
Use Case Name:	Electronic Case Reporting
Sponsor:	Michigan Department of Health and Human Services
Date:	March 14, 2019

Executive Summary

This brief section highlights the purpose for the use case and its value. The executive summary gives a description of the use case's importance while highlighting expected positive impact.

Reporting infectious diseases is an important component of overall public health. According to the Centers for Disease Control and Prevention (CDC):

Public health agencies need to manage cases of “reportable conditions” in their surveillance systems. Upward of 90 conditions are required by law to be reported in every state and territory. [Surveillance of these cases of reportable conditions is] needed to manage outbreaks like Ebola or Measles, as well as to monitor more routine trends that need to be investigated and managed by public health officials to protect the public from infection (e.g. cases of multi-drug resistant tuberculosis).¹

Healthcare providers are required to report communicable diseases so that:

- Outbreaks can be managed
- More routine trends can be investigated and managed
- The public can be protected from infection
- Treatment and education can be provided to impacted populations and providers
- Preventive measures can be enacted
- Long-term success efforts can be measured
- Research into causes and cures can be more exact

¹ Laura Conn and John Loonsk, “Electronic Case Reporting: eICR and Trigger Implementation Discussion (Presentation),” *Public Health – EHR Collaboration Initiative* (May 17, 2016), accessed June 14, 2017, https://www.cdc.gov/ehrmeaningfuluse/docs/vendors_collaboration_initiative_webinars/2016-05-17-vendorcall_eicr_and_trigger_codes_final-508.pdf

Purpose of Use Case: The Electronic Case Reporting use case allows healthcare providers to send case reports regarding a patient's infectious disease status to a public health agency.

Overview

This overview goes into more details about the use case.

Infectious diseases kill more than 17 million people around the world each year.² Infectious diseases can be transported in several ways, including through human contact, animals and insects, food, water, or through contact with organisms in the environment.³ The ability for infectious diseases to spread rapidly through a diverse number of ways emphasizes the need for fast and reliable reporting systems.

As healthcare providers adopt modern electronic health record (EHR) technology, they are becoming better-equipped to automatically send comprehensive case reports about infectious diseases as part of their daily routine. Certified EHR technology helps identify patient populations with reportable conditions, and supports securely sending electronic initial case reports (eICRs) or Continuity of Care Documents (CCDs) through Consolidated Clinical Document Architecture (C-CDA) files.

The capability for healthcare providers to send eICRs and CCDs electronically is more efficient and secure than fax and allows for data to be sent quickly to a public health agency.

This Use Case initially focuses on five Reportable Conditions (Zika, Gonorrhea, Chlamydia, Pertussis, and Salmonellosis) and paves the way for the extensive reporting of upward of 90 infectious diseases around the world.

According to the CDC:

When patients with certain conditions (Zika, Pertussis, TB, etc.) exist in clinical care, they need to be promptly shared with appropriate Public Health Agencies (PHAs) – even, at times, before the end of an encounter. Clinicians are not always good at initiating this process – either with paper or by web.

² World Health Organization, *World health report* (2017), accessed on April 25, 2017, http://www.who.int/whr/1996/media_centre/press_release/en/

³ Mayo Clinic, *Infectious Diseases – Overview*(2017), accessed June 13, 2017, <http://www.mayoclinic.org/diseases-conditions/infectious-diseases/home/ovc-20168649>



Public health agency surveillance systems need to work these “cases” to... report, investigate, confirm, match with labs, manage, trace exposures, and, sometimes, connect with prevention or treatment

Hence needs for:

- a transferable format (message or structured document),
- with a highly consistent set of case data,
- that is reliably consumable and processable by public health decision support and surveillance / outbreak management systems.

In the U.S., even a minor Ebola outbreak put a spotlight on the [electronic health record] involved – this is a high risk area for everyone - important to get right.⁴

An interoperable electronic case reporting (eCR) capability between healthcare providers and public health reporting agencies allows reduced costs for stakeholders, and increased accuracy, effectiveness, and speed of reporting cases of infectious diseases.

