Name	John
1.4	O	60	ST		Second and Further Given Names	Robert Homer <i>(Initials are also acceptable)</i>
1.5	O	60	ST		Suffix	Junior
1.6	O	60	ST		Prefix	Captain
1.7	O	60	ST		Degree	FRCPC
..skip..						
1.9	R	250	IS	9001	Namespace ID	1.3.6.1.4.1.12201.1.2.1.5
1.10	C	250	ST	9004P	Universal ID	1.3.6.1.4.1.12201
1.11	C	250	ST	9008	Universal ID Type	1.3.6.1.4.1.12201.1

1.1.95 NDL: Composite ID for Provider Notes

NDL.1.1 (ID Number)

When identifying providers, there are two types of identifiers which are acceptable to miCDR:

- License Numbers such as CPSO Number, CNO Number, etc. This is the preferred approach if your system is able to comply.
- Locally assigned user/provider IDs, which are designated by the HIC and are local to that HIC.

NDL.1.9, NDL.1.10, NDL.1.11 (Assigning Authority)

This field is used to identify the entity that assigns this identifier.

- If the ID being transmitted is an Ontario license:
 - NDL.1.9 must be populated with the appropriate value identifying which type of license is being used from [Table 9001 \(Provider Namespace IDs\)](#).
 - NDL.1.10 must be blank.
 - NDL.1.11 must be blank.
- If the ID being transmitted is a locally assigned identifier:
 - NDL.1.9 must be populated with the value “1.3.6.1.4.1.12201.1.2.1.5”
 - NDL.1.10 must be populated with the OID which has been assigned to your HIC for the local provider identifier assigning authority.
 - NDL.1.11 must contain the identifier of the system within the HIC which is being used to generate this identifier and is considered to be the “source of truth” for it.

1.1.96 NDL: Composite ID for Provider Examples

The following is an example of a Doctor John Q Smith, who has a CPSO number of 12345:

```
12345&Smith&John&Q&&FRCPC&2.16.840.1.113883.4.347
```

The following is an example of a Frances Smith, who has an ID of 9876 which was assigned by St. Michael's Hospital:

```
9876&Smith&Frances&&&&1.3.6.1.4.1.12201.1.2.1.5&2.16.840.1.113883.3.239.23.5.1&2.16.840.1.113883.3.239.23.5.101.1
```

PPN: Composite ID for Performing Person Time Stamp

Where the PPN data type is used to identify a performing person, the following definition must be used:

Seq	Opt	Len	DT	Vocab Tbl#	Field Description	Sample Data (Notes)
PPN.1	R	15	ST		ID Number	12345
PPN.2	O	194	FN		Family Name	Smith
PPN.3	O	30	ST		Given Name	John
PPN.4	O	30	ST		Second and Further Given Names	Robert Homer
PPN.5	O	20	ST		Suffix	Junior
PPN.6	O	20	ST		Prefix	Captain
PPN.7	B	5	IS	0360	Degree	Doctor
PPN.9	R	750	HD	0363	Assigning Authority	(see below)
9.1	R	250	IS	9001	Namespace ID	1.3.6.1.4.1.12201.1.2.1.5
9.2	C	250	ST	9004P	Universal ID	1.3.6.1.4.1.12201
9.3	C	250	ST	9008	Universal ID Type	1.3.6.1.4.1.12201.1
...skip...						
9.15	O	26	TS		Date/Time Action Performed	

1.1.97 PPN: Composite ID for Performing Person Time Stamp

PPN-1 (ID Number)

When identifying providers, there are two types of identifiers which are acceptable to miCDR:

- License Numbers such as CPSO Number, CNO Number, etc. This is the preferred approach if your system is able to comply.
- Locally assigned user/provider IDs, which are designated by the HIC and are local to that HIC.

PPN-9 (Assigning Authority)

This field is used to identify the entity that assigns this identifier.

- If the ID being transmitted is an Ontario license number:
 - PPN-9-1 must be populated with the appropriate value identifying which type of license is being used from [Table 9001 \(Provider Namespace IDs\)](#).
 - PPN-9-2 must be blank.
 - PPN-9-3 must be blank.

- If the ID being transmitted is a locally assigned identifier:
 - PPN-9-1 must be populated with the value “1.3.6.1.4.1.12201.1.2.1.5”
 - PPN-9-2 must be populated with the OID which has been assigned to your HIC for the local provider identifier assigning authority.
 - PPN-9-3 must contain the identifier of the system within the HIC which is being used to generate this identifier and is considered to be the “source of truth” for it.
 - PPN-9-15. Is this field is not-null, then both the performing person and the time stamp must have a value.

1.1.98 PPN: Composite ID for Performing Person Examples

The following is an example of a Doctor John Q Smith, who has a CPSO number of 12345:

```
12345^Smith^John^Q^^Doctor^2.16.840.1.113883.4.347
```

The following is an example of a Frances Smith, who has an ID of 9876 which was assigned by St. Michael's Hospital:

```
9876^Smith^Frances^^^
^1.3.6.1.4.1.12201.1.2.1.5&2.16.840.1.113883.3.239.23.5.1&2.16.84
0.1.113883.3.239.23.5.101.1
```

HL7 Data Types for OBX-5

When document and results are being transmitted to the HIAL, the HIAL supports the following data types as value types in OBX-5.

Field	Description	Accepted by miCDR
ST	String	X
SN	Structured Numeric	X
CE	Coded Element	X
FT	Formatted Text	X
TX	Text	X
TS	Timestamp	X
DT	Date	X
TM	Time	X

NM	Number	X
ED	Encapsulated Data	X

7. Message Examples

Imaging Orders and Reports

1.1.99 Example: ORM message

MSH|^~\&|ESO|ESO|PACS|PACS|20260617120000||**ORM^O01**|Q5451460703T10692928910|P|2.3||
|||8859/1

PID|1||40000150^^^^TVHPP VH|25884143|Bunny^Funny^^^^Current||20000101|M|||962 Carrot
Lane^^London^ON^N6G0K6^CAN^home^^London (Middlesex) 1901|London (Middlesex)
1901|||E|||462204804^^^LHSC Visit Number^Visit Number|||Yes|||0||25884143

PV1|1|O|V-WXY^^^LHSC-VC^^Ambulatory(s)^VH
Main|||RAD184366^Haddad^Richard^G^^Dr||RAD||Yes|||RAD184366^Haddad^Richard^G^^Dr|
OP|7010909996^^^Sub Visit Number^Visit
Id|01|||||||AL||VC|D||20260429100100|20260429235959

ORC|NW|CN260004791^HNA_ACCN||CN260004791^HNA_ACCN|||20260617120000||RAD184366
^Haddad^Richard^G^^Dr

