
# Common Key Service

## Implementation Guide

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# Acronyms and Abbreviations Guide

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|---|---|
| **ACR** | Active Care Relationship |
| **ACRS®** | Active Care Relationship Service® |
| **ADT** | Admission, Discharge, Transfer |
| **API** | Application Programming Interface |
| **CKS** | Common Key Service |
| **CPT** | Current Procedural Terminology Code |
| **ERR** | Error |
| **EVN** | Event Type |
| **FHIR®** | Fast Healthcare Interoperability Resources |
| **HIN** | Health Information Network |
| **HIPPA** | Health Insurance Portability and Accountability Act |
| **HL7®** | Health Level Seven® |
| **ISO** | International Organization for Standardization |
| **MiHIN** | Michigan Health Information Network Shared Services |
| **MPI** | Master Person Index |
| **MSA** | Message Acknowledgement |
| **MSH** | Message Header |
| **NPI** | National Provider Identifier |
| **OBX** | HL7® Observation Segment |
| **OID** | Object Identifier |
| **PID** | Patient Identification |
| **PO** | Participating Organization |
| **QDSO** | Qualified Data Sharing Organization |
| **SFT** | Software |
| **SFTP** | Secure File Transfer Protocol |
| **SSN** | Social Security Number |
| **TDSO** | Trusted Data Sharing Organization |
| **TOC** | Transition of Care |

# 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 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 MiHIN infrastructure service that contains records for those Trusted Data Sharing Organizations, their participating organization's 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 a care setting such as a health clinic or hospital.

**ADT Message**. A type of Health Level Seven® (HL7®) message generated by healthcare systems based upon Admission, Discharge Transfer (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 Admission, Discharge, Transfer (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.

**Common Key Service (CKS).** An infrastructure service that communicates with a Master Person Index (MPI) to match patients and to assign and retrieve Michigan Health Information Network Shared Services common keys that are linked to unique patients.

**Data Sharing Agreement.** 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 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 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.

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

**Health Directory**. The statewide shared service established by Michigan Health Information Network Shared Services 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. 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 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.

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

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

**Master Person Index (MPI).** A patient database used by healthcare organizations to maintain accurate medical data across its various systems.

**Master Use Case Agreement (MUCA).** Legal document covering expected rules of engagement across all use cases. Trusted data sharing organizations 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, 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. 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.** 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 Direct Gateway (MIDIGATE®).

**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.

**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 Michigan Health Information Network Shared Services (MiHIN) infrastructure service that primarily relates to a person.

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

**REST**. REST stands for Representational State Transfer, which is an architectural style, and an approach to communications that is often used in the development of web services.

**Send/Receive/Find/Use (SRFU)**. Means sending, receiving, finding, or using message content. Sending involves the transport of message content. Receiving involves accepting and possibly consuming or storing message content. Finding means querying to locate message content. Using means any use of the message content other than sending, receiving and finding. Examples of use include consuming into workflow, reporting, storing, or analysis. Send/Receive/Find/Use (SRFU) activities must comply with Applicable Laws & Standards or State Administrative Code as that term is defined in this agreement and the data sharing agreement.

**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.

**Specifications**. Specifications provide a standard set of service interfaces that enable the exchange of interoperable health information among the health information exchanges.

**Statewide Consumer Directory (SCD)**. A Michigan Health Information Network Shared Services (MiHIN) infrastructure service that helps organizations provide tools to consumers, which allow the consumers to manage how their personal Health Information can be shared and used. The Statewide Consumer Directory (SCD) is essentially a Software Development Kit (SDK) with a robust set of Application Programming Interfaces (APIs) that can be used by consumer-facing applications that enable consumers to take an active role in viewing and editing their preferences for how their health information is shared.

**Target Health Information Exchange (HIE).** The health information exchange or eHealth Exchange Node that the message or feedback is being addressed.

**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. This 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 (TDSO) must follow to share specific message content with Michigan Health Information Network Shared Services.

