Radiology Studies Use Case
Implementation Guide

Version 7
February 5th, 2025

Document History

Date	Version	Sections Revised	Description	Modifier
03/17/2020	1	All	Document created	B. McKee
03/22/2020	2	Definitions, 2	Document revised	B. McKee
04/27/2020	3	All	Document revised	D. Spoelstra, B. McKee
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1/15/2025	6	Sections 2 and 3	Updated verbiage. Added testing details.	T. Fite
2/5/2025	7	All	Document reviewed for overall clarity	S. Denhof

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1. Introduction

1.1 Purpose of the Data Exchange Solution

The Radiology Document Delivery data exchange supports provider workflow improvements by helping to send, find, receive, and use radiology results for tests and other services performed at the point of care.

Radiology documents (also referred to as radiology results) are used across the healthcare continuum to assist providers and other healthcare professionals in delivering quality patient care. Providers, Participating Organizations (POs), and other healthcare professionals have a critical need to easily send and find radiology results to help with clinical decision support, trend analysis, population health management, medication management, and numerous other care activities.

The Radiology Document Delivery Use Case helps POs electronically send and receive radiology results via the statewide health information network (HIN) overseen by MiHIN. Additionally, it facilitates a process to enable the viewing of the actual quality image from POs that have signed on to the Imaging Use Case.

The intended audience for this use case includes healthcare organizations and professionals that want to send and/or receive electronic radiology results to healthcare entities. These may include but are not limited to hospitals, radiology diagnostic centers, ambulatory clinics, health departments, physician offices, and medical practices.

1.2 Message Content

The Use Case Exhibit (UCE) for this data exchange solution defines message content as all data as defined in the Implementation Guide containing Radiology Document Delivery. MiHIN supports HL7 2.x messaging standards. For sending radiology results, HL7 v2.5.1 or newer version is preferred; however, v2.x is allowable.

For the purposes of implementing this data exchange solution, Message Content refers to a message conforming to HL7 2.5.1 standards identified as Observation Results (ORU) regarding radiology data along with any associate Acknowledgements (ACKs) that conform to HL7 v2.5.1.

1.3 Data Flow

The participating sending organization sends MiHIN a HL7 ORU. MiHIN routes the HL7 ORU message to the receiving organizations that have an active care relationship with the patient.

1.3.1 Functional Data Flow
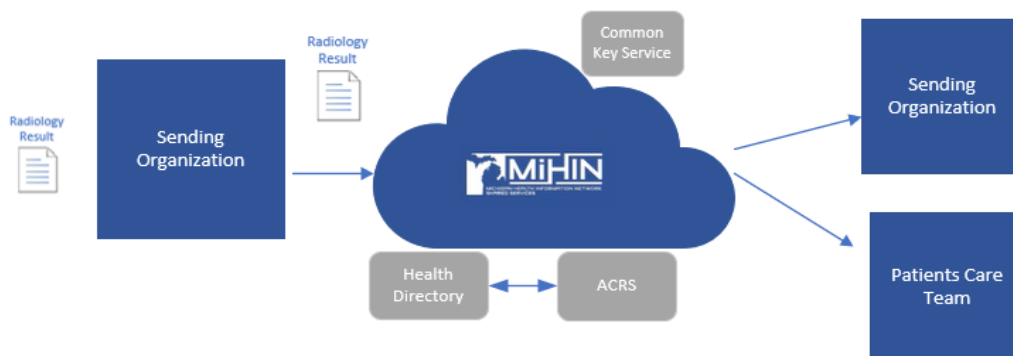
Figure 1. Radiology Document Delivery Data Flow

1. The PO sends the radiology result to the MiHIN.
2. Using the Active Care Relationship Service® (ACRS®), Common Key Service (CKS), and Health Directory (HD), the radiology result is matched to the patient's electronic health record and can simultaneously be sent to any of the other patient's care team members.
3. Using provider information listed in the radiology message, the result can also be matched and delivered to organizations associated with the encounter.

For more information about this data exchange solution, refer to the documents linked below.

1.3.2 Actors

Multiple actors can participate in this use case, each with a specific role in the process.

- ■ **Actor:** Sending organization (hospital, diagnostic radiology center)

- *Role:* Completes radiology order and sends message containing result to MiHIN.
- **Actor:** MiHIN
    - *Role:* Receives radiology result message from the sending organization and routes the message to the receiving organization(s), as indicated by ACRS.
- **Actor:** Receiving organization
    - *Role:* Receives radiology results routed from the MiHIN.

The data exchange solution summary is available online at:
https://mihin.org/radiology-results-use-case/

You can contact MiHIN at www.mihin.org/requesthelp for more information.

