



User Guide

Version 1.2

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Prepared by the Michigan Overdose Data to Action Team



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Description

MiCelerity is an automated, real-time surveillance system designed to collect information regarding drug poisoning¹ events in Michigan. MiCelerity was created in 2019 with funding from the CDC aimed at addressing the opioid overdose crisis and reducing overdose morbidity and mortality. The surveillance system was designed as a repository for events deemed reportable to the Michigan Department of Health and Human Services (MDHHS) under reporting rules R 325.76, R 325.77, R 325.78, and R 325.79. These rules state that any poisonings due to the use of prescription or illicit drugs are reportable to MDHHS and must be reported to MDHHS by the health professional or health facility within five working days of request. MiCelerity removes the burden of reporting from health providers and gives MDHHS and local health jurisdictions the ability to track overdose trends and investigate emerging drug trends in real-time.

MiCelerity functions by leveraging HL7 electronic health messages in the form of Admission, Discharge, and Transfer (ADT) messages. ADT messages are triggered by certain healthcare events (such as admission to an Emergency Department (ED)) and contain information regarding demographic and diagnostic information, including ICD-10-CM codes, of the patient. In participating Michigan healthcare facilities, messages about these events are exchanged with the Health Information Exchange (HIE) organization Michigan Health Information Network (MiHIN). Among facilities that submit information to MiHIN *and* participate in the Pay for Performance program, MiHIN scans the following types of ADT messages for drug poisoning-related ICD-10-CM codes:

Code	Triggering Event
A01	Patient admit
A02	Patient transfer
A03	Patient discharge
A04	Patient registration
A05	Patient pre-admission
A06	Change an outpatient to an inpatient
A07	Change an inpatient to an outpatient
A08	Patient information update
A11	Cancel patient admit
A12	Cancel patient transfer

When a drug poisoning-related code is found in one of these messages, a copy of the message is routed into MiCelerity from MiHIN. Relevant information from each message is then retrieved and populated in each patient and drug poisoning event² record in MiCelerity. Data in MiCelerity primarily comes from EDs, but other facilities such as long-term care or skilled nursing facilities may be captured in MiCelerity if they meet the above criteria.

¹ Throughout this guide, the terms “overdose” and “drug poisoning” will be used interchangeably and refer to any event in which the use of a prescription or illicit drug results in a morbid condition, including death.

² Each drug poisoning-related ICD-10-CM code is considered one event. If an individual receives a code pertaining to opioid use and a code pertaining to cocaine use in a single ED visit, two events would register in MiCelerity. In MiCelerity, information can be viewed for individuals or for events, but data can only be exported at the event level.

These messages primarily come from acute care hospitals with EDs, but other types of facilities that exchange HL7 information with MiHIN are also included in the surveillance system. The coverage of MiCelerity is considered statewide, as most EDs in Michigan exchange information with MiHIN and are captured in MiCelerity.

The current list of drug poisoning-related ICD-10-CM codes includes 2,419 codes. Relevant codes within the following over-arching categories are included:

ICD-10-CM Code Category	Category Description
F11-F16, F18-F19*	Mental and behavioral disorders due to psychoactive substance use (excluding alcohol and marijuana)
P04*	Newborn affected by noxious substances transmitted via placenta or breast milk
P96*	Neonatal withdrawal symptoms from maternal use of drugs of addiction
T36-50	Poisoning by, adverse effect of and underdosing of drugs, medicaments and biological substances
T51	Toxic effect of alcohol
*It should be noted that although the system automatically collects data regarding NAS, FAS, and mental and behavioral health codes related to drug use, healthcare facilities that submit data manually are only expected to report drug poisoning events to MiCelerity.	

The initial version of MiCelerity went into production in March 2020. While the system began collecting data in the test environment in October 2019, any data prior to March 2020 is considered incomplete as system changes and updates occurred between October 2019 and March 2020 that may have affected data quality. When looking at trends, analyzing data from March 2020 forward will give the most comprehensive and accurate results.

Suggested MiCelerity citation: Michigan Department of Health and Human Services. MiCelerity V1.1. Date of access.

Terminology

- Admission Date** Date the patient was admitted for care at the originating facility
- Admit Discharge Transfer (ADT) Message** ADT messages carry patient information for HL7 communications and important information about trigger events, such as patient admit, discharge, transfer, registration, etc. ADT messages communicate patient demographic and visit information, as well as the reason why the message is being sent. ADT messages are typically initiated by the electronic medical records or a registration application and are used to synchronize ancillary systems about the state of a patient. Every time a patient’s record is updated, an ADT message is sent.
- Age** The age variable in MiCelerity is calculated based on the birth date of the patient and the date of admission for the corresponding drug poisoning event. If admission date is unavailable, the date the ADT message is received is used to calculate age.

