

MATERNAL MORTALITY REVIEW INFORMATION APPLICATION (MMRIA) USER GUIDE

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For use with MMRIA v17.10

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A. WHAT IS MMRIA?

Created by the Centers for Disease Control and Prevention (CDC) and the CDC Foundation, in partnership with maternal mortality review committees, the **Maternal Mortality Review Information Application (MMRIA, or “Maria”)** serves two purposes. First, it provides a repository for the medical and social information needed for maternal mortality review committee (MMRC) case review. Second, MMRIA provides standardized data that can then be used for surveillance, monitoring, and research of maternal mortality. MMRIA provides a common language that helps MMRCs to collaborate in case review and analyses.

MMRIA is the successor to the Maternal Mortality Review Data System (MMRDS). Based on lessons learned from implementing MMRDS in 11 states, MMRIA was developed to be a user-friendly custom application with flexible hosting options. Jurisdictions can select web-based, file-based network, or desktop hosting.

MMRIA is a multi-user data entry system designed to flow like a case review. MMRIA’s abstraction forms and tools help MMRC members to understand the story of a woman’s life and the events leading to her death. Devised to accommodate the scope of work and processes of MMRCs, the system supports abstraction and captures committee decisions. MMRIA provides access to semi-automated case narrative templates from which committee members can print easy-to-read case narrative details. Lastly MMRIA captures socio-spatial information, through geocoding of addresses, to expand case discussions and analyses.

MMRIA also contains a RESTful API for importing data. Jurisdictions may choose to map data from other systems to the MMRIA API to automate the import of data. In the future, a tool to map death certificate and birth certificate data will be released to allow for automatic import of vitals data.

MMRIA user roles are assigned by a User Admin within your jurisdiction, based on the level of access needed. Predefined user roles are: User Admin, Abstractor, Committee Reviewer, and Form Designer.

MMRIA is compatible with multiple operating systems and browsers; however, Google Chrome is the recommended browser.

Additional Resources

The following tools complement MMRIA use and are available on **ReviewtoAction.org**:

- **Report from MMRCs, featuring data from four states**
- **Committee Facilitation Guide**
- **Model Purpose, Mission, Goals, and Vision for MMRCs**
- **Overview of State Legislative Support for MMRCs**
- **Model Case Identification Process**
- **Model Abstractor Job Description**
- **Tools for Case Abstraction**
- **Model Committee Meeting Agenda**

- • **Model Confidentiality Statement**
- • **Committee Decisions Form**

B. HOSTING MMRIA

MMRIA is a custom application built on the following open source tools, including

- • **PouchDB** – browser-based database; allows for offline data entry
- • **CouchDB** – central data store
- • **OWIN/Katana** – allows desktop and web-based hosting
- • **Microsoft.NET core** – enables compatibility with various operating systems
- • **jQuery** – user interface
- • **Docker**

With several options for hosting the system, MMRIA is designed to work flexibly with the various environments in which review committees operate. In choosing which option will work best for your jurisdiction, consider:

- • **Who will enter data, and where are they located?**
- • **Who needs to view the data, and where are they located?**
- • **Who will analyze data, and where are they located?**

TABLE 1 crosswalks several options plus advantages and disadvantages of each option.

TABLE 1

OPTION	ADVANTAGES	DISADVANTAGES
1. EXECUTABLE- RUN FROM DESKTOP	<ul style="list-style-type: none"> Easiest setup Easily and quickly supports single data entry from a single location (similar to MMRDS) 	<ul style="list-style-type: none"> Designed to support a single user from a single location only Upgrades require each user to take action Does not allow committee members to access de-identified case information prior to/during meetings direct from their machine (MMRC will still rely on hard copies) Requires transferring data between abstractor(s) and data analyst Requires downloading the following to each user's machine: Docker, Couch DB, Chrome Internet Browser, MMRIA files
2. EXECUTABLE- RUN FROM LOCAL NETWORK/ INTRANET	<ul style="list-style-type: none"> Supports multi-user data entry from a single location Upgrades require a single user with admin rights to take action 	<ul style="list-style-type: none"> Requires IT involvement to configure and to download application to each user's machine Does not allow committee members to access de-identified case information prior to/during meetings, unless committee members have access to local network and executable installed Some transfer of files is required if users exist both within local network and outside of network Requires downloading the following to each user's machine: Docker, Couch DB, Chrome Internet Browser, MMRIA files
3. EXECUTABLE – RUN OVER INTERNET	<ul style="list-style-type: none"> Supports multi-user data entry from multiple locations Committee members can view de- identified cases from any location (if MMRIA is downloaded to their PCs/tablets) 	<ul style="list-style-type: none"> Requires IT involvement to configure deployment over web server Some costs may be associated with use of a web server, though minimal (estimated needs = 2G memory, two core processors, 40G disk space) Requires downloading the following to each user's machine: Docker, Couch DB, Chrome, MMRIA files

	<ul style="list-style-type: none"> Upgrades require a single user with admin rights to take action 	
4. VIRTUAL MACHINE VIA DESKTOP OR FILE- BASED NETWORK	<ul style="list-style-type: none"> Supports multi-user data entry from multiple locations Committee members can view de- identified cases from any location via a web browser Upgrades require a single user with admin rights to take action fewer files to download and easier setup: Chrome, Pouch DB and MMRIA packaged into one file 	<ul style="list-style-type: none"> Upgrades require each user to take action Requires IT involvement to configure deployment over web server Some costs may be associated with use of a web server, though minimal (estimated needs = 2 to 5G memory, two core processors, 40G disk space)
5. VIRTUAL MACHINE VIA INTERNET/WEB SERVER	<ul style="list-style-type: none"> Supports multi-user data entry from multiple locations Committee members can view de- identified cases from any location via a web browser Upgrades require a single user with admin rights to take action fewer files to download and easier setup: Chrome, Pouch DB and MMRIA packaged into one file Upgrades require a single user with admin rights to take action easiest setup and upgrade process for IT 	<ul style="list-style-type: none"> Requires IT involvement to configure deployment over web server Some costs may be associated with use of a web server, though minimal (estimated needs = 2 to 5G memory, two core processors, 40G disk space)

If your MMRC will have multiple abstractors entering data, The MMRIA Team recommends hosting the system on the internet or intranet. Option 5 enables maximum functionality for abstractors, data analysts, and committee members.

To access any new updates to MMRIA, please consult: <http://mmria.org>.

C. IMPORTING MMRDS DATA TO MMRIA

The MMRIA Importer is a tool that automatically imports data from MMRDS into MMRIA. Before importing you will need to install the Microsoft data drivers available at: <https://www.microsoft.com/en-us/download/confirmation.aspx?id=23734>

To run the import you will need 4 pieces of information:

- username – a MMRIA username for an abstractor role.
- password - MMRIA abstractor password
- database_file_path - file path to the location of your MMRDS Maternal_Mortality.mdb file.
- url – your MMRIA URL

To locate the *Maternal_Mortality.mdb* file that is generated from MMRDS:

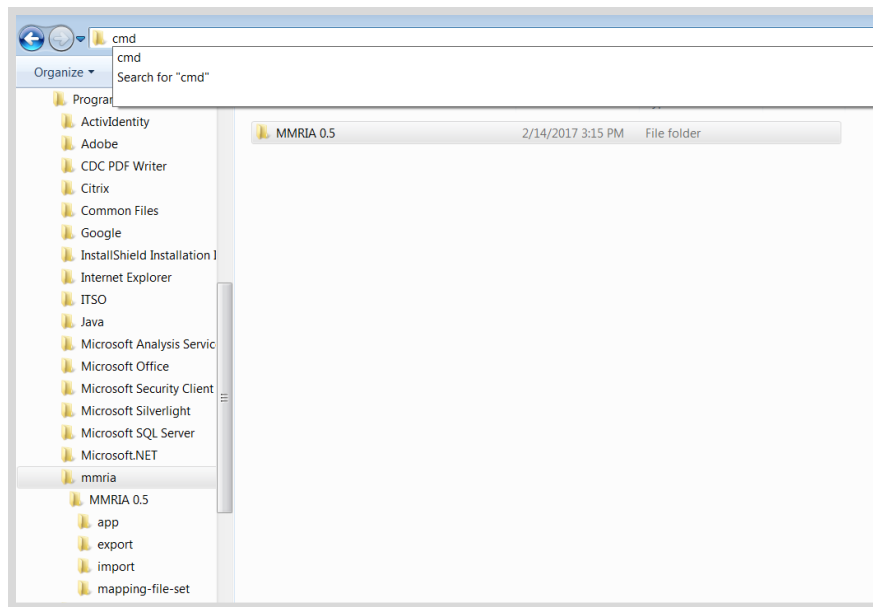
Go to your Windows File Explorer and locate MMRDS 0.3.3. When you have found MMRDS 0.3.3., click on it and open up the folder titled Projects. Within the Projects folder you will find a Maternal_Mortality folder. Inside that folder is the file called Maternal_Mortality.mdb. (The file path will look similar to: C:\Users\username\Desktop\MMRDS 0.3.3\Projects\Maternal_Mortality)

Note that if you have more than one Maternal_Mortality.mdb file on a single user's computer, you need to be very careful not to overwrite data. Contact mmriasupport@cdc.gov for step-by-step assistance with importing multiple mdb files.

1. Open up Notepad and copy and paste the following information:

```
mmria.exe import user_name:user1 password:\:password
database_file_path:c:\temp\Maternal_Mortality.mdb url:http://localhost:12345
```

2. Replace the words in bolded red with your specific information.
3. Highlight and copy the text in Notepad.
4. Next, open a MMRIA command line function by locating your MMRIA folder in your Windows File Explorer, and then typing "cmd" in the path line.



5. Right click in the dialog box and select Paste.
6. Press Enter and the Import will begin.

The import may take up to 30 seconds *per case*. When finished, a message will appear that says "Import is finished." You can then log in to MMRIA to view all imported cases.

The import can be run as many times as needed. You can import separate mdb files from several users' computers, and with several different usernames. The Importer will overwrite existing cases with the latest data from MMRDS.

If you see an error message like the following, make sure you have installed the Microsoft data drivers, available at: <https://www.microsoft.com/en-us/download/confirmation.aspx?id=23734>.

```
C:\Windows\System32\cmd.exe

C:\Program Files (x86)\mmria\MMRIA 17.08.08>mmria.exe import user_name:sivas password:password database_file_path:c:\temp\Maternal_Mortality.mdb url:http://localhost:12345

Unhandled Exception: System.InvalidOperationException: The 'Microsoft.Jet.OLEDB.4.0' provider is not registered on the local machine.
   at mmria.console.data.cData.GetDataTable(String pSQL, List`1 OleDbParameterList, Boolean Is_Stored_Procedure)
   at mmria.console.import.mmrds_importer.Execute(String[] args)
   at mmria.console.MainClass.Main(String[] args)

C:\Program Files (x86)\mmria\MMRIA 17.08.08>
```

D. LOGGING IN

Your jurisdiction will configure a URL, or web address, for MMRIA. You will need to reach out to your local User Admin to receive the URL and your user name and password. Open Chrome internet browser, enter the web address for MMRIA, and enter your user name and password.

User Roles

Access levels are based on roles:

- **User Admin** – assigns user roles, user names, and passwords.
- **Abstractor** – has data entry and editing privileges. This role may be assigned to abstractors and data analysts, or anyone who needs full read/write access.
- **Committee Reviewer** – can view de-identified cases
- **Form Designer¹** – has all access of an abstractor and also the ability to add forms and fields via the Metadata Editor

New User

If you are a new user, you will need to contact the person on your MMRC with the User Admin role to receive your login information. If you do not know who your User Admin is, contact mmriasupport@cdc.gov.

Returning User

Select the “Login” button in the right-hand corner to enter your user name and password. Once you enter your information into the fields, click “LOG IN”.

FIGURE 2

The screenshot shows the MMRIA web application interface. At the top, there is a navigation bar with the MMRIA logo, 'Summary', 'Actions', and 'Print Blank'. The main content area has a 'summary' header, a 'filter line listing' section, and a 'LOG IN' button in the top right corner. A login modal is open, showing fields for 'user_name' (containing 'user1') and 'password' (masked with dots), and a 'LOG IN' button.

1. Contact mmriasupport@cdc.gov for additional guidance

E. GETTING STARTED: BASIC FUNCTIONS

Saving Your Data

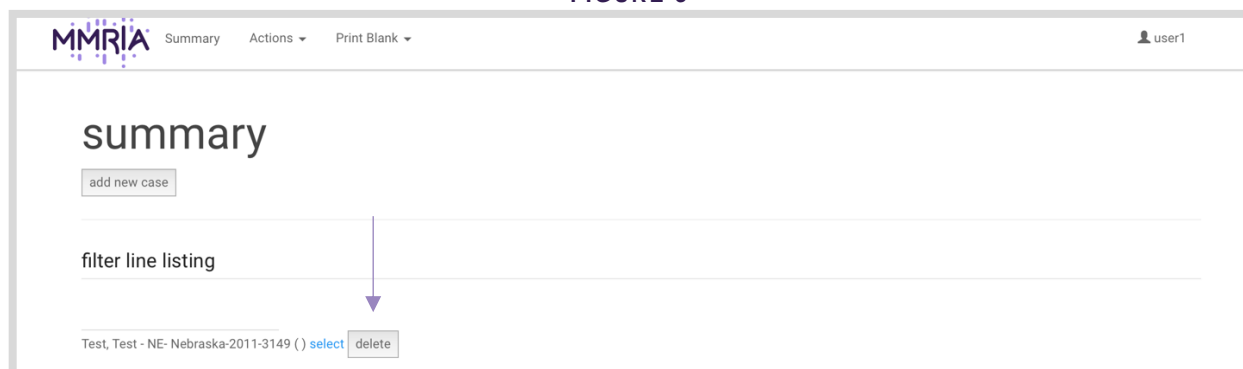
MMRIA automatically saves all data that is entered. For example, if you enter text and then go back a screen, it will have automatically saved your text. You do not need to prompt the database to save your file or any changes made to the data entered.

