Summary of Care

Implementation Guide

Version 7
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Document History

Date	Version	Sections Revised	Description	Modifier
05/06/19	6	All	Revised, edited into new template	S. Southard
05/08/20	7	2,4	Added xpath for indicating ambulatory facility; added language for submitting via API	J. Noland

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Acronyms and Abbreviations Guide

ACRS	Active Care Relationship Service
ADE	Adverse Drug Events
ADT	Admin-Discharge-Transfer Notice
AMR	Advanced Medication Reconciliation
API	Application Programming Interface
ADE	Adverse Drug Event
C-CDA	Consolidated – Clinical Document Architecture
CDA	Clinical Document Architecture
DSM	Direct Secure Messaging
EHNAC-DTAAP	Electronic Healthcare Network Accreditation Commission Direct Trusted Agent Accreditation Program
EHR	Electronic Health Record
HIPAA	Health Insurance Portability and Accountability Act
HISP	Health Internet Service Provider
HL7	Health Level Seven
JSON	JavaScript Object Notation
MiHIN	Michigan Health Information Network
NPI	National Provider Identifier
NwHIN	Nationwide Health Information Network
OID	Object Identifier
PAE	Pilot Activity Exhibit
PHI	Protected Health Information
REST	Representational State Transfer
SNF	Skilled Nursing Facility
TDSO	Trusted Data Sharing Organization
UCE	Use Case Exhibit
VPN	Virtual Private Network
XCA	Cross-Community Access
XDM	Cross-Enterprise Document Media Interchange
XML	Extended Mark-Up Language

Definitions

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 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 HIPAA; (d) a relationship with a health provider asserted by a consumer and approved by the health provider; or (e) any person or TDSO 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 ACRS.

Active Care Relationship Service (ACRS). The MiHIN infrastructure service that contains records for those TDSOs, their participating organizations participants or any health providers who have an active care relationship with a patient.

Admission, Discharge, Transfer (ADT). An event that occurs when a patient is admitted to, discharged from, or transferred from one care setting to another care setting or to the patient's home. For example, an ADT event occurs when a patient is discharged from a hospital. An ADT event also occurs when a patient arrives in care setting such as a health clinic or hospital.

ADT Message. A type of HL7 message generated by healthcare systems based upon ADT events and the HL7 "Electronic Data Exchange in Healthcare" standard. The HL7 ADT message type is used to send and receive patient demographic and healthcare encounter information, generated by source system(s). The ADT messages contain patient demographic, visit, insurance, and diagnosis information.

ADT Notification. An electronic notification that a given patient has undergone an ADT event. An ADT Notification is not a complete ADT Message.

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. Any data sharing organization agreement signed by both MiHIN and a participating organization. Data sharing organization agreements include but are not limited to: Qualified Data Sharing Organization Agreement, Virtual Qualified Data Sharing Organization Agreement, Consumer Qualified Data Sharing Agreement, Sponsored 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 Medical Record or Electronic Health Record (EMR/EHR). A digital version of a patient's paper medical chart.

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

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 Plan. An individual or group plan that provides,or pays the cost of medical care (as "group health plan" and "medical care" are defined in section 2791(a)(2) of the Public Health Service Act, 42 U.S.C. 300gg-91(a)(2)). Health plan further includes those entities defined as a health plan under HIPAA, 45 C.F.R 160.103.

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.

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.

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).

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.

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 TDSO must follow to share specific message content with the MiHIN.

Use Case Exhibit. 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, MiHIN, and other TDSOs. use case implementation guides are made available via URLs in exhibits.

Use Case Summary. The document providing the executive summary, business justification and value proposition of a use case. Use case summaries are provided by MiHIN upon request and via the MiHIN website at www.mihin.org.

XCA. The IHE (Integrating the Healthcare Enterprise®) standard for Cross-Community Access which provides specifications to query and retrieve patient relevant health information held by other communities.

1. Introduction

1.1 Purpose of Use Case

Share patient information at multiple points of care, including pharmacies, physician offices, hospitals, and transitional facilities such as outpatient tertiary and skilled nursing facilities.

Statewide coordination in sharing patient information helps minimize adverse drug events (ADEs) and maximize cost benefits. Additionally, this use case leverages the Michigan Health Information Network Shared Services (MiHIN) Active Care Relationship Service® (ACRS®) for notifying appropriate providers of changes to a patient's medication status.

The purpose of the Summary of Care use case is to help healthcare providers share a summary of a patient's treatment information at the time of discharge with other care team members and organizations. This could include physicians, practices, pharmacies, hospitals, and transitional facilities such as outpatient and skilled nursing facilities.

1.2 Message Content

For this use case, message content refers to a document conforming to Clinical Document Architecture standards.

1.3 Data Flow and Actors

Summary of Care CCDs for this use case follows the path outlined in Figure 1.

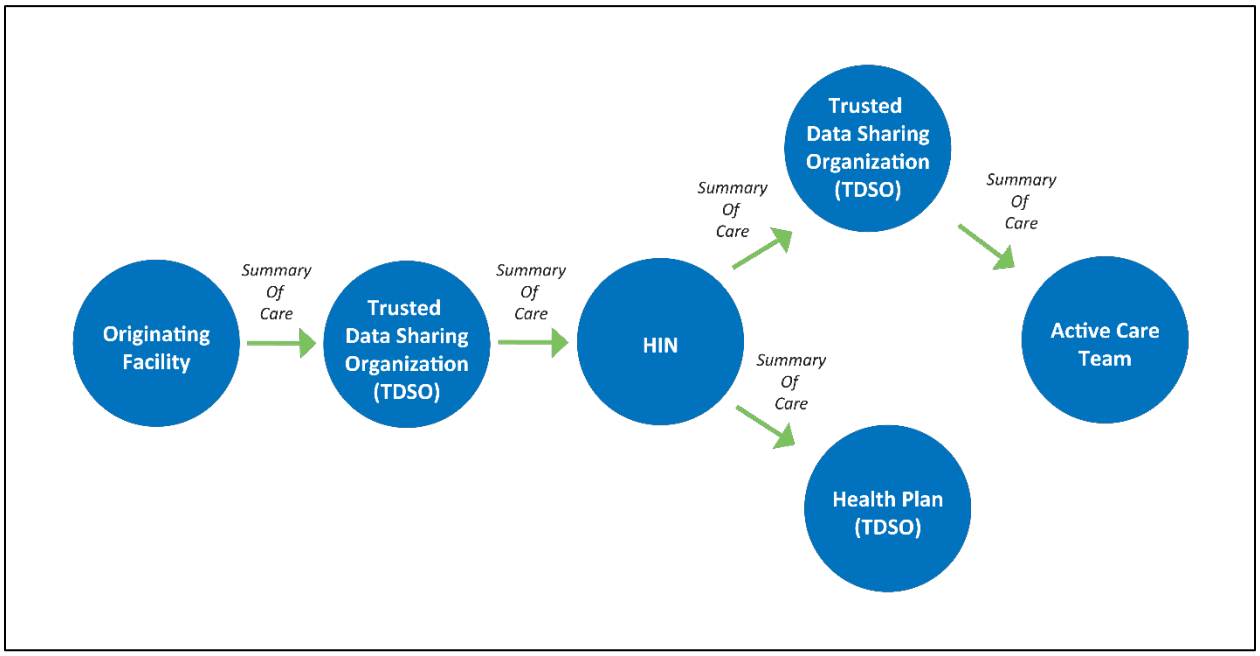

Figure 1. Data Flow for Summary Use Case

A Summary of Care created for a patient is sent from the originating facility to the providers in an active care relationship with the patient and the health plan(s) via MiHIN.

2 Standard Overview

2.1 File Format

Originating facilities provide agreed upon transition of care document via a Consolidated – Clinical Document Architecture (C-CDA) to be generated and sent to the statewide service.

1. C-CDA should be sent in XML (Extended Mark-Up Language) format
2. Style sheet format not required. Recipients will develop custom style sheet based on individual requirements
3. All required fields must be populated. (See Section 4.1)
4. C-CDA messages sent must be sent as an XDM.zip file. Note that this encoding occurs automatically with many health internet service provider (HISP) vendors
5. C-CDA must contain indicator specifying organization type in the following valid xpath[1]:
    a. /ClinicalDocument/componentOf/encompassingEncounter/code/@code
    b. Ambulatory code = AMB

For more information on the HL7 C-CDA documents, please refer to the following link: http://www.healthit.gov/policy-researchers-implementers/consolidated-cda-overview

1 https://www.hl7.org/documentcenter/public/standards/vocabulary/vocabulary_tables/infrastructure/vocabulary/ActCode.html#_HL7AccommodationCode

3 Onboarding Process

3.1 Initial Onboarding

For organizations to share data with MiHIN under this use case, the organization undergoes two onboarding processes. The two onboarding processes are legal onboarding and technical connectivity onboarding. To initiate these two onboarding processes, notify MiHIN via http://mihin.org/requesthelp/.

3.1.1 Initial Legal Process

The first time an organization undergoes the legal onboarding process with MiHIN, the organization negotiates and enters into a master organization agreement and master use case agreement which then allows the organization to enter into one or more use cases via use case exhibits.

Once an organization has entered into a master organization agreement, the organization can enter into an unlimited number of use cases with MiHIN. All MiHIN use cases are available at: http://mihin.org/about-mihin/resources/

3.1.2 Initial 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 put in a service request at www.mihin.org/requesthelp. Currently MiHIN accepts the following transport methods:

- DSM – Direct Secure Messaging
- Restful API (Available for both Senders and Receivers)

Additional transport methods may be added in the future. These can include NwHIN, XCA (Cross-Community Access), and others.

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

1. The participating organization selects one supported transport method and establishes connectivity with MiHIN. This step varies based on the method selected:
   a. **Direct Secure Messaging** – MiHIN accepts Direct Secure Messages from Health Internet Service Provider (HISPs) that have EHNAC-DTAAP (DirectTrust) accreditation.
   b. **RESTFUL API** – A connection must be established with MiHIN, typically via a secure Virtual Private Network (VPN) tunnel and a HTTPS endpoint. The receiver must create an API according to the Receiver API specs (see Section 4.7).
2. Test messages are sent by the participating organization to MiHIN.

   a. All test messages must be labelled as MiHIN indicates.

4 Specifications

Organizations provide summary document via a Consolidated – Clinical Document Architecture (C-CDA) upon discharge to the statewide service (MiHIN). A care summary should be sent visits upon discharge. Specifications are outlined below:

- C-CDA should be sent in xml format. Style sheet format not required. Recipients will develop custom style sheet based on individual requirements.
- To reduce customization, sending facilities may send the entire care summary record, ensuring that the information below is captured.
- C-CDA message must be sent as an XDM.zip file. Note that this encoding occurs automatically with most HISP vendors upon sending.
- **C-CDA must contain indicator specifying organization type in the following valid xpath[2]:**
  - **/ClinicalDocument/componentOf/encompassingEncounter/code/@code**
  - **Ambulatory code = AMB**

4.1 C-CDA Required Fields

1. Patient identifying/demographic information (header section of C-CDA)
   a. Name
   b. Visit ID
   c. Institution name/OID (if available)
   d. Date of birth
   e. Gender
   f. Social Security/last 4 (if available)
   g. Address/Zip/Phone (primary)
   h. Ethnicity
   i. Care team
      i. Attending provider name, NPI, phone
2. Medication section information (three sections), each section should be a section template:
   a. Current medications (admission history)
   b. Prescriptions ordered during visit (optional)
   c. Medications at time of discharge
      i. Date (start/end) as applicable
      ii. Medication name (generic or brand)
      iii. RxNorm code from eRx system
      iv. Full sig (strength, frequency, dosage, route)

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2 https://www.hl7.org/documentcenter/public/standards/vocabulary/vocabulary_tables/infrastructure/vocabulary/ActCode.html#_HL7AccommodationCode

3. Other information (body template/s of C-CDA)
    a. Admitting diagnosis
    b. Active allergies and adverse reactions
    c. Care Plan
    d. Laboratory test(s)
    e. Laboratory value(s)/result(s)
    f. Procedures
    g. Visit diagnosis/working diagnosis (on file)
    h. Active problems
    i. Discharge disposition – home, skilled nursing facility, etc. (if available)
    j. Chief complaint (if available)
    k. Smoking status
    l. Vital signs
    m. Reason for referral
    n. Cognitive status
    o. Functional status
    p. Follow-up instructions
    q. Immunizations

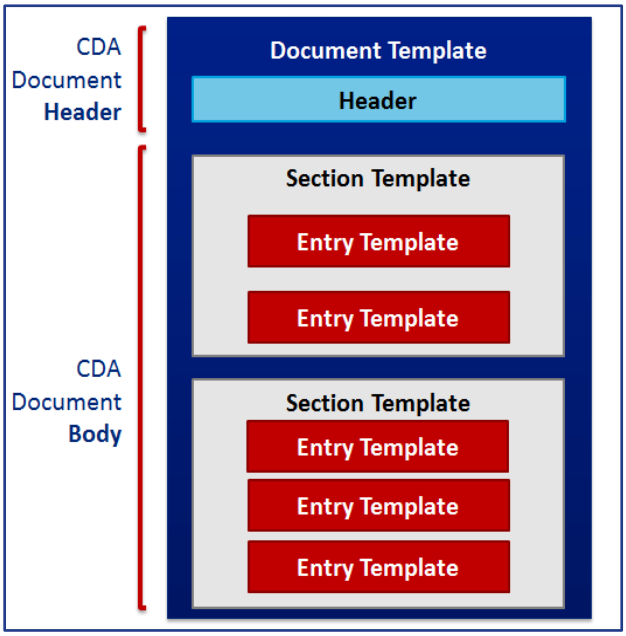

Figure 2. C-CDA File Structure

4.2 Submission via Direct Secure Messaging

C-CDA files that are sent to MiHIN via Direct as email attachments must adhere to the following specifications:

1. There shall be only one CDA file attached per email.
2. The appropriate MiHIN Direct 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 ACK message (see 4.5).4.2.1 Direct Addresses

Participants using Direct should use the following addresses:

- For pre-production certification: **ambulatoryccd-foc@direct.mihin.net**
- For production: ambulatoryccd@direct.mihin.org

For those organizations who are not able to send to two different end points with the same domain name please reach out to your onboarding coordinator via help@mihin.org for additional guidance.

4.2.2 Delivery Notifications

This service is designed to support alerts for senders when a file is sent. These alerts serve as confirmation to a sender that their files were delivered to the intended receiver and to inform the receiver a new file has arrived. This is referred to as the acknowledgement message.

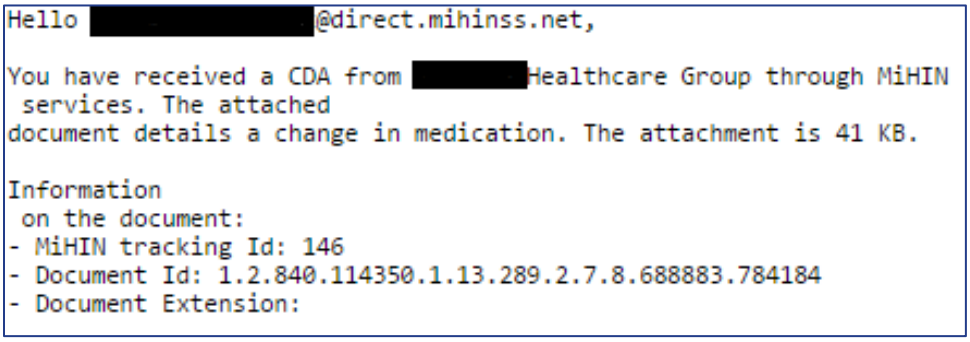

Figure 3. Acknowledgement Notification Example

4.3 Submission via API

Those submitters interested in the API method should follow these steps:

1. Set up a secure HTTPS server endpoint using the following naming convention, inserting own IP and Port numbers:
   - HTTPS://[IP]:[PORT]/ambulatory/v1/cda
   - HTTPS://[IP]:[PORT]/medrec/v1/cda- **use ONLY if not able to split Med Rec and Ambulatory CCDA feeds.** The port will be unique to each sender for API setups.
   - Please send this address to MiHIN Onboarding Team prior to connectivity testing via the API form provided after the kick off call.
2. Establish connectivity with MiHIN utilizing a secure VPN Tunnel. The Onboarding Team can provide the appropriate request form to create one.
3. Participate in the VPN Tunnel Connectivity Test scheduled with MiHIN to ensure connection between the receiver organization server and MiHIN's pre-production and production servers.
4. Configure API to the specifications listed in section 4.4.1.

5. Participate in the API Server Test scheduled with MiHIN to ensure conformity to these specifications.

4.4.1 Summary of Care Sender API Specifications

Request Characteristics

Below are characteristics of the request that clients *MUST* accept:

- Communications *WILL* be through HTTPS
- The request *WILL* be an HTTP POST
- Content *MAY* be compressed via gzip (denoted through the Content-Encoding HTTP header)
- HTTP persistent connection *MAY* be enabled (denoted through the Connection: Keep-Alive HTTP header)
- The request *MAY* be chunked (will be denoted by the Transfer-Encoding header)
- Request body *WILL* have the type of application/xml
- The XML data does not need to be valid according to the CDA, as long as enough information could be extracted from the document to determine delivery
- Metadata will be send through HTTP X- headers

Connection

- Over VPN to Rhapsody, through HTTPS
- SSL Protocol Mode: TLSv1.2
- SSL Cipher Suites: FIPS Cipher Suites (AES-128, AES-256)

Method

- HTTP POST

MiHIN endpoint

- If sending on separate feeds: Context path: /ambulatory/v1/cda (Example: https://[MIHIN_IP]:[PORT]/ambulatory/v1/cda)
- If sending on the same feed: Content path: /medrec/v1/cda (Example: https://[MIHIN_IP]:[PORT]/medrec/v1/cda)

Authentication

- Use MiHIN-provided certificate

Required Request Headers

- None

Expected payload

- HL7 C-CDA in XML (Extended Mark-Up Language) format

MiHIN response

- ResponseCode: 200
- ResponseMessage: OK
- Response Body: {“trackingid”: “GUID value”}

Status Code	Message Replay	Response Contents
None or 500	Yes	If available, the response *SHALL* contain reasoning why the service failed
400	No	Used when the data cannot be handled by the receiving system, and the message should not be requeued. The response *SHALL* contain reasoning why the document was rejected.
200	No	Successful response with a trackingId

- All responses *WILL* be logged
- All responses *WILL* be in JSON (JavaScript Object Notation)
- All responses *WILL* contain a globally unique ID to track the response

5 Troubleshooting

5.1 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 Summary of Care Use Case can be found on mihin.org

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

- www.mihin.org/requesthelp
- Phone: (517) 336-1430
- Monday – Friday 8:00 AM – 5:00 PM (Eastern)

6 Legal Advisory Language

This reminder applies to all UCEs or PAEs covering the exchange of electronic health information:

The data sharing agreement establishes the legal framework under which PO can exchange messages through the HIN 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 "promoting interoperability" 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; and
f. **For any additional purposes as specified in any UCE or PAE, provided that such purposes are consistent with Applicable Laws and Standards**.

Under these agreements, "***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 agency, including the State of Michigan, or the Michigan Health Information Technology Commission 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 which is enforceable against a Party. Without limiting the generality of the foregoing, "Applicable Laws and Standards" includes 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 PO'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 UCE is directed to the exchange of physical health information that may be exchanged without patient authorization under HIPAA, the PO 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 will apply 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.