2. Onboarding

2.1 Prerequisites

Participating organizations will need to complete two onboarding tracks in the following order:

1. Obtain, review, and execute legal agreements, then
2. Establish technical transport and testing.

2.1.1 Universal Legal Prerequisites

The following legal documentation will need to be executed prior to kick-off or any connectivity being established between MiHIN and participating organizations.

- Statement of Work (SOW)
- MiHIN's Exhibit A Agreement (Found on the MiHIN Legal Portal)
- Participant Agreement (Found on the MiHIN Legal Portal)
- Must select the appropriate data exchange solution on the MiHIN Legal Portal in addition to the above agreements

To initiate the legal onboarding contact, email help@mihin.org.

2.1.2 Technical Requirements

The following data exchange solution implementations and technical requirements will need to be conducted for Radiology Document Delivery to function.

Radiology result messages routing to MiHIN require three independent process configurations:

1. The ability to utilize an Electronic Health Record (EHR) or Radiology Information System (RIS) that can report radiology results electronically.
2. The ability to create an EHR message.
3. The capability to construct messages that adhere to the HL7 message format.
4. The capability to transport HL7 messages.

This implementation guide assumes that the RIS or EHR message production process has already been implemented and contains instructions and specifications for construction and transport of the message.

2.1.3 Specific Organization Requirements

2.1.3.1 Information for Radiology Departments

Radiology departments wishing to utilize MiHIN to route test results to their destination need to set up and implement an outbound HL7 data feed from their RIS using HL7 v2.x ORU format. Radiology departments should contact their RIS system vendor if this interface is not already implemented.

2.1.3.2 Information for Electronic Health Record System Users

Healthcare providers wishing to send electronic test results from their EHR through MiHIN should inquire with their EHR vendor whether this can be accomplished via HL7 messaging, and if not, what other options are supported.

2.1.3.3 Information for Health Information Exchanges

Health Information Exchanges will need to work with their integration vendor to ensure they can receive and send HL7 2.x ORU messages.

2.2 Radiology Document Delivery Onboarding Process
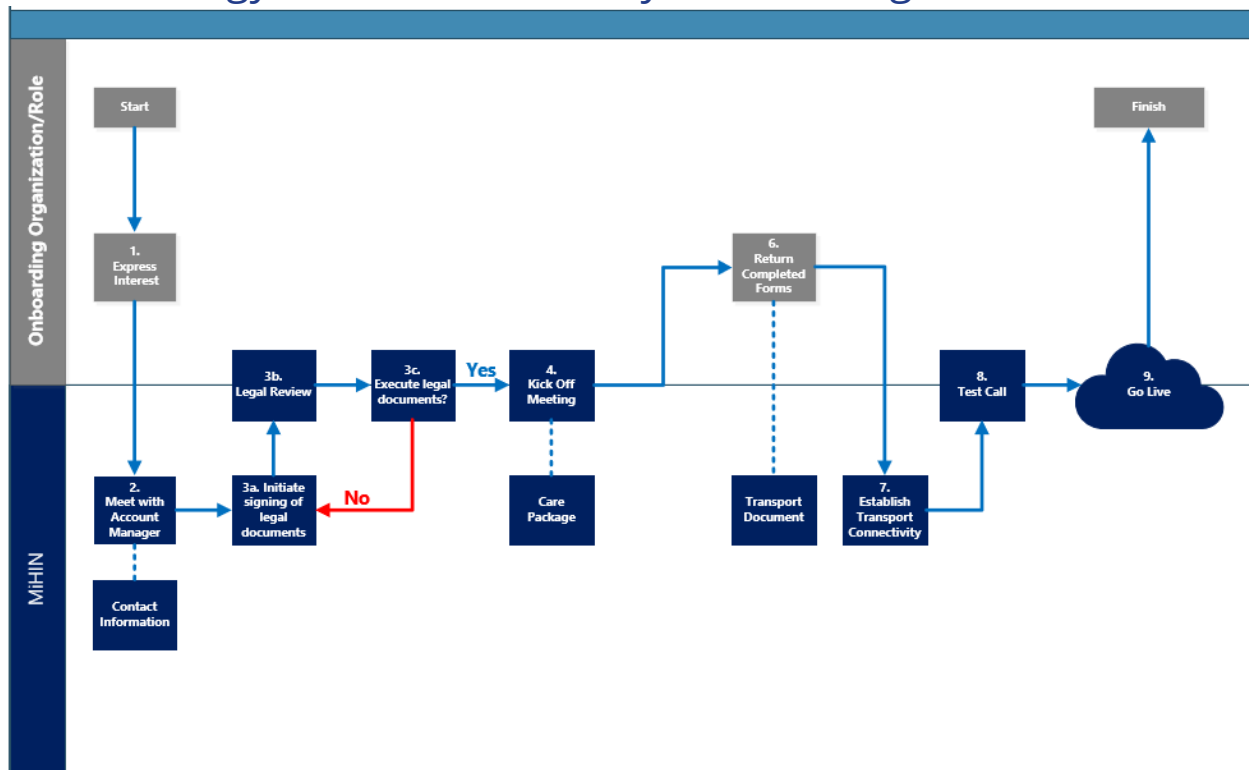
Figure 2 Radiology Document Delivery Onboarding Workflow