OBR|1|11723145885^HNAM_ORDERID|CN260004791^HNA_ACCN|18388642^CT
Head/Neck||20260617120000|20260617121013||||Rad Type&Rad
Type|RAD184366^Haddad^Richard^G^^Dr||CN260004791^HNA_ACCN~25210408^HNA_PACSID|vh
CTa|||A|1^^^^Routine|||^OCI Migration Testing

1.1.100 Example: ORU Message

MSH|^~\&|ESO|ESO|PACS|PACS|20260617133953|1206236488|**ORU^R01**|Q5451460703T106929289
10|2.3||||8859/1

PID|1||40000150^^^^^TVHPP VH|25884143|Bunny^Funny^^^^^Current||20000101|M|||962 Carrot Lane^^London^ON^N6G0K6^CAN^home^^London (Middlesex) 1901|London (Middlesex) 1901|||E|||462204804^^^LHSC Visit Number^Visit Number|||Yes|||0||25884143

PV1|1|O|V-WXY^^^LHSC-VC^^Ambulatory(s)^VH Main|||RAD184366^Haddad^Richard^G^^Dr||RAD||Yes|||RAD184366^Haddad^Richard^G^^Dr| OP|7010909996^^^Sub Visit Number^Visit Id|01|||||AL||VC|D||20260429100100|20260429235959

ORC|RE||CN260004791^HNA_ACCN

OBR|1|11723145885^HNAME_ORDERID|CN260004791^HNA_ACCN|18388642^CT Head/Neck||20260617120000|20260617121013|||Rad Type&Rad Type|RAD184366^Haddad^Richard^G^^Dr||CN260004791^HNA_ACCN~25210408^HNA_PACSID|vh CTa|20260617124906||CT|A||1^^^^^Routine|||^OCI Migration Testing|&Brown&Karly&&&&&External Identifier&&External Identifier||&Voice&Recorded

OBX|1|TX|R^REPORT^L|Test addendum.~~ ADDITIONAL OR CORRECTED INFORMATION ADDED TO ORIGINAL REPORT~ Date Dictated: 2026/06/17 12:52~ Reporting Radiologist: Dr. Brown, Karly MRT (R)~ Electronically Signed By: Brown, Karly MRT (R)~ Date Signed: 2026/06/17 12:52~ tr: Voice, Recorded|||Modified||20260617125224||^Brown^Karly

OBX|2|TX|R^REPORT^L|CT BIOPSY~~CLINICAL INFORMATION:~Test report for OCI Migration Testing.~~COMPARISON:~None.~~FINDINGS:~Consent~Time-Out~Biopsy device:~Biopsy site:~Number of samples:~Medium:Formalin.~Complications:None.~Patient disposition:Discharged from the department in stable condition.~~IMPRESSION:~CT-guided biopsy.~~CT-guided biopsy.~~ -~ Date Dictated: 2026/06/17 12:47~ Reporting Radiologist: Dr. Brown, Karly MRT (R)~ Electronically Signed By: Brown, Karly MRT (R)~ Date Signed: 2026/06/17 12:47~ tr: Voice, Recorded|||F||20260617125224||^Brown^Karly

MSH|^~\&|RAD.STO|WCH||202606151955||ORU^R01|PACS-OR/RR.1.6188|D|2.3

PID|1||L000164^^^^^HPHA WCH|H1822|OCINETPACS^REGRESSION||20000713|M|||20 TIM
HORTONS LANE^^STRATFORD^ON^N5A 2Y6^^^^2801|| (519)301-
2345||S|CA|KR000002/26|1100000007

ORC||000002655WCH|8132104||S|||202606151955|MIBELS||HAYK^HAY^KEITH^^^DR.

OBR|1|000002655WCH|8132104|RAD^ABD1S^ABDOMEN 1 VIEW
||202606090900|202606090930|202606090935||||||HAYK^HAY^KEITH^^^DR.||RAD000002655||
RAD|RADRPT|202606151955||S|||||TESTING FOR REGIONAL
PRIORS|NGHA^NGUYEN^HANKIE^^^DR.|||SQR^TRANSCRIPT^SPEECH^Q

OBX|1|TX||| Name: OCINETPACS,REGRESSION ~ Phys: HAY,DR. KEITH ~ DOB: 13/07/2000 Age: 25 Sex:
M~ Acct: KR000002/26 Loc: 5DI ~ Exam Date: 09/06/2026 Status: REG CLI~ Radiology No: 000443 ~ Unit
No: L000164 ~ Phone: (519)301-2345 ~ ~EXAM# TYPE/EXAM RESULT ~000002655 RAD/ABDOMEN 1
VIEW ~ ~ ***ADDENDA ARE INCLUDED ON THIS REPORT*** ~ ~ TECHNIQUE:~ Imaging protocol: CR of
the belly.~ Views: Frontal supine view of the belly.~ ~ COMPARISON:~ No relevant prior studies
available.~ ~ FINDINGS:~ Bones/joints: Maybe a chicken bone. ~ IMPRESSION:~ Findings suggestive of
being a pain in the stomach. Which is nothing ~ to cluck about. ~ ~ ~ ~ Electronically Signed by: ~
RADIOLOGY, TEST at 11-Jun-2026 08:15:36 AM~ ~ ~ ** REPORT SIGNED IN OTHER VENDOR SYSTEM
11/06/2026 *** Reported By: Dr.H Nguyen, MD ~ ~ ADDENDUM ~ <Addendum Signed by RADIOLOGY,
TEST at 11-Jun-2026 08:33:30 AM~ Added the corrected text for testing the HL7 interface. ~ Addendum
End>~ ~ ~ *** ADDENDUM SIGNED IN OTHER VENDOR SYSTEM 11/06/2026 ***~ Reported By: Dr.H
Nguyen, MD ~ Transcribed: 11/06/2026 (0840) SQR~ ~ ADDENDUM ~ <Addendum Signed by
RADIOLOGY, TEST at 11-Jun-2026 08:43:33 AM~ ~ ~ ~ ~ ~ PAGE 1 Signed Report (CONTINUED)~ ~
Name: OCINETPACS,REGRESSION ~ Phys: HAY,DR. KEITH ~ DOB: 13/07/2000 Age: 25 Sex: M~ Acct:
KR000002/26 Loc: 5DI ~ Exam Date: 09/06/2026 Status: REG CLI~ Radiology No: 000443 ~ Unit No:
L000164 ~ Phone: (519)301-2345 ~ ~EXAM# TYPE/EXAM RESULT ~000002655 RAD/ABDOMEN 1 VIEW
~ ~ ***ADDENDA ARE INCLUDED ON THIS REPORT*** ~ ~ Adding 2nd addendum for testing HL7
interface ~ Addendum End>~ ~ ~ *** ADDENDUM SIGNED IN OTHER VENDOR SYSTEM 11/06/2026 ***~
Reported By: Dr.H Nguyen, MD ~ Transcribed: 11/06/2026 (0844) SQR~ ~ ADDENDUM ~ <Addendum
Signed by RADIOLOGY, TEST at 11-Jun-2026 08:43:33 AM~ Adding 2nd addendum for testing HL7
interface ~ Addendum End>~ ~ ~ *** ADDENDUM SIGNED IN OTHER VENDOR SYSTEM 11/06/2026 ***~
Reported By: Dr.H Nguyen, MD ~ Transcribed: 15/06/2026 (1955) SQR~ ~ ~ ~ ~ ~ ~ ~ ~ ~ CC:
HAY,DR. KEITH; LANGFORD,DR. GRACE ~ ~ HAY,DR. KEITH ~ Technologist: SHERI BELL MRT(R) ~ ~
Transcribed Date/Time: 11/06/2026 (0819) ~ Transcriptionist: SQR Voice recorded. ~ Printed Date/Time:
15/06/2026 (1955) ~ ~ 8132104 ~ ~ PAGE 2 Signed Report