Deleting/Recovering Records

Records can be deleted from the database via the summary page (**FIGURE 3**). Click on the “Delete” button. Once the “Delete” button is pressed, the record will be highlighted in gray. If you are sure you wish to Delete the case, press Delete again.

The deleted case will be excluded from data exports and from aggregate standard reports created within MMRIA. If a case needs to be recovered after being deleted, contact MMRIAsupport@cdc.gov.

FIGURE 3



Printing

You have the option to print a blank copy of all 11 Forms, a single record, or an entire case. The print dialog opens in a separate browser window.

You may wish to print only the Case Narrative Form for a given case. Using the case narrative templates, your Case Narrative Form should contain all of the information your committee needs to review a case. You may also want to print the Core Elements report, which contains additional data that your review committee may need. For select cases, you may wish to print graphs from the Prenatal Care and ER Visits/Hospitalizations Forms or other Forms as appropriate. To print any Forms besides the Case Narrative and Core Elements for committee review, be aware that within the abstractor role, you will be printing fully identified Forms. To print these other Forms, you should log in with a committee reviewer to ensure information is de-identified. In the future, the option to Print De-identified Forms will exist within the Abstractor role.

Steps for Printing a Case

1. Locate the record on the Summary Page.
2. Click the “Select” button located at the end of the listing line for a specific case.
3. Clicking on the “Select” button will direct you to the Home Record page.
4. Select the “Print Version” drop-down to see a menu listing all Forms.
5. Select an individual Form to print or select “All” to print all of the case’s Forms.

Steps for Printing Blank Forms

1. You can print blank Forms from the “Summary” page (FIGURE 4) or from within a case (FIGURE 5).
2. Select the “Print Blank” drop-down (FIGURE 4) to see a menu listing all blank Forms.
3. Select an individual blank Form to print or select “All” to print all of the blank Forms.

Note: if you would like a set of blank forms with all dropdown values displayed to help you take abstraction notes on paper, contact mmriasupport@cdc.gov

FIGURE 4

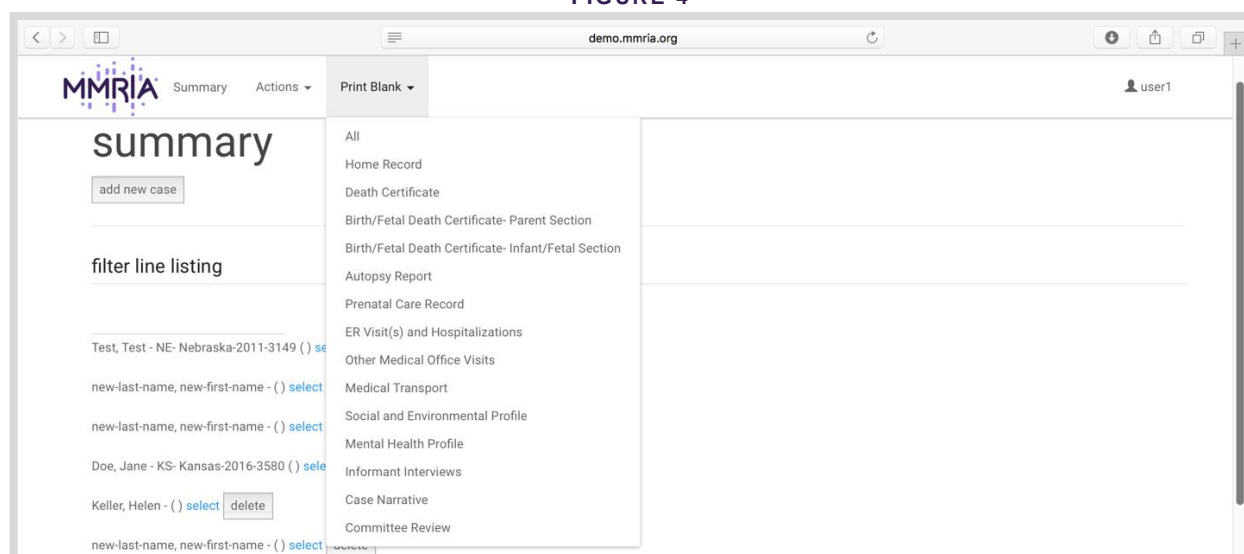


FIGURE 5

The screenshot shows the MMRIA Home Record form. The top navigation bar includes the MMRIA logo, 'Summary', 'Case Forms', 'Print Version', 'Actions', and 'Print Blank'. A user profile icon labeled 'user1' is in the top right. The form has sections for 'Record ID*', 'First Name' (with 'new-first-name' below it), 'Middle Name', 'Last Name' (with 'new-last-name' below it), and 'Date of Death*' (with 'Month' and 'Day' dropdowns). The 'Print Blank' dropdown menu is open, showing a list of options: All, Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations, Other Medical Office Visits, Medical Transport, Social and Environmental Profile, Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review.

Data Dictionary

The data dictionary is a dynamic dictionary that automatically updates; any changes to the Forms will be reflected in real time. You can navigate to the data dictionary from the summary page (**FIGURE 6**) and from within a case (**FIGURE 7**). The data dictionary will open in a separate window. You may also choose to export the data dictionary to Excel for easy viewing. To export to Excel, right click on the data dictionary, choose Select All, Copy, and then Paste into a spreadsheet.

FIGURE 6

The screenshot shows the MMRIA Summary page. The top navigation bar includes the MMRIA logo, 'Summary', 'Actions', and 'Print Blank'. A user profile icon labeled 'user1' is in the top right. The main content area displays the word 'summary'. The 'Actions' dropdown menu is open, showing the option 'Show Data Dictionary'.

FIGURE 7

The screenshot shows the MMRIA Home Record page. The top navigation bar includes the MMRIA logo, 'Summary', 'Case Forms', 'Print Version', 'Actions', and 'Print Blank'. A user profile icon labeled 'user1' is in the top right. The main content area displays the word 'Home Record'. The 'Actions' dropdown menu is open, showing the options 'Populate Core Elements' and 'Show Data Dictionary'.

View Aggregate Report

To view a snapshot of information on the cases you have entered, click the “Actions” button and select “View Aggregate Report” to launch a new window (1). Click the “generate report” button (2) and data will be populated below the table (3) (**FIGURE 8**).

FIGURE 8

This report is a work in progress - some calculations may not be accurate. Contact mmriasupport@cdc.gov with feedback or questions.

1

Year

Year of Death All ▾

month year

Date of Case Review All ▾

generate report 2

3

You will see a disclaimer that this report is currently in progress. More fields, and further reports, will be added in the future.

F. ABSTRACTING CASES INTO MMRIA

MMRIA is designed to capture your abstraction notes and help you to write a comprehensive case narrative. You may wish to abstract on paper and then enter the data into MMRIA, but it is ideal to enter case data into MMRIA before you present a case to your committee. Why?

1. The templates contained in the Reviewer's Notes sections of each Form and the Case Narrative Form itself will aid you in writing and printing a case narrative that can be easily printed for presentation to your committee.
2. Throughout the different Forms in MMRIA, you will see fields marked with an asterisk. Fields with asterisks denote core data elements. These fields are not required but were identified by review committees and subject matter experts as important information for both committees and analysts to have accessible. All of the core elements are brought into a Core Elements Report that you may print for presentation to your committee. If you have this data available, make sure you complete the field. If it is not available, you may wish to note that in the Reviewer's Notes text box at the bottom of each Form.
3. If your committee members have MMRIA access, they can view de-identified case information prior to or during committee meetings.

Field Types

What types of fields are in MMRIA?

- Single select drop down lists
- Multi-select drop down lists
- Checkboxes
- Editable lists- allow you to enter an option from a dropdown menu, or type another value if the value is not listed
- Free text fields
- Date and Date+Time Fields
 - Note that dates and times are de-identified when viewed by Committee Reviewers, to protect anonymity. Thus it is important to enter not only dates and times but also **gestational age or days postpartum** for all events, which are visible to Committee Reviewers.
- Reviewer's Notes boxes- these are found at the bottom of each form. They can be expanded by clicking and dragging the bottom right corner of the box.
- Grids- used to capture related pieces of information in a table format, e.g. the Routine Monitoring Grid in the Prenatal Care form

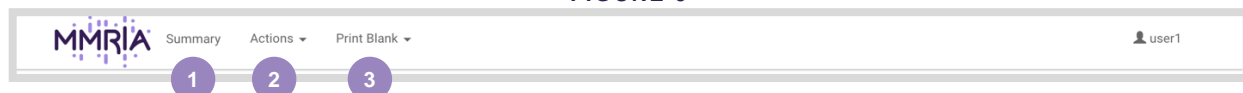
Routine Monitoring									
Date	GA- Weeks	GA- Days	Systolic BP	Diastolic BP	Urine Protein	Urine Ketones	Urine Glucose	Blood Hematocrit (%)	Weight (lbs)
2017-04-03	30	2	100	80	Trace	▼ Negative1+	▼ 40		140
2017-04-11	31	1	101	82	Trace	▼ Negative1+	▼ 42		141
					▼	▼	▼		

Note: Be sure to exclude any personal identifiers from the Reviewer's Notes sections of each Form. Any identified information entered into Reviewer's Notes sections of Forms will NOT be de-identified for the Committee Reviewer role.

MMRIA Home Screen

As shown in **FIGURE 9**, the MMRIA Home Screen has three main menu options: Summary (1), Actions (2), and Print Blank (3).

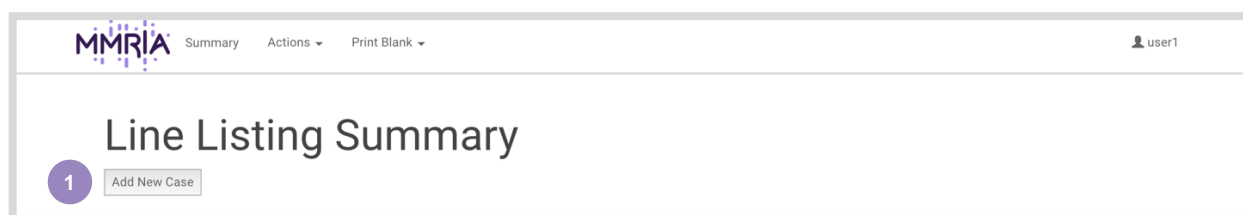
FIGURE 9



1. Summary Page

The Summary Page is where you add new cases, edit cases, or delete cases.

FIGURE 10



Add A New Case

1. To add a new case, click the “Add New Case” button located under the “Summary” heading.
2. After clicking on the “Add New Case” button, you will be taken to the Home Record screen. However, you can start data entry on any Form. To proceed from one Form to the next select the “Case Forms” (TABLE 2) drop-down menu.
3. Select the appropriate Form to begin entering data.

FIGURE 11

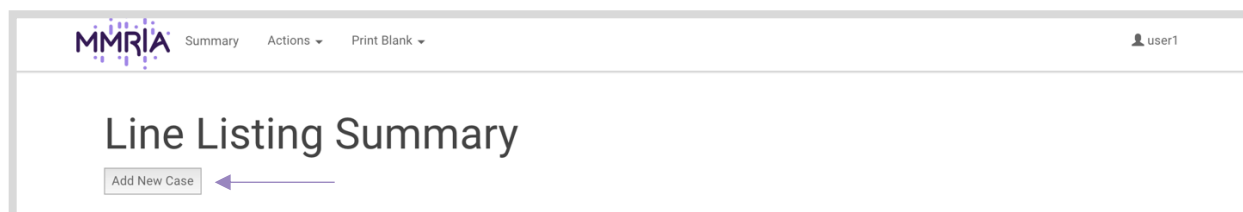


FIGURE 12

MMRIA Summary Case Forms Print Version Actions Print Blank user1

Home Record

Record ID*

First Name
new-first-name

Middle Name

Last Name
new-last-name

Date of Death*

Month
0

- Home Record
- Death Certificate
- Birth/Fetal Death Certificate- Parent Section
- Birth/Fetal Death Certificate- Infant/Fetal Section
- Autopsy Report
- Prenatal Care Record
- ER Visit(s) and Hospitalizations
- Other Medical Office Visits
- Medical Transport
- Social and Environmental Profile
- Mental Health Profile
- Informant Interviews
- Case Narrative
- Committee Review

TABLE 2

CASE FORM TYPES	
Home Record	Other Medical Office Visits*
Death Certificate	Medical Transport*
Birth/Fetal Death Certificate- Parent Section	Social and Environmental Profile
Birth/Fetal Death Certificate- Infant/Fetal Section*	Mental Health Profile
Autopsy Report	Informant Interviews*
Prenatal Care Record	Case Narrative
ER Visits & Hospitalizations*	Committee Review