**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 a participating organization, Michigan Health Information Network Shared Services, and other Trusted Data Sharing Organizations (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 Michigan Health Information Network Shared Services (MiHIN) upon request and via the MiHIN website at[https://mihin.org/use-case-factory/](https://mihin.org/use-case-factory/).

# 1. Introduction

## 1.1 Purpose of Use Case

***Provides a consistent and reliable way to match patients with their electronic health information across multiple organizations, applications, and services.***

One of the most important goals of sharing patient information electronically is helping doctors build complete, current pictures of their patients using health information from multiple sources. These sources can include other doctors or specialists, hospitals, clinics, pharmacies, skilled nursing facilities and any other healthcare setting where care is provided. Enabling doctors to gather the details to build these complete patient pictures requires accurate "patient-matching" to make sure electronic health information from outside sources is linked to the correct patient.

These patient-matching challenges can cause higher healthcare costs and lower care quality in many ways. When a patient's health information is shared among doctors who use different systems, a lot of effort is needed to find and evaluate variations and identify the correct patient in each health information system. Errors can and do occur, meaning the wrong information can be matched to a patient.

Patient-matching is very difficult due to the many ways patient information is stored in different computer systems and networks. For example, one hospital registration/ admission system may show gender as "Male," "Female," and "Unknown," while a primary care doctor's office system may simply list "M," "F," and "U." And while this simple difference can be quickly understood, the problem can be much more complex. A patient's name may be entered as Maryann Anthony at the hospital, Marianne Anthony in her primary care physician's system, and Mary Anthony in her specialist's system.

To make the issue more confusing, Maryann's address in one system may be her most recent, while another system still lists the address of her previous home. There may be another "Maryann Anthony" with the same birth date living in the same city or county. Newborn infants that aren't named immediately may be entered into the birthing hospital's system as simply "Baby Girl Anthony." In a case like that, if there is a twin, Maryann's lab results could be added to her twin sister Merry's medical record instead of hers.

To clarify exactly how common this problem is, in Harris County, Texas in 2012 there were 2,488 real patients named Maria Garcia, 231 of which had the same birth date. In fact, in just that county alone, there were 69,807 pairs of patients who shared both names and birth date.[1]

[1] Susan D. Hall, "Which Maria Garcia? Bipartisan center seeks to improve patient data matching," *Fierce Healthcare* (June 27, 2012), accessed on July 28, 2016, http://www.fiercehealthcare.com/it/which-maria-garcia-bipartisan-center-seeks-to-improve-patient-data-matching

The implications of an incorrect treatment as a result of these errors could cause serious adverse downstream effects for patients. Failures of care coordination cost $35 billion[2] in annual healthcare waste and can cause complications, hospital readmissions, declines in functional status, and increased dependency (especially for the chronically ill for whom care coordination is essential). Average annual costs to correct mismatching errors range from $500,000 to well over $1 million on human resources alone.[3]

To streamline the exchange of health information, electronic healthcare systems require reliable patient-matching tools to ensure the right information is attributed to the right patient every time. The Common Key Service (CKS) Use Case utilizes multiple methods to link health information to individuals, such as:

1. The CKS uses proven matching criteria to ensure patient details (such as last name, date of birth, and phone number) positively and accurately identify the patient.
2. The CKS connects with a Master Person Index (MPI) to manage information about patients and to eliminate duplicate entries with great accuracy.
3. The MPI uses an industry best-practice formula to determine that Maryann Anthony, Marianne Anthony, and Mary Anthony are in fact the same person based on her other details (such as last name, date of birth, and last four digits of her Social Security Number).
4. The CKS assigns a unique key that is stored and attached to the patient in the MPI and shared with all systems exchanging information about that patient. Each system can link their respective medical record number to the same common key and then include the common key when exchanging information about the patient.

Essentially, the CKS strengthens matching by providing a consistent and accurate detail (the individual patient's common key) that each system can rely on.

This reliable matching capability improves patient safety and data integrity in all use cases when information is shared about a specific patient. Combining the common key with a second factor (such as birth date or last four digits of Social Security Number) can increase patient privacy by de-identifying messages while still reliably associating the information to the right patient whenever the information is exchanged.