MSH|^~\&||BCHS|||20260520114400||**ORU**^**R01**|284001|D|2.3|||AL|NE|

PID|1||**H000001705**^^^^^**BCHS**|H719|**TEST**^**TIM**^^^^^**L**||19780430|M|||**265 MEDITECH**
AVE^^**BRANTFORD**^**ON**^**N3S2F5**|||(519)756-9999|||S||OP0000007/25|6666635906|

PV1|1|O|B.XR|||**BAKAL**^**Baker**^**Alison**^**D**^^^**MD**
CCFP|||||||CLI|OHCN|||||||BRA||REG|||202504241205|

ORC|RE|2000.001|2000.001|||||||**BAKAL**^**Baker**^**Alison**^**D**^^^**MD CCFP**|

OBR|1|2000.001|2000.001|**03000632**^**FEML**^**Left Femur**
Routine||20260519000000|20260519151700|20260520114300|||||||**BAKAL**^**Baker**^**Alison**^**D**^^^**MD**
CCFP|**(519)753-8666**^^**PH**^^^**519**^**753-8666**~**(519)753-6880**^^**FX**^^^**519**^**753-6880**|XR20260519-
0002||DI|IM1.1|20260520114300|||F|^^^^^**N**|**BAKAL**^**Baker**^**Alison**^**D**^^^**MD**
CCFP|||||**SYEZA**^**Syed**^**Zafir**^**A**^**MD**^**DR.**^**MD**|||**NUANCE**^**NUANCE**^**TRANSCRIPT**|

OBX|1|TX|||Patient Name: TEST,TIM HR#: H000001705 Acct#: OP0000007/25 |

OBX|2|TX|||ORDERING PHYSICIAN: Baker,Alison D. MD, CCFP REQ#: 26-0000131 |

OBX|3|TX||| |

OBX|4|TX|||PROCEDURES: Left Femur Routine B.XR ADM/SER DATE: 24/04/25 |

OBX|5|TX|||Signed Radiography dd/mm/yy19/05/26 |

OBX|6|TX|||Copies to: Baker,Alison D. MD, CCFP |

OBX|7|TX|||Left femur Radiographs |

OBX|8|TX|| |

OBX|9|TX|| |INDICATION: Rule out fracture |

OBX|10|TX|| |

OBX|11|TX|| |COMPARISON: None available. |

OBX|12|TX|| |

OBX|13|TX|| |FINDINGS: |

OBX|14|TX|| |

OBX|15|TX|| |There is an oblique oriented fracture in the distal left femur. No evidence for dislocation.
No |

OBX|16|TX|| |significant degenerative changes. |

OBX|17|TX|| |

OBX|18|TX|| |Moderate soft tissue thickening overlying the distal left femur posteriorly. |

OBX|19|TX|| |

OBX|20|TX|| |

OBX|21|TX||Signed|

OBX|22|TX|||

OBX|23|TX|||_____|

OBX|24|TX|||Syed, Zafir A MD|

OBX|25|TX|||

OBX|26|TX|||cc: Baker,Alison D. MD, CCFP|

OBX|27|TX|||

OBX|28|TX|||Trans by: TRANSCRIPT NUANCE|

OBX|29|TX|||Trans date/time: 20/05/26 1143|

MSH|^~\&|MEDITECH EXPANSE|LMH|Centricity
OneView||202606171504||ORU^R01|6713048|D|2.3|||

PID|1||LM00001147^^^^NEON TDLMH|E00026297|TEST^TEST^TEST^^^^L||19721010|F||8 GENIER
ROAD COCHRANE^^Cochrane^ON^POL 1C0||705-271-6895||U|CH|LO0000037/26|

ORC|RE|A000037432LM|||ROSSJA0001^Ross^James^Anthony^^Dr.^MD^^^^XX|

OBR|1|A000037432LM|A000037432LM|ABDPELW^CT Abd Pelvis
W^CT||202606171459|202606171501|202606171459|||LMH|||ROSSJA0001^Ross^James^Anthony
^^Dr.^MD^^^^^^XX||CT20260617-
0003||MI|LMHMIR|202606171502||P||1^^^202606171459|||PARMMA0001^Parmar^Malvinder^
Singh^^Dr.^MD||LARICH01MG^Larivee^Christine|LARICH01MG^Larivee^Christine|

OBX|1|TX|||Lady Minto Hospital Cochrane|

OBX|2|TX|||241 Eight Street|

OBX|3|TX|||Cochrane, ON P0L 1C0|

OBX|4|TX|||Site: Lady Minto Hospital|

OBX|5|TX|||

OBX|6|TX|||Medical Imaging Report|

OBX|7|TX|||Report Status: Draft|

OBX|8|TX|||

OBX|9|TX|||Patient: TEST,TEST TEST MRN: LM00001147|

OBX|10|TX|||DOB/Age/Sex: 10/10/1972 / 53 /F Acct: LO0000037/26|

OBX|11|TX|||Pt Loc: LMMI HCN:|

OBX|12|TX|||Pt Type: REG CLI Pt Ph#: 705-271-6895 |

OBX|13|TX||| |

OBX|14|TX|||Copies To: VILLA\\\ |

OBX|15|TX|||Ordering Provider: Ross,James A. MD |

OBX|16|TX||| |

OBX|17|TX|||Procedure(s): CT Abd Pelvis W |

OBX|18|TX|||Procedure Date: 17/06/26 |

OBX|19|TX|||Accession Number(s): A000037432LM |

OBX|20|TX|||_____

OBX|21|TX||| |

OBX|22|TX||| |

OBX|23|TX|||***Outcome analysis is a vital component of our Quality Assurance Program. The report was generated |

OBX|24|TX|||using speech to text software which is subject to word recognition errors and omissions. If you |

OBX|25|TX|||suspect any discrepancy in this report please fax to: (705)272-7493*** |