**Indicates that for a case, you can enter multiple forms*

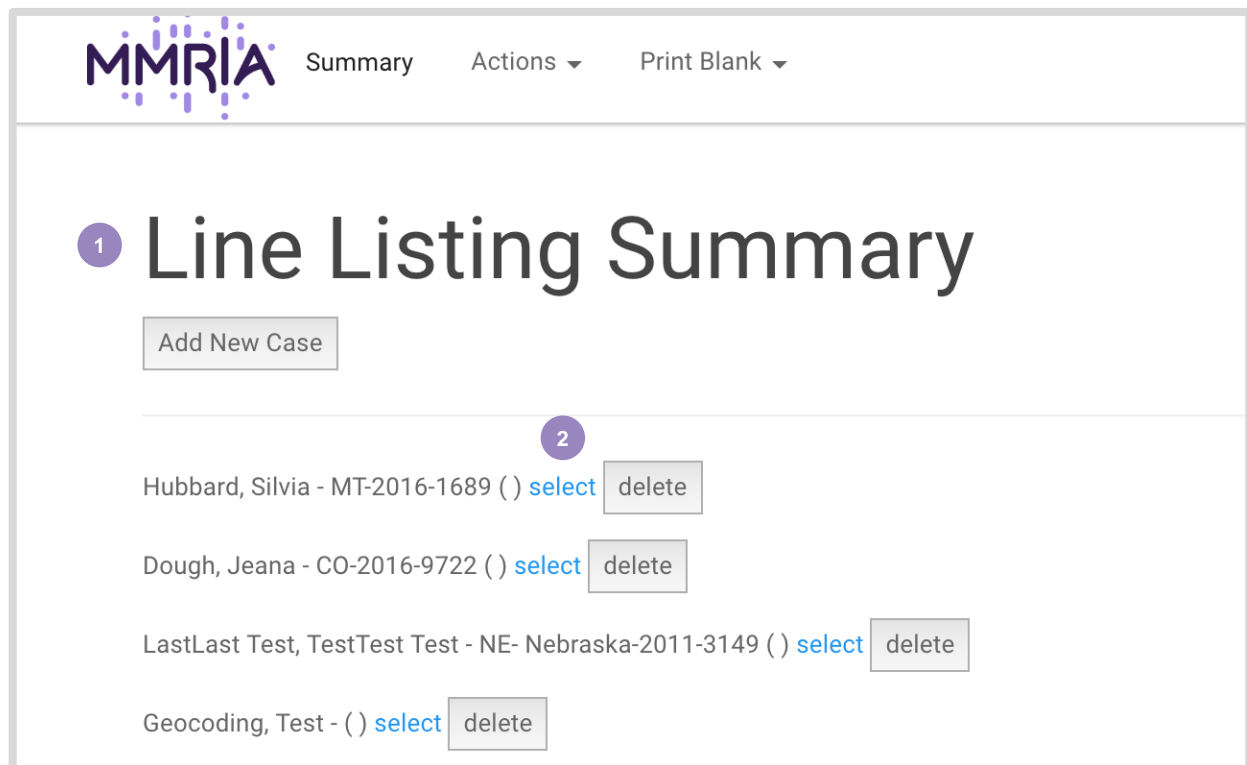


Note: You may not have information to complete each of these Forms for every case. You will have fields within Forms that you cannot complete. It is okay to leave fields blank. It is recommended that you note in the Reviewer's Notes box at the bottom of each Form if information was not available. This will help you write your Case Narrative and help you to justify incomplete information to your committee.

Edit A Case

1. Once you enter data into MMRIA, cases will be listed on the Summary Page (**FIGURE 13**).
2. To view or edit a case, click the “select” button located at the end of the listing line (**FIGURE 13**).
3. Clicking on the “select” button will direct you to the Home Record page (**FIGURE 14**). You can navigate to the Form for review or revision by clicking on the “Case Forms” drop-down menu (4).

FIGURE 13



The screenshot shows the MMRIA Summary Page. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and dropdown menus for 'Actions' and 'Print Blank'. Below the navigation bar, the main heading is 'Line Listing Summary' with a circled '1' next to it. Under this heading is a button labeled 'Add New Case'. Below a horizontal line, there is a list of cases. A circled '2' points to the 'select' button in the first row. Each row contains a case name, a state and year code, a status indicator in parentheses, a blue 'select' link, and a grey 'delete' button.

Case Name	State/Year	Status	Action
Hubbard, Silvia	MT-2016-1689	()	select delete
Dough, Jeana	CO-2016-9722	()	select delete
LastLast Test, TestTest Test	NE- Nebraska-2011-3149	()	select delete
Geocoding, Test	()		select delete

FIGURE 1

Tip: At any point, you can return to the Home Screen by clicking “Summary” on the tool bar

2. Actions

Clicking on the Actions button will display a drop-down menu displaying: Show Data Dictionary (1) and View Aggregate Report (2) (**FIGURE 15**). You can view a snapshot of all case information entered via the Aggregate Report. Navigating to Show Data Dictionary or View Aggregate Report will open a new window or tab in your browser.

FIGURE 2

Refer to the [Data Dictionary](#) and [View Aggregate Report](#) sections above for more information.

3. Print Blank

You have the option to print blank case Forms (**FIGURE 16**).

Steps for Printing Blank Forms

- You can print blank Forms from the “summary” page (**FIGURE 16**) or while in a case (**FIGURE 17**).
- Click on the “Print Blank” button in the tool bar to reveal the drop-down options (**FIGURE 17**).
- Select individual Forms or select “All” to print all of the blank Forms.

FIGURE 16

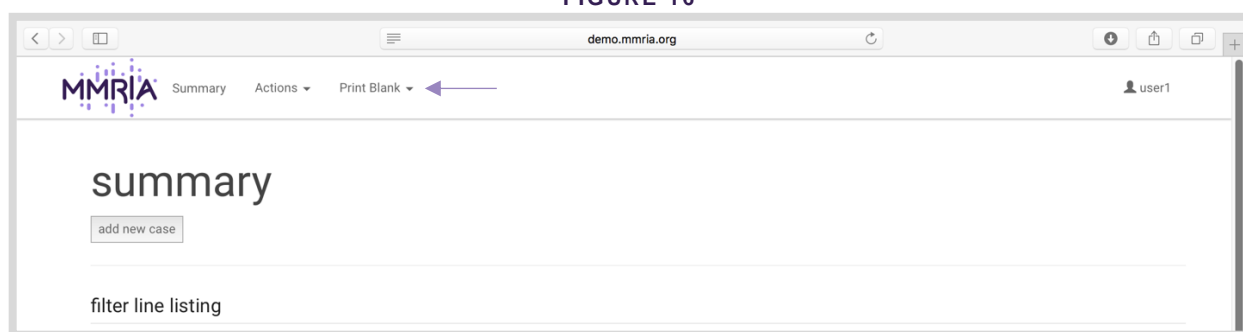
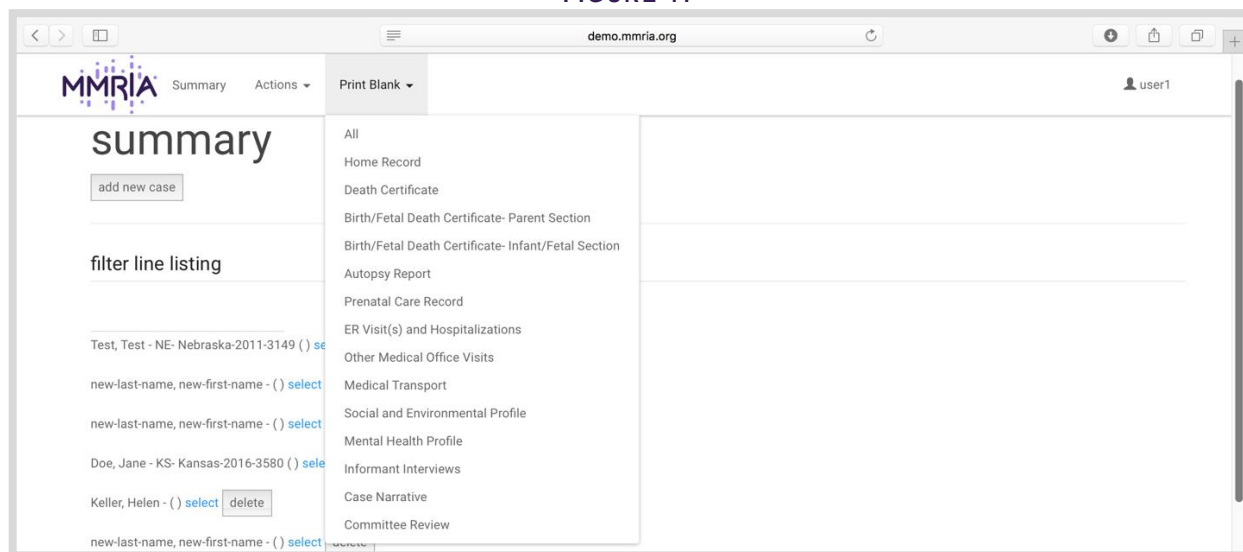


FIGURE 17



Case Forms

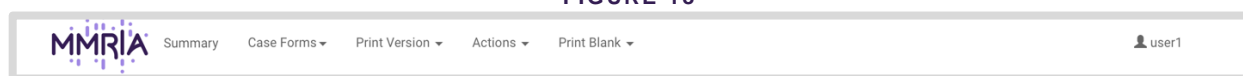
The following sections will highlight the 11 case forms within MMRIA. Data may be entered in any order. You will be directed to the Home Record after selecting “Add New Case” or selecting a previously entered case for review or edit.

Menu Options

The menu options at the top of the page are different than those on the preceding Forms. You will now view the subsequent options:

- **Summary** – returns you to summary page
- **Case Forms** – displays a drop-down list of Forms
- **Print Version** – enables you to print a completed case or specific completed Forms
- **Actions** – enables you to populate core elements, show data dictionary, or view aggregate report
- **Print Blank** – enables you to print all blank Forms or specific Forms

FIGURE 18



Home Record Form

The Home Record Form is divided into three components: Record ID, Date of Death, and Case Progress.

Record ID

The Record ID is automatically generated once you complete the Last Name, Year of Death and State of Death fields and click in the Record ID field (**FIGURE 19**). The Record ID consists of your *2 letter state acronym + the year of death + a random 4-digit number*.

FIGURE 19

Record ID is automatically generated. Enter Name, Year of Death, and then click in Record ID field.

3 Record ID*

1 First Name
new-first-name

Middle Name

Last Name
new-last-name

Date of Death*

Month
0

Day
0

Year
0

2

How was this Death Identified? (Primary Source)*

Agency-Based Case Identifier

The Agency-Based Case Identifier field, (**FIGURE 20**), is for internal reference and is based on your jurisdiction or state system. If your jurisdiction does not use an internal reference number, you can leave this field blank.

FIGURE 20

MMRIA Summary Case Forms Print Version Actions Print Blank user1

new-last-name

Date of Death*

Month
0

Day
0

Year
0

State of Death Record*

Location of Last Known Residence

Agency-Based Case Identifier

How was this Death Identified? (Primary Source)*

Case Progress Report

The Case Progress Report (**FIGURE 21**) allows you to track your abstraction progress as you fill out each Form in MMRIA. You are presented with the following options:

- • **Not Started**
- • **In Progress**
- • **Completed**
- • **Not Available**
- • **Not Applicable**

FIGURE 21

The screenshot shows the 'Case Progress Report' screen. At the top, there's a title 'Case Progress Report'. Below it, a list of forms is displayed. The first form, 'Death Certificate', has a dropdown menu open showing five status options: 'Not Started' (highlighted with a checkmark and a purple arrow), 'In Progress', 'Completed', 'Not Available', and 'Not Applicable'. Below the dropdown, the following forms are listed with downward arrows: 'Certificate- Parent Section', 'Birth/Fetal Death Certificate- Infant/Fetal Section', 'Prenatal Care Record', 'Other Medical Office Visits', 'ER Visit(s) and Hospitalizations', 'Social and Environmental Profile', 'Informant Interviews', and 'Committee Review Form'.

Death Certificate Form

To navigate to the Death Certificate Form, click on “Case Forms” and select “Death Certificate” (**FIGURE 22**).

FIGURE 22

The screenshot displays the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. The 'Case Forms' menu is open, showing a list of forms: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations, Other Medical Office Visits, Medical Transport, Social and Environmental Profile, Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review. A blue arrow points to the 'Home Record' option. On the left side of the interface, there is a form for 'Home Record' with fields for Record ID*, First Name (new-first-name), Middle Name, Last Name (new-last-name), Date of Death* (Month, Day, Year), and a 'Get Coordinates' button.

Place of Last Residence and Geocoding

This section of the Death Certificate is specific to the address of the deceased, and not the location of death, i.e. name of the medical facility where the woman died. The full address, along with other identifying information will not be visible to the Committee Reviewer role. MMRIA uses geocoding to support social and health system context for case discussion and analyses and enable distance calculations. A complete address is required to successfully geocode an address. MMRIA's "Get Coordinates" button is linked to Texas A&M's Geoservices geocoding system web services.

1. **Enter the full address**
2. **Click on "Get Coordinates."** Latitude and longitude values will appear.

FIGURE 23

Place of Last Residence

1 Street

City

State*

Zip Code

County

Latitude*

3 Longitude*

2 Get Coordinates

Birth/Fetal Death Certificate – Parent Section Form

To navigate to the Birth/Fetal Death Certificate – Parent Section Form, click on “Case Forms” and select “Birth/Fetal Death Certificate – Parent Section” (**FIGURE 24**). This Form collects information *only* on the parents and *not* the infant or fetus. Infant and fetus information is collected on the Birth/Fetal Death Certificate– Infant/Fetal Section Form.