Discharge Date	Date the patient was discharged from care at the originating facility
Drug Class	The drug class groups individual diagnosis codes into broad categories of commonly abused or misused drugs. Drug classes include antiepileptic and sedative-hypnotics, cannabis, cocaine, ethanol, hallucinogen, opioid, prescription sedative, prescription tranquilizer, psychostimulants, other, and unspecified drugs.
Drug Type	The drug type groups individual diagnosis codes into specific categories of drugs following the ICD-10-CM organizational structure. Mental and behavioral disorders related to substance use and neonatal conditions impacted by substance exposure are classified by the drug of exposure.
Entry Date	The date the receipt of an ADT initiated the MiCelerity record or the date of manual entry of a MiCelerity record
Event ID	Unique identifier for each record in MiCelerity. An event corresponds to each ADT message sent with an overdose-related ICD-10-CM code. A patient may have several overdose-related diagnosis codes for each visit and therefore may have several event IDs for a single visit.
Event Status	Current status of the unique event. An event can have a status of valid, cancelled or superseded. An event may be cancelled if the action associated with the incoming message (e.g. admit, discharge, etc.) was entered in error, or if a decision was made to not follow-through on the action. An event may be superseded when a subsequent message replaces the original message.
Facility Jurisdiction	The facility jurisdiction is the local health department in which the healthcare facility that submitted the message is located. The facility jurisdiction is only available on the Trends Report page.
HL7	HL7 is a Standards Developing Organization accredited by the American National Standards Institute (ANSI) to author consensus-based standards representing a board view from healthcare system stakeholders. HL7 has compiled a collection of message formats and related clinical standards that define an ideal presentation of clinical information, and together the standards provide a framework in which data may be exchanged.
ICD-10-CM Code	The ICD-10-CM is a morbidity classification published by the United States for classifying diagnoses and reason for visits in all health care settings. The ICD-10-CM is based on the ICD-10, the statistical classification of disease published by the World Health Organization (WHO).

Jurisdiction	The jurisdiction is the local health department in which the patient lives at the time of message receipt. The jurisdiction is classified as statewide when the address of residence is missing or cannot be successfully geocoded.
Message	Message refers to the ADT message received by MiHIN and routed into MiCelerity that contains patient and diagnostic information. One message may contain multiple ICD-10-CM codes and may therefore create multiple events.
MMWR Week	This variable provides the Morbidity and Mortality Weekly Report (MMWR) week of the event based on the admission date. If admission date is missing, discharge date is used for the calculation. If the discharge date is missing, the received date is used. MMWR weeks are standard epidemiologic timeframes set by CDC for the purposes of standardized case count reporting.
OID	An OID is a globally unique ISO (International Organization for Standardization) identifier. The OIDs in MiCelerity represent the unique healthcare facility that send the ADT message. OIDs are paths in a tree structure, with the left-most number representing the root and the right-most number representing a leaf. The OID's used in HL7 models are always numeric strings (e.g., "2.16.840.1.113883.3.1"). HL7 maintains a registry of OIDs (located at https://www.hl7.org/oid/index.cfm) which contains additional information such as the OID submitter name and contact information, responsible body, and the name and text description of the facility or object identified by the OID.
Patient Disposition	The patient's disposition refers to the status of the patient at the time the ADT message was received. A patient may be classified as outpatient, inpatient if admitted to the hospital for care, or deceased.
Patient ID	Unique identifier for each patient. MiCelerity initiates a patient deduplication process for each received message so that a single patient will have the same patient ID for each event.
Patient Status	The patient status refers to the current vital status of a patient (i.e. alive or dead). This information is captured in the Patient Identification Segment of the ADT message, which contains important information about the patient demographics.
Patient Status Date	Date the last update to the patient's status was received.
Poisoning Classification	Events are classified by poisoning status. An event with an ICD-10-CM poisoning code (T36.0-T50.9) is classified as a probable poisoning. Events with an ICD-10-CM code within the mental and behavioral disorders due to opioid use (F11) are classified as possible poisonings. Events with ICD-10-CM codes related to prenatal exposure or exposure through breastmilk to commonly abused medications (P04.13, P04.14, P04.16, P04.17, P96, Q86), alcohol (P04.3), or drugs of addiction

(P04.4), ICD-10-CM codes for neonatal withdrawal symptoms from maternal use of drugs or addiction (P96.1), or ICD-10-CM codes for fetal alcohol syndrome (FAS) (Q86.0) are classified as ‘not a poisoning’. Events with ICD-10-CM codes for toxic effects of alcohol (T51) are classified as ‘other’.

Received Date	Date the ADT message was received by MiHIN from the originating facility
Region	The region is the emergency preparedness region in which the patient lives at the time of message receipt. Users can filter the Demographics Report by region.

Similarities and Differences to Michigan Syndromic Surveillance System

MiCelerity and the Michigan Syndromic Surveillance System (MSSS) are both used to track potential overdoses in Michigan. Despite some similarities, each system provides unique functionality and are used to meet different data needs. Important distinctions between these systems are described in detail below.