OBX|26|TX||| |

OBX|27|TX|||Dictated \\T\\ Electronically Signed By: Parmar,Malvinder S. MD |

OBX|28|TX||| |

OBX|29|TX|||Electronically Signed Date/Time: |

OBX|30|TX||| |

OBX|31|TX|||Dictated Date/Time: 17/06/26 1501 |

OBX|32|TX|||Report Number: 1706-00001 |

OBX|33|TX||| |

OBX|34|TX||| |

OBX|35|TX||| |

OBX|36|TX||| |

MSH|^~\&|OCF|GBIN WK|CENTRICITY ONEVIEW|GBIN
WK|20260423114413||ORU^R01|Q810015007||2.3|||||8859/1

PID|1||147254^^^^MRN^GBIN WK|9113516|OCINETPACS^TEST FOUR||19750505|M|||1234 OCINET DRIVE^^WALKERTON^ON^N0H2L9^CAN|||(519)881-0000^ORN||||5939368^^^^^GBIN WK

ORC|RE|1835734701|00000RA20260000180

OBR|1|1835734701^HNAME_ORDERID|00000RA20260000180|35628^Chest 2
V|||20260416152434|||||||6165^Duque Rendon^Hector^Alonso^^^^^^PRSNL^^^ORGANIZATION
DOCTOR~016315^Duque Rendon^Hector^Alonso^^^^^^DOCUPIN^PRSNL^^^DOCUPIN~HDUQUE^Duque
Rendon^Hector^Alonso^^^^^^EXTNLID^PRSNL^^^External Identifier~77084^Duque
Rendon^Hector^Alonso^^^^^^OLIS - College Phys Surg Ont^PRSNL^^^OLIS - College Phys Surg
Ont|||||20260416152613||||F|||||258&Test&Radiologist Phase
II&&&&&CD:2073512&&Personnel Primary Identifier

OBX|1|FT|||Testing for pocket health. Dictated By: Test, Radiologist Phase I\,br\ Transcribed By: TW
04/16/26 15:25:21\,br\ Signed Out By: Weeks, Tracey\,br\ Signed Date: 04/16/26 15:26:13

8. Vocabulary Tables

Table 1: HL7 Table 0001 (Administrative Sex)

Code	Meaning
F	Female
M	Male
U	Unknown / Undifferentiated
O	Other

Table 2: HL7 Table 0004 (Patient Class)

Code	Meaning
E	Emergency
I	Inpatient

O	Ambulatory (Outpatient, Clinic Patient, Outpatient Procedure, etc.)
P	Pre-Admit
R	Recurring Outpatient
U	Unknown/Other
C	HCCSS (formerly CCAC) Client
V	Virtual

Table 3: HL7 User Defined Table 0007 (Admission Type)

Note that this table is user defined. The values presented here are examples, but implementing HICs are permitted to use locally defined codes, and these codes may express concepts not represented in the table below.

Code	Meaning
A	Accident
C	Elective
E	Emergency
L	Labor and Delivery
N	Newborn (Birth in healthcare facility)
R	Routine
U	Urgent

Table 4: HL7 Table 0023 (Admit Source)

Code	Meaning
D	Direct
N	Newborn
E	Emergency
S	Stillborn
P	Day procedure
C	Clinic

Table 5: HL7 table 0038 (Order Status)

Code	Meaning
-------------	----------------

CM	Order is completed
CA	Order was cancelled
IP	In process, unspecified

Table 6: HL7 Table 0053 (Diagnosis Coding Method)

Code	Meaning
2.16.840.1.113883.11.6.94	ICD-10-CA
2.16.840.1.113883.6.96	SNOMED CT

Table 7: HL7 Table 0069 (Hospital Service)

Code	Meaning
01	Family Practice
10	General Medicine
11	Allergy
12	Cardiology
13	Dermatology
14	Endocrinology
15	Gastroenterology
16	Nephrology
17	Neurology
18	Respirology
19	Rheumatology
20	Paediatric Medicine
21	Paediatric Allergy
22	Paediatric Cardiology
23	Paediatric Dermatology
24	Paediatric Endocrinology
25	Paediatric Gastroenterology
26	Paediatric Nephrology
27	Paediatric Neurology
28	Paediatric Respirology
29	Paediatric Rheumatology
30	General Surgery
31	Cardiovascular Surgery

32	Neurosurgery
33	Oral surgery
34	Orthopaedic Surgery
35	Plastic Surgery
36	Thoracic Surgery
37	Transplant Surgery
38	Traumatology
39	Urology
40	Surgery
41	Paediatric Cardiovascular Surgery
42	Paediatric Neurosurgery
43	Paediatric Oral Surgery
44	Paediatric Orthopaedic Surgery
45	Paediatric Plastic Surgery
46	Paediatric Thoracic Surgery
47	Paediatric Transplant Surgery
48	Paediatric Traumatology
49	Paediatric Urology
51	Obstetrics (OBS) Delivered
52	Obstetrics (OBS) Antepartum
53	Obstetrics (OBS) Aborted
54	Newborn
55	Gynecology
56	Paediatric Gynecology
58	Palliative Care
59	Obstetrics (OBS) Postpartum
60	Otolaryngology and Otorhinolaryngology (ORL)
61	Paediatric Otolaryngology and Otorhinolaryngology (ORL)
62	Ophthalmology
63	Paediatric Ophthalmology
64	Psychiatry
65	Paediatric Psychiatry
66	Haematology
67	Paediatric Haematology
68	Immunology
69	Paediatric Immunology
70	Physical Medicine and Rehabilitation (Physiatry)

71	Paediatric Physical Medicine and Rehabilitation (Physiatry)
72	Geriatrics
74	Oncology
76	Rehabilitation in Acute Care Facility
81	Radiotherapy
82	Genetics
87	Dentistry
88	Paediatric Dentistry
89	Stillborn
90	Cadaveric Donor
91	Podiatry
96	Infectious Disease
97	Neonatology
99	Alternate Level of Care (ALC)

Table 8: HL7 Table 0074 - Diagnostic Service Section ID

Code	Meaning
RAD	Radiology
394579002	Cardiology
394584008	Gastroenterology

Table 9: HL7 Table 0078 (Abnormal Flags)

Code	Meaning
L	Below low normal
H	Above high normal
LL	Below lower panic limits
HH	Above upper panic limits
N	Normal (applies to non-numeric results)
A	Abnormal (applies to non-numeric results)

Table 10: HL7 Table 0085 (Observation Result Status)

Code	Meaning
I	Incomplete / In Progress
P	Preliminary

D	Draft
F	Final
C	Corrected
W	Withdrawn

Table 11: HL7 Table 0105 (Source of Comment)

Code	Meaning
L	Ancillary (filler) department is source of comment
P	Orderer (placer) is source of comment
O	Other system is source of comment