Electronic case reporting also lays the foundation for two-way data exchange so clinicians can collaborate better with public health officials during outbreaks, while staying better-informed. State public health reporting data is also used to support national and international disease surveillance efforts.⁵

For the purposes of this document, “electronic case reporting (eCR)” is a verb and “electronic initial case report (eICR)” is a noun.

⁴ Conn, “Electronic Case Reporting.”

⁵ Michigan Department of Health & Human Services, *Communicable Disease Reporting in Michigan: Why Report?*, State of Michigan (2017), accessed on April 25, 2017, http://www.michigan.gov/mdhhs/0,5885,7-339-71550_5104_31274-12538--,00.html



Persona Story

To explain this use case, this section follows a persona example from start to finish.

Larissa de Sousa (Healthcare Consumer)

Larissa is a college student and over the summer traveled to Brazil to be a part of her cousin's wedding. While there, Larissa heard stories of the recent Zika virus outbreak that was ravishing the continent. Larissa figured she was not likely to contract it and even if she did, at 20 years old, her body would fight off the disease.

Larissa returned to the US a week before classes started. She was screened and cleared through customs, which proved her correct about her unlikelihood of contracting Zika.



Two days before classes started, Larissa woke up with severe muscle pain. At the time, she blamed ongoing jet lag and assumed it would go away but she developed a fever over the next couple days. She first visited the clinic on campus who recommended she go to the emergency room. Larissa found a ride to the nearest hospital where she was admitted, tested, and is currently awaiting confirmation on her test results.

If Larissa is found to have Zika, her result will be shared with a public health agency, which will be needed for monitoring her recovering and controlling the possible spread of the disease.

Dr. Julie Lawson (Intensive Care Physician)

Dr. Julie Lawson is an attending physician in a Pediatric Intensive Care Unit (PICU).

Before this use case, Dr. Lawson and her team would have had to take time away from caring for their young patients to contact the closest health department and send in a case report in a burdensome format. Now Dr. Lawson can send the CCD that is automatically created at patient discharge, and it is sent to the statewide health information directory. The information is then automatically parsed into an electronic case report and sent to the correct public health department.



This use case gives Dr. Lawson, and doctors like her, more time to keep their focus solely on their young patients.

Dr. Colin Parker (Epidemiologist)

Dr. Colin Parker is an epidemiologist working at a public health department. He has always been interested in the next new thing and likes the promise of cutting edge technology and how it can help everyday tasks. Until recently there was little “cutting edge” about how he was receiving his health information.



Dr. Parker has always been frustrated that much of the data his office receives seems to arrive late, often after the media is reporting the news. Now, thanks to this use case, Dr. Parker automatically receives an electronic case reports through the statewide health information network from hospitals with patients that may require follow-up with a public health agency. This allows him to quickly review cases and send back results to providers through the tools already in his workflow.

Also, because of this use case, Dr. Parker doesn't have to worry about receiving different formats or delayed reporting and can focus on improving the health of his community. He must admit this use case is cutting edge and new.



Diagram

This diagram shows the information flow for this use case.