Reporting mandates

MiCelerity is intended to assist healthcare providers and healthcare organizations to comply with the MDHHS administrative reporting rule for overdoses. There are no legal or administrative mandates for participation in MSSS; however, participation in MSSS allows healthcare organizations to meet certain Centers for Medicare and Medicaid Services Meaningful Use Requirements.

Data sources and elements

MiCelerity collects clinical information from ADT messages sent from healthcare facilities. These messages contain detailed patient-level information including diagnosis codes, insurance information, patient disposition, patient demographics, and patient-identifying information. MiCelerity is the only surveillance system that captures individually identifying information on potential overdose victims. This information allows MiCelerity to link multiple visits to a single patient and enables the data user to examine longitudinal data for each suspected overdose patient. MSSS also collects clinical information from healthcare facilities, including chief complaint and patient demographics. Most hospitals that participate in MSSS also send diagnosis codes. However, MSSS does not collect any identifying information.

Coverage

MiCelerity is designed to capture overdose events throughout the entire state of Michigan. Healthcare providers and organizations that are not currently able to transmit data via ADT messages are able to report overdoses to MiCelerity manually. Although MSSS is scalable to statewide coverage, it currently does not have full participation of all reporting entities.

Case finding

MiCelerity identifies potential overdoses by comparing the diagnosis code on each incoming ADT message or manually entered case to a list of 2,421 overdose-related ICD-10-CM codes. MiCelerity captures potential overdoses of all types, not just opioid overdoses, and conditions related to overdose, such as certain mental and behavioral health disorders and neonatal abstinence syndrome (NAS). MSSS identifies potential overdoses by the submitted ICD-10-CM code, if present, and a combination of specific terms and phrases in the chief complaint field.

Roles and Responsibilities

Three different levels of roles exist within MiCelerity, with each role having unique access levels and responsibilities. A user’s jurisdiction and position determine which events are accessible and editable by him or her.

Administrative staff (**ADMIN**) are state-level staff at MDHHS that directly work on overdose surveillance; these users have unrestricted access to the system and are responsible for maintaining the user list, monitoring data quality, and reporting any issues that occur in the system. Administrative users are able to view personally identifying information for NAS and FAS events.

Local Health Jurisdiction users (**LHJ**) are jurisdiction specific staff whose work is relevant to overdose surveillance. These users are only able to access events within their jurisdiction (i.e. the patient’s residence is in the user’s local health jurisdiction or they were cared for in a facility within the user’s local health jurisdiction) or that are not assigned to a specific local jurisdiction (these events are considered “Statewide” events and can occur when an address is missing). These users are responsible for monitoring data quality and reporting within their jurisdictions. Local health jurisdiction users are not able to view personally identifying information such as name, address, or phone number for NAS and FAS events.

Healthcare Providers (**HCP**) are users within healthcare systems tasked with reporting overdoses to MDHHS under the reporting rules previously mentioned. These users have limited access to the system. HCP users should check if their facility is a Pay for Performance participating facility and submits data to MiHIN. Otherwise, HCP users are responsible for manually entering their cases into MiCelerity. Ensuring reporting for overdose cases within their facility is the responsibility of the HCP user.

See the below table for the capabilities and responsibilities of these three distinctive user roles:

Topic	Task	ADMIN	LHJ	HCP
Event Management	Can create statewide ^a manual events	X	X	
	Can create jurisdiction specific manual events	X	X	
	Can create events only for specific health system/facility			X
	Can edit/update previously created events or events within their jurisdiction	X	X	
Data Usage	Can view all statewide events ^a	X	X	
	Can view jurisdiction specific events	X	X	
	Can only view events created/generated by facility			X
	Can download data	X	X	
	Can search for events within their jurisdiction	X	X	
	Can view personally identifying information for NAS and FAS events	X		
Administrative	Responsible for monitoring data quality	X		
	Can edit users of the system	X		
	Responsible for resolving suspected duplicate events in the “Work Queue” ^b	X		
	Responsible for reporting system issues	X		
	Ensures reporting rules are being fulfilled for relevant patient encounters			X

^aStatewide events refer to events that are not assigned to a specific local health jurisdiction, which can occur when events are missing addresses.

^bCurrently, de-deduplication is the responsibility of ADMIN users; in the future, this responsibility will transition to LHJ users.

Due to the highly sensitive nature of the data received by MiCelerity, and the need to keep this data private and secure, access to MiCelerity is only granted to a minimum necessary number of staff at the state and local level whose work is relevant to overdose surveillance and prevention within Michigan. Ensuring that the user's role accurately reflects the scope of their work is essential in order to keep the information captured by MiCelerity secure; access level in the system is regularly monitored and updated.