Table 12: HL7 Table 0112 (Discharge Disposition)

Code	Meaning	Definition
04	Home with Support/Referral	Discharge to private home, condo or apartment with supports from the community at home or referred to services
05	Private Home	Discharge to private home, condo or apartment without supports from the community at home or referred to services
06	Admit to reporting facility as Inpatient to special care unit or from ambulatory care visit functional centre	
07	Admit to reporting facility as an inpatient to another unit of the reporting facility from the ambulatory care visit functional centre	
08	Transfer to another acute care facility directly from ambulatory care visit functional centre	
09	Transfer to another non-acute care facility directly from ambulatory care functional centre (e.g. stand-alone rehab, mental health)	
10	Inpatient Care	Transfer to reporting or another facility for inpatient care, including specialty hospitals (inpatient rehab, inpatient psychiatry and

		inpatient chronic/complex continuing care), military medical facilities and subacute care where this occurs within acute care hospitals
12	Intra-facility transfer to day surgery	
13	Intra-facility transfer to the ED	
14	Intra-facility transfer to clinic	
20	ED and Ambulatory Care	Transfer to reporting or another facility for ED, day surgery or ambulatory care; includes nursing stations, although on occasion inpatients are also treated in such settings
30	Residential Care	Transfer to long-term care home (24-hour nursing), mental health and/or addiction treatment centre or hospice/palliative care facility
40	Group/Supportive Living	Transfer to assisted living/supportive housing or transitional housing, including shelters; these settings do not have 24-hour nursing care
59	Absent Without Leave (AWOL)	Note: for inpatient only
60	Left Against Medical Advice (LAMA)	
61	Leave Post Registration	Patient left at their own risk following registration; triage, further assessment by a service provider and treatment did not occur
62	Leave Post Initial Treatment	Patient left at their own risk following registration, triage, further assessment by a service provider and initiation of treatment
63	Left After Triage	Patient left the ED at their own risk following registration and triage, further assessment by a service provider and treatment did not occur
64	Left After Initial Assessment	Patient left the ED at their own risk following registration, triage (if an ED visit) and further assessment by a service provider, treatment did not occur
65	Did not Return from Pass/Leave	Patient did not return from pass/leave
66	Died While on Pass/Leave	Patient died (excluding suicides) while on pass/leave
67	Suicide out of Facility	Patient died by suicide while on pass/leave
71	Dead on Arrival (DOA)	Patient is dead on arrival to the ambulatory care service; there is no resuscitation; includes cases where the patient is brought in for pronouncement of death
72	Died in Facility	

73	Medical Assistance in Dying (MAID)
74	Suicide in Facility
90	Correctional Facility Transfer to jail or halfway house

Table 13: HL7 Table 0119 (Order Control)

Code	Meaning
NW	New Order placed in ordering system
CA	Order cancelled
RE	Observations/Performed Service to follow
SC	Status changed

Table 14: HL7 Table 0125 (Value Type)

Code	Meaning
DT	Date
ED	Encapsulated Data
FT	Formatted Text (Display)
NM	Numeric
SN	Structured Numeric
ST	String Data
TM	Time
TS	Time Stamp (Date & Time)
TX	Text Data (Display)

Table 15: HL7 Table 0190 (Address Type)

Code	Meaning
H	Home
C	Current (If different from home)
B	Business / Work
M	Mailing
U	Other / Unknown

Table 16: HL7 Table 0191 (Type of Data for Encapsulated Data)

Code	Meaning
SI	Scanned Image
NS	Non-scanned Image
SD	Scanned Document
TEXT	Machine readable text document
IM	Image Data
AU	Audio

Table 17: HL7 Table 0200 (Name Type Code)

Code	Meaning
L	Legal Name (This is the most important name in most circumstances)
A	Alternate name
B	Name at Birth
M	Maiden Name
U	Unspecified

Table 18: HL7 Table 0201 (Telecommunication Use Code)

Code	Meaning
PRN	Primary Residence
WPN	Work
EMP	Emergency
NET	Email
OTH	Other / Unknown
HRN	Home Residence Number

Table 19: HL7 Table 0202 (Telecommunication Equipment Type)

Code	Meaning
PH	Phone
FX	Fax
CP	Mobile

BP	Pager / Beeper
Internet	Internet

Table 20: HL7 Table 0203 (Identifier Type Code)

Code	Use	Meaning
JHN	Patient Identifier	Jurisdictional Health Number, meaning a provincially assigned health number such as an OHIP or jurisdictional number.
MR	Patient Identifier	Medical Record Number
VN	Visit/Encounter Identifier	Visit Number

Table 21: HL7 Table 0271 (Document / Result Completion Status)

Code	Meaning
P	Preliminary
F	Final
C	Corrected
W	Withdrawn

Table 22: HL7 Table 0291 (Data Subtype for Encapsulated Data)

Code	Meaning
TIFF	TIFF Image
JPEG	JPEG Image
GIF	GIF Image
PNG	PNG Image
HTML	HTML Document
RTF	RTF Document (Deprecated)
PDF	PDF Document
WAV	WAV Sound File

MP3	MP3 Sound File
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Table 23: HL7 Table 0363 (Assigning Authority)

Code	Meaning
CAN	Canada
CANAB	Alberta
CANBC	British Columbia
CANMB	Manitoba
CANNB	New Brunswick
CANNF	Newfoundland
CANNS	Nova Scotia
CANNT	Northwest Territories
CANNU	Nunavut
CANON	Ontario
CANPE	Prince Edward Island
CANQC	Quebec
CANSK	Saskatchewan
CANYT	Yukon
US	United States
USAL	Alabama
USAK	Alaska
USAZ	Arizona
USAR	Arkansas
USCA	California
USCO	Colorado
USCT	Connecticut
USDE	Delaware
USFL	Florida
USGA	Georgia
USHI	Hawaii
USID	Idaho
USIL	Illinois
USIN	Indiana
USIA	Iowa
USKS	Kansas
USKY	Kentucky
USLA	Louisiana
USME	Maine

USMD	Maryland
USMA	Massachusetts
USMI	Michigan
USMN	Minnesota
USMS	Mississippi
USMO	Missouri
USMT	Montana
USNE	Nebraska
USNV	Nevada
USNH	New Hampshire
USNJ	New Jersey
USNM	New Mexico
USNY	New York
USNC	North Carolina
USND	North Dakota
USOH	Ohio
USOK	Oklahoma
USOR	Oregon
USPA	Pennsylvania
USRI	Rhode Island
USSC	South Carolina
USSD	South Dakota
USTN	Tennessee
USTX	Texas
USUT	Utah
USVT	Vermont
USVA	Virginia
USWA	Washington
USWV	West Virginia
USWI	Wisconsin
USWY	Wyoming
USDC	Washington DC
OTHER	Other (Text description must be provided)

Table 24: HL7 Table 0399 (Country Code and Optional Time Zone)

Code	Meaning
CAN	Canada
CAN_EST	Canada – Eastern Standard Time

CAN_CST	Canada – Central Standard Time
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Table 25: HL7 Table 0432 (Admission Level of Care Code)

Code	Meaning
1	CTAS 1
2	CTAS 2
3	CTAS 3
4	CTAS 4
5	CTAS 5

Table 26: HL7 Table 0443 (Provider Role)

Note: Only one value is allowed within Table 0443. Other values may be added in future versions of this document.

