Immunizations
Implementation Guide

Version 25
August 21, 2025

Document History

Date	Version	Sections Revised	Description	Modifier
04/19/2020	19	NA	Updated to meet new branding standards	M. Allen
4/4/2024	20	Sections 4.4. and 4.5	Update DSM Endpoint information	A. Pacheco
6/21/2024	21	All	Updates to branding and formatting	E. Mata
07/22/2025	22	All	Update to new template, appendix and glossary, production support, and testing requirements	T. Fite
07/29/2025	23	Table of contents, section 2.2	Updated onboarding process, table of contents page numbers	T. Fite
08/12/2025	24	All	Specifications, Appendix, and Prerequisites	T. Fite
8/21/25	25	All	General Editing	S. Denhof

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1. Introduction

1.1 Purpose of the Data Exchange Solution

> *The Immunizations Data Exchange Solution describes the requirements for healthcare providers to use Michigan Health Information Network (MiHIN) to automatically and electronically send immunization records to Michigan Care Improvement Registry (MCIR).*

Immunizations are vital to the maintenance of public health due to their power to help prevent and sometimes eradicate deadly diseases and potential epidemics. A state immunization information system (IIS) is a confidential, population-based, computerized database that records all immunization doses administered by participating providers to persons residing within a given geopolitical area.

In Michigan, the statewide IIS is part of the Michigan Care Improvement Registry (MCIR), which was created in 1998 to collect reliable immunization information for children and make it accessible to authorized users. A 2006 change to the Michigan Public Health Code enabled the MCIR to transition from a childhood immunization registry to a lifespan registry including citizens of all ages.

This data exchange solution aids in providing current and correct administration of vaccinations and can help healthcare providers ensure that all necessary vaccinations are provided to patients on a correct schedule by helping maintain a record of all immunizations administered. The adoption of this data exchange solution also ensures compliance with Meaningful Use legislation, which requires the ability for healthcare providers to communicate immunizations electronically with a public health agency.

1.2 Message Content

Message content is defined for this data exchange solution as an Unsolicited Vaccine Update (VXU) along with any associated Acknowledgements (ACKs) that conform to HL7 2.5.1 standards.

1.3 Data Flow

Figure 1. Immunization Data Flow

1.3.1 Functional Data Flow

1. The participating organization sends an HL7 VXU to MiHIN.
2. MiHIN sends the HL7 VXU to the state of Michigan's Michigan Care Improvement Registry (MCIR).
3. MCIR returns an acknowledgment (ACK) message back to MiHIN.
4. MiHIN routes the acknowledgement to the participating organization.

For more information about this data exchange solution, refer to the following link: (Resources - MiHIN)

1.3.2 Actors

- Actor: Participating Organization
  - *Role:* Generates an HL7 VXU and sends it to Health Information Network (HIN) (MiHIN). Receives and ingests acknowledgement from HIN upon successful receipt of HL7 VXU message.
- Actor: HIN (MIHIN)
  - Role: Receives HL7 VXU messages from participating organizations and generates and returns acknowledgements (ACKs). Routes HL7 VXU messages to the State Data Hub.
- Actor: State Data Hub (MDHHS)
  - *Role*: Receives HL7 VXU from HIN (MiHIN) and sends it to the Michigan Care Improvement Registry (MCIR).
- Actor: Michigan Care Improvement Registry (MCIR)
  - *Role:* Validates submitted immunization data, returns acknowledgements (ACKs), and stores and manages vaccine record.

The data exchange solution summary is available online at: *https://mihin.org/MiHIN-Immunizations*

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), where applicable.
- 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 Immunization Data Exchange to function.

2.1.2.1 Data Exchange Solution Requirements

- No other data exchange solution implementations are required for participation in the Immunizations Data Exchange Solution.

2.1.2.2 Other Technical Requirements

- Organizations will need to be able to generate and send Immunizations messages (VXU) via VPN, SFTP or DSM connection. This is described in greater detail in section 2.3.
- Organizations will need to be able to receive Acknowledgements via VPN, SFTP, or DSM, and ingest them into their system.
- Organizations will need to meet minimum conformance requirements as set by the Michigan Care Improvement Registry (MCIR). https://mcir.org/MCIR_HL7_Spec_Guide
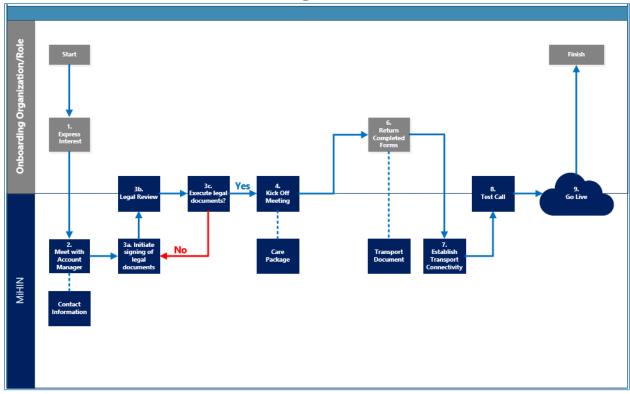
2.2 Immunizations Onboarding Process

Figure 2 Immunizations Onboarding Workflow

- Express interest in participating in the Immunizations Data Exchange Solution
- Meet with Account Manager
    - Exchange contact information
    - Distribute Immunization Care Package
- Execute legal documents
- Kickoff meeting with Customer Success Team
- Exchange required documents
    - Transport Document
        - VPN Request Form
        - SFTP Account Request Form
        - DSM Request Form
- Establish transport method/connectivity: VPN, SFTP, or DSM Test Call
    - Test VXU HL7 Messages
- Complete Data Quality Assurance (DQA) with MDHHS
- Go Live

2.3 Technical Connectivity Process

MiHIN considers itself "transport agnostic" and offers multiple options for organizations to establish technical connectivity to transport data to MiHIN. Organizations should select one or more connectivity methods for message transport based on their technical capabilities and should communicate the selection(s) to www.mihin.org/requesthelp early in the onboarding process. Currently the ONLY transport methods the MiHIN accepts are:

- **LLP over IPsec VPN:** Lower-Layer Protocol over Internet Protocol Security Virtual Private Network
- **DSM:** Direct Secure Messaging
- **SFTP:** MiHIN Hosted Secure File Transfer Protocol

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

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

1. The organization selects one or more supported transport methods 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. 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.

    b. **Direct Secure Messaging** – MiHIN accepts Direct Secure Messages from Health Internet Service Provider (HISPs) that have EHNAC-DTAAP (DirectTrust) accreditation. Test messages are sent to verify HISP connectivity ("ping pong"). The Message Header section in the test messages is verified for appropriate routing configuration.

    c. **Secure File Transfer Protocol** – MiHIN-Hosted Secure File Transfer Protocol on the HIE Platform. All connectivity testing flows are accomplished through the transfer of files via SFTP folder and confirmation of receipt. Unless otherwise requested, all testing communications can be done via email.

2. Test messages are sent by the 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 Immunizations, the destination is MCIR via MDHHS.

c. The end destination monitors for inbound test traffic and confirms receipt with MiHIN, which confirms with the onboarding organization.

d. MCIR receives the message, validates, and returns the acknowledgement to MIHIN, and MIHIN routes the acknowledgement (ACK) to the onboarding organization, who confirms receipt.

3. For the Immunizations Data Exchange Solution, the IIS deems the sending facility to have entered Data Quality Assurance Status (DQA) once they have successfully received a properly formatted message from the sending facility via the organization through MiHIN.

a. Until completion of the DQA process, sending facilities should continue to dually send their immunizations through MiHIN as well as continuing to send using any current method.

b. The IIS requires 5 or more live patient records or vaccine submissions to complete data quality. For more information on MCIR conformance specifications, please refer to Appendix B.

4. The IIS declares the sending facility to be at Production Status after another period of successful testing and existing DQA status.

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

2.3.1 Onboarding Additional Facilities

When an organization wishes to onboard additional sending facilities, those facilities must first register with the IIS. Once successful, the registration information from the IIS, including the Facility ID Number, must be submitted to www.mihin.org/requesthelp. The new sending facility should then begin sending test messages to the IIS in the same fashion as the initial facility as detailed in section 2.3, making sure that to place a "T" value in MSH-11. The IIS deems the sending facility to be in DQA and eventually Production Status.

For specific information regarding testing with the IIS, refer to the MCIR HL7 Implementation Guide: https://www.mcir.org/hl7-landing-page/hl7-3/

3 Specifications

3.1 Overview

3.1.1 Environments

- Pre-Production
  - Private Rhapsody IP: 172.16.5.95
  - Public Rhapsody IP: 23.20.140.197
- MiHIN Production
  - Private Rhapsody IP: 172.16.5.125
  - Public Rhapsody IP: 52.204.207.180

- Participants using Direct Secure Messaging should use the following addresses:
  - For Test messages - submitimmunizations-foc@direct.mihin.net
  - For PROD - submitimmunizations@direct.mihin.netv

- Secure File Transfer Protocol (SFTP)
  - Hostname: sftp.mihin.services
  - Port: 22

3.2 General Message Requirements

For general rules that apply to the entire message, refer to the MCIR HL7 Implementation Guide located at: https://www.mcir.org/hl7-landing-page/hl7-3/

3.2.1 Message Trigger Events

The HL7 message type for Immunization is VXU and trigger event is VXU^V04^VXU_ V04.

3.2.2 Submission via Direct Secure Messaging

Consolidated Clinical Document Architecture (C-CDA) files that are sent to MiHIN via DSM as email attachments must adhere to the following specifications:

1. There shall be only one HL7 .txt file attached per email.
2. The appropriate MiHIN DSM email address must be in the "To" line. An error will occur if it is in the Carbon-Copy (cc) line of the outgoing message.

Senders should have the ability to receive DIRECT email for the MiHIN's acknowledgment response in the form of an Acknowledge (ACK) message.

1. All connectivity testing is accomplished through the transfer of files via SFTP folder and confirmation of receipt. Unless otherwise requested, all testing communications can be done via email.

    a. In the case of submitters, test or production HL7 .txt files are loaded to the Covid-19 data submission folder, and MiHIN confirms receipt and pickup of the file.

3.3 Specific Segment and Field Definitions

3.3.1 Segment 1 – Message Header

The definitions in the table below shall be conformed to by all HL7 messages communicating the message header (MSH) segment.

Sequence	Length	DT	Usage	Cardinality	TBL#	Item #	Element Name	Comments
1	1	ST	R	1..1		00001	Field Separator	
2	4	ST	R	1..1		00002	Encoding Characters	
3	180	HD	R	1..1	0361	00003	Sending Application	
4	180	HD	R	1..1	0362	00004	Sending Facility	MCIR Facility PIN
5	180	HD	R	1..1	0361	00005	Receiving Application	MCIR
6	180	HD	R	1..1	0362	00006	Receiving Facility	MDHHS
7	26	TS	R	1..1		00007	Date/Time of Message	Should include the time zone.
8	40	ST	X	0..0		00008	Security	
9	7	CM	R	1..1	00760003	00009	Message Type	VXU^V04^VXU_ V04
10	20	ST	R	1..1		00010	Message Control ID	There should be a unique number with a unique ID per day.

									P when in production, **T** for testing.
11	3	PT	R	1..1			00011	Processing ID	
12	60	VID	R	1..1	0104		00012	Version ID	
13	15	NM	X	0..0			00013	Sequence Number	Optional
14	180	ST	X	0..0			00014	Continuation Pointer	
15	2	ID	X	0..0	0155		00015	Accept Acknowledgment Type	
16	2	ID	X	0..0	0155		00016	Application Acknowledgment Type	
17	2	ID	X	0..0			00017	Country Code	
18	16	ID	X	0..0			00692	Character Set	
19	60	CE	X	0..0				Principal Language of Message	
20	20	ID	X	0..0			00356	Alternate Character Set Handling Scheme	

3.3.2 All Remaining Segments

The message header is the only segment which MiHIN requires to be formatted in a certain way. MiHIN does not evaluate or verify any other part of the message. For all remaining segment and field, follow the IIS standards, which can be retrieved from the MCIR HL7 Implementation Guide:

https://www.mcir.org/hl7-landing-page/hl7-3/

4. Production Support

	Severity Levels			
	1	**2**	**3**	**4**
Description	A critical production system is down or does not function at all, and there is no circumvention or workaround for the problem; a significant number of users are affected, and a production business system is inoperable.	More than 90% of messages received and delivered successfully, but some messages are not delivered/received with required accuracy. Service component severely restricted in one of the following ways: • High impact risk or actual occurrence of patient care affected or operational impairment • Business critical service has a partial failure for multiple TDSOs • A critical service is online however, operating in a degraded state and having a significant impact on multiple TDSOs	Service component restricted in one of the following ways: • A component is not performing as documented or there are unexpected results • Business critical service has failed two or more TDSOs • Critical service is usable however, a workaround is available, or less significant features are unavailable	No operational impact to MiHIN. A non-critical service component is malfunctioning, causing minimal impact, or a test system is down.
Initiation Method	*Call (844) 454-2443 and submit a ticket online at www.mihin.org/requesthelp*	*Call (844) 454-2443 and submit a ticket online at www.mihin.org/requesthelp*	**Submit** a ticket online at www.mihin.org/requesthelp	**Submit** a ticket online at www.mihin.org/requesthelp
Initial Response	Within **30 minutes**	Within **30 minutes**	Within **3 business hours**	Within **6 business hours**
Resolution Goal	**<2** hours Restore Time from 7 am – 6 pm EST Monday-Friday and **<4** hours nights, weekends and holidays	**<4** hours Restore Time from 7 am- 6 pm EST Monday-Friday and **<8** hours nights, weekends and holidays	**<12** hours Restore Time from 7 am -6 pm EST Monday –Friday and **<24** hours nights, weekends and holidays.	Within **5 business days**

A list of common questions regarding the Immunizations Data Exchange Solution can be found at: *https://mihin.org/Immunizations*

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

- www.mihin.org/requesthelp
- Phone: (844) 454-2443
- Monday – Friday 8:00 AM – 5:00 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:

1. By health care providers for Treatment, Payment and/or Health Care Operations consistent with the requirements set forth in HIPAA
2. Public health activities and reporting as permitted by HIPAA and other Applicable Laws and Standards
3. To facilitate the implementation of "Meaningful Use" criteria as specified in the American Recovery and Reinvestment Act of 2009 and as permitted by HIPAA
4. 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
5. 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
6. 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

6.1.2 Sample VXU Message Administered

MSH|^~\&| |1234-56-78|MCIR|MDCH|20140225161706-0500||VXU^V04^VXU_V04|200399.6371|T|2.5.1|
PID|1||S24C757^^^EHR^MR||Short^Aldo^Tovi^^^^L|Juniata^Gala|20130821|M||2028- 9^Asian|96 Rodriguez Pl^^Hadley^MI^48440^USA^P||^PRN^PH^^^810^6383109|||||||||2186-5^Not Hispanic or Latino|||||||||| NK1|1|Short^Gala^^^^^M|GRD^Guardian^HL70063|
ORC|RE||S24C757.3^OIS||||||| ||| |
RXA|0|1|20131221||48^Hib^CVX|2|||00^Administered^NIP001|||||||K7164HI|20240630|P MC^sanofipasteur^MVX|||CP|A|
RXR|C28161^Intramuscular^NCIT|LA^Left arm^HL70163| OBX|1|CE|64994-7^Eligibility StatusVaccine fund pgm elig cat^LN|1|V02^VFC Eligible - Medicaid^HL70064|||||||F|||||||VXC40^vaccine level^CDCPHINVS|

6.1.3 Historical

MSH|^~\&||1234-56-78|MCIR|MDCH|20140225161706-0500||VXU^V04^VXU_V04|200399.6371|T|2.5.1|
PID|1||S24C999^^^EHR^MR||Short^Sport^M^^^^L|Ju^Stein|20130821|M|||96 Rodriguez Pl^^Hadley^MI^48440^USA^P||^PRN^PH^^^810^6383109|
NK1|1|Short^Mala^^^^^L|GRD^Guardian^HL70063| ORC|RE||S24C757.1^OIS|
RXA|0|1|20131021||48^Hib^CVX|2|||01^Historical sourceunspecified^NIP001|||||||R8370VT||PMC^sanofipasteur^MVX||||A|

6.1 Appendix B – Michigan Care Improvement Registry (MCIR) Conformance Specification

For specific information regarding specification and formatting with MCIR, refer to the MCIR HL7 Implementation Guide: https://www.mcir.org/hl7-landing-page/hl7-3/

7. Acronyms and Abbreviations

ACK	HL7 Acknowledgment message
ACRS	Active Care Relationship Service
DQA	Data Quality Assurance
EHR	Electronic Health Record
FHIR	Fast Healthcare Interoperability Resources
HIE	Health Information Exchange
HIN	Health Information Network
HISP	Health Internet Service Provider
HL7	Health Level Seven
HPD	Health Provider Directory
IIS	Immunization Information System
MDHHS	Michigan Department of Health and Human Services
MCIR	Michigan Care Improvement Registry
MiHIN	Michigan Health Information Network Shared Services
NACK	Negative Acknowledgement
PO	Participating Organization
SFTP	Secured File Transfer Protocol
SOM	State of Michigan
TDSO	Trusted Data Sharing Organization
VPN	Virtual Private Network

8. Definitions

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.

Conforming Message. A message that is in a standard format that strictly adheres to the implementation guide for its applicable use case.

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 SMTP) or secure URL (SOAP / XDR / REST / FHIR). Communication with an electronic address may require a digital certificate or participation in a trust bundle.

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 ESI.

Health Level 7 (HL7). An interface standard and specifications for clinical and administrative healthcare data developed by the Health Level Seven 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 health care to an individual; or the past, present, or future payment for the provision of health care 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 Professional means (a) any individual licensed, registered, or certified under applicable Federal or State laws or regulations to provide healthcare services; (b) any person holding a nonclinical position within or associated with an organization that provides or coordinates healthcare or healthcare related services; and (c) people who contribute to the gathering, recording, processing, analysis or communication of health information. Examples include, but are not limited to, physicians, physician assistants, nurse practitioners, nurses, medical assistants, home health professionals, administrative assistants, care managers, care coordinators, receptionists and clerks.

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

Immunization Information System (IIS). The confidential, population-based, computerized system that collects and consolidates vaccination data from healthcare providers within a specific geographic area (usually a state, territory, or region).

Information Source. Any organization that provides information that is added to a MiHIN infrastructure service.

Medical Information Direct Gateway (MIGateway®). A service that centralizes Michigan Health Information Network Shared Services' (MiHIN) use case applications to help healthcare professionals find, view, use, and exchange health information for their patients.

Message. A mechanism for exchanging message content between the participating organization to MiHIN services, 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 MiHIN services. Message content includes the message content header.

Message Header ("MSH") or Message Content Header. The MSH segment present in every 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 Care Improvement Registry. Michigan's statewide Immunization Information System (IIS)**,** managed by the Michigan Department of Health and Human Services (MDHHS)**.** It is designed to collect, consolidate, and provide access to immunization records for individuals across the state.

Michigan Health Information Network Shared Services. The MiHIN 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, Statewide Consumer Directory (SCD), and the Medical Information DIrect GATEway (MIDIGATE®).

MiHIN Services. The 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 an error.

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

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).

Person Record. Any record in a MiHIN infrastructure service that primarily relates to a person.

Promoting Interoperability. Using certified EHR technology to improve quality, safety and efficiency of healthcare, and to reduce health disparities as further contemplated by title XIII of the American Recovery and Reinvestment Act of 2009.

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

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.

Source System. A computer system, such as an electronic health record system, at the participating organization, that sends, receives, finds or uses message content or notices.

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 MiHIN for data sharing.