Responsibility of the Healthcare Facilities for Maintaining Data Quality

The primary purpose of MiCelerity is to help healthcare providers meet the requirements of the MDHHS administrative rules that mandate reporting of suspected drug poisonings to MDHHS within five (5) days of knowledge or suspicion of the event(s) (see R 325.76, R 325.77, R 325.78, and R 325.79 of the Michigan Administrative Code). Healthcare providers and health facilities that actively participate in MiHIN data exchange and the BCBSM Pay-for-Performance program for ADT referrals should routinely assess the quality and completeness of their automated data feeds to ensure that all suspected drug poisonings are reported to MiCelerity within the five day reporting window. Any suspected drug poisoning events that have not been received by MiCelerity through the automated data feed must be manually entered into MiCelerity by the healthcare provider.

MDHHS will periodically perform quality assurance audits at the facility level. Audit findings will be shared with the corresponding facility and MDHHS will work with individual facilities to improve reporting as needed.

Access and Jurisdiction Determination

Access to the system will be facilitated by ADMIN users at the state. If a user has existing access to MDSS, access to MiCelerity can be obtained by filling out the User Account Access Request Form (found at the end of this user guide) and submitting the form to MDHHS-MODASurveillance@michigan.gov. Access will be granted to you by an administrative user upon approval. If a user does not have an existing MDSS account, access can be obtained by (1) filling out the User Account Access Request Form (found at the end of this user guide), (2) submitting the form to MDHHS-MODASurveillance@michigan.gov, (3) requesting access to MDSS through MILogin, and (4) checking "MiCelerity" under Systems Access Needed on the registration form. Users should register for MILogin using the Trusted 3rd Party MILogin website: <https://milogintp.michigan.gov>. All steps will need to be completed to obtain access to MiCelerity.

A maximum of **3** users will be allowed to access MiCelerity from each local health jurisdiction. Examples of appropriate users at the local health jurisdiction level include: health officers, medical directors, public health nurses, or epidemiologists. If a user is inactive for 90 days, their account will be automatically deactivated (a notification will be sent prior to deactivation).

Access to the system is determined by the jurisdiction of the user. The jurisdiction of the user is based on where the user is located and their profession with regards to addressing overdoses.

The jurisdiction of an **HCP** user is the facility in which patients are treated for drug poisoning events and for which the HCP user is responsible for reporting these events. HCP users are only able to report events from their facility and are only able to view events in the system that occurred at their facility.

An **ADMIN** user's jurisdiction is considered the state of Michigan. ADMIN users are able to see and download all events for the entire state and can create or edit any event in the system.

The jurisdiction of an **LHJ** user is the county or local health department area in which they serve. LHJ users can create or edit events in their jurisdiction, as well as statewide events (those without a specific local jurisdiction). They can view and download all events they created and those events which "occur" in their jurisdiction (i.e. the patient associated with the event either went to a healthcare facility within the LHJ jurisdiction or the patient's address is within the LHJ jurisdiction).

Statewide users who are not ADMIN level will have similar access and roles within MiCelerity as LHJ users, with their jurisdiction being considered the state (i.e. they will have create/edit/view/download privileges for any event in the state, but they are not able to access the Work Queue or edit users of the system).

What Can be Done in MiCelerity

ADMIN/LHJ Users

- Export search output (event or line listing) in pdf or csv
 - Search by desired criteria (e.g., time, event or patient, geographic area)
 - Save search criteria for future use
- Manage key information about events, including
 - Contact information (e.g., address, phone number, email)
 - Basic demographics (e.g., age, race, ethnicity)
 - Event information (e.g., ID, status, drug type)
 - Facility information (e.g., Facility name, county)
- Add new events
- View and track trends and demographics in drug poisoning events
 - Modify search criteria to meet your needs
- Share data across jurisdictions for multijurisdictional monitoring
- De-duplicate events and resolve issues (only designated ADMIN users)
- Edit user info, roles and privileges and view user activity (only ADMIN users)

HCP Users

- View events within their healthcare facility
 - Search by desired criteria (e.g., time, event or patient, geographic area)
 - Save search criteria for future use
- Enter new events and key information about new events, including
 - Contact information (e.g., address, phone number, email)
 - Basic demographics (e.g., age, race, ethnicity)
 - Event information (e.g., ID, status, drug type)
 - Facility information (e.g., Facility name, county)

Functional Areas within MiCelerity

Events

The Events tab allows the user to search for or add specific incidents in MiCelerity. The New Event sub-tab is used to add all pertinent information for a new event, including identifiers, demographic information, geographic information and clinical information.

The Event Search sub-tab allows the user to search for specific events that have already been entered based on clinical information, patient identifiers, time period or geography. Searches conducted under the Event Search can be saved for future use.

The Event Listing sub-tab displays events in the system. The list of events displayed can be based on a saved search constructed under Event Search, or the list can be filtered using the filter bars under each variable in Event Listing. Information under Event Listing can be exported from the system using the Export button.

Admin

The Admin tab is used for checking or updating user information and resolving possible duplicate indicators for the same patient. The Work Queue sub-tab allows the user to go through alerts indicating possible duplicate patient indicators. The user can compare the identifiers and decide whether or not the messages relate to the same person, selecting Merge or No Merge as appropriate to release those messages from the work queue. Only users with administrative level access can access the Work Queue.