Over time, as CKS adoption grows throughout the state and more and more local systems link patients to a common key, it may no longer be necessary to include all a patient's demographic information when exchanging their medical information. This would further improve the privacy and security of the information exchange as well by de-identifying the message.

Participating organizations send various patient roster files and/or notification messages via a Trusted Data Sharing Organization (TDSO) to Michigan Health Information Network Shared Services (MiHIN). The CKS passes the patient list and notification messages to the

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[2] "Eliminating Waste in US Health Care," *JAMA* 307, no. 14 (April 11, 2012).

[3] "Challenges and Strategies for Accurately Matching Patients to Their Health Data," (Bipartisan Policy Center, June 2012), http://bipartisanpolicy.org/wp-content/uploads/sites/default/files/BPC HIT Issue Brief on Patient Matching.pdf.

MPI which validates that the data is complete and properly formatted. The MPI uses the patient's demographic information to match the patient to existing entities in the MPI. A successful integrated approach can improve efficiency and completeness of care coordination, safety of patients, quality of care, prevention of fraud, accuracy of information exchanged, and ease of participation by smaller organizations. It can help organizations prepare for future requirements, realize potential cost savings, improve data integrity, and drive standardization.

## 1.2 Message Content

For this use case, Message Content means a unique patient identifier provided by MiHIN for use in system-to-system patient matching.

## 1.3 Data Flow and Actors

### *1.3.1 Data Flow*

When a patient's information is sent to MiHIN from a healthcare provider (such as a doctor, hospital, etc.), that patient record will be processed through the CKS to facilitate better patient matching with existing records. The following fields of patient information are required to receive a common key for any given patient:

- Provider organization name
- Unique patient ID (source identifier, Medical Record Number)
- Given name
- Family name
- Gender
- Date of birth
- Last four digits of Social Security Number
- Address 1
- City
- State
- Postal code

One of three results are possible for each patient processed through the CKS:

***1. Match = "No"***

If the patient is not found in the MPI, the MPI will invoke the CKS to assign the patient a common key. The patient and the assigned common key are added to and stored in the MPI.

***2. Match = "Yes"***

If a person is found in the MPI, it returns the common key that has been previously assigned to that patient by the CKS to ensure accurate mapping across systems.

***3. Match = "Maybe"***

If a potential match is identified, but it cannot be determined with a high level of confidence whether the patient does or does not exist in the MPI (that is, the algorithm results in a

score between predefined minimum "no match" and maximum "match" score thresholds), a "possible duplicate" result is generated. A common key is not assigned until a definitive determination can be made to ensure the integrity and reliability of the common key.

The MPI then adds the common key to the patient list or notification message and returns it to the CKS. The common keys are then passed back to the participating organization via the TDSO so the common key(s) can be linked to the local identifier in their sourcesystem. Senders can subsequently add the common key to future messages for that patient, providing an additional attribution to help strengthen patient matching by the receiver of the message. Receivers participating in the CKS may also link their local system identifier for a patient to the same common key and can now be much more certain to which patient the information in the message pertains.

Participating organizations may send patient information to be assigned common keys via the following mechanisms:

1. *Active Care Relationship Service (ACRS) file:* An ACRS file format is sent to MiHIN to be assigned common keys. See the ACRS file format available on the MiHIN website for more information on this format.
2. *Admission, Discharge, Transfer (ADT) Notifications*: A01, A03, and A04 notifications received by MiHIN will be assigned common keys. See the ADT Notifications Implementation Guide on the MiHIN website for details on the required format.

Facilities may receive common keys via the following mechanisms:

1. *ACRS:* An ACRS 2.0 format file is returned with common keys filled in for thepatient(s). The common key will be in the "common key" column, or empty if unable to assign.
2. *HL7 v2.5.1:* An A31 ADT message is sent to the receiving system to alert the end system to common keys for the user, and to communicate changes to common keys.