- Express interest in participating in the use data exchange solution
- Meet with the Account Manager
  - Exchange contact information
- Legal Review
- Execute Legal Documents
- Have a Kick-Off Meeting
- Distribute Radiology Document Delivery Package
- Exchange Required Documents
  - Transport Document
    - VPN Request Form
- Establish Transport Connectivity
- Testing

2.3 Technical Connectivity Process

MiHIN considers itself "transport agnostic" and offers options for organizations to establish technical connectivity to transport data to MiHIN.

Currently the ONLY transport method that MiHIN accepts is the following:

- **LLP over IPsec VPN –** Lower-Layer Protocol over Internet Protocol Security Virtual Private Network

For VPN connectivity, two VPNs are required. A primary VPN will facilitate regular traffic. A secondary will be established for fail-over purposes.

Additional transport methods may be added in the future. These could include NwHIN, XCA, FHIR, and others.

The following steps describe the technical onboarding process. However, MiHIN typically conducts onboarding kick-off meetings with new organizations to go through each of these steps in detail and answer any questions.

1. The organization selects the supported transport method and establishes connectivity with MiHIN. This step varies based on the method selected:

    a. LLP over IPsec VPN – MiHIN's site-to-site VPN request form must be completed, sent and approved by MiHIN. Send a request via www.mihin.org/requesthelp to obtain the VPN request form.

        i. A pre-shared key is then exchanged between the organization and MiHIN to initialize the connection. The LLP over IPsec VPN is the most efficient transport for very high volumes of messages.

2. Test messages are sent by the participating organization to MiHIN.

    a. All test messages must have a "T" in the Message Header – field 11.

    b. Test traffic is routed via MiHIN to the appropriate destination. For radiology results, the destination is the sending organization via an ACRS match.

    c. The end destination monitors for inbound test traffic and confirms receipt with MiHIN, and MiHIN then verifies it with the participating organization.

3. MiHIN declares the sending facility to be at production status after another period of successful testing.

    a. At this time, the sending facility may then send production messages through the participating organization to MiHIN. The sending facility now places a "P" (for production) value in the Message Header (field 11) instead of the "T" used during testing.

2.3.1 Initial HL7 Test Script Generation

For continued participation in the Radiology Document Delivery Use Case, it is required that a test script be sent to validate downstream interfaces. This test script should encompass a wide range of real-life scenarios. The HL7 messages should adhere to the specifications outlined in section 4 and can be transmitted via the established test connection or through a .hl7 or .txt file.

3 Specifications

3.1 Overview

3.1.1 Environments

- MiHIN Non-Production
- MiHIN Production

3.2 General Message Requirements

3.2.1 Communication Setup

This implementation guide assumes that a secure connection between MiHIN and an organization has been established. Organizations should confirm this with their network administrator.

3.2.2 Radiology Test Result HL7 Message Production

An ORU^R01 message formatted to HL7 v2.x is generated by a RIS or by an interface engine when new results are posted. Each HL7 message sent by MiHIN will conform to the standard HL7 2.x ORU definitions (HL7 v2.x).

3.2.3 Options for Radiology Systems

The RIS should have the functionality to generate the HL7 ORU^R01 message. Hospital RIS applications may already be sending result interface messages to a central hub or interface engine used at a hospital.

If this is the case, please discuss these implementation guidelines with your IT Department and involve them in generating and testing the data feed to MiHIN from that hub or engine.

3.3 Specific Segment and Field Definitions

The following guidelines describe the way in which segment and field requirements apply to correctly formatted messages.

3.3.1 Segment Usage Requirements for Sending Organization

Correctly formatted messages will adhere to the following usage requirements for message segments:

- Segments with usage code R will always be sent.

- Segments with usage code C will be sent conditionally based upon fulfillment of the condition contained in the "Comments" column.
- Segments with usage code RE will be sent if information corresponding to the segment definition exists on the sending system.
- Segments with usage code CE will be sent conditionally based upon fulfillment of the condition contained in the "Comments" column, if information corresponding to the segment definition exists on the sending system.
- Segments with usage code X or whose segment ID does not appear in the static definition corresponding to the trigger event of the message will be ignored.