The Facilities sub-tab is for maintaining information on participating hospitals and other facilities. Admin-level users can update facilities names as needed.

The Users sub-tab is for maintaining user information. Users can update their names, emails or activity status as needed. Admin-level users can update the access level of users.

Reports

The Reports tab allows the user to look at aggregate information and export datasets. The Line Listing sub-tab enables the user to export a dataset for a specific time period, geographic area and/or clinical criteria. The line listing exported from this tab encompasses the same events that can be exported under the “Events” tab but has a reduced variable list for quicker downloading and simpler analyses. It also allows the user to choose which variables will be exported, if not all of the variables in the system are desired. For datasets created in the Line Listing sub-tab, each line, or “event”, in the data set refers to one code message. If a visit to the emergency department involved more than one drug-related code it will have multiple associated lines/events in the dataset.

The Demographics sub-tab allows the user to export data aggregated by demographic groups. For example, if the user chooses to track drug types by sex, a report will list the number of females and the number of males with codes for each drug type. Like the Line Listing sub-tab, it allows the user to specify a time period, a geographic area and clinical criteria. The user may select one or two demographic variables for aggregation.

The Trends sub-tab provides a tool for visualizing drug use over time. The user selects a time period of interest, as well as a health department catchment area and a drug class. Pressing the update button will result in the updating of the main graph to show frequencies of messages related to the selected drug class in residents of the selected catchment area. The Trends sub-tab also has a section called messages by facilities. This gives the number of messages received from each hospital or other facility in the selected time period.

Helpful Key System Functionality (Step by Step Guidance)

Functionality relevant to all users of system (ADMIN, LHJ, HCP)

Events: New Event

In addition to the Events that are automatically transmitted to MiCelerity, Events may be created manually by the user. This can be done by going to Events, then selecting the New Event tab. Data entry fields that are highlighted in red (1) are required fields and must be entered. Data fields that are grey are automatically populated; data cannot be manually entered in these fields. The “New Notes” section refers to any information that is critical to interpreting the submitted data (e.g. “patient is homeless” or “patient overdosed while admitted for a different health condition”) rather than clinical notes regarding the event.

Multiple ICD-10-CM codes that are associated with the same visit can be entered at the same time (2). To select an ICD-10-CM code, first filter the data by “Drug Type”, then select the relevant description. The corresponding code will then appear in the ICD-10-CM section (2). You can select multiple codes within one drug type or select a different drug type to add a different drug ICD-10-CM code.

The screenshot shows the 'New Event' form in the MiCelerity system. The top navigation bar includes 'MiCelerity', 'Events', 'Admin', and 'Reports'. The 'Events' menu is open, showing 'Event Listing', 'Event Search', and 'New Event'. The 'New Event' form is displayed with a blue header. A legend indicates that fields with a red background and a circled '1' are required. The form is divided into several sections:

- Facility:** A dropdown menu with '--Facility--' selected. (1)
- Description:** A list of checkboxes for poisoning by heroin, with 'Poisoning by heroin, accidental (unintentional), initial encounter' selected. (1)
- Drug Type:** A dropdown menu with 'Heroin' selected. (1)
- ICD-10-CM Code:** A list of codes filtered by 'Heroin', including T40.5X4A, T51.91XA, and T40.1X1A. (2)
- Admission Date:** A date and time picker. (1)
- Discharge Date:** A date and time picker.
- Patient Information:** A section with several fields:
 - First Name:** A text input field. (1)
 - Last Name:** A text input field. (1)
 - Middle Name:** A text input field.
 - Patient Status:** A dropdown menu with 'Alive' selected. (1)
 - Patient Status Date:** A date picker.
 - Patient Disposition:** A dropdown menu with '--Patient Disposition--' selected. (1)
 - Street:** A text input field.
 - City:** A text input field.
 - County:** A dropdown menu with '--County--' selected.
 - State:** A dropdown menu with 'Michigan' selected.
 - Zip:** A text input field.
 - Mode of Arrival:** A dropdown menu with '--Mode of Arrival--' selected.

Home Phone: ⓘ Ext: ⓘ Other Phone: ⓘ Ext: ⓘ

Demographics

Race*: ⓘ

- American Indian or Alaska Native
- Asian
- Black/African American
- Caucasian
- Hawaiian or Pacific Islander
- Other
- Unknown

Ethnicity*: ⓘ

- Hispanic or Latino
- Not Hispanic or Latino
- Unknown

Sex*: ⓘ

- Female
- Male
- Other
- Unknown

1

Date of Birth: ⓘ MM/DD/YYYY Age: ⓘ Age Unit: --Age Unit--

Parent/Guardian

First Name: ⓘ Last Name: ⓘ Middle Name: ⓘ

New Notes if Applicable ⓘ

Functionality Relevant to ADMIN and LHJ Users

Events: Event Listing

The Event Listing page will display all events currently in the system. Each ICD-10 diagnosis code entered for an individual will produce a row in the Event Listing table. Initially, events in the Event Listing table are automatically sorted by admission date in descending order.