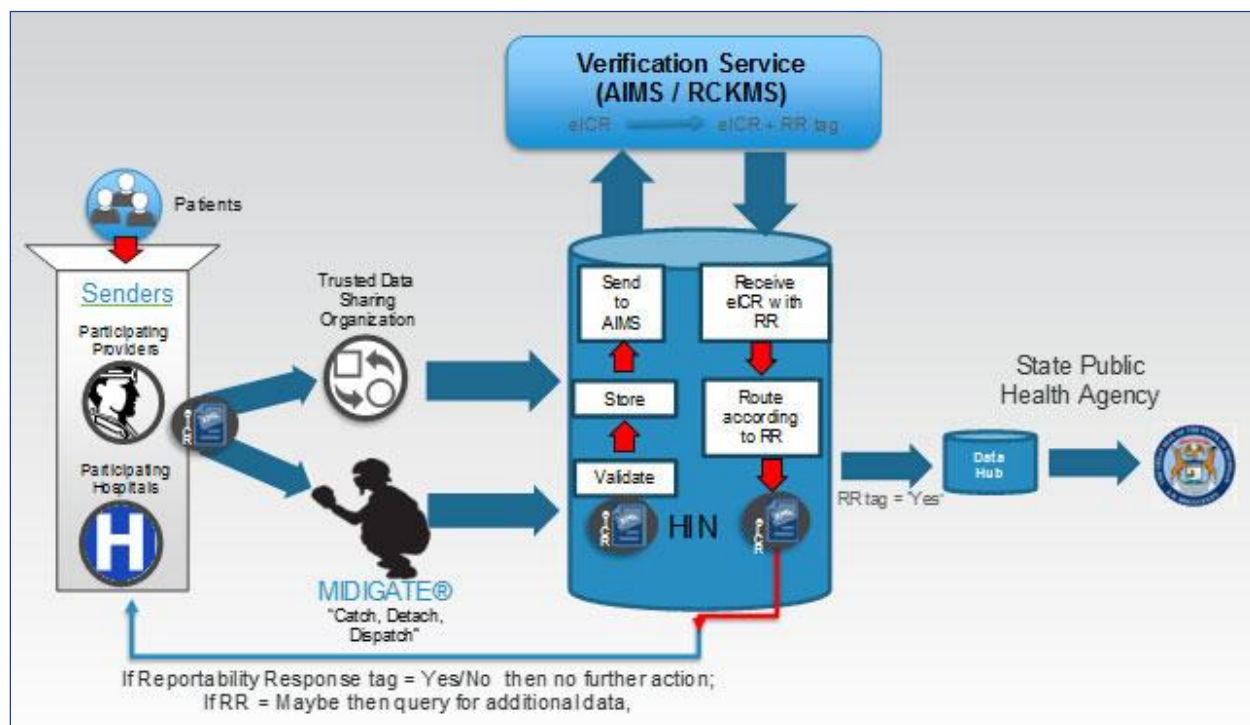


Figure 1. Data Flow for eICR created by EHR

Figure 1 presents the data flow for when the eICR is created by an EHR and is sent by the health provider. It includes:

1. Originating provider sends electronic Initial Case Report to MiHIN
2. MiHIN passes eICR to verification service
3. Verification service uses a clinical decision support engine to determine if record is positive or negative for reportable conditions
4. If positive, record is sent to public health agency and original provider
5. If negative, record is sent back to original provider
6. If uncertain, request for additional information is sent to originating provider