FIGURE 24

MMRIA Summary Case Forms Print Version Actions Print Blank user1

Home Record

Record ID*

First Name
new-first-name

Middle Name

Last Name
new-last-name

Date of Death*

Month
0

Day
0

Year

- Home Record
- Death Certificate
- Birth/Fetal Death Certificate- Parent Section
- Birth/Fetal Death Certificate- Infant/Fetal Section
- Autopsy Report
- Prenatal Care Record
- ER Visit(s) and Hospitalizations
- Other Medical Office Visits
- Medical Transport
- Social and Environmental Profile
- Mental Health Profile
- Informant Interviews
- Case Narrative
- Committee Review

Race and ethnicity (**FIGURE 25**) are captured in the data system just as they are recorded on the source document.

Note: The Race Recode – is Coming Soon. The “Recode” button will code race in accordance with the standards set by the Office of Management and Budget (OMB) Race and Ethnic Standards for Federal Statistics and Administrative Reporting².

FIGURE 3

2. Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity is available from the OMB website at <http://www.whitehouse.gov/omb/fedreg/1997standards.html>.

FIGURE 4

Mother's Race

Mother's Race (Select All That Apply)

- White
- Black
- American Indian/Alaska Native
- Native Hawaiian
- Guamanian or Chamorro
- Samoan
- Other Pacific Islander
- Asian Indian
- Filipino
- Korean
- Other Asian
- Chinese
- Japanese
- Vietnamese
- Other race
- Race not specified
- Specify Other Race

Specify Other Asian

Specify Other Pacific Islander

Specify Principal Tribe

Mother's OMB Race Recode

Recode

Complete addresses are required to populate the latitude and longitude fields; this information is used to calculate distance in miles from Residence to Place of Delivery (**FIGURE 27**). Place your cursor in the field to generate the Distance from Residence to Place of Delivery.

FIGURE 5

Location of Residence

Street:

City:

State*:

Zip Code:

County:

Latitude:

Longitude:

Estimated Distance from Residence to Place of Delivery* (In Miles):

Birth/Fetal Death Certificate – Infant/Fetal Section Form

To navigate to the Birth/Fetal Death Certificate – Infant/Fetal Section Form, click on “Case Forms” and select “Birth/Fetal Death Certificate – Infant/Fetal Section” (**FIGURE 28**). To add a new record, click on “View Record 1” (**FIGURE 29**). To add information for more than one birth or fetal death, click on “Add New Birth/Fetal Death Certificate- Infant/Fetal Section Form.”

FIGURE 6

The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. The 'Case Forms' dropdown is open, displaying a list of options. A purple circle labeled '1' is placed over the 'Case Forms' dropdown button. Another purple circle labeled '2' is placed over the 'Birth/Fetal Death Certificate- Infant/Fetal Section' option in the list. The main content area on the left shows a form for 'Home Record' with fields for 'Record ID*', 'First Name', 'Middle Name', 'Last Name', 'Date of Death*', 'Month', and 'Day'. The right side of the screen is empty.

FIGURE 7

The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. The 'Case Forms' dropdown is open, displaying a list of options. A purple circle labeled '3' is placed over the 'Birth/Fetal Death Certificate- Infant/Fetal Section' option in the list. The main content area shows the title 'Birth/Fetal Death Certificate- Infant/Fetal Section'. Below the title, there is a button labeled 'add new Birth/Fetal Death Certificate- Infant/Fetal Section form' and a link labeled 'record 1'.

After you click on “View Record 1,” the Form below will appear on the screen (**FIGURE 29**). If another birth or fetal death should be added, click on “Case Forms,” navigate to “Birth/Fetal Death Certificate – Infant/Fetal Section,” and repeat steps.

FIGURE 8

The screenshot shows the MMRIA (Maternal Mortality Review Information App) interface. At the top, there is a navigation bar with the MMRIA logo and links for Summary, Case Forms, Print Version, Actions, and Print Blank. A user profile icon labeled 'user1' is in the top right. The main heading is 'Birth/Fetal Death Certificate- Infant/Fetal Section'. Below this, there is a 'Record Type*' dropdown menu. A checkbox for 'Multiple Gestation' is present. The 'Birth Order' is set to '0'. A section titled 'Newborn (Fetus) Record Identification' follows, containing input fields for First Name, Middle Name, Last Name, State File No., Local File No., and Newborn Medial Record No. At the bottom, there is a 'Date of Delivery*' field with the value '2017-01-19', an 'Estimate' checkbox, and a 'Time of Delivery' field.

Autopsy Report

To navigate to the Autopsy Form, click on “Case Forms” and select “Autopsy Report” (**FIGURE 31**). **FIGURE 32** illustrates the sections of the Autopsy Report Form.

You may wish to copy and paste sections of the actual Autopsy Report into the Reviewer’s Notes section at the bottom of the Form. Remember to always exclude any identifying information about people or facilities from Reviewer’s Notes text areas.

FIGURE 9

The screenshot shows the MMRIA Home Record form. The top navigation bar includes the MMRIA logo, a 'Summary' tab, a 'Case Forms' dropdown menu, and links for 'Print Version', 'Actions', and 'Print Blank'. The user is logged in as 'user1'. The 'Case Forms' dropdown menu is open, displaying a list of options: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations, Other Medical Office Visits, Medical Transport, Social and Environmental Profile, Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review. The form fields on the left include Record ID*, First Name (new-first-name), Middle Name, Last Name (new-last-name), Date of Death* (with Month, Day, and Year dropdowns), and Jurisdiction.

FIGURE 10

The screenshot shows the MMRIA Autopsy Report form. The top navigation bar is identical to Figure 9. The form title is 'Autopsy Report'. Below the title are two dropdown menus: 'Was an Autopsy Performed?*' and 'Completeness of Autopsy Information*'. The 'Reporter Characteristics' section includes a 'Reporter Type' dropdown menu and a text field for 'Other (Specify)'. The 'Date of Autopsy' section includes dropdown menus for 'Month', 'Day', and 'Year', and a text field for 'Jurisdiction'.

Prenatal Care Record Form

To navigate to the Prenatal Care Record Form, click on “Case Forms” and select “Prenatal Care Record” (FIGURE 33). FIGURE 34 displays the sections of the Prenatal Care Record Form.

FIGURE 11

The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. The 'Case Forms' menu is open, displaying a list of options: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations (highlighted with a blue arrow), Other Medical Office Visits, Medical Transport, Social and Environmental Profile, Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review. On the left side of the form, there are input fields for 'Record ID*', 'First Name' (with a placeholder 'new-first-name'), 'Middle Name', 'Last Name' (with a placeholder 'new-last-name'), 'Date of Death*' (with fields for 'Month' and 'Day', both with a placeholder '0'), and 'Year'.

FIGURE 12

The screenshot shows the MMRIA application interface for the 'Prenatal Care Record' form. The form is titled 'Prenatal Care Record' and includes several sections: 'Was There More than One Prenatal Care Source?' (a dropdown menu), 'Primary Prenatal Care Facility' (a text input field), 'Place Type' (a dropdown menu), 'Specify Other Place Type' (a text input field), 'Primary Provider Type' (a dropdown menu), 'Principal Source of Payment*' (a dropdown menu), 'Specify Other Payment Source' (a text input field), 'Prenatal Care Record No.' (a text input field), and 'Use of WIC*' (a dropdown menu).

PRENATAL CARE RECORD GRAPHS

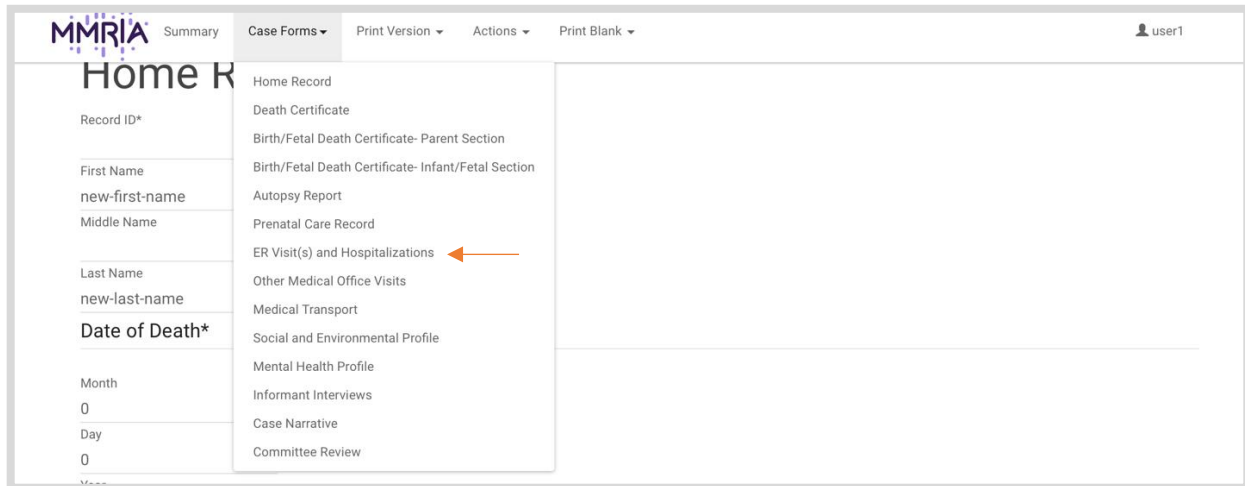
Below the Routine Monitoring Grid, you will see three graphs: Blood Pressure, Weight Gain, and Hematocrit. If you enter data for these values in the Routine Monitoring Grid, you can view it in these graphs. To generate the graphs: enter values in the Routine Monitoring Grid above the graphs. Navigate to any other Form in MMRIA, and then navigate back to the Prenatal Care Record. Values will be displayed in the graphs.

Note: If any line within a Grid is blank, a default x-axis value of 1/1/1970 and y-axis values of 0 will appear in the graphs. You can correct the graph by deleting the blank line in the Grid, navigating to another Form, and navigating back to the Prenatal Care Record.

ER Visits and Hospitalizations Form

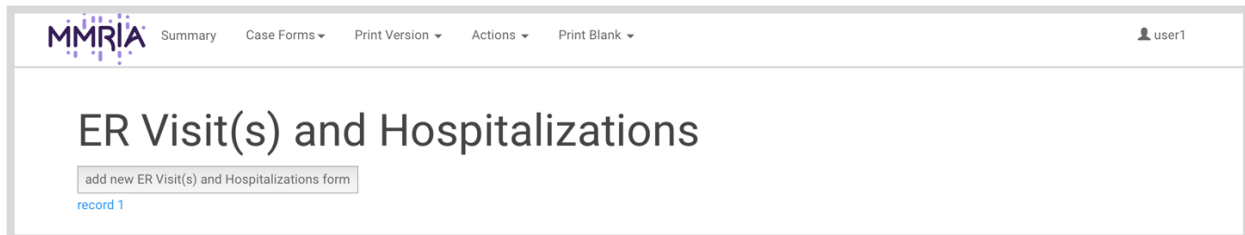
To navigate to the ER Visits and Hospitalizations Form, click on “Case Forms” and select “ER Visits and Hospitalizations” (**FIGURE 35**). To add a new record, click on “View Record 1” (**FIGURE 36**). To add information for more than one ER Visit or Hospitalization, click on “Add New ER Visits and Hospitalizations Form” (**FIGURE 26**).

FIGURE 13



The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. Below the navigation bar, there is a sidebar with a 'Home Record' section containing fields for Record ID*, First Name, Middle Name, Last Name, Date of Death*, Month, and Day. The 'Case Forms' dropdown menu is open, showing a list of options: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations (highlighted with an orange arrow), Other Medical Office Visits, Medical Transport, Social and Environmental Profile, Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review. The main content area is currently blank.

FIGURE 14



The screenshot shows the MMRIA application interface with the 'ER Visit(s) and Hospitalizations' form open. The navigation bar at the top is the same as in Figure 13. The main content area has a large heading 'ER Visit(s) and Hospitalizations'. Below the heading, there is a button labeled 'add new ER Visit(s) and Hospitalizations form' and a link labeled 'record 1'.

After you click on “View Record 1,” the ER Visits and Hospitalizations Form will appear on the screen (**FIGURE 37**). If there were multiple ER Visits or Hospitalizations, click on “Case Forms,” navigate to “ER Visits and Hospitalizations,” and repeat steps.

FIGURE 15

MMRIA Summary Case Forms Print Version Actions Print Blank user1

ER Visit(s) and Hospitalizations

Maternal Record Identification

First Name

Middle Name

Last Name

Maiden Name

Medical Record Number

FIGURE 16

Diagnostic Imaging and Other Technology

Date and Time	Procedure	Target	Findings	
2017-01-19	13:43:33.176			delete
				Add Item

Referrals and Consultations

Date	Specialist Type	Reason	Recommendations	
2017-01-19				delete
				Add Item

Reviewer's Notes About this Hospitalization, Delivery or ER Visit
(Fill out separate summary for each hospital visit and label each different facility by number or letter to differentiate facilities.)