Several options exist for searching for events. A previously saved search can be selected from the Saved Search List (1) (see Event Search section for details on creating a Saved Search), or events in the table can be filtered and sorted with the available columns in the table (2 and 3). The Event Listing table can be exported (4) to a csv file.

The screenshot shows the MiCelerity Event Listing interface. At the top, there are navigation tabs for 'Events', 'Admin', and 'Reports'. Below this is a sub-header for 'Event Listing' with options for 'Event Search' and 'New Event'. A 'Saved Search List' dropdown is highlighted with a red box and labeled '1', showing 'All Valid Events' and 'Displaying results 141-150 of 19129 found'. A red box labeled '2' encompasses the filter section, which includes 'Admission Date' (From/To), 'Event Status', 'ICD-10 Code', 'Drug Class', 'Patient Name' (First/Last), 'Facility', 'Jurisdiction', and 'Event ID'. A red box labeled '3' highlights the 'Sort/Filter' and 'Clear Filter' buttons. A red box labeled '4' highlights the 'Export' button. A red box labeled '5' highlights the 'Go To Page' button at the bottom of the table. The table itself contains columns for Admission Date, Event Status, ICD-10 Code, Drug Class, Patient Name, Facility, Jurisdiction, and Event ID, with several rows of data. A pagination bar at the bottom shows page numbers from 5 to 24 and a 'Go To Page' input field.

(1) Select a saved search from the menu (see Event Search Section)

Can sort each column in ascending or descending order

(2) Select search parameters from available options

(3) After selecting parameters, click 'Sort/ Filter'. To reset click 'Clear Filter'

(4) Export a CSV file of the events listed in the table

(5) Select a page you would like to view, or enter a page number and click 'Go To Page'

Events: Event Search

In the Event Search tab there are more filter options available (1). A user can enter the parameters that they are interested in searching and click the search button at the bottom of the page to view the results. The user also has the option to create a Saved Search (2- 5). After selecting the desired parameters, enter a name for the created search (2) (example: January Opioids in XX County) and hit the save button (3). Once the search has been saved, it will be available in the Saved Search List (4). The user can select a Saved Search from the Saved Search List, then click the Search button (5) to view the results.

The screenshot shows the 'Event Search' page in the MiCelerity system. The page is divided into several sections: 'Event Search' (top), 'Patient Criteria', 'Date Criteria', and 'Geographic Criteria'. At the bottom, there is a 'Save Search' section with a 'Saved Search Name' field, a 'Saved Search List' dropdown, and a 'Default Search' checkbox. Below the 'Save Search' section are buttons for 'Search', 'Save', 'Delete', and 'Cancel'. Red boxes and numbers 1 through 5 are overlaid on the image to indicate the steps for creating and using a saved search.

1 Select search criteria from the available options.

2 Name the search and click **3** 'Save'. The Named Search you created will appear in the **4** Saved Search List, and can then be used by selecting it in the menu and clicking **5** 'Search'.

Reports: Trends

The home page for MiCelerity is the Trends tab within the Reports tab. The top half of the page shows the Event History graph. At the bottom of the Trends page is the Messages by Facility table. The number of messages received from a facility during a selected time range, either a number of days or between specific dates, will be displayed. It is important to note that the time range for the Event History graph and the Messages by Facility table are independent of each other. Changing the time range for one will not affect the other.

(1) The MiCelerity Homepage is the 'Trends' tab under 'Reports'

1

2

3

(2) Select parameters that you want displayed on the Event History graph

(3) Click the 'Update' button to update the Event History graph with the parameters you specified

(4) At the bottom of the Home page is the 'Messages By Facilities' section

5

6

7

(5) Messages can be viewed within a range of days, or between two specified dates

(6) Each column can be sorted in ascending or descending order

(7) Select a page you would like to view, or enter a page number and click 'Go To Page'

Important Note! The 'Event History' graph at the top of the page and the 'Messages By Facility' section at the bottom of the page are functionally independent of each other. Changes made to the time frame on one will not be applied to the other.

Reports: Demographics

The Demographics tab can be used to generate aggregate reports with parameters selected by the user. Reports may be exported as a PDF or CSV file. Only the parameters selected on this page will be present in the exported aggregate report.

1 Time Period

Use the radio buttons to specify (1) the desired time period, (2) whether the selected time period is based on the received, admission, or discharge date, and (4) either Drug Type or Drug Class of interest. Use the dropdown menus (3) to select the event and patient options.

2 Time Period Based On

3 Event and Patient

4 Drug Type / Drug Class

5 Geographic Area

6 Demographics Variable 1 / Demographics Variable 2

7 PDF Report / CSV Report

(5) Where radio buttons are present, only one option may be selected at a time. All menu items associated with a button will be greyed out and unavailable until the radio button it is selected.