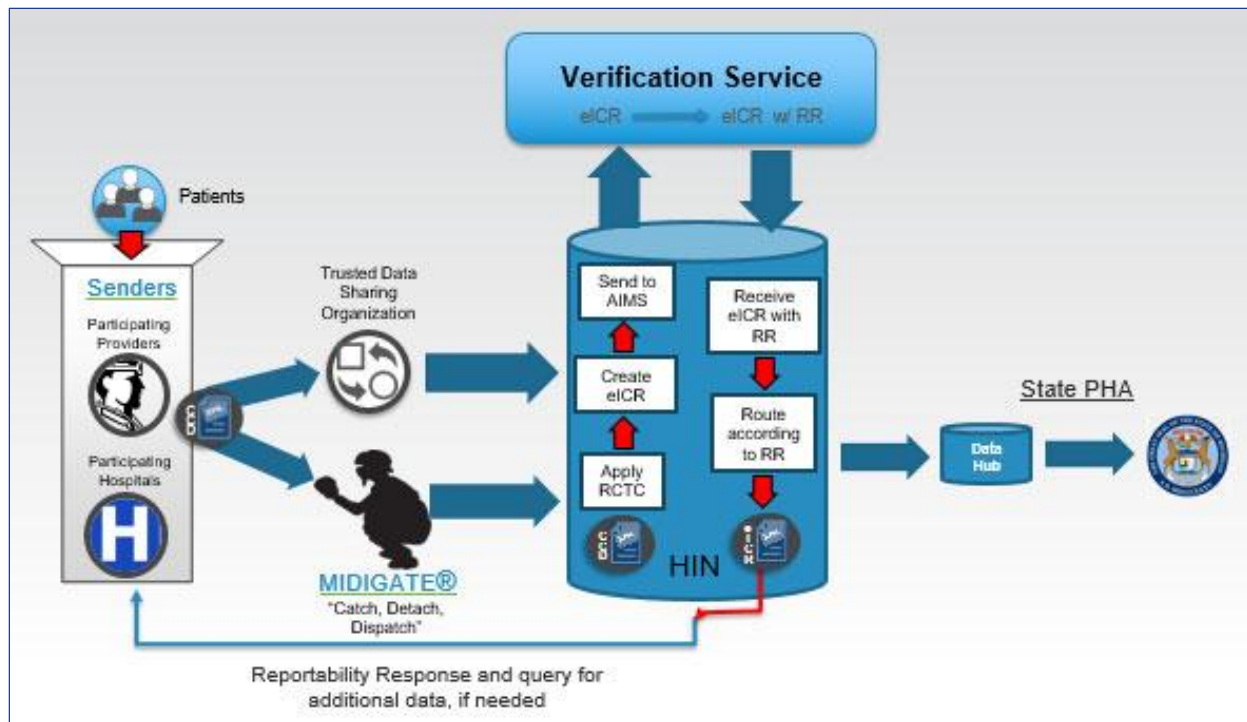


Figure 2. Data Flow for eICR Created Using CCD from EHR

Figure 2 is an example of data flow when the eICR is created by a CCD from a health provider. This data flow is similar to Figure 1 and includes:

1. Originating provider sends record to MiHIN
2. MiHIN parses CCD and creates eICR
3. MiHIN passes eICR to verification service
4. Verification service uses a clinical decision support (CDS) engine to determine if record is positive or negative for reportable conditions
5. If positive, record is sent to public health agency and original provider
6. If negative, record is sent back to original provider
7. If uncertain, request for additional information is sent to originating provider

Regulation

This section describes whether this use case is being developed in response to a federal regulation, state legislation or state level administrative rule or directive.

Legislation/Administrative Rule/Directive:

- ☒ Yes
☐ No

☐ Unknown

■ Public Law 111-5; Section 4104 (Meaningful Use)

Meaningful Use:

☒ Yes

☐ No

☐ Unknown

Cost and Revenue

This section provides an estimate of the investment of time and money needed or currently secured for this use case.

Costs

This use case includes the following cost components:

- Development by certified EHRs of capability to identify message content and send standard referrals
- Development and implementation for participants to onboard for this use case
- Implementation and integration for healthcare providers (physicians, clinical laboratories, hospitals, dentists, and others)
- Development, testing, integration and onboarding for the health information network
- Development, testing, integration and onboarding for case management systems

Revenue

There are no fees or revenue associated with this use case, however the use case can enable significant potential cost savings because of:

- Identifying outbreaks early and helping contain the spread of infectious diseases
- Reducing time spent manually identifying and reporting required information
- Complying with regulatory reporting to fulfill Meaningful Use requirements

Implementation Challenges

This section describes the challenges that may be faced to implement this use case.

- Participation in this use case may require organizations to implement new software.



- There is no funding for this use case, all participants are contributing their time and costs to this effort
- There are multiple participants from numerous organizations necessary to achieve this use case, requiring close coordination of efforts to achieve successful completion

Vendor Community Preparedness

This section addresses the vendor community preparedness to readily participate in the implementation of this use case.

Most electronic health record (EHR) vendors are already capable of sending Consolidated Clinical Document Architecture (C-CDA) documents. Some EHR vendors have adopted the electronic case reporting HL7 CDA R2 standard and can produce electronic initial case reports. However, adoption is slow since there is no current government mandate for compliance.

Support Information

This section provides known information on this support for this use case.

Political Support:

- ☐ Governor
- ☐ Michigan Legislature
- ☐ Health Information Technology Commission
- ☒ Michigan Department of Health and Human Services or other State of Michigan department
- ☐ CMS/ONC
- ☒ CDC
- ☐ MiHIN Board

Sponsor(s) of Use Case

This section lists the sponsor(s) of the use case

- Michigan Department of Health and Human Services



Metrics of Use Case

This section defines the target metrics identified to track the success of the use case.

The key metrics for this use case include:

- Number of organizations participating in this use case
- Number of CCDs/eICRs received from organizations through this use case
- Number of “yes” eICRs that are delivered to a public health agency
- Number of quantified “yes,” “no,” and “maybe” responses for reportable conditions