She presented at ___(weeks gestation) to the ___

ER VISITS AND HOSPITALIZATIONS FORM GRAPHS

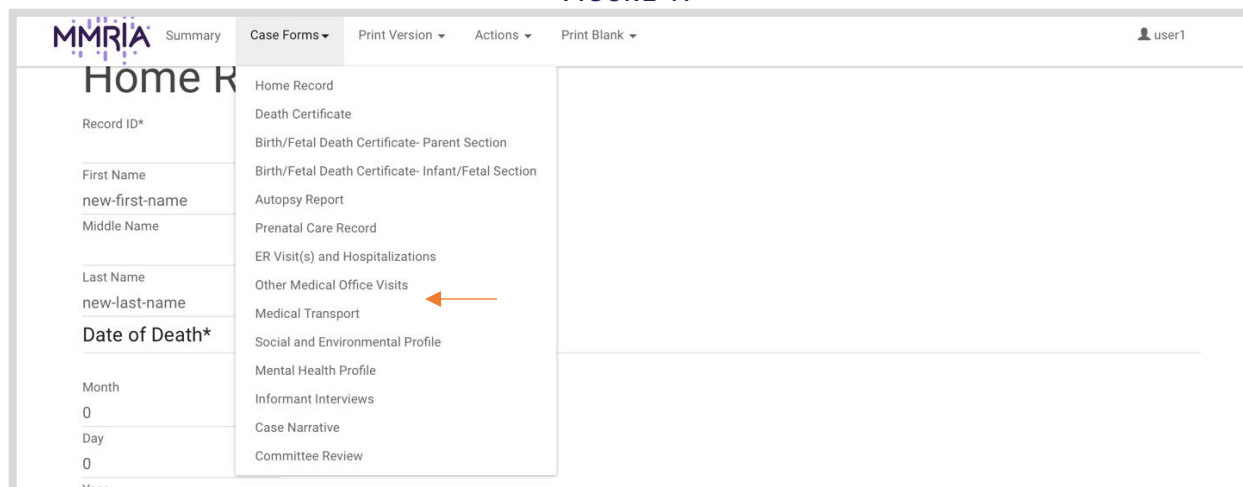
Below the Vital Signs Grid, you will see four graphs: Temperature, Pulse, Respiration, and Blood Pressure. If you enter data for these values in the Vital Signs Grid, you can view it in these graphs. To generate the graphs: enter values in the Vital Signs Grid above the graphs. Navigate to any other Form in MMRIA, and then navigate back to the ER Visits and Hospitalizations Form. Values will be displayed in the graphs.

Note: If any line within a Grid is blank, a default x-axis value of 1/1/1970 00:00:00 and y-axis values of 0 will appear in the graphs. You can correct the graph by deleting the blank line in the Grid, navigating to another Form, and navigating back to the ER Visits and Hospitalizations Form.

Other Medical Office Visits Form

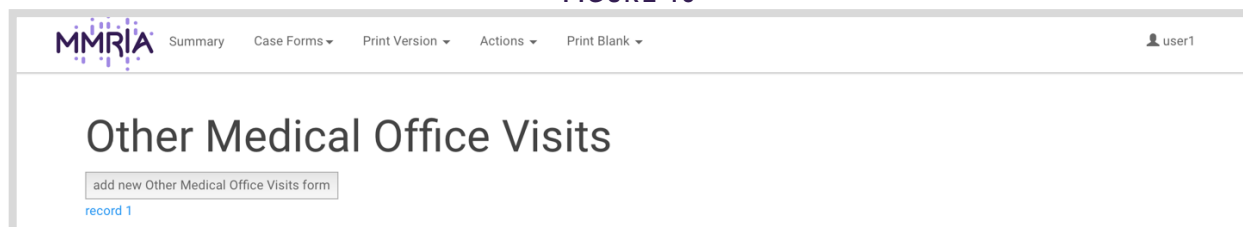
To navigate to the Other Medical Office Visits Form, click on “Case Forms” and select “Other Medical Office Visits” (**FIGURE 39**). To add a new record, click on “View Record 1” (**FIGURE 40**). To add information for more than one Other Medical Office Visit, click on “Add New Other Medical Office Visits Form” (**FIGURE 40**).

FIGURE 17



The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. Below the navigation bar, there is a form titled 'Home Record' with fields for 'Record ID*', 'First Name' (with a placeholder 'new-first-name'), 'Middle Name', 'Last Name' (with a placeholder 'new-last-name'), and 'Date of Death*' (with fields for 'Month', 'Day', and 'Year'). To the right of the form, there is a dropdown menu for 'Case Forms' with the following options: 'Home Record', 'Death Certificate', 'Birth/Fetal Death Certificate- Parent Section', 'Birth/Fetal Death Certificate- Infant/Fetal Section', 'Autopsy Report', 'Prenatal Care Record', 'ER Visit(s) and Hospitalizations', 'Other Medical Office Visits' (highlighted with an orange arrow), 'Medical Transport', 'Social and Environmental Profile', 'Mental Health Profile', 'Informant Interviews', 'Case Narrative', and 'Committee Review'.

FIGURE 18



The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. Below the navigation bar, there is a form titled 'Other Medical Office Visits'. Below the title, there is a button labeled 'add new Other Medical Office Visits form' and a link labeled 'record 1'.

After you click on “View Record 1,” the Form below will appear on the screen (**FIGURE 41**). If there were multiple Other Medical Office Visits, click on “Case Forms,” navigate to “Other Medical Office Visits,” and repeat steps.

FIGURE 19

MMRIA Summary Case Forms Print Version Actions Print Blank user1

Other Medical Office Visits

Visit

Date Of Medical Office Visit
 2017-01-20 20:23:31.303

Visit Type*
 [Dropdown]

Arrival Time
 00:00:00.000

Medical Record No

Reason For Visit Or Chief Complaint

Location of Medical Care Facility

Remember that within the Reviewer Committee role, complete addresses will be de-identified – only the state will appear.

- **Enter the full address.**
- **Click on “Get Coordinates.”**

The “Get Coordinates” button (**FIGURE 42**) helps with geocoding for mapping. This is a two-step process involving collecting latitude/longitude and FIPS block level information. The latitude and longitude can aid analyses.

FIGURE 20

Location Of Medical Care Facility

Street

City

State
 [Dropdown]

Zip Code

County

Latitude

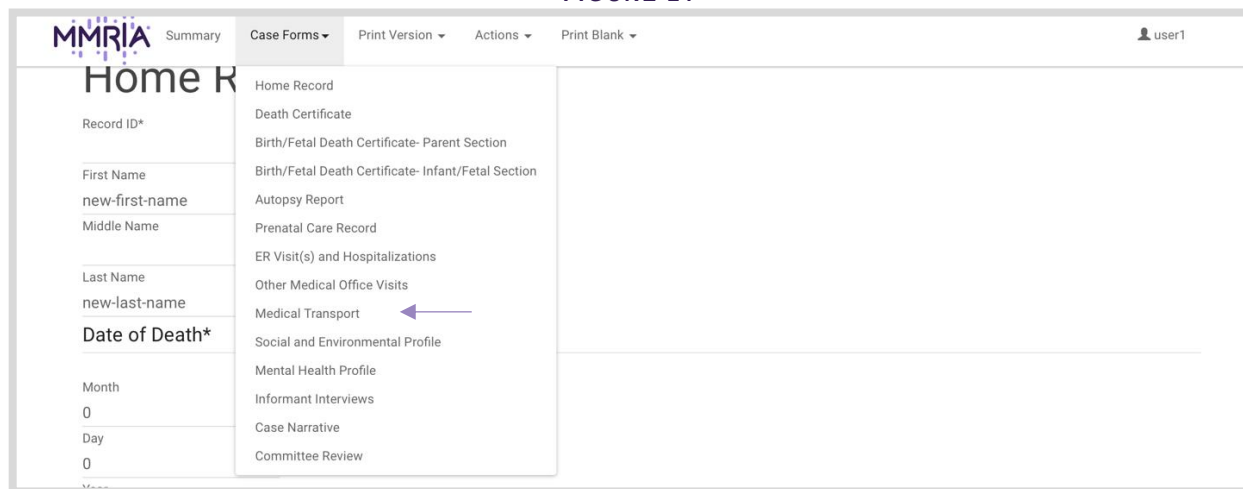
Longitude

Get Coordinates

Medical Transport Form

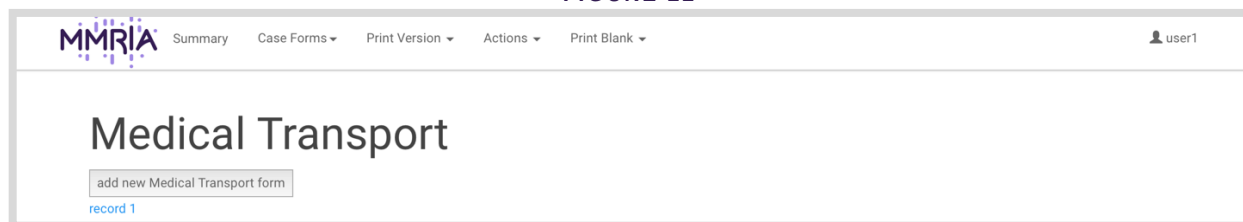
To navigate to the Medical Transport Form, click on “Case Forms” and select “Medical Transport” (**FIGURE 43**). To add a new record, click on “View Record 1” (**FIGURE 44**). To add information for more than one Medical Transport, click on “Add New Medical Transport Form” (**FIGURE 44**).

FIGURE 21



The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. The 'Case Forms' menu is open, displaying a list of options: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations, Other Medical Office Visits, Medical Transport (highlighted with a blue arrow), Social and Environmental Profile, Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review. On the left side of the interface, there are input fields for 'Record ID*', 'First Name' (with placeholder 'new-first-name'), 'Middle Name', 'Last Name' (with placeholder 'new-last-name'), 'Date of Death*' (with sub-fields for Month, Day, and Year), and a 'Month' field with a value of '0'.

FIGURE 22



The screenshot shows the MMRIA application interface with the 'Medical Transport' form selected. The top navigation bar is the same as in Figure 21. The main content area has a large heading 'Medical Transport'. Below the heading, there is a button labeled 'add new Medical Transport form' and a link labeled 'record 1'.

After you click “View Record 1” (**FIGURE 45**), the Form below will appear on the screen (**FIGURE 45**). If there were multiple Medical Transports, click on “Case Forms,” navigate to “Medical Transport,” and repeat steps above.

FIGURE 23

The screenshot shows the MMRIA Medical Transport form. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and several dropdown menus: 'Case Forms', 'Print Version', 'Actions', and 'Print Blank'. A user icon labeled 'user1' is in the top right. The main heading is 'Medical Transport'. Below it, there is a 'Date' field with the value '2017-01-20' and a 'Reason for Transport' field. Further down, there is a large text area for 'Maternal Conditions (Describe)' and another for 'Who Managed the Transport?'. At the bottom, there is a 'Transport Vehicle' dropdown menu.

Social and Environmental Profile Form

The **Social and Environmental Profile** should be completed for each case that you abstract and **review**. To navigate to the Social and Environment Profile Form, click on “Case Forms” and select “Social and Environment Profile” (**FIGURE 46**).

FIGURE 24

The screenshot shows the MMRIA Case Forms dropdown menu. The navigation bar at the top is identical to Figure 23. The 'Case Forms' dropdown is open, showing a list of options: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations, Other Medical Office Visits, Medical Transport, Social and Environmental Profile, Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review. A blue arrow points to 'Social and Environmental Profile'. On the left side of the form, there are input fields for 'Record ID*', 'First Name' (with 'new-first-name' below it), 'Middle Name', 'Last Name' (with 'new-last-name' below it), 'Date of Death*' (with 'Month', 'Day', and 'Year' dropdowns below it), and 'Year'.

Mental Health Profile Form

To navigate to the Mental Health Profile Form, click on “Case Forms” (**FIGURE 47**) and select “Mental Health Profile” (**FIGURE 48**).

FIGURE 25

The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. The 'Case Forms' menu is open, displaying a list of options: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations, Other Medical Office Visits, Medical Transport, Social and Environmental Profile, **Mental Health Profile** (highlighted with a blue arrow), Informant Interviews, Case Narrative, and Committee Review. On the left side of the interface, there are input fields for 'Record ID*', 'First Name' (with a placeholder 'new-first-name'), 'Middle Name', 'Last Name' (with a placeholder 'new-last-name'), 'Date of Death*' (with fields for Month, Day, and Year), and 'Sex'.