(7) Reports can be exported as PDF or CSV files. Results are in aggregate, based on the demographic variables selected. (E.g. women aged 25-34: 22 messages received for drug class opioids in region 1 in the last 7 days)

Reports: Line Listing

The Line Listing tab can be used to generate reports with line level data. Reports can be exported as a PDF or CSV file.

1 Use the radio buttons to specify (1) time period, (2) what the time period is based on, and (4) the geographic area. Note that the default selection for geographic area is State. Use the dropdown menus (3) to select the Event and Patient Status.

2 Time Period Based On: Entry Date, Received Date, Admission Date, Discharge Date

3 Event and Patient Status: Event Status: --Event Status--, Patient Status: --Patient Status--

4 Geographic Area: State: Default Selection (Michigan), County, Jurisdiction, Zip Code, Facility, City

Where radio buttons are present, only one option (5) may be selected at a time. All menu items associated with a button will be greyed out and unavailable until the radio button associated with them is selected

5 Event: ICD-10 Code: F11.10, F11.120, F11.121, F11.122; Poisoning Classification: Not a poisoning, Other, Possible, Probable; Drug Type: 4-Aminophenol derivatives, Alcohol, Alpha-adrenoreceptor antagonists, Aminoglycosides; Drug Class: Antiepileptic and sedative-hypnotic, Cannabis, Cocaine, Ethanol

6 Display Column: Event ID, Admission Date, Patient Status, Age, Poisoning Classification, Event Status, Discharge Date, Address, Race, Drug Class, Drug Type, Received Date, County, Ethnicity, ICD-10 Code, Intentionality, Jurisdiction, Sex, Entry Date, Name, Date of Birth, Facility

7 Select variables to be included in the report (6) PDF Report CSV Report

(7) Reports can be exported as PDF or CSV files. Line listed results will be shown based on parameters selected. (E.g. Jane Doe; 1234 Address Ln, City, MI; Hospital Facility; Admitted 12/1/2019; Drug Type Present; etc.)

Functionality Relevant to ADMIN Users

The Admin and its three subtabs (Work Queue, Facilities, and Users) are only available to users with administrator privileges.

Managing the Work Queue

The Work Queue tab will display a list of potential duplicate messages received by the system that are not able to be automatically resolved. An Admin user is able to manually resolve the pending work queue items.

The screenshot shows the 'Pending Work Queue' page in the MiCelerity system. At the top, there are navigation tabs for 'Work Queue', 'Facilities', and 'Users'. Below this is a search and filter section with the following fields:

- Date Received:** Includes 'From' and 'To' date pickers.
- Patient Name:** Includes 'First Name' and 'Last Name' text boxes.
- Facility:** A dropdown menu with '0' and 'Select'.
- Jurisdiction:** A dropdown menu with '0' and 'Select'.
- Type:** A dropdown menu.
- ICD-10-CM Code:** A text input field.

Callout 1 points to the search and filter fields. Callout 2 points to the 'Sort/Filter' and 'Clear Filter' buttons. Callout 3 points to the 'No Items in Work Queue' message at the bottom of the table area.

(1) Can search for items in the Pending Work Queue using the drop-down boxes. Select search parameters from the available options. Each column may be sorted in ascending or descending order.

(2) Click on 'Sort/Filter' to apply your selections. To return to the default, select 'Clear Filter'.

(3) Line-listing of messages that need to be resolved will appear in the Pending Work Queue table at the bottom of the page

To resolve items that appear in the Pending Work Queue table, click the 'Resolve' button at the end of the row of the record of interest. The Patient Deduplication screen will pop up. Look at the available information for the patient(s) in the rows and decide if the records should be merged or not. If the record is confirmed as a duplicate, click the 'Merge' button. If the record is determined to not be a duplicate, click the 'No Merge' button. If 'Merge' or 'No Merge' are selected, a confirmation message will be displayed telling the user that the queue item has been resolved. To leave the Patient Deduplication screen without making any changes, click the 'Cancel' button. If 'Cancel' is selected, the record will remain in the Pending Work Queue.

The screenshot shows the 'Pending Work Queue' page with a table of records. The table has the following columns:

- Date Received:** 02/11/2020
- Patient Name:** Patient Name 1, Patient Name 2, Patient Name 3, Patient Name 4
- Facility:** Facility Name 1, Facility Name 2, Facility Name 3, Facility Name 4
- Jurisdiction:** Statewide, Genesee County, Jackson County, Macomb County
- Type:** Geocode, Patient Dedup, Patient Dedup
- ICD-10-CM Code:** T50.901A, F12.988, T45.8X1D, T50.901A, T50.901A

Callout 1 points to the 'Patient Dedup' type and the 'Resolve' button for the corresponding record.

(1) Click the 'Resolve' button of the record you would like to check for de-duplication.