Facilities may query dynamically for common keys via the following mechanism:

1. *HL7 FHIR:* An organization can request the common key for a set of demographics using a RESTful FHIR-like query to the common key service.

### *1.3.2 Actors and Roles*

- *Actor:* Hospital/Health System
  - *Role:* Sends ADT notifications to MiHIN and receives back an A31 message with the patient's common key (if one is assigned); stores common key in local system to be included in exchanged healthcare data for other MiHIN use cases.

- *Actor:* Provider/Physician Organization
  - *Role:* Sends ACRS files to MiHIN and receives them back with the patient's common key (if one is assigned); stores common key in local system for use as an additional attribute for matching patients when receiving messages to MiHIN.

- *Actor:* Trusted Data Sharing Organization
  - *Role:* Routes messages to and from MiHIN.

- *Actor:* MiHIN
  - *Role*: Receives patient information from sending systems; invokes CKS on this data to assign common keys to patients.

- *Actor:* Master Person Index
  - *Role:* Maintains consistent, accurate and current demographic data on thepatients seen and managed by the Hospital/Health System.
    - patients seen and managed by the Hospital/Health System.

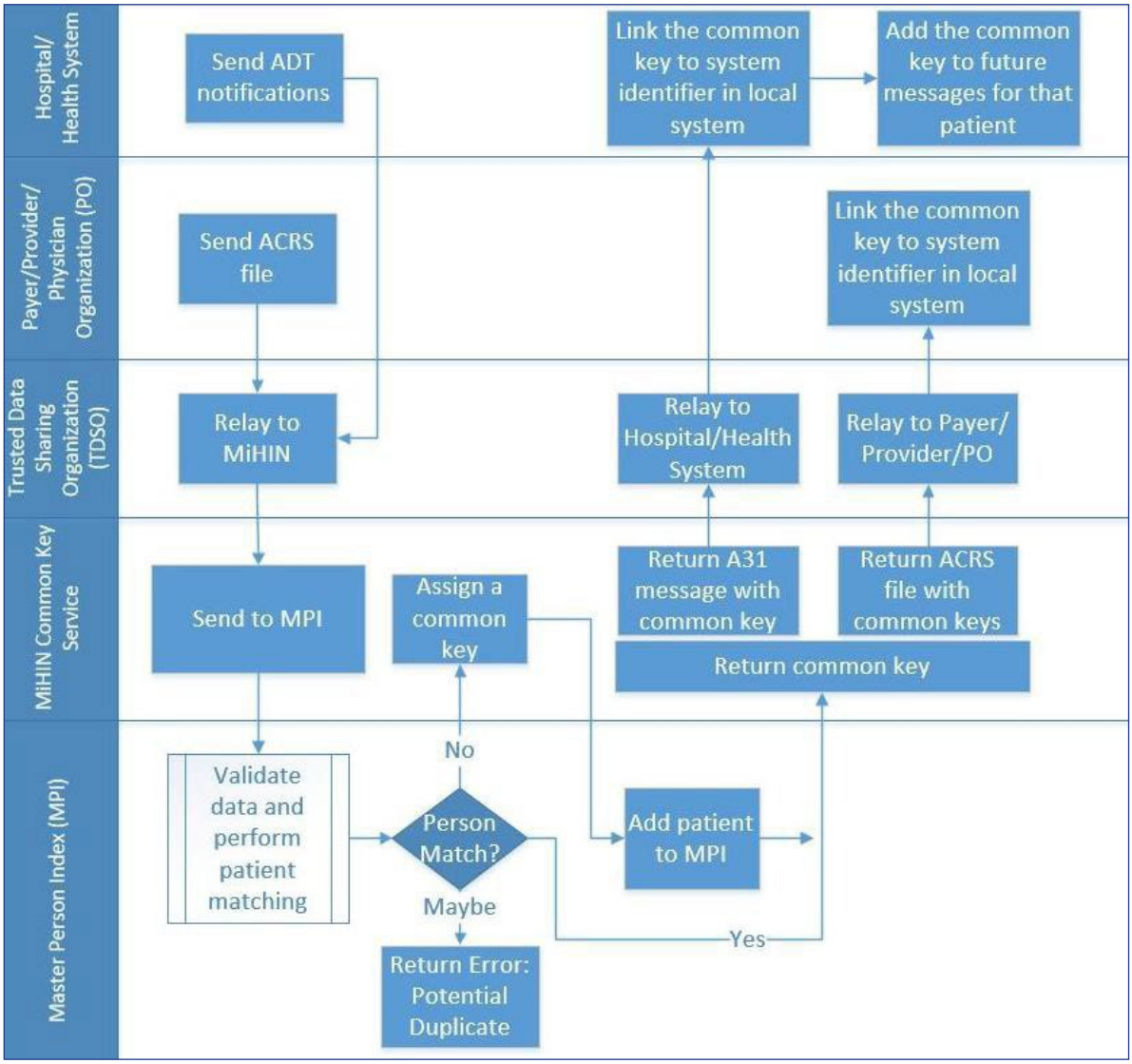


***Figure 1. Common Key Service Use Case***

For more information about this use case, refer to the documents that can be found here: [https://mihin.org/common-key-service/.](https://mihin.org/common-key-service/)

# 2 Standard Overview

## 2.1 Common Key Assigned

The current message formats supported by the IIS are HL7 v2.5.1 (preferred) and HL7 v2.3.1. Future versions of HL7 messages may be implemented and supported in the future, such as the Fast Healthcare Interoperability Resources (FHIR). For more information, refer to http://www.hl7.org/implement/standards/fhir.

MIHIN's role in the context of this implementation guide requires that MIHIN will, at a minimum, send the Message Header (MSH), Event Type (EVN), and Patient Identification (PID) segments with the associated demographics. The common key and local identifier(s) are located in PID-3 (section 4.2). For more information on MSH and EVN requirements, please see the MiHIN Admission Discharge Transfer Notifications Implementation Guide for HL7 Messages. All segments and fields will be present and populated according to the requirements of the MiHIN Common Key Service Use Case Implementation Guide.

## Message Example

An example A31 message conformant to this specification is below (minimum requirements):

MSH|^~\&|CKSOID|2.16.840.1.113883.3.1481|CKSListener|ReceiverOID|900402270902
37-0900||ADT^A31|123456781919|P|2.5.1|||||

EVN|A31|90040227090237-0900|

PID|||10006579^^^1^MRN^1~afeuwdsvolwrdzu6dufn3ivbn4ixnl7uptbyxur7^^^^CKS||
CASTANEDA^MARCUS^H.||19721015|M|||62FOURTHCIRCLE^^WESTLAND^MI^48185||
||||||3343|

* yellow highlight indicates common key

## 2.3 Common Key Change Events

Common keys may be updated from time to time as a result of ongoing de-duplication and data cleansing activities. Participating organizations (POs) and PO participants will receive CKS change ADT notifications to be aware of these changes. PO and PO participants will propagate changes to common keys throughout their health information systems within 14 calendar days of receipt of these updates. See Section 4.2.1 for more details on common key de-duplication and data cleansing activities.

## 2.4 Merge/Split at Participating Organization

Sometimes records requiring a merge, or a split are identified within a PO's local system. When a PO identifies two or more separate records in their local system as belonging to the same person (requiring a merge of these records), and each of those records has been assigned a different common key, the participating organization must delete these common keys from their local system and inform MiHIN of the common key deletion. **If the records have the same common key assigned by MiHIN, no action is required.**

This also applies to records which have been identified as requiring a split (a single record in the local system which belongs to one or more patients and must be parsed out). If a common key has been assigned to the original record requiring a split, this common key must be deleted from the local system and MiHIN informed of the deletion.

The PO will inform MiHIN daily of the deletion by sending a Direct Secure Message to commonkeyservice@direct.mihin.net with the common key(s) to delete attached. Secure File Transfer Protocol (SFTP) is also an option for organizations to send a daily report of internal merge/splits. MiHIN will retire the common key(s) and delete the associated record from the MPI. This update will be broadcasted in a change notification (see Section 2.3 for more information) to all POs (whichever organizations have ever received that specific common key) requiring the common key to be DELETED in their local systems as well.

### *2.4.1 Common Key Deletions Report Format*

When submitting via Direct Secure Message or SFTP, the common key(s) to delete should be listed within a CSV file with file name "Common Keys to Delete". The file should contain a single column list of the common key value(s) with a header value of "Common Keys to Delete". No additional data elements should be included in the file. When submitting via SFTP, common key delete files must be placed in the INPUT folder within the assigned directory for automatic pickup.

# 3 Onboarding Process

## 3.4 Initial Onboarding

For organizations to share data with MiHIN under this use case, the organization undergoes two onboarding processes simultaneously. The two onboarding processes are legal onboarding and technical connectivity onboarding. These may occur in parallel – i.e., the organization can review and complete legal agreements with MiHIN while simultaneously establishing technical connectivity. To initiate these two parallel onboarding processes, notify MiHIN via http://mihin.org/requesthelp/.

### *3.4.1 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 of MiHIN's use cases are available at https://mihin.org/use-case-categories/.

### *3.4.2 Initial Technical Connectivity Process*

It is assumed that the participating organization has onboarded to ACRS and ADT Notification Use Cases.

# 4 PID (Patient Identification) Segment Fields

## 4.4 PID-2 (Patient ID)

The historical intent of this field is to contain an identifier for the patient at an institution or facility other than the institution or facility at which the event occurred. Previous to HL7 Version 2.3.1, it was referred to as "external ID." It is recommended that identifiers for the patient be sent in occurrences of PID-3-patient identifier list rather than in fields PID-2-patient ID, PID-4-alternate patient ID-PID, or PID-19-SSN-patient, all of which were deprecated as of HL7 Version 2.3.1.

The data type of PID-2-patient ID is CX, whose components are as follows:

| Cmp | DT | Usage | TBL# | Element Name | Comments |
|---|---|---|---|---|---|
| 1 | ST | R | | ID | The full, unique identifier value for the patient. |
| 2 | ST | O | | Check Digit | |
| 3 | ID | O | 0061 | Code Identifying the Check Digit Scheme Employed | |
| 4 | HD | O | 0363 | Assigning Authority | The system, organization, agency or department that created this patient identifier. |
| 5 | IS | O | 0203 | Identifier Type Code | What kind of identifier this is: local, facility, state or national, Social Security, Medicare, etc. |
| 6 | HD | O | | Assigning Facility | The place or location where the identifier was first assigned to the patient. |

## 4.5 PID-3 (Patient Identifier List)

This field, which allows for up to 99 occurrences, contains at least the identifier for the patient at the institution or facility at which the event occurred. The common key will be placed in PID-3 as one of these occurrences, in combination with the original patientID from the ADT^A03 supplied by the sender. It is recommended that any other identifiers for the patient be sent in additional occurrences of PID-3-patient identifier list.

The data type of PID-3-patient identifier list is CX, whose components are as follows:

| Cmp | DT | Usage | TBL# | Element Name | Comments |
|---|---|---|---|---|---|
| 1 | ST | R | | ID | The full, unique identifier value for the patient. |
| 2 | ST | O | | Check Digit | Restatement of the check digit portion, if any, of the ID number in component 1. |
| 3 | ID | O | 0061 | Code Identifying the Check Digit Scheme Employed | |
| 4 | HD | O | 0363 | Assigning Authority | The system, organization, agency or department that created this patient identifier. |

| Cmp | DT | Usage | TBL# | Element Name | Comments |
|---|---|---|---|---|---|
| 5 | IS | RE | 0203 | Identifier Type Code | What kind of identifier this is: local, facility, state or national, CKS, Medicare, etc. |
| 6 | HD | O | | Assigning Facility | The place or location where the identifier was first assigned to the patient. |

***NOTE:*** The identifier type for component 5 when the identifier is a common key will be "CKS". Because the common key identifier is alphanumeric, the <check digit> and <code identifying check digit scheme> components may be left blank.

- Example PID-3: agsehodt6wzrdzey5uabkxib7ug37hccd6w4m5e7^^^^CKS

Example PID-3 showing an imaginary source identifier from the original system, with the common key:

- 10006579^^^1^MRN^1 ~agsehodt6wzrdzey5uabkxib7ug37hccd6w4m5e7^^^^CKS

***NOTE:*** If there is no common key available, no A31 message will be sent.

### *4.5.1 Special Handling of ADT^A31s*

When an organization receives an A31 with ZCK and ZAD segments present this is an indicator that the CKS identifier sent in ZCK-2 should be deleted from your source system.

For example, if two patients who were assigned two different common keys were later to be found to be the same person, then those patients would be merged in the MPI and a new common key would be assigned to the new merged record.

***NOTE:*** This does not mean a user must merge in their local system; however, the obsolete common keys for those two old separate records must now be removed in the source system.

MiHIN would send out two A31 messages, one for each patient. The ZCK-2 field of the A31 would include the common key to be unmapped where it may be stored by the sender.

If the common key is no longer or not present in a user's system, they can ignore the A31 message.

The same mechanism will be used for splits, and other types of items that will result in old keys being removed and new ones assigned (as referenced in Section 2.3). The goal is to prevent the propagation of known ***obsolete*** keys stored by systems. A31 messages do not indicate that any user must do any merge, split, or other record level action on their part. The only requirement is to remove the provided obsolete key from the system, when CKS is the provided identifier in the ZCK-2 field.

To re-assign or discover new keys for records that no longer have a common key, a CKS query could be performed to discover a new common key for each patient in question, if desired.

### *4.5.2 Message Example*

An example A31 change message conformant to this specification is below (minimum requirements):

MSH|^~\&|2.16.840.1.113883.3.1481.00.1032|2.16.840.1.113883.3.1481||2.16.840.1.113883.3.137|20180129110722||ADT^A31|34676344|T|2.5.1
EVN|A31|20180129110722
PID|||8764333^^^^MRN||
ZCK||ah088b7140ff9840368455be6871637395
ZAD|ALICE|VARGAS|19900510|F|4520 Lincoln Drive^^Brighton^MI^48114|1153

* yellow highlight indicates common key

## 4.6 PID-4 (Alternate Patient ID)

The historical intent of this field is to contain one or more identifiers for the patient other than the principal patient identifier carried in PID-3. It is recommended that identifiers for the patient be sent in occurrences of PID-3-patient identifier list rather than in fields PID-2-patient ID, PID-4-alternate patient ID-PID, or PID-19-SSN-patient, all of which were deprecated as of HL7 Version 2.3.1.

The data type of PID-4-alternate patient ID-PID is CX, whose components are as follows:

| Cmp | DT | Usage | TBL# | Element Name | Comments |
|---|---|---|---|---|---|
| 1 | ST | R | | ID | The full, unique identifier value for the patient. |
| 2 | ST | O | | Check Digit | |
| 3 | ID | O | 0061 | Code Identifying the Check Digit Scheme Employed | |
| 4 | HD | O | 0363 | Assigning Authority | The system, organization, agency or department that created this patient identifier. |
| 5 | IS | O | 0203 | Identifier Type Code | What kind of identifier this is: local, facility, state or national, Social Security, Medicare, etc. |
| 6 | HD | O | | Assigning Facility | The place or location where the identifier was first assigned to the patient. |

# 5 Troubleshooting

## 5.4 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 https://mihin.org/requesthelp/ | Web form at https://mihin.org/requesthelp/ |
| **Secondary Initiation Method** | Web form at https://mihin.org/requesthelp/ | Web form at https://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 CKS Use Case can be found at *https://mihin.org/common-key-service-use-case-2/*.

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 Standard Time)

# 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 Healthcare Operations consistent with the requirements set forth in HIPAA;
b. Public health activities and reporting as permitted by HIPAA and otherApplicable 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 whois 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 limitedto 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.