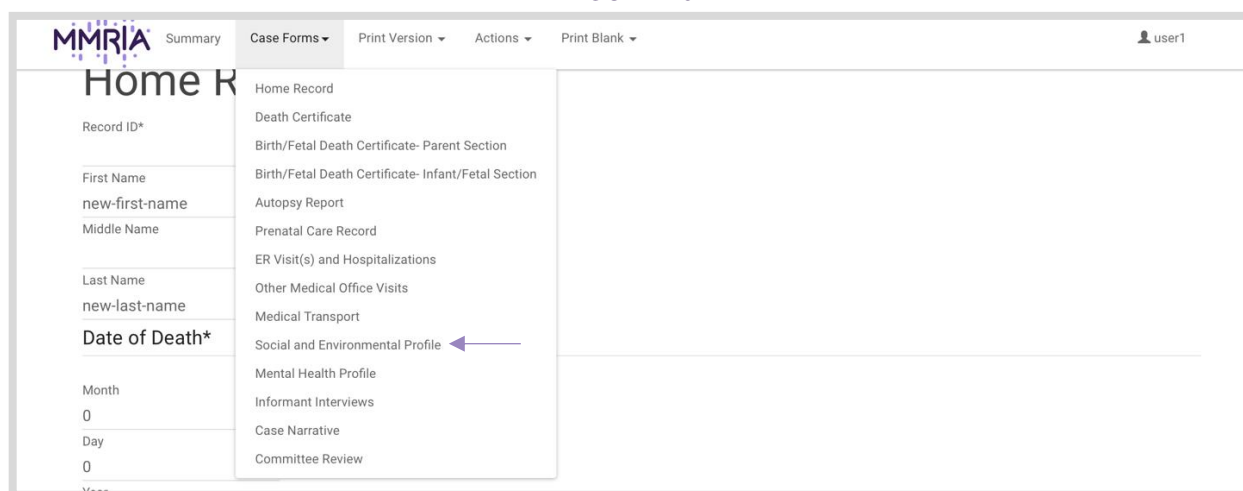
FIGURE 26

The screenshot displays the 'Mental Health Profile' form in the MMRIA application. The form has a header with the MMRIA logo and navigation tabs: 'Summary', 'Case Forms', 'Print Version', 'Actions', and 'Print Blank'. The user is logged in as 'user1'. The main title is 'Mental Health Profile'. Below the title, there is a section titled 'Were There Documented Mental Health Conditions?' with input fields for 'Date of Screening' (2017-01-23), 'Gestational Age- Weeks' (0), 'Gestational Age- Days' (0), 'Screening Tool' (a dropdown menu), and 'Other'. Below this, there is a section titled 'Were There Documented Preexisting Mental Health Conditions?'. This section contains a table with columns: 'Condition', 'Duration of Condition', 'Treatment(s)', 'Duration of Treatment', 'Treatment Changed During Pregnancy?', 'Dosage Changed During Pregnancy?', 'Mental Health Provider Consultation During this Pregnancy?', 'If Yes, Mental Health Provider Adhere to Treatment?', and 'Did Patient Adhere to Treatment?'. The table has several rows with dropdown menus for each column. To the right of the table, there are 'delete' and 'Add Item' buttons. Below the table, there is a section titled 'Was the Decedent Treated for Any of the Following Mental Health Conditions Prior to the Most Recent Pregnancy? (Check All that Apply)*'. This section has a list of conditions: Depression, Anxiety disorder, Bipolar disorder, Psychotic disorder, Substance use disorder, and Other, with a vertical scrollbar on the right.

Informant Interviews Form

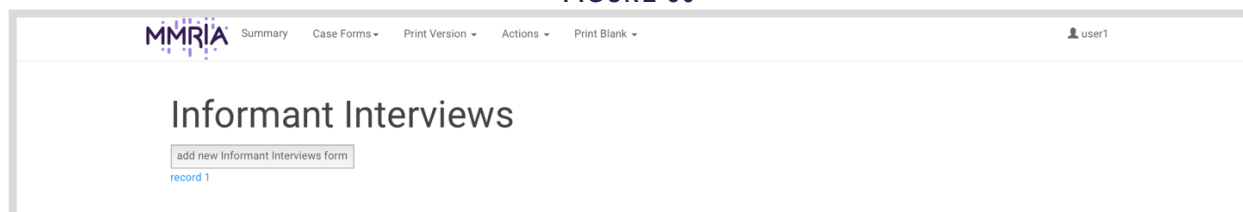
To navigate to the Informant Interviews Form, click on “Case Forms” and select “Informant Interviews” (**FIGURE 49**). To add a new record, click on “Record 1” (**FIGURE 50**). To add information for more than one Informant Interview, click on “Add New Informant Interview Form” (**FIGURE 50**).

FIGURE 49



The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. The 'Case Forms' menu is open, displaying a list of options: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations, Other Medical Office Visits, Medical Transport, Social and Environmental Profile (highlighted with a blue arrow), Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review. On the left side of the main content area, there is a form for 'Home Record' with fields for Record ID*, First Name (new-first-name), Middle Name, Last Name (new-last-name), Date of Death*, Month (0), Day (0), and Year (0).

FIGURE 50



The screenshot shows the MMRIA application interface. At the top, there is a navigation bar with the MMRIA logo, a 'Summary' tab, and a 'Case Forms' dropdown menu. The 'Case Forms' menu is open, displaying a list of options: Home Record, Death Certificate, Birth/Fetal Death Certificate- Parent Section, Birth/Fetal Death Certificate- Infant/Fetal Section, Autopsy Report, Prenatal Care Record, ER Visit(s) and Hospitalizations, Other Medical Office Visits, Medical Transport, Social and Environmental Profile, Mental Health Profile, Informant Interviews, Case Narrative, and Committee Review. On the left side of the main content area, there is a form for 'Home Record' with fields for Record ID*, First Name (new-first-name), Middle Name, Last Name (new-last-name), Date of Death*, Month (0), Day (0), and Year (0).

After you click on “View Record 1”, the Form below will appear on the screen (**FIGURE 51**). If there were multiple Informant Interviews, click on “Case Forms,” navigate to “Informant Interviews,” and repeat steps above.

FIGURE 27

MMRIA Summary Case Forms Print Version Actions Print Blank user1

Informant Interviews

Date Of Interview
2017-01-23 13:40:48.606

Interview Type*

Informant Name

Age Group

Relationship To Deceased

Other Relationship

Ethnicity

Race

- Black
- White
- American Indian / Alaska Native
- Hawaiian / Pacific Islander
- Asian

Interview Narrative

Reviewer's Notes About the Informant Interview

Case Narrative Form

To navigate to the Case Narrative Form, click on “Case Forms” and select “Case Narrative”.

HOW TO USE THE CASE NARRATIVE FORM


Within the Case Narrative Form, you will see the Reviewer's Notes from the various Forms carried over into one place. At the very bottom is a text box labeled Case Narrative- this is where you can write your case narrative to print for your committee. You may use the template provided and edit it as needed.

You can copy and paste from the Reviewer's Notes boxes into the Case Narrative box at the very bottom to write a comprehensive Case Narrative. To copy and paste from the Reviewer's Notes boxes, highlight the text you wish to copy, right click, and select Copy. Then place your cursor in the Case Narrative box at the very bottom of the Form, right click, and select Paste.

You can also copy and paste text from Word, Notepad or other documents outside of MMRIA. Text may be copied into MMRIA; however, Formatting will not be maintained (e.g. bold, italics, and underlines). Pasting images or other file types is not currently supported in MMRIA

When you have completed your case narrative, you can preview or print it by going to Print Version and clicking “Case Narrative.” You will see the Case Narrative displayed there (**FIGURE 52**).

FIGURE 52



Case Narrative

She was a (age, place of birth, race/ethnicity, marriage status, level education, occupation). She was a gravida ____ para ____, who died with cause of death ____, ____ days /months, before, during or after delivery. Medical history was significant for ____ (Pre-pregnancy risk factors or pre-existing medical conditions). Pre-pregnancy BMI was _____. Life course issues significant for ____ (psychosocial risk factors). Entry into prenatal care was at ____ weeks with # visits at a ____ (describe location) with a ____ (provider type). Prenatal history was significant for ____ (include identified obstetric risk factors). Referrals during prenatal period were to ____ on ____ (date). Health events prior to delivery included _____. She presented to clinic/hospital/other ____ at ____ weeks gestation. Delivery was by a (provider title) ____, method was ____, with ____ anesthesia. Obstetric complications included _____. She presented to clinic/hospital/other ____ at ____ weeks gestation. Delivery was by a (provider title) ____, method was ____, with ____ anesthesia. Obstetric complications included _____. Fetus/infant was ____ weeks gestation and weighed ____ pounds/ounces. Apgar scores were ____ and complications were _____. Postpartum period (before discharge) significant for developing _____. Mother and infant were/were not discharged (if applicable) to _____. At ____ weeks postpartum she presented to (describe location) _____. Postpartum period (after discharge) significant for _____. (Summarize terminal event). Autopsy was done by a ____ or was not done. Significant findings included _____. (Describe if any bereavement services were offered.)

Note: Currently, the Case Narrative does not display line breaks, line skips or indents. In the future, the Case Narrative display will include formatting for easier reading. If you wish to re-format the Case Narrative you can always copy and paste it into Word or another file format.

Committee Decisions Form

To navigate to the Committee Decisions Form, click on “Case Forms” and select “Committee Decisions”.

HOW TO USE THE COMMITTEE DECISIONS FORM

The Committee Decisions form is perhaps the most important form within MMRIA, because it captures the findings of your committee and helps your committee prioritize action. It is crucial to assign a person to take notes on the “paper” version of the Committee Decisions form ([Appendix](#)) BEFORE each case goes for review. This person may or may not be the same person who abstracted the case. You can also give copies of the form to each committee member for each case and collect their forms at the end of each meeting, in order to capture all possible input on a case. Once the meeting has finished and a case is closed, an abstractor or other assigned data entry person should enter the findings into the system as soon as possible.

Though the formatting differs, the content of the “paper” version of the form matches the content of the Committee Decisions form within the system (**FIGURE 53**).

FIGURE 53

MMRIA Summary Case Forms Print Version Actions Print Blank user1

Does Committee Agree with Cause of Death Listed on Death Certificate?

Notes About Key Circumstances Surrounding This Death Identified by the Committee (Enter in Bulleted Format)

Committee Determination of Cause(s) of Death

Type	Cause (Descriptive)
	delete
	Add Item

If Pregnancy-Related, Committee Determination of Underlying Cause of Death (PMSS-MM)* (Select Up To Two)

PMSS-MM

delete

Add Item

Did Obesity Contribute to the Death?

Did Mental Health Conditions Contribute to the Death?

Did Substance Use Disorder Contribute to the Death?

Was This Death a Suicide?

Was this Death a Homicide?




If This Death Was a Homicide, What Was the Relationship of the Perpetrator to the Decedent?

G. DATA ANALYSIS

Data Structure

The MMRIA data structure is a hierarchical database, with two levels in the hierarchy. The first level is composed of Forms for which you can have only one per case (Single Forms) and Forms for which you can have more than one per case (Multiple Forms). The second level is composed of Grids that exist within the Single and Multiple Forms.

Forms and Grids

 SINGLE FORMS	 MULTIPLE FORMS	 GRIDS
<ul style="list-style-type: none"> Death Certificate Birth/Fetal Death Certificate- Parent Section Autopsy Report Prenatal Care Records Mental Health Profile Social and Environmental Profile Committee Decisions Case Narrative 	<ul style="list-style-type: none"> Birth/Fetal Death Certificate– Infant/Fetal Section ER Visits and Hospitalizations Medical Transport Informant Interviews Other Medical Office Visits 	<p>Grids exist within single and multiple forms. See Field Types for more details.</p>

The data is stored by MMRIA in JSON (JavaScript Object Notation) Format. While it is possible to import JSON Formatted data directly into some data analysis tools, MMRIA also has a data export function that provides CSV files for analysis. These data files are structured like a relational database.

Core Elements Report

The Core Elements Report, unlike in MMRDS, is now a report rather than a data entry Form. The data used to create this report come from the other Forms in MMRIA. This report can be printed to support case review processes and exported as a data table to support MMRC analyses.

Data Export

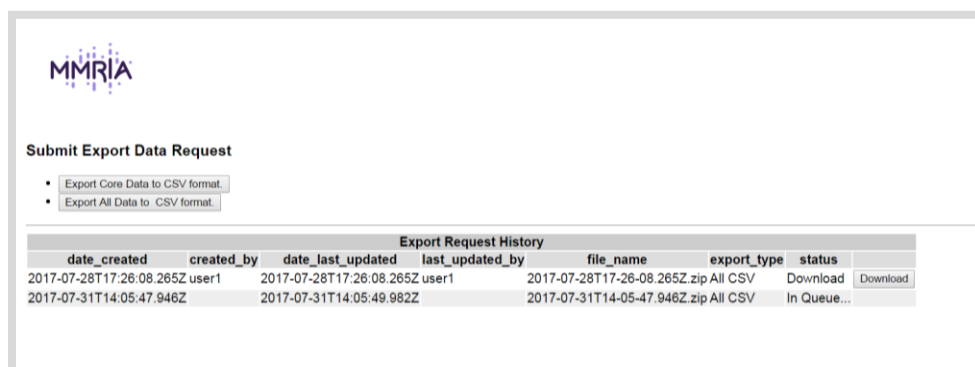
Data tables are exported as CSV files from MMRIA. All 1st level Single Forms, are merged and output as one file, named *mmria_case_export*. The Core Elements report is exported as a separate CSV file, named *core_mmria_export*. A separate CSV file is also created for each of the five 1st level Multiple Forms, and each of the 53 Grids. The CSV files are named to reflect the Forms where they originated and contents of the Grid.

In addition, there are two mapping files that are exported with the CSV files. One is for the Forms and Grids (*field_mapping*) and the other is for the Core Elements (*core_field_mapping*). These mapping files are a reference tool for you, and provide the File name, Path, and the Variable name.

All files are exported into a folder called “Export”, which is located at C:\temp\mmria-export. Once exported, these files are ready for analysis. Some analyses may require you to merge two or more of the exported CSV files.

Export Data

1. On the top Menu Bar, navigate to Actions → Export Data. A new tab will open in your browser titled “Submit Export Data Request.”