Code	Meaning
PP	Primary Care Provider

Table 27: HL7 Table 0485 (Extended Priority Codes)

Code	Meaning
A	ASAP
C	Callback
P	Preop
R	Routine
S	Stat
T	Timing critical

Table 28: HL7 Table 9001 (Provider Namespace IDs)

Code	Meaning
1.3.6.1.4.1.12201.1.2.1.5	Locally assigned identifier for a specific HIC
2.16.840.1.113883.4.347	College of Ontario Doctor License Number
2.16.840.1.113883.3.239.13.52	College of Ontario Dentist License Number

2.16.840.1.113883.3.239.13.15	College of Ontario Nurse Practitioner License Number
2.16.840.1.113883.3.239.13.12	College of Ontario Midwife License Number
2.16.840.1.113883.3.239.13.6	College of Ontario Audiologist and Speech-Language Pathologist License Number
2.16.840.1.113883.3.239.13.17	College of Ontario Chiropodist License Number
2.16.840.1.113883.4.394	College of Ontario Chiropractor License Number
2.16.840.1.113883.3.239.13.7	College of Ontario Dental Hygienist License Number
2.16.840.1.113883.3.239.13.10	College of Ontario Dental Technologist License Number
2.16.840.1.113883.3.239.13.8	College of Ontario Denturist License Number
2.16.840.1.113883.3.239.13.9	College of Ontario Dieticians License Number
2.16.840.1.113883.3.239.13.14	College of Ontario Massage Therapist License Number
2.16.840.1.113883.3.239.13.11	College of Ontario Medical Laboratory Technologists License Number
2.16.840.1.113883.3.239.13.13	College of Ontario Radiation Technologists License Number
2.16.840.1.113883.3.239.13.4	College of Ontario Board of Regents, Board of Directors of Drugless Therapy-Naturopathy License Number
2.16.840.1.113883.3.239.13.18	College of Ontario Occupational Therapists License Number
2.16.840.1.113883.4.390	College of Ontario Opticians License Number
2.16.840.1.113883.4.395	College of Ontario Optometrists License Number
2.16.840.1.113883.3.239.13.43	College of Ontario Pharmacists License Number
2.16.840.1.113883.4.388	College of Ontario Physiotherapists License Number
2.16.840.1.113883.3.239.13.71	College of Ontario Psychologists License Number
2.16.840.1.113883.3.239.13.19	College of Ontario Respiratory Therapists in Ontario License Number

2.16.840.1.113883.3.239.13.44	College of Ontario College of Social Workers and Social Service Workers License Number
2.16.840.1.113883.3.239.13.20	College of College of Traditional Chinese Medicine Practitioners and Acupuncturists of Ontario License Number
2.16.840.1.113883.3.239.13.54	Unregulated - Transitional Council of the College of Homeopaths License Number
2.16.840.1.113883.3.239.13.55	Unregulated - Transitional council for the College of Kinesiologists of Ontario License Number
2.16.840.1.113883.3.239.13.56	Unregulated - Transitional Council of the College of Psychotherapists License Number

Table 29: HL7 Table 9003 (Province and State Codes)

Code	Meaning
CANAB	Alberta
CANBC	British Columbia
CANMB	Manitoba
CANNB	New Brunswick
CANNF	Newfoundland
CANNS	Nova Scotia
CANNT	Northwest Territories
CANNU	Nunavut
CANON	Ontario
CANPE	Prince Edward Island
CANQC	Quebec
CANSK	Saskatchewan
CANYT	Yukon Territories
USAL	Alabama
USAK	Alaska
USAZ	Arizona
USAR	Arkansas
USCA	California
USCO	Colorado

USCT	Connecticut
USDE	Delaware
USFL	Florida
USGA	Georgia
USHI	Hawaii
USID	Idaho
USIL	Illinois
USIN	Indiana
USIA	Iowa
USKS	Kansas
USKY	Kentucky
USLA	Louisiana
USME	Maine
USMD	Maryland
USMA	Massachusetts
USMI	Michigan
USMN	Minnesota
USMS	Mississippi
USMO	Missouri
USMT	Montana
USNE	Nebraska
USNV	Nevada
USNH	New Hampshire
USNJ	New Jersey
USNM	New Mexico
USNY	New York
USNC	North Carolina
USND	North Dakota
USOH	Ohio
USOK	Oklahoma
USOR	Oregon
USPA	Pennsylvania
USRI	Rhode Island
USSC	South Carolina
USSD	South Dakota
USTN	Tennessee
USTX	Texas
USUT	Utah
USVT	Vermont

USVA	Virginia
USWA	Washington
USWV	West Virginia
USWI	Wisconsin
USWY	Wyoming
USDC	Washington DC
OTHER	Other (Text description must be provided)

Table 30: HL7 Table 9004 (HIC Identifiers)

Reference: Values to be used for Table 9004, 9004M, 9004P, 9004V will be assigned by miCDR to each HIC when interface development begins. As values are assigned, they will be added to the table below in a future version of this document.

Code	Meaning
1.3.6.1.4.1.12201	University Health Network

Table 31: HL7 Table 9004M (MRN Assigning Authority Identifiers)

Code	Meaning
2.16.840.1.113883.3.239.18.148	University Health Network MRN Assigning Authority

Table 32: HL7 Table 9004P (Local Provider Identifiers)

Code	Meaning
1.3.6.1.4.1.12201.1	University Health Network Local Provider Identifier Assigning Authority

Table 33: HL7 Table 9004V (Patient Visit Number Identifiers)

Code	Meaning
1.3.6.1.4.1.12201.2	University Health Network Visit Number Assigning Authority

Table 34: HL7 Table 9005 (HIC Facilities)

Reference: Values to be used for Table 9005 will be assigned by miCDR to each HIC when interface development begins. As values are assigned, they will be added to the table below in a future version of this document.

Code	Meaning
1.3.6.1.4.1.12201.3.1	Toronto General Hospital
1.3.6.1.4.1.12201.3.2	Toronto Western Hospital
1.3.6.1.4.1.12201.3.3	Princess Margaret Hospital

Table 35: HL7 Table 9007 (Sending System Coding System IDs)

Reference: Values to be used for Table 9007 will be assigned by miCDR to each HIC when interface development begins. As values are assigned, they will be added to the table below in a future version of this document.

Code	Meaning
1.3.6.1.4.1.12201.2.1	University Health Network QCPR Order Codes
1.3.6.1.4.1.12201.2.2	University Health Network QCPR Observation Codes
1.3.6.1.4.1.12201.2.3	University Health Network QCPR Drug Administration Codes
1.3.6.1.4.1.12201.2.4	University Health Network QCPR Allergy Codes

Table 36: HL7 Table 9008 (Sending System Identifiers)

Reference: Values to be used for Table 9008 will be assigned by miCDR to each HIC when interface development begins. As values are assigned, they will be added to the table below in a future version of this document.

Code	Meaning
1.3.6.1.4.1.12201.1	University Health Network QCPR (UHN HIS)

Table 37: HL7 Table 9013 (LOINC Report codes)

This intentional value set includes a subset of document codes in LOINC that represent radiology reports with LOINC Class: RAD and LOINC Scale: Doc. These documents contain a consulting specialist's interpretation of image data. This subset contains many possible values, and a limited set is displayed in the table below.

Code	Meaning
69143-6	XR Knee - left 2 views and (Tunnel W standing)
107290-9	RF Guidance for embolization of Pulmonary artery
36769-8	CT Guidance for exchange of nephrostomy tube of Kidney
30638-1	RF Guidance for injection of Hip
72530-9	US Guidance for injection of Joint
42296-4	MG Guidance for localization of Breast - left
39622-6	SPECT Guidance for abscess localization of Whole body
107386-5	MRI Guidance for localization of lesion of Breast - right

9. Glossary

Term	Definition
Clinical Data Types	Clinical data contributed from HICs.
College of Physicians and Surgeons of Ontario (CPSO)	The regulatory college for medical doctors in Ontario, Canada.
Data Quality Solution (DQS)	The ONE Data Quality application is used by authorized external users who contribute data to Ontario Health's clinical repositories, as well as authorized users within Ontario Health responsible for data quality management, specifically supporting conformance, clinical validation, and data accuracy monitoring processes. It is used to view the annotations for messages that have failed to file, allowing external users to

	monitor and report status on new and unresolved annotations.
Diagnostic Imaging Common Services (DI CS)	To enable diagnostic imaging (DI) studies and DI reports stored in regional DI repositories and eHealth Ontario XDS repository to be accessible province-wide from anywhere and anytime, within the context of the provincial digital health record initiative. DI Common Service (DI-CS) is a provincial EHR repository that provides access to diagnostic imaging reports and images. From a clinical and business perspective, the DI Common Service solution will deliver a private and secure shared common service for the DI repositories while following the principle of delivering the greatest clinical value relative to associated costs as a priority. DI Common Service currently provides access to DI reports and images via the DI Viewer integrated with the eHealth Ontario Portal.
Diagnostic Imaging Repository (DI-r)	A repository that allows for the collection and storage of diagnostic images for Radiologists, Referring Physicians and Specialists across Ontario providing instant access. This is a Health Information Network Provider (HINP) system.
Digital Health Asset	Has the meaning set out in section 26 of O. Reg. 324/04 and generally means a product or service that, (a) is selected, developed or used by a health information custodian, and (b) enables the custodian to use electronic means to collect, use, modify, disclose, transmit, retain or dispose of personal health information to provide care or assist in the provision of care.
Digital Health Information Exchange (DHIEX)	Digital Health Information Exchange (DHIEX) is Ontario's PHIPA-based framework (Ontario Regulation 329/04 sections 26 to 34) for enabling digital health assets work together safely, securely, and consistently across Ontario's health care systems. Under the Regulation, Ontario Health is authorized to establish and publish interoperability requirements for digital health assets (DHAs) used by health information custodians (HICs), supports DHA certification, making public interoperability specifications and the list of certified digital health assets, ensures compliance (through reporting and monitoring), as well as provides for escalation. DHIEX ensures that personal health information can be handled and exchanged electronically for care in a consistent, secure, and

	privacy-protective manner by applicable HICs and their agents to support patient care and health system operations.
Digital Imaging and Communications in Medicine (DICOM)	A standard for handling, storing, printing and transmitting information in medical imaging. It includes a file format definition and a network communications protocol. The communication protocol is an application protocol using Transmission Control Protocol/Internet Protocol to communicate between systems. DICOM files can be exchanged between two entities capable of receiving image and patient data in DICOM format.
Electronic Health Record (EHR)	Has the meaning set out in s. 55.1 of PHIPA and generally means the electronic systems that are developed and maintained by OH pursuant to Part V.1 of PHIPA for the purpose of enabling HICs to Collect, Use and Disclose PHI by means of the systems.
Electronic Medical Record (EMR)	An electronic medical record (EMR) generally refers to an electronic version of the paper health record. An EMR system can be used by one or more health information custodians in a primary care practice setting or community-based care setting to collect or use personal health information such as a patient's family history, lab requests and results, cancer screening tests, emergency room visits, prescriptions, etc., for the provision of care.
Enterprise Imaging Vendor Neutral Archive (EI-VNA)	A centralized EHR repository that stores and manages clinical images and related content across multiple imaging specialties and systems.
Foreign Exam Management (FEM)	The workflow of accessing and importing external patient exams (e.g., MRIs, CTs) from outside hospitals to a local Picture Archiving and Communication System (PACS).
Freedom of Information and Protection of Privacy Act (FIPPA)	Freedom of Information Protection of Privacy Act, 1990. Ontario legislation with two main purposes: 1) to make provincial government institutions more open and accountable by providing the public with a right of access to records; and 2) to protect the privacy of individuals with respect to their Personal Information held by provincial government organizations. References to FIPPA include the regulations made thereunder, as may be amended, or replaced from time to time.
Health Card Number	A number assigned to every individual eligible to receive provincial health care services under the provincial/territory health insurance plan.

Health Care Practitioner	(a) a person who is a member within the meaning of the Regulated Health Professions Act, 1991 and who provides health care, (b) a person who is a member of the Ontario College of Social Workers and Social Service Workers and who provides health care, or (c) any other person whose primary function is to provide health care for payment
Health Information Custodian (HIC)	Has the meaning set out in s. 3 of PHIPA and generally means a person or organization that has custody or control of personal health information for the purpose of health care or other health-related duties. Examples include physicians, hospitals, pharmacies, laboratories and the MOH, but does not include OH.
Health Level Seven (HL7®)	A set of international standards used to move clinical and administrative health data between applications. The application layer, or "layer 7" in the Open Systems Interconnection paradigm, is the focus of the HL7 standards.
Health Report Manager (HRM)	A digital health solution owned and operated by OntarioMD that enables clinicians to securely receive patient reports electronically from participating hospitals and specialty clinics.
HL7 Fast Healthcare Interoperability Resources Standard (HL7 FHIR®)	A standard for exchanging healthcare information electronically that defines a set of "Resources" that represent granular clinical concepts. The resources can be managed in isolation, or aggregated into complex documents. Technically, FHIR is designed for the web; the resources are based on simple Extensible Markup Language (XML) or JavaScript Object Notation (JSON) structures, with an http-based RESTful protocol where each resource has predictable Uniform Resource Locator (URL). Where possible, open internet standards are used for data representation.
Hospitals	Any institution, building or other premises or place that is established for the purposes of the treatment of patients and that is approved under the Public Hospitals Act, R.R.O. 1990, Reg. 965 as a public hospital.
Hospital Information System (HIS)	A comprehensive, knowledge-based system used in a hospital setting, capable of providing information to all who need it to make sound decisions about health.
Implementation Guide (IG)	A specification explaining the proper use of a standard for a specific purpose.

Implementer(s)	Entities responsible for carrying out the adoption of Implementation Guide (IG).
Integrated Community Health Services Centres (ICHSCs)	A community-based, often private clinic in Ontario that is licensed to provide specific OHIP-insured services, including diagnostic imaging (MRI/CT), surgeries (cataract, orthopedics), and other medical procedures. Formerly known as an Independent Health Facility (IHF).
Interoperability Specification	Has the meaning set out in section 26 of O. Reg. 324/04 and generally means a business or technical requirement established by the Agency that applies to a digital health asset or to a digital health asset's interaction with other digital health assets, and that may include, without being limited to, a requirement related to, (a) the content of data or a common data set for electronic data, (b) the format or structure of messages exchanged between digital health assets, (c) the migration, translation or mapping of data from one digital health asset to another, (d) terminology, including vocabulary, code sets or classification systems, or (e) privacy or security.
Logical Observation Identifiers Names and Codes (LOINC)	A universal code system for identifying health measurements, observations and documents. It provides a common language (set of identifiers, names, and codes) for clinical and laboratory observations; a rich catalog of measurements, including laboratory tests, clinical measures like vital signs and anthropomorphic measures, standardized survey instruments, and more. In essence, it provides the lingua franca for interoperable data exchange. **The code systems include observation and document ontology.
Medical Imaging (MI)	Ontario Health's provincial initiative for the electronic exchange, storage, and access of diagnostic imaging orders, reports, and images.
Medical Record Number (MRN)	A unique number assigned by a facility (e.g. hospital, community pharmacy) to identify an individual. The medical record number is organization specific.
Object Identifier (OID)	An identifier mechanism standardized by the International Telecommunications Union (ITU) and International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) for naming any object,

	concept or "thing" with a globally unambiguous persistent name.
Observation Result – Unsolicited (ORU)	An HL7 v2 message used to communicate clinical observations, results, and reports from one system to another.
Ontario Clinical Imaging Network (OCINet)	The Ontario Clinical Imaging Network (OCINet) is an independent, not-for-profit corporation and a key delivery partner of Ontario Health. Formed in April 2022 to centralize diagnostic imaging, it enables the secure, province-wide storage, retrieval and sharing of medical images between hospitals, community health centres and clinicians to improve patient care. OCINet operates as a Health Information Network Provider (HINP) and acts as the agent for participating Health Information Custodians (HICs).
Ontario Clinical Report Exchange (OCRE)	A digital health solution that enables clinicians to securely receive patient reports electronically from participating hospitals and specialty clinics.
Ontario Health (OH)	An agency created by the Government of Ontario to connect, coordinate and modernize the province's health care system by working with partners, providers and patients to make the health system more efficient so everyone in Ontario has an opportunity for better health and wellbeing.
Ontario Medical Imaging Clinical Data Repository (miCDR)	A secure, digital system in the provincial EHR for collecting, storing and sharing diagnostic images and reports. It allows authorized clinicians at hospitals and independent health facilities to contribute and access a patient's longitudinal, cross-regional imaging history, such as X-rays, CT scans, MRIs and mammograms. This is an EHR repository.
Ontario Regulation 329/04 made under PHIPA (O. Reg. 329/04)	A legislation which outlines general guidelines concerning health information custodianship, the responsibilities of eHealth Ontario relating to health information, and allowable use of the health number.
Order Message (ORM)	An HL7 v2 message used to communicate orders for tests, procedures, or services between healthcare systems.
Personal Health Information (PHI)	Has the meaning set out in section 4 of PHIPA. Specifically, it is "identifying information" about an individual that: • Relates to the physical or mental health of the individual; relates to the provision of health care to the individual; • Is a plan of service under the Home Care and Community Services Act, 1994; • Relates to payments or eligibility for health care or eligibility for coverage for health care;

	• Relates to the donation of any body part or bodily substance of the individual or that is derived from the testing or examination of any such body part or bodily substance; • Is the individual's health number; and/or • Identifies an individual's substitute decision-maker. • Is the individual's digital health identifier or other identifying information related to the creation of the digital health identifier. PHI also includes identifying information about an individual that is not PHI listed above but that is contained in a record that includes PHI listed above. Information is "identifying" when it identifies an individual or when it is reasonably foreseeable in the circumstances that it could be utilized, either alone or with other information, to identify the individual.
Personal Health Information Protection Act (PHIPA)	Personal Health Information Protection Act, 2004. The Ontario health privacy law. It establishes rules for the management of PHI and the protection of the confidentiality of that information, while facilitating the effective delivery of healthcare services. References to PHIPA include the regulation made thereunder (O. Reg. 329/04), as may be amended or replaced from time to time.
Picture Archiving and Communication System (PACS)	A system that begins by converting the standard storage of X-Ray films into digitized electronic media that can later be retrieved by radiologists, clinicians, and other staff to view exam data and medical images. Computers and networks are dedicated to the storage, retrieval, distribution, and presentation of images. Full PACS handle images from various modalities, such as ultrasonography, magnetic resonance imaging, positron emission tomography, computed tomography, and radiography (plain x-rays). Small-scale systems that handle images from a single modality (usually connected to a single acquisition device) are also known as mini-PACS.
Prescribed Organization (PO)	The organization prescribed in Ontario Regulation 329/04 as the organization for the purposes of PHIPA. The Prescribed Organization has the power and the duty to develop and maintain the EHR in accordance with Part V.1 of PHIPA, and the power to carry out digital health identifier activities in accordance with Part V.2 of PHIPA.

Radiology Information System (RIS)	A Radiology Information System manages medical imaging workflows, scheduling, and reporting.
Systemized Nomenclature of Medicine - Clinical Terms (SNOMED CT®)	A dynamic, scientifically validated clinical health care terminology and infrastructure that makes health care knowledge more usable and accessible. The Systematized Nomenclature of Medicine -- Clinical Terms (SNOMED-CT) Core Terminology provides a common language that enables a consistent way of capturing, sharing and aggregating health data across specialties and sites of care.