3.3.2 Segment Cardinality Requirements for Sending Organization

Correctly formatted messages sent by organizations will adhere to the following cardinality requirements for message segments:

- The number of occurrences of each segment will not be less than the minimum cardinality specified in the message definition for the trigger event.
- Any occurrences of a segment beyond the maximum cardinality in the message definition for the trigger event will be ignored.

3.3.3 Field and Subfield Requirements for Sending Organization

An ORU^R01 message formatted to HL7 v2.x is generated by a RIS or by an interface engine when new results are posted. Each HL7 message sent by MiHIN will conform to the standard HL7 2.x ORU definitions (HL7 v2.x).

3.3.4 Field and Subfield Usage Requirements for Sending Organization

Correctly formatted messages sent by organizations will adhere to the following usage requirements for message fields, components, and subcomponents:

- Fields and subfields with usage code R will always be sent.
- Fields and subfields with usage code C will be sent conditionally based upon fulfillment of the condition contained in the "Comments" column.
- Fields and subfields with usage code RE will be sent if information corresponding to the field or subfield definition exists on the sending system.
- Fields and subfields with usage code CE will be sent conditionally based upon fulfillment of the condition contained in the "Comments" column, if

information corresponding to the field or subfield definition exists on the sending system.

- ■ Fields and subfields with usage code X or whose field or subfield sequence number does not appear in the static definition of the field or subfield will be ignored.

3.3.5 Field and Subfield Cardinality Requirements for Sending TDSO

Correctly formatted messages sent by organizations will adhere to the following cardinality requirements for message fields, components, and subcomponents:

- ■ No fewer occurrences of each field or subfield will be sent than the number indicated by the minimum cardinality of the field in the static definition of the segment in which the field or subfield occurs.
- ■ Occurrences of each field or subfield above the number indicated by the maximum cardinality of the field or subfield in the static definition of the segment in which the field or subfield occurs will be ignored.

3.3.6 Acknowledgement Message Requirements for Receiving TDSO

For each message received, the receiving organization will return an HL7 acknowledgment message formatted according to the requirements within this document.

An ERR segment will be returned for each usage and cardinality error recorded as a result of applying the rules in this section.

For a description on the format and structure of the HL7 2.x ORU Message, please visit HL7.org.

3.3.7 Addition of Z-Segments to ORU Messages for Receivers

MiHIN will add certain z-segments to RAD ORU messages before routing to receivers. The following z-segments will be added to the ORU message if they are available. If you have questions, please contact the MiHIN Help Desk at https://mihin.org/requesthelp/.

3.3.8 Care Team & ACRS Information Z-Segment

For every ACRS match, the corresponding patient's care team information will be appended to the message, including information from the receiving organization's ACRS file. The z-segment will contain one field for each care team member (based on ACRS matches).

Format:

ZCT|Provider_lastName^Provider_firstName^Provider_npi^practiceName^receiver_
organizationOID^patientId~ 4.5.2 NPI Z-Segment

For every provider match in ACRS against an Admission, Discharge, Transfer (ADT) notification, the corresponding National Provider Identifier (NPI) will be appended to the receiver's ADT notification. **Format**: ZNP|ACRSNPI|1234567890

3.3.8 Organization OID Z-Segment

For every organization match in ACRS, the corresponding organization's object identifier (OID) will be appended to the receiver's ADT notification.

Format: ZPO|ACRSORGOID|1.2.3.4.5.9.99.999.9999.1203

3.3.9 Member ID Z-Segment

When a patient is matched with a receiver's ACRS file, the Unique Patient ID from the file will be appended to the message.

Format: ZPD|PATIENTID|12345678

4. Production Support

	Severity Levels			
	1	**2**	**3**	**4**
Description	*Critical Impact/ System Down:* Business critical software is down or critical interface has failed. The issue is impacting all production systems, causing all participating organizations' or other organizations' ability to function to be unusable.	*Significant Business Impact:* Software component severely restricted. Entire organization is unable to continue business functions, causing all communications and transfer of messages to be halted.	**Partial Failure or Downtime:** Program is useable and less significant features unavailable. The service is online, though may not working as intended or may not currently working as intended or may not currently be accessible, though other systems are currently available.	**Minimal Business:** A non-critical software component is malfunctioning, causing minimal impact, or a test system is down.
Example	All messages to and from MiHIN are unable to be sent and received, let alone tracked	MiHIN cannot communication (send or receive) messages between single or multiple participating organizations, but can still successfully communicate with other organizations.	Messages are lost in transit; messages can be received but not sent.	Additional feature requested.
Primary Initiation Method	*Phone:* (517) 336-1430	*Phone:* (517) 336-1430	Web form at http://mihin.org/ requesthelp	Web form at http://mihin.org/ requesthelp
Secondary Initiation Method	Web form at http://mihin.org/ requesthelp	Web form at http://mihin.org/ requesthelp	Email to help@mihin.org	Email to help@mihin.org
Tertiary Initiation Method	Email to help@mihin.org	Email to help@mihin.org	N/A	N/A
Initial Response	Within 2 hours	Within 2 hours	1 business day	1 business day
Resolution Goal	24 hours	24 hours	3 business days	7 business days

A list of common questions regarding the Radiology Document Delivery data exchange solution can be found at:

(https://mihin.org/radiology-results-use-case/)

If you have questions, please contact the MiHIN Help Desk:

- www.mihin.org/requesthelp
- Phone: (884) 454-2443
- Monday – Friday 7:00 AM – 7:00 PM (Eastern)

5. Legal Advisory Language

This reminder applies to all use cases covering the exchange of electronic health information:

The Data Sharing Agreement (DSA) establishes the legal framework under which participating organizations can exchange messages through the MiHIN Platform, and sets forth the following approved reasons for which messages may be exchanged:

a. By health care providers for Treatment, Payment and/or Health Care Operations consistent with the requirements set forth in HIPAA
b. Public health activities and reporting as permitted by HIPAA and other Applicable Laws and Standards
c. To facilitate the implementation of "Meaningful Use" criteria as specified in the American Recovery and Reinvestment Act of 2009 and as permitted by HIPAA
d. Uses and disclosures pursuant to an Authorization provided by the individual who is the subject of the Message or such individual's personal representative in accordance with HIPAA
e. By Data Sharing Organizations for any and all purposes, including but not limited to pilot programs and testing, provided that such purposes are consistent with Applicable Laws and Standards
f. For any additional purposes as specified in any use case, provided that such purposes are consistent with Applicable Laws and Standards

Under the DSA, "***Applicable Laws and Standards***" means all applicable federal, state, and local laws, statutes, acts, ordinances, rules, codes, standards, regulations and judicial or administrative decisions promulgated by any governmental or self-regulatory agency, including the State of Michigan, the Michigan Health Information Technology Commission, or the Michigan Health and Hospital Association, as any of the foregoing may be amended, modified, codified, reenacted, promulgated or published, in whole or in part, and in effect from time to time. "Applicable Laws and Standards" includes but is not limited to HIPAA; the federal Confidentiality of Alcohol and Drug Abuse Patient Records statute, section 543 of the Public Health Service Act, 42 U.S.C. 290dd-2, and its implementing regulation, 42 CFR Part 2; the Michigan Mental Health Code, at MCLA §§ 333.1748 and 333.1748a; and the Michigan Public Health Code, at MCL § 333.5131, 5114a.

It is each participating organization's obligation and responsibility to ensure that it is aware of Applicable Laws and Standards as they pertain to the content of each message sent, and that its delivery of each message complies with the Applicable Laws and Standards. This means, for example, that if a use case is directed to the

exchange of physical health information that may be exchanged without patient authorization under HIPAA, the participating organization must not deliver any message containing health information for which an express patient authorization or consent is required (e.g., mental or behavioral health information).

Disclaimer: The information contained in this implementation guide was current as of the date of the latest revision in the Document History in this guide. However, Medicare and Medicaid policies are subject to change and do so frequently. HL7 versions and formatting are also subject to updates. Therefore, links to any source documents have been provided within this guide for reference. MiHIN applies its best efforts to keep all information in this guide up-to-date. It is ultimately the responsibility of the participating organization and sending facilities to be knowledgeable of changes outside of MiHIN's control.

6. Appendices

6.1 Appendix A – Message Examples

6.1.1 Below is an HL7 2.x Radiology message example

MSH|^~\&|RAD|Middle Medical Center^15D0470381^CLIA|||20190513003103|
|ORU^R01|53397275|P|2.3
PID|1|525606|525606^^^SHCPI^MR||O'Hara^Scarlett||19400117|F||2106-3
|1 Cotton Drive^^Tara^MI^41940^US^^^||(999)888-7777^PRN^PH||EN |M
||999999999||||||||||||N||NON |161046329119^^^MHP_FIN POOL^FIN
NBR^CD:15409808|384028782|||2186-5^Not Hispanic or Latino|||0
PV1|1|I|ED^ED26^01^10^^^^^^99HMCDEPO|E|||4444^Howser^Dougie|||EMR||
|||7|||4444^Howser^Dougie^^^^^^|A|37605776|H|||||||||||||||||||||||||2
0190512234259|20190513234259|||||
ORC|RE|68840347^EPC|19P062932^EPC|19P062932|F||^^^20190513004020^201
90513004042^EDSTAT||20190513005953|^EDI^RAD^RESULTS
IN||4444^Cox^Perry|10100900^^^10100^^^^^HMC ED|(810)262-
9429|||||||||||||||I|VERBAL WITH
OBR|1|I68840347^EPC|I68840347^EPC|RAD9945^WRIST 3 VIEW RT
|ED|20190513003200|20190513005839|||||||||4444^Cox^Perry|(810)262-
9429|||||20190513005839||RAD|F||^^^20190513004020^20190513004042^EDS
TAT||||^Trauma|4444&Cox&Perry||||20190513003500|||||||||RAD9945^WRIST
3 VIEW RT^99HMCIMGP^^WRIST 3 VIEW|RT^(used to identify procedures performed on the right
side of
NTE|||Reason for Study: Trauma
OBX|1|ST|RADIOLOGY REPORT&GDT^RADIOLOGY REPORT^MMC|1|RMS ACCESSION
NUMBER: 123456789||||||F||||MMC^MMC LAB^123 Anywhere
Rd^^Town^MI^41234|||||||||MMC^MMC LAB|123 Anywhere Rd^^Town^MI^41234
OBX|2|ST|RADIOLOGY REPORT&GDT^RADIOLOGY
REPORT^MMC|1||||||||F||||MMC^MMC LAB^123 Anywhere
Rd^^Town^MI^41234|||||||||MMC^MMC LAB|123 Anywhere Rd^^Town^MI^41234
OBX|3|ST|RADIOLOGY REPORT&GDT^RADIOLOGY REPORT^MMC|1|STUDY ORDERED:
RAD9945||||||F||||MMC^MMC LAB^123 Anywhere Rd^^Town^MI^41234|||||||||MMC^MMC
LAB|123 Anywhere Rd^^Town^MI^41234 OBX|4|ST|RADIOLOGY
REPORT&GDT^RADIOLOGY
REPORT^MMC|1||||||||F||||MMC^MMC LAB^123 Anywhere
Rd^^Town^MI^41234|||||||||MMC^MMC LAB|123 Anywhere Rd^^Town^MI^41234
OBX|5|ST|RADIOLOGY REPORT&GDT^RADIOLOGY REPORT^MMC|1|CLINICAL
INDICATION: Trauma.||||||F||||MMC^MMC LAB^123 Anywhere
Rd^^Town^MI^41234|||||||||MMC^MMC LAB|123 Anywhere Rd^^Town^MI^41234
OBX|6|ST|RADIOLOGY REPORT&GDT^RADIOLOGY
REPORT^MMC|1||||||||F||||MMC^MMC LAB^123 Anywhere
Rd^^Town^MI^41234|||||||||MMC^MMC LAB|123 Anywhere Rd^^Town^MI^41

7. Acronyms and Abbreviations

ACK	HL7 Acknowledgment message	**MDHHS**	Michigan Department of Health and Human Services
ACRS	Active Care Relationship Service	**MIGateway**	Medical Information Direct Gateway
API	Application Programming Interface	**MiHIN**	Michigan Health Information Network Shared Services
CCHD	Critical Congenital Heart Disease	**MUCA**	Master Use Case Agreement
CMS	Centers for Medicare & Medicaid Services	**NACK**	Negative Acknowledgement
DDE	Direct Data Entry	**NBS**	Newborn Screening
DQA	Data Quality Assurance	**NwHIN**	Nationwide Health Information Network
EHR	Electronic Health Record	**OID**	Object Identifier
FHIR	Fast Healthcare Interoperability Resources	**PO**	Participating Organization
HIE	Health Information Exchange	**RAS**	Registration and Attestation System
HIN	Health Information Network	**REST**	Representational State Transfer
HISP	Health Internet Service Provider	**SAML**	Security Assertion Markup Language
HL7	Health Level Seven	**SMTP**	Simple Mail Transfer Protocol
HPD	Health Provider Directory	**SOM**	State of Michigan
TDSO	Trusted Data Sharing Organization	**UCS**	Use Case Summary

8. Definitions

Acknowledgement (ACK). In data networking, telecommunications, and computer buses, an acknowledgement is a signal that is passed between communicating processes, computers, or devices to signify acknowledgement or receipt of message, as part of a communications protocol.

Attribution. The connection between a consumer and their healthcare providers. One definition of attribution is "assigning a provider or providers, who will be held accountable for a member based on an analysis of that member's claim data." The attributed provider is deemed responsible for the patient's cost and quality of care, regardless of which providers actually deliver the service.

Active Care Relationship (ACR). (a) For health providers, a patient who has been seen by a provider within the past 24 months, or is considered part of the health provider's active patient population they are responsible for managing, unless notice of termination of that treatment relationship has been provided to Michigan Health Information Network Shared Services (MiHIN); (b) for payers, an eligible member of a health plan;(c) an active relationship between a patient and a health provider for the purpose of treatment, payment and/or healthcare operations consistent with the requirements set forth in Health Insurance Portability and Accountability Act (HIPAA); (d) a relationship with a health provider asserted by a consumer and approved by the health provider; or (e) any person or Trusted Data Sharing Organization authorized to receive message content under an exhibit which specifies that an ACR may be generated by sending or receiving message content under that exhibit. ACR records are stored by MiHIN in the Active Care Relationship Service® (ACRS®).

Active Care Relationship Service® (ACRS®). The Michigan Health Information Network Shared Services infrastructure service that contains records for those Trusted Data Sharing Organizations, their participating organizations participants or any health providers who have an active care relationship with a patient**.**

Applicable Laws and Standards. In addition to the definition set forth in the Data Sharing Agreement, the federal Confidentiality of Alcohol and Drug Abuse Patient Records statute, section 543 of the Public Health Service Act, 42 U.S.C. 290dd-2, and its implementing regulation, 42 CFR Part 2; the Michigan Mental Health Code, at

MCLA §§ 333.1748 and 333.1748a; and the Michigan Public Health Code, at MCL § 333.5131, 5114a.

Data Sharing Agreement (DSA). Any data sharing organization agreement signed by both Michigan Health Information Network Shared Services (MiHIN) and a participating organization. Data sharing organization agreements include but are not limited to: Qualified Data Sharing Organization Agreement, Virtual Qualified Data Sharing

Shared Organization Agreement, State Sponsored Sharing Organization Agreement, Direct Data Sharing Organization Agreement, Simple Data Sharing Organization Agreement, or other data sharing organization agreements developed by MiHIN.

Electronic Address. A string that identifies the transport protocol and end point address for communicating electronically with a recipient. A recipient may be a person, organization or other entity that has designated the electronic address as the point at which it will receive electronic messages. Examples of an electronic address include a secure email address (Direct via secure Simple Mail Transfer Protocol (STMP)) or secure Uniform Resource Locator (URL) (SOAP/XDR/REST/FHIR). Communication with an electronic address may require a digital certificate or participation in a trust bundle.

Electronic CQM (eCQM). Clinical Quality Measures (CQM) that are specified in a standard electronic format and are designed to use data from Health information technology (IT) systems for measurement**.**

Electronic Medical Record or Electronic Health Record (EMR/EHR). A digital version of a patient's paper medical chart**.**

Electronic Service Information (ESI). All information reasonably necessary to define an electronic destination's ability to receive and use a specific type of information (e.g., discharge summary, patient summary, laboratory report, query for patient/provider/healthcare data). ESI may include the type of information (e.g., patient summary or query), the destination's electronic address, the messaging framework supported (e.g., SMTP, HTTP/SOAP, XDR, REST, FHIR), security information supported or required (e.g., digital certificate) and specific payload definitions (e.g., CCD C32 V2.5). In addition, ESI may include labels that help identify the type of recipient (e.g., medical records department).

End Point. An instance of an electronic address or Electronic Service Information (ESI).

Exhibit. Collectively, a use case exhibit or a pilot activity exhibit.

Health Directory (HD). The statewide shared service established by Michigan Health Information Network Shared Services (MiHIN) that contains contact information on health providers, electronic addresses, end points, and Electronic Service Information (ESI), as a resource for authorized users to obtain contact information and to securely exchange health information.

Health Level Seven® (HL7®). An interface standard and specifications for clinical and administrative healthcare data developed by the Health Level Seven (HL7) organization and approved by the American National Standards Institute (ANSI). HL7 provides a method for disparate systems to communicate clinical and administrative information in a normalized format with acknowledgement of receipt

Health Information. Any information, including genetic information, whether oral or recorded in any form or medium, that (a) is created or received by a health provider, public health authority, employer, life insurer, school or university, or healthcare clearinghouse; and (b) relates to the past, present, or future physical or mental health or condition of an individual; the provision of healthcare to an individual; or the past, present, or future payment for the provision of healthcare to an individual.

Health Information Network (HIN). An organization or group of organizations responsible for coordinating the exchange of protected health information (PHI) in a region, state, or nationally.

Health Provider means facilities/hospitals, health professionals, health plans, caregivers, pharmacists/other qualified professionals, or any other person or organization involved in providing healthcare.

Health Insurance Portability and Accountability Act (HIPAA). A federal law that required the creation of national standards to protect sensitive patient health information **from being disclosed without the patient's consent or knowledge.**

Information Source. Any organization that provides information that is added to a Michigan Health Information Network Shared Services (MiHIN) infrastructure service**.**

Master Use Case Agreement (MUCA). Legal document covering expected rules of engagement across all use cases. Trusted Data Sharing Organizations (TDSOs) sign master use case agreement one time, then sign use case exhibits for participation in specific use cases.

Message. A mechanism for exchanging message content between the participating organization to Michigan Health Information Network Shared Services (MiHIN), including query and retrieve.

Message Content. Information, as further defined in an Exhibit, which is sent, received, found or used by a participating organization to or from Michigan Health Information Network Shared Services (MiHIN). Message content includes the message content header.

Message Header ("MSH") or Message Content Header. The Message Header (MSH) segment present in every Health Level Seven® (HL7®) message type that defines the Message's source, purpose, destination, and certain syntax specifics such as delimiters (separator characters) and character sets. It is always the first segment in the HL7 message, with the only exception being HL7 batch messages.

Michigan Health Information Network Shared Services (MiHIN). The health information network (HIN) for the state of Michigan.

MiHIN Infrastructure Service. Certain services that are shared by numerous use cases. MiHIN infrastructure services include, but are not limited to, Active Care Relationship Service® (ACRS®), Health Directory (HD), Statewide Consumer Directory (SCD), and the Medical Information Gateway (MIGateway).

MiHIN Services. The Michigan Health Information Network Shared Services (MiHIN) infrastructure services and additional services and functionality provided by MiHIN allowing the participating organizations to send, receive, find, or use information to or from MiHIN as further set forth in an exhibit.

Negative Acknowledgment (NAK or NACK). "Not acknowledged" and is used to negatively acknowledge or to reject previously received message content or to indicate some kind of error.

Notice. A message transmission that is not message content and which may include an acknowledgement of receipt or error response, such as an "acknowledged" ACK or "not acknowledged" NACK.

National Provider Identifier (NPI). is a unique 10-digit identification number issued to health care providers in the United States by the Centers for Medicare and Medicaid Services (CMS).

Patient Data. Any data about a patient or a consumer that is electronically filed in a participating organization or participating organization participant's systems or repositories. The data may contain protected health information (PHI), personal credit information (PCI), and/or personally identifiable information (PII).

Provider Community. A healthcare provider with an active care relationship with the applicable patient.

Person Record. Any record in a Michigan Health Information Network Shared Services (MiHIN) infrastructure service that primarily relates to a person.

Principal. A person or a system utilizing a federated identity through a federated organization.

Promoting Interoperability (PI). Using certified EHR technology to improve quality, safety, and efficiency of healthcare, and to reduce health disparities**.**

Provider Community. A healthcare provider with an active care relationship (ACR) with the applicable patient**.**

Radiology Document Delivery. Radiology Document Delivery supports provider workflow improvements by helping to send, find, receive, and use radiology results for tests and other services performed at the point of care.

Service Interruption. A party is unable to send, receive or find message content for any reason, including the failure of network equipment or software, scheduled or unscheduled maintenance, general Internet outages, and events of force majeure**.**

Transactional Basis. The transmission of message content or a notice within a period of time of receiving message content or notice from a sending or receiving party as may be further set forth in a specific exhibit.

Transitions of Care. The movement of a patient from one setting of care (e.g., hospital, ambulatory primary care practice, ambulatory specialty care practice, long-term care, rehabilitation facility) to another setting of care and can include transfers within a healthcare organization.

Trusted Data Sharing Organization (TDSO). An organization that has signed any form of agreement with Michigan Health Information Network Shared Services for data sharing.

Use Case. (a) A use case agreement previously executed by a participating organization; or

(b) the use case summary, use case exhibit and a use case implementation guide that participating organization or Trusted Data Sharing Organization must follow to share specific message content with Michigan Health Information Network Shared Services.

Use Case Exhibit (UCE). The legal agreement attached as an exhibit to the master use case agreement that governs participation in any specific use case.

Use Case Implementation Guide (UCIG). The document providing technical specifications related to message content and transport of message content between participating organization, Michigan Health Information Network Shared Services, and other Trusted Data Sharing Organizations. Use case implementation guides are made available via URLs in exhibits**.**

Use Case Summary (UCS). The document providing the executive summary, business justification and value proposition of a use case. Use case summaries are provided by Michigan Health Information Network Shared Services (MiHIN) upon request and via the MiHIN website at www.mihin.org.

Virtual Private Network (VPN). A Virtual Private Network extends a private network across a public network and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network.

XCA. The IHE (Integrating Healthcare Enterprise) standard for Cross-Community Access to support the means to query and retrieve patient relevant healthcare data held by other communities.

XML. A metalanguage which allows users to define their own customized markup languages, especially in order to display documents on the Internet.