2. Choose either “Export Core Data to csv format” or “Export All Data to CSV format.”
3. A new line item will appear in the Export Request History with “Confirmation Required” in the Status column. Confirm your request by selecting the “Confirm” button.
4. The “In Queue” message will appear. *This process can take several minutes, and may be slower or faster depending on the number of cases you have in MMRIA. The core export is generally faster than the export of all data.*
5. When the “Download” button appears, click Download and a zip file will be generated.* The name of the zip file is formatted as an ISO Date and Time String: YYYY-MM-DD T hh:mm:ss Z. **It may be necessary to clear your browsing history prior to downloading the files. To do so in Google Chrome select Settings. Under Advanced, select Privacy and Security, then select Clear Browsing Data.*
6. Open the zip file to view the individual csv files.
7. Save the zip file to your local computer for offline access. You can also re-run the download of any export at a later date.

You may wish to delete previous exports from your Export Request History. This is recommended to improve the speed of future exports. Save copies of any previous data exports to a secure location, and then use the “Delete” button to remove them from your Export Request History.

Relating Your Data:

Any of the CSV files can be imported into the software of your choice for analysis. There will be times that you will want to relate two or more of the CSV files.


Single-Single	1 st level to 1 st level	1 key used	Key is <i>_id</i> in both sources
Single-Multiple	1 st level to 1 st level	1 key used	Key is <i>_id</i> in both sources
Single-Grid	1 st level to 2 nd level	1 key used	Key is <i>_id</i> in both sources
Multiple-Multiple	1 st level to 1 st level	1 key used	Key is <i>_id</i> in both sources
Multiple-Grid	1 st level to 2 nd level	3 keys used	Keys in Multiple Form Files are <i>_id</i> and <i>record_index</i> , and in the Grid Files are <i>_id</i> and <i>parent_record_index</i> .

Data Export: Grids

Grids are used to capture data in cases where users have more than one entry per Form and the entry has related fields. One example is the Toxicology Grid on the Autopsy Report Form.

You can input multiple substances and indicate characteristics for each substance, such as concentration, unit, and level, as illustrated below.

TOXICOLOGY GRID ON THE AUTOPSY REPORT FORM

<u>Substance</u>	<u>Concentration</u>	<u>Unit</u>	<u>Level</u>
A			
B			
C			

Below is a list of each Form that Contains at least 1 Grid, and the numbers of Grids contained within that Form.

SINGLE FORMS:

- Death Certificate [1 Grid]
- Autopsy Report [4 Grids]
- Prenatal Care Record [13 Grids]
- Social and Environmental Profile [5 Grids]
- Mental Health Profile [2 Grids]

- Committee Decisions [3 Grids]

MULTIPLE FORMS:

- Birth/Fetal Death Certificate – Infant/Fetal section [1 Grid]
- ER Visits and Hospitalizations [13 Grids]
- Other Medical Office Visits [10 Grids]
- Medical Transport [1 Grid]

Analysis of MMRIA Data: Considerations

- You are most likely to use only one to three Forms, with their associated Grids, during data analysis. The Core Elements, Committee Decisions Form, and Death Certificate, along with their associated Grids, together provide the data an analyst would need to support both routine and topic specific analyses.
- Some Forms and Grids may never be used in analysis. This is because they are there for other purposes, such as case narrative development.
- Variables in the CSV output data files were named using the following convention:
 - The first 3 letters of the first 3 words of the Form name +
 - The first letter of each word in the MMRIA path +
 - The first 5 letters of the last word in the MMRIA path

For example: the variable for place type, of the medical care facility, on the Other Medical Office Visits Form (path:

other_medical_office_visits/medical_care_facility/place_type) is omovmcf_p_type)

The path and variable names are located in the *field_mapping* CSV file.

If there is a duplicate variable name based on this algorithm, MMRIA creates a unique alphanumeric name. In future releases of MMRIA, these alphanumeric names will be replaced with a descriptive name.

Example Analyses

Below are some examples of questions that you might pursue, along with the required data files.

- What proportion of pregnancy-associated deaths are pregnancy-related?
 - Data file: Core Elements
- What are the leading underlying causes of pregnancy-related death? How do they vary?
 - Data file: Core Elements
- What are the most and least preventable underlying causes of pregnancy-related death?
 - Data file: Core Elements
- What are the common contributing factors of the leading and most preventable causes of pregnancy-related death?
 - Data files: Core Elements merged with Contributing Factors Grid
- What recommendations for action were made for the leading and most preventable causes of pregnancy-related death?
 - Data files: Core Elements merged with Committee Recommendations Grid
- What recommendations for action for the leading and most preventable causes of pregnancy-related death would have the largest impact?

- • Data files: Core Elements merged with Committee Recommendations Grid

H. REVIEWING CASES

If you are a Committee Member wishing to view cases in MMRIA, you will need to contact your User Admin(s) to receive access to MMRIA. Refer to the [Logging In](#) section for guidance.

How to Use the Committee Reviewer Role

Once you have logged in, you will see a Line Listing Summary page displaying all cases that have been entered into MMRIA by your committee's abstractors. Note that the first and last names have been redacted and replaced with "de-identified" for each case.

The screenshot shows the MMRIA interface with the following elements:

- Header: MMRIA logo, Summary, Actions (dropdown), Print Blank (dropdown), and user3 profile.
- Title: Line Listing Summary
- Table of cases:

Case Information	select	delete
de-identified, de-identified - NY-2010-8908 ()	select	delete
de-identified, de-identified - ID-2015-5868 ()	select	delete
de-identified, de-identified - CT-2017-0938 ()	select	delete
de-identified, de-identified - AR-1989-8420 ()	select	delete
de-identified, de-identified - AK-1920-4500 ()	select	delete
de-identified, de-identified - GA-2015-9614 ()	select	delete
de-identified, de-identified - SC-2000-3320 ()	select	delete
de-identified, de-identified - FL-2000-2378 ()	select	delete

Note: next to each case you see a "delete" button. This has been disabled. Though it appears you can delete a case, if you log out and log back in, the cases will re-appear. As a committee reviewer you can only **view** cases.

To view a case, click "select" to the right of the listing. You will be directed to the Home Record. To learn more about the contents each case form, refer to the [Case Forms](#) section of this User Guide.

De-identified Fields

Within each case, you will see all of the forms that your committee's abstractors have access to. However, you will see that the following fields are de-identified:

Form	Fields
------	--------

	First Name, Middle Name, Last Name
	Month and Day of Death
	Agency-Based Case Identifier
	Time of Death
	Local File No.
	State File No.
	Place of Last Residence- Street, City, Zip Code, County, Latitude, Longitude
	Month and Day of Birth
	City of Birth
	Month and Day of Injury
	Time of Injury
	Place of Injury (Place Name)
	Location Where Injury Occurred- Street, City, Zip Code, County, Latitude, Longitude
	Place of Death- Facility Name, Street, City, Zip Code, County, Latitude, Longitude
	Delivery Facility NPI Number, Delivery Facility Name
	Attendant's NPI

	Name of Facility Mother Transferred From
	Facility of Delivery Location Street, City, Zip Code, County, Latitude, Longitude
	Father's First Name, Middle Name, Last Name
	Father's Month and Day of Birth
	Father's City of Birth
	Mother's First Name, Middle Name, Last Name, Maiden Name, Medical Record Number
	Mother's Month and Day of Birth
	Mother's City of Birth
	Location of Residence- Street, City, Zip Code, County, Latitude, Longitude
	Month and Day of Last Live Birth, Last Other Pregnancy Outcome, Last Normal Menses, First Prenatal Care Visit, Last Prenatal Care Visit
	Newborn/Fetus First Name, Middle Name, Last Name
	State File No., Local File No., Medical Record No.
	Facility- Name, City and State
	Month and Day of Autopsy
	Jurisdiction
	Prenatal Care Record No.

	Location of Primary Prenatal Care Facility- Street, City, Zip Code, County, Latitude, Longitude
	Month and Day that Birth Control was Discontinued
	Month and Day of: Last Normal Menses, Estimated Date of Confinement (Estimated Date of Delivery), First Prenatal Visit, First Ultrasound, Last Prenatal Visit
	Name, City and State of Intended Birthing Facility
	Dates of: Routine Monitoring Other Laboratory Tests, Diagnostic Procedures, Problems Identified, Medications/Drugs and Adverse Reactions During Pregnancy, Pre-Delivery Hospitalizations or ER Visits, Medical Referrals, Prenatal Care Other than the Primary Provider
	First Name, Middle Name, Last Name, Maiden Name
	Medical Record Number
	Month and Day of Arrival at Hospital/ER, Admission to Hospital, Discharge from ER/Hospital
	Facility Name
	Facility NPI Number
	Facility Street, City, Zip Code, County, Latitude, Longitude
	Date/Times of: Internal Transfers, Physical Examinations and Evaluations, Psychological Examinations and Assessments, Laboratory Tests, Pathology, Vital Signs, Medications, Surgical Procedures, Blood Transfusions or Blood Products, Diagnostic Imaging and Other Technology, Referrals and Consultations
	Month and Day of: Onset of Labor, Rupture of Membranes,
	Birth Attendant(s) NPI Numbers

Other Medical Office Visits	Month and Day of Medical Office Visit
	Medical Record No
	Location of Medical Care Facility- Street, City, Zip Code, County, Latitude, Longitude
	Date/Times of: Vital Signs, Laboratory Tests, Diagnostic Imaging and Other Technology, Physical Exams, Referrals and Consultations, Medications
	Month and Day of Medical Transport
	Date/Times of: Transport Vital Signs, Departure, Arrival, Patient Contact
	Place of Destination
Social and Environmental Profile	Date/Times of: Social and Medical Referrals
	Names of Sources of Social Services Information
Mental Health Profile	Date of Screening
Informant Interviews	Informant Name
	Month and Day of Interview

Note on Display:

All de-identified Times display as “12:00 AM”.

All de-identified Dates within grids display as “2001-01-01”.

All de-identified Date/Time fields within grids display as “0001-01-01 00:00:00”.

All de-identified text fields display as “de-identified.”

Note: because dates are de-identified, it is important that your committee’s abstractor(s) enter **gestational ages or days postpartum** for all events.

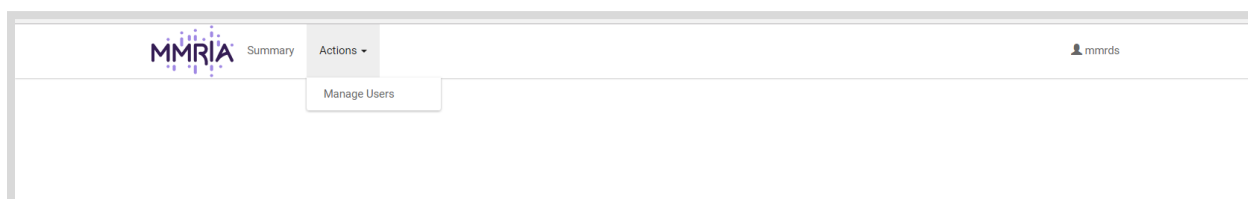
I. USER ADMINISTRATION

MMRIA utilizes the CouchDB security system for user administration. The User Admin role assigns user names and passwords to each MMRIA user within a jurisdiction. Through the MMRIA interface, the User Admin can assign any of 3 user roles to a user: Abstractor, Committee Reviewer, or Form Designer.

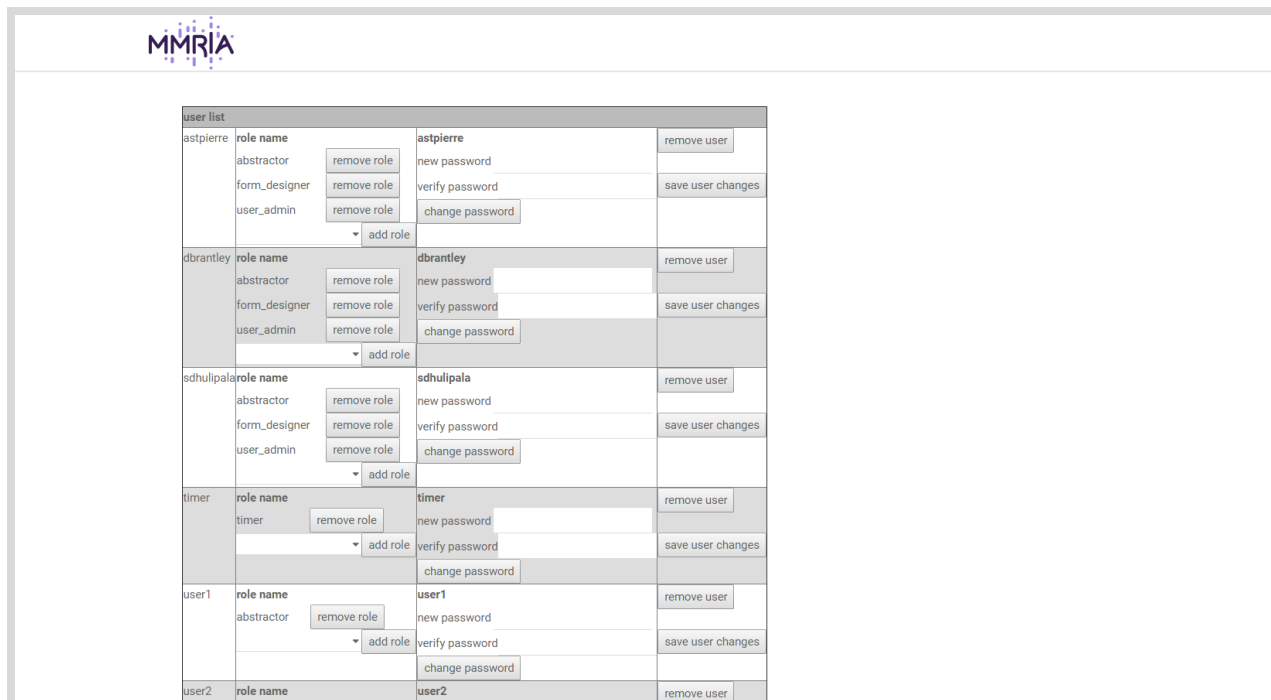
For information on who should be assigned what user role, refer to the [User Roles](#) section above.

