Michigan Health Information Network Shared Services (MiHIN)

MiHIN is a non-profit organization that provides technology and services to connect disparate sectors to securely, legally, technically and privately share health information.

An unbiased data trustee, MiHIN does not provide health care services or produce health care data.

Instead, we help convene to share vital health information to advance care, better outcomes and lower costs.
The Group Development Model
(with special thanks to MHEF and MPHI)

1. WHY?

2. WHO

3. HOW

4. WHAT

Feedback

Feedback

Feedback

Feedback
Data for Health; Data for Public Good

The Goals of Health Information Exchange

- Reduced inefficiencies
- Improved healthcare access
- Lower healthcare costs
- Better quality of care and health outcomes
- Personalized medicine for patients
44,582
Michigan care providers with Active Care Relationships® through MiHIN, working within

5,637
Michigan care entities

13.1M
Unique Patient Records

Federal Gov’t
State Gov’t
Health Department
Health Payers
Health Systems
PIHPs

Hospitals
Clinics
Practices
CMHs
Hospices
FQHCs
Pharmacies
Physician Orgs
Physician Hospital Orgs

Doctors
Nurses
Clinicians
Care Managers
Social Workers
Dentists
Pharmacists
CARE SEEKERS!
147 Hospitals in Michigan Sending ADT's to MiHIN

663 Outpatient Sites of Care Sending ADT's to MiHIN

295 SNF's Sending ADT's to MiHIN

76 Home Health Agencies Sending ADT's to MiHIN
Statewide Health Information Exchange Breaks Down Data Silos and Creates Efficiency

Duplication of effort, waste and expense

Efficient and cost effective
Meeting Agenda

- What is an ADT? (Refresher)
- Major HL7 Standards
- Deep Dive into ADTs
- ADTs and Direct Secure Messaging
- Innovative Uses for ADTs
- MiHIN Delivery Preferences
- Z-segments as Supplemental Data
- Supplemental Data ->
  - What’s Next? ACRS Attributes Plug
What is an ADT? (refresher)

ADT stands for Admission-Discharge-Transfer Notification

- A message standard managed by the governing body Health Level Seven (HL7)
- Used to communicate a patient’s status at a point in time during an encounter
  - Traditionally associated with hospitals, but not a rule
- When you go anywhere that uses EHR technology to seek care, ADTs are typically created
  - Generated in real-time
Major HL7 Standards

• Messages (AKA v2.x)
  • Pipe delimited ("|")
  • Information at a single point in time
• Documents (AKA v3.x or CDA)
  • XML
  • Tells a full story after it is over
• FHIR
  • REST (JSON/XML/YAML)
  • Can capture a story, a point in time, or just select data elements
• A01 - Admit/visit notification
• A02 - Transfer a patient
• A03 - Discharge Visit
• A04 - Register a patient
• A05 - Pre-admit a patient

• A22 - patient returns from a ‘leave of absence.’
• A23 - Delete a patient record
• A24 - Link Patient data
• A25 - Cancel pending discharge

• A41 - Merge account- patient account number
• A42 - Merge visit- visit number
• A43 - Move patient data- patient identifier list
• A44 - Move account information- patient account number
• A45 - Move visit information-visit number
• A46 - Change patient ID
• A47 - Change patient identifier list
• A48 - Change alternate patient ID
• A49 - Change patient account number
• A50 - change visit number
• A51 - change alternate visit ID
• A52 - Cancel leave of absence for a patient
• A53 - Cancel patient returns from a leave of absence
• A54 - Change attending doctor
• A55 - Cancel change attending doctor
• A56 - Update allergy data
• A60 - Update allergy data
• A61 - Change consulting doctor
• A62 - Cancel change consulting doctor

ADT Event Types

• A06 - Change an outpatient to an inpatient
• A07 - Change inpatient to outpatient
• A08 - Update patient information
• A09 - Patient departing – tracking
• A10 - Patient arriving – tracking
• A11 - Cancel admit or visit notification
• A12 - Cancel Transfer
• A13 - Cancel discharge or end visit
• A14 - Pending admit
• A15 - Pending transfer
• A16 - Pending discharge
• A17 - Swap patients
• A18 - Merge patient data
• A19 - Patient query
• A20 - Bed status update
• A21 - Patient goes on a ‘leave of absence.’
### Example ADT

<table>
<thead>
<tr>
<th>Tag</th>
<th>Description</th>
<th>Example Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
<td>HospitalX^1.1.1.1.1049</td>
</tr>
<tr>
<td>EVN</td>
<td>Event</td>
<td>017193852.865-0400</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
<td>20160108000000-0500</td>
</tr>
<tr>
<td>PV1</td>
<td>Patient Visit</td>
<td>Windward General Hospital&amp;1.2.3.4.5 &amp;^HIV-1 ABS-O.D. RATIO^L</td>
</tr>
<tr>
<td>OBX</td>
<td>Observation</td>
<td>8^Relative scotoma (finding)^SNOMED^L HEALTHY MICHIGAN HEALTHY PLAN</td>
</tr>
<tr>
<td>DG1</td>
<td>Diagnosis</td>
<td>8^Relative scotoma (finding)^SNOMED^L HEALTHY MICHIGAN HEALTHY PLAN</td>
</tr>
<tr>
<td>IN1</td>
<td>Insurance</td>
<td>8^Relative scotoma (finding)^SNOMED^L HEALTHY MICHIGAN HEALTHY PLAN</td>
</tr>
</tbody>
</table>
Example ADT

MSH|^~\&|MIHIN^EHR|HospitalX^1.1.1.1.1049||MiH
EVN||20161017193852.865-0400||Windward General
PID|1|1137||Jones^Aiden||20160108000000-0500|
PV1|1|||^67^Windward General Hospital&1.2.3.4.5
OBX|1|NM|150001^HIV-1 ABS-O.D. RATIO^L|||N
DG1|1||21273008^Relative scotoma (finding)^SNO
IN1|1|1772^HEALTHY MICHIGAN HEALTHY PLAN
Example ADT
## Example ADT

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>^~&amp;</td>
</tr>
<tr>
<td>^~&amp;</td>
<td>MIHIN^EHR</td>
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</tbody>
</table>
Do Clinicians Need To Know That? (Nope)

LOTS of places offer ADT ingestion or visualization at different price points

- EHRs
- Care Management Platforms
- HIEs (including MiHIN)
- Some Direct Secure Messaging Platforms
- Other Software Vendors
Demystifying the DirectTrust Event Notification Standard
Direct Secure Messaging overall works just like email
DirectTrust Event Notification Standard Summary
Released in 2020 and ANSI approved in 2022

Attached:
- Raw ADT
- Human Readable ADT
- Metadata about the ADT
MiHIN ADTs via Direct Secure Messaging Today

Attached:
- Raw ADT
- Human Readable ADT
- Metadata about the ADT
Innovative uses for ADTs
Innovative uses for ADTs

- Knowing where a patient has been
- Care coordination from inpatient to outpatient settings
- Address hospital utilization as primary care
- Creating patient registry from live feed with certain criteria
- Population disease/condition monitoring
- Risk Stratification
- Social diagnosis monitoring (Z-codes)
- Readmission monitoring
- Real-time Active Care Relationships
- The Learning Health System
- Opportunity to send additional relevant information timely to a transition of care

*Because ADTs are near-real-time, all of these can be done faster than traditional approaches*
MiHIN Delivery Preferences
ADT Notifications Process

1. When Tricia goes to the hospital an ADT Notification is sent to a TDSO and then to MiHIN

2. MiHIN checks ACRS and identifies Tricia's care team

3. MiHIN retrieves contact and delivery preferences for Tricia's care team from the Health Directory

4. ADT Notifications are sent to the care team based on electronic addresses and preferences
Understanding Delivery Preferences

Option 1: Delivery Method

• Direct Secure Messaging
  • Raw ADT or Human Readable?

• Minimum Lower Layer Protocol over Virtual Private Network (MLLP over VPN)

• MIGateway ToC Viewer
## Understanding Delivery Preferences

### Option 2: What Message Types?

<table>
<thead>
<tr>
<th>Message Types:</th>
<th>Percent of Receivers Subscribed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01; A02; A03; A04; A05; A06; A07; A08; A09; A10; A11; A12; A13; A14; A15; A16; A17; A18; A19; A20; A21; A22; A23; A25; A26; A27; A28; A29; A30; A31; A32; A24; A33; A34; A35; A36; A37; A38; A39; A40; A41; A42; A43; A44; A45; A46; A47; A48; A49; A50; A51</td>
<td>A01 90% A02 81% A03 99% A04 87% A05 80% A06 81% A07 80% A08 7% A31 79%</td>
</tr>
</tbody>
</table>
Z-segments and supplemental data
<table>
<thead>
<tr>
<th>What is a Z-Segment?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Z-segment is an allowable extension for specifying a concept that is not expressed in the base standard</td>
</tr>
<tr>
<td>While not part of the standard, these extensions should be documented between trading partners</td>
</tr>
<tr>
<td>These segments typically start with the letter “Z” as an indicator of being a z-segment</td>
</tr>
</tbody>
</table>
MiHIN Z-segments

NPI Z-Segment
For every provider match in the ACRS against an ADT notification, the corresponding provider National Provider Identifier (NPI) will be appended to the receiver’s ADT notification.
Format: ZNP|ACRSNPI|1234567890

Common Key Z-Segment
If an ADT is identified as a patient with a common key, then the patient’s common key will be appended to the receiver’s ADT notification.
Format: ZCK|CKS|9182398128

Member ID Z-Segment
When a patient is matched with a receiver’s ACRS file, the common key from the file will be appended to the receiver’s ADT notification.
Format: ZPD|PATIENTID|12345678

Care Team & ACRS Information Z-Segment
For every match in the ACRS, 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~
FEEDBACK & DYNAMIC DISCUSSION

Interested in working with MiHIN?

The first step is to identify a use case with a manageable scope that can grow incrementally.
Questions to ask

1. Does my organization have health data that other members of the care team would find valuable or vice versa?

2. Why do I want to share the data?

3. What is the data going to be used for?
Next steps

From there, let’s work together to identify policy or governance challenges and figure out how to create a technology solution to enable that data sharing.
THANK YOU

LET'S CONNECT

mihin.org
@MiHIN
linkedin.com/company/mihin