(2) Compare the available information for the patient to decide if the record is a duplicate or not.

Merge	Score	First Name	Middle Name	Last Name	Date of Birth	Gender
X	77.0%	First Name 1	[Blank]	Last Name 1	DOB 1	Male
5432617	77.0%	First Name 1	Middle Initial	Last Name 1	DOB 2	Male

Merge No Merge Cancel

- Resolve the Record
 - If the record is confirmed as a duplicate click the **'Merge'** button to merge the records.
 - If the record is not a duplicate click the **'No Merge'** button.
 - Either of these actions will resolve the record and return you to the Pending Work Queue screen, and the record will no longer be listed in the queue.
- Make no Changes
 - Click the **'Cancel'** button to return to the Pending Work Queue screen without making any changes. The record will still be listed in the queue.

(4) Once the record has been resolved, the user will be returned to the Pending Work Queue and a confirmation message will appear at the top in green.

Queue Item has been resolved for patient 5937038 and event 5937049. 3 other hidden queue item(s) were resolved for the patient.

Displaying results 1-10 of 317 found

Date Received	Patient Name	Facility	Jurisdiction	Type	ICD-10-CM Code	
From: [Date Picker]	First Name: [Text Box]	0 Select	0 Select			Sort/Filter
To: [Date Picker]	Last Name: [Text Box]					Clear Filter
02/11/2020	Patient Name 1	Facility Name 1	Statewide	Geocode	T50.901A	Resolve
02/11/2020	Patient Name 2	Facility Name 2	Genesee County	Patient Dedup	F12.988	Resolve
02/11/2020	Patient Name 3	Facility Name 3	Macomb County	Patient Dedup	T50.901A	Resolve

Facilities

The Facilities tab displays a list of available facilities in MiCelerity. Users can sort existing facilities in the list, and facility information may be edited on this page by an administrative user.

MiCelerity | Events | Admin | Reports | Logout

Work Queue | **Facilities** | Users

Facilities

Displaying results 1-10 of 871 found

(1) Select filters and sorting options to search facilities.

Date Added: From [] To []

Display Name: (2) Type in the name of a specific facility to search for it.

ISO: []

(3) Click on 'Sort/Filter' to apply your selections. To return to the default, select 'Clear Filter'.

Date Added	Display Name	ISO	
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.4670	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.2837	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.2889	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.2838	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.2940	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.2887	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.2890	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.7866	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.5416.1.2839	Edit
10/03/2019	Facility Name	2.16.840.1.113883.3.3823.258001	Edit

(4) To edit the information for a facility, click the Edit button in the row of that facility.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 [Next>] [Last>]

(5) Select a page you would like to view, or enter a page number and click 'Go To Page'

To edit the information of a facility in the list, select the 'Edit' button in the row of that facility.

MiCelerity | Events | Admin | Reports | Logout

Work Queue | **Facilities** | Users

Facility

ISO: 2.16.840.1.113883.3.5416.1.4670

Facility Name: []

Street Address: 1234 Address Ln.

City: []

County: []

State: Michigan

Zip: []

Contact Person: []

Contact Phone: []

(1) Make all desired edits to the facility information, (2) then click Save to apply the edits.

2 Save Cancel

Users

Similar to the Facilities tab, the Users tab displays all users in MiCelerity.

1 Select filters and sorting options to search Users.

2 Can type in the name of a specific person or username to search for it.

3 Click on 'Sort/Filter' to apply your selections. To return to the default, select 'Clear Filter'.

4 To edit the information for a facility, click the Edit button in the row of that facility.

To edit the information of a user in the list, select the 'Edit' button in the row of that user (4 in the image above). Users can update their names, emails or activity status as needed. Only Admin-level users can update the access level of Users in the 'MiCelerity Role' field.

1 Enter/ update the User Info. Fields highlighted in red are required.

2 Be sure that the 'Active' box is checked for all active users. If a user becomes inactive, uncheck the box and save the changes.

3 Only a user with administrator rights may update the MiCelerity Role.

4 Click the Save button to save all changes. Click the Cancel button if you wish to cancel your changes.

5 Can view user activity. Select parameters in the Time, Action, and/ or Entry By fields, and click the Filter button.

6 User activity will be line-listed in the table at the bottom of the page.



User Account Access Request

Each qualified organization can request up to three MiCelerity User Accounts. Please submit your completed form to MDHHS-MODAsurveillance@michigan.gov for approval.

Requestor Information

Do you have an active MDSS account? Yes No

Account type request: Local health department user Healthcare facility user

Organization: _____

Name: _____

Title/role: _____

Email address: _____

Work phone: _____

Provide a brief description of why you are requesting access to MiCelerity:

Signature: _____

Date: _____

Access Determination: MDHHS Use Only

MiCelerity Admin name: _____

Approved: Yes No

Signature: _____

Date: _____

Request completed: Yes No Not applicable

Date completed: _____