Note: The initial User Admin role is created during the setup of the MMRIA database, through the CouchDB interface. Additional User Admins can be assigned through the CouchDB interface as needed. It is recommended that one or two trusted people within your jurisdiction have User Admin roles assigned.

If you are a User Admin, log in with your user name and password. From the Home Screen, click on “Actions”, and “Manage Users”.



Within the “Manage Users” page, you will see a list of all users and the option to add new users, remove users, and add or remove roles for users.



The screenshot shows the MMRIA 'Manage Users' interface. At the top left is the MMRIA logo. Below it is a table titled 'user list' with columns for 'role name', 'new password', 'verify password', 'change password', and 'remove user'. The table lists several users: astpierre, dbrantley, sdhulpala, timer, user1, and user2. Each user has a 'role name' dropdown menu with options like 'abstractor', 'form_designer', and 'user_admin'. There are also buttons for 'remove role', 'add role', 'new password', 'verify password', 'change password', 'save user changes', and 'remove user'.

Add Users

To add a new user, scroll to the bottom of the page and enter a username (recommended: use emails as usernames). Then click the “add new user” button.



The screenshot shows a form to add a new user. It has a text input field labeled 'enter new user name:' with the value 'newuser@newuser.com' entered. To the right of the input field is a button labeled 'add new user'.

The new user will appear. You must then add a role or multiple roles for the user. For information on user roles, refer to the [User Roles](#) section above.

Once you have added a user role, click the “save user changes” button. Currently, each time you make a change to a click the “save user changes” button, you must reset the password. Changes to user roles will take effect immediately.

The MMRIA Team recommends that usernames be configured as the email address of the person. In the future, automated emails will generate to notify of changes in accounts. Currently, the User Admin needs to provide each user with their username and password, outside of the system. The User Admin also

must manually reset any user passwords as needed. In the future, users will be able to reset their own passwords and will have usernames sent to them through email.

Passwords must be at least 8 characters. There are no other inherent password restrictions. Usernames must be at least 5 characters; again, using email addresses as usernames is recommended.

Remove Users

The functionality to remove a user does not yet exist in the user interface. To disable a user account, you must change the user's password. Changing the password will immediately take effect, preventing the user from logging in.

A Note on Users with Multiple Roles

It is best to assign each user one role. If a user is assigned to committee reviewer role along with an abstractor role, the user will see the system as a committee reviewer (de-identified values in fields).

J. ADDING FIELDS AND FORMS

The Form Designer role allows you to customize Forms with a tool called the metadata editor. With Form Designer access you can add, edit, and delete fields and Forms. The MMRIA Team cautions against adding or editing Forms or fields, as MMRIA aims to standardize a national system and because maintaining any changes to the “core” MMRIA forms requires effort within your jurisdiction. Before choosing to add or edit fields, you should consider:

- • **Can the information be captured in a Reviewer’s Notes field?**
- • **Is it data that other states should also be capturing?**

If you decide that a new field or Form is needed please reach out to MMRIAsupport@cdc.gov, for guidance on using the Form Designer role and the Metadata Editor.

K. FREQUENTLY ASKED QUESTIONS

I accidentally deleted a record – can it be recovered?

Deleted records do not get exported to a data set and are marked for deletion; contact MMRIAsupport@cdc.gov if you need assistance to recover a deleted record.

Will I see other abstractor's cases?

Yes, if your jurisdiction is hosting MMRIA on a file network or webserver. However, if MMRIA is hosted on a desktop you will only see your own cases.

How should I handle a “false positive” case?

False positives, or cases where a woman was not in fact pregnant within one year of her death, **should** be entered into MMRIA. They can help your state to monitor the number of false positives you encounter and analyze the characteristics of these false positives. To enter a False Positive, complete all of the data on the Home Record and the Death Certificate Form. Then on the Committee Decisions Form, select “Not Pregnancy Related or Associated (i.e. False Positive)”.

Can CDC or other states see my state's data?

No, CDC and other states cannot view your data unless you choose to share it.

Can we divide a case among multiple abstractors?

If MMRIA is hosted on a desktop it cannot be divided among multiple abstractors. If MMRIA is hosted centrally it can be divided among multiple abstractors – do not work in the same case at the same time.

Why does MMRIA ask for the same information multiple times on various Forms (i.e death certificate, birth certificate, and prenatal care)?

Names and demographic information are often inconsistent across source documents. Names can also change from event to event. Names may be misspelled or get reversed – this can be especially true with uncommon names. Inconsistencies in names and demographic information, or missing demographic information, across source documents can provide context around an event in a woman's life. For this reason, CDC recommends that information should always be abstracted exactly as is on the source document. Do not cut and paste from previous entries.

APPENDIX: COMMITTEE DECISIONS FORM

REVIEW DATE

RECORD ID #

PREGNANCY-RELATEDNESS: SELECT ONE

☐ **PREGNANCY-RELATED**

The death of a woman during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy

☐ **PREGNANCY-ASSOCIATED, BUT NOT -RELATED**

The death of a woman during pregnancy or within one year of the end of pregnancy from a cause that is not related to pregnancy.

☐ **NOT PREGNANCY-RELATED OR -ASSOCIATED**

(i.e. woman was not pregnant within one year of her death)

☐ **UNABLE TO DETERMINE IF PREGNANCY-RELATED OR -ASSOCIATED**

ESTIMATE THE DEGREE OF RELEVANT INFORMATION (RECORDS) AVAILABLE FOR THIS CASE:

☐ **COMPLETE**

All records necessary for adequate review of the case were available

☐ **SOMEWHAT COMPLETE**

Major gaps (i.e. information that would have been crucial to the review of the case)

☐ **MOSTLY COMPLETE**

Minor gaps (i.e. information that would have been beneficial but was not essential to the review of the case)

☐ **NOT COMPLETE**

Minimal records available for review (i.e. death certificate and no additional records)

☐ **N/A**

DOES THE COMMITTEE AGREE WITH THE UNDERLYING CAUSE OF DEATH LISTED ON DEATH CERTIFICATE?

☐ **YES**☐ **NO**

COMMITTEE DETERMINATION OF CAUSE(S) OF DEATH

TYPE	CAUSE (DESCRIPTIVE)
IMMEDIATE	
CONTRIBUTING	
UNDERLYING	
OTHER SIGNIFICANT	

IF PREGNANCY-RELATED, COMMITTEE DETERMINATION OF UNDERLYING CAUSE OF DEATH
Refer to page 3 for PMSS-MM cause of death list. If more than one is selected, list in order of importance beginning with the most compelling (1-2; no more than 2 may be selected in the system).

DID **OBESITY** CONTRIBUTE TO THE DEATH? ☐ **YES** ☐ **PROBABLY** ☐ **NO** ☐ **UNKNOWN**

DID **MENTAL HEALTH CONDITIONS** CONTRIBUTE TO THE DEATH? ☐ **YES** ☐ **PROBABLY** ☐ **NO** ☐ **UNKNOWN**

DID **SUBSTANCE USE DISORDER** CONTRIBUTE TO THE DEATH? ☐ **YES** ☐ **PROBABLY** ☐ **NO** ☐ **UNKNOWN**

WAS THIS DEATH A **SUICIDE**? ☐ **YES** ☐ **PROBABLY** ☐ **NO** ☐ **UNKNOWN**

WAS THIS DEATH A **HOMICIDE**? ☐ **YES** ☐ **PROBABLY** ☐ **NO** ☐ **UNKNOWN**

IF HOMICIDE, SUICIDE, OR ACCIDENTAL DEATH, LIST THE **MEANS OF FATAL INJURY**

- | | | |
|--|---|--|
| <input type="checkbox"/> FIREARM | <input type="checkbox"/> FALL | <input type="checkbox"/> INTENTIONAL NEGLECT |
| <input type="checkbox"/> SHARP INSTRUMENT | <input type="checkbox"/> PUNCHING/KICKING/BEATING | <input type="checkbox"/> OTHER, SPECIFY: |
| <input type="checkbox"/> BLUNT INSTRUMENT | <input type="checkbox"/> EXPLOSIVE | <input type="checkbox"/> UNKNOWN |
| <input type="checkbox"/> POISONING/OVERDOSE | <input type="checkbox"/> DROWNING | <input type="checkbox"/> NOT APPLICABLE |
| <input type="checkbox"/> HANGING/STRANGULATION/SUFFOCATION | <input type="checkbox"/> FIRE OR BURNS | |
| | <input type="checkbox"/> MOTOR VEHICLE | |

IF HOMICIDE, WHAT WAS THE **RELATIONSHIP OF THE PERPETRATOR TO THE DECEDENT**?

- | | | |
|--|---|---|
| <input type="checkbox"/> NO RELATIONSHIP | <input type="checkbox"/> OTHER ACQUAINTANCE | <input type="checkbox"/> UNKNOWN |
| <input type="checkbox"/> PARTNER | <input type="checkbox"/> OTHER, SPECIFY: | <input type="checkbox"/> NOT APPLICABLE |
| <input type="checkbox"/> EX-PARTNER | | |
| <input type="checkbox"/> OTHER RELATIVE | | |



COMMITTEE DETERMINATION OF PREVENTABILITY

A death is considered preventable if the committee determines that there was at least some chance of the death being averted by one or more reasonable changes to patient, family, provider, facility, system and/or community factors.

WAS THIS DEATH PREVENTABLE? ☐ YES ☐ NO

CHANCE TO
ALTER OUTCOME?

☐ GOOD CHANCE ☐ SOME CHANCE ☐ NO CHANCE ☐ UNABLE TO DETERMINE

CONTRIBUTING FACTORS WORKSHEET

What were the factors that contributed to this death?
Multiple contributing factors may be present at each level.

RECOMMENDATIONS OF THE COMMITTEE

If there was at least some chance that the death could have been averted, what were the specific and feasible actions that, if implemented or altered, might have changed the course of events?

CONTRIBUTING FACTOR LEVEL	CONTRIBUTING FACTOR AND DESCRIPTION OF ISSUE	RECOMMENDATIONS OF THE COMMITTEE	LEVEL OF PREVENTION (SELECT FROM MENU BELOW)	LEVEL OF IMPACT (SELECT FROM MENU BELOW)
PATIENT/FAMILY				
PROVIDER				
FACILITY				
SYSTEM				
COMMUNITY				

CONTRIBUTING FACTOR KEY (DESCRIPTIONS ON PAGE 4)

- Delay
- Adherence
- Knowledge
- Cultural/religious
- Environmental
- Violence
- Mental health conditions
- Substance use disorder - alcohol, illicit/prescription drugs
- Tobacco use
- Chronic disease
- Childhood abuse/trauma
- Access/financial
- Unstable housing
- Social support/Isolation
- Equipment/technology
- Policies/procedures
- Communication
- Continuity of care/ care coordination
- Clinical skill/ quality of care
- Outreach
- Enforcement
- Referral
- Assessment
- Legal
- Other

PREVENTION

- **PRIMARY**
Prevents the contributing factor before it ever occurs
- **SECONDARY**
Reduces the impact of the contributing factor once it has occurred (i.e. treatment)
- **TERTIARY**
Reduces the impact or progression of an ongoing contributing factor once it has occurred (i.e. management of complications)

EXPECTED IMPACT LEVEL

- **SMALL**
Education/counseling (community- and/or provider-based health promotion and education activities)
- **MEDIUM**
Clinical intervention and coordination of care across continuum of well-woman visits through obstetrics (protocols, prescriptions)
- **LARGE**
Long-lasting protective intervention (improve readiness, recognition and response to obstetric emergencies/LARC)
- **EXTRA LARGE**
Change in context (promote environments that support healthy living/ ensure available and accessible services)
- **GIANT**
Address social determinants of health (poverty, inequality, etc.)



IF PREGNANCY-RELATED, COMMITTEE DETERMINATION OF UNDERLYING CAUSE OF DEATH* PMSS-MM

If more than one is selected, please list them in order of importance beginning with the most compelling (1-2; no more than 2 may be selected in the system).

*PREGNANCY-RELATED DEATH: THE DEATH OF A WOMAN DURING PREGNANCY OR WITHIN ONE YEAR OF THE END OF PREGNANCY FROM A PREGNANCY COMPLICATION, A CHAIN OF EVENTS INITIATED BY PREGNANCY, OR THE AGGRAVATION OF AN UNRELATED CONDITION BY THE PHYSIOLOGIC EFFECTS OF PREGNANCY.

- | | | |
|--|--|--|
| <input type="checkbox"/> 10 Hemorrhage (excludes aneurysms or CVA) | <input type="checkbox"/> 83 Collagen vascular/autoimmune diseases | <input type="checkbox"/> 92.1 Epilepsy/seizure disorder |
| <input type="checkbox"/> 10.1 Hemorrhage – rupture/laceration/ intra-abdominal bleeding | <input type="checkbox"/> 83.1 Systemic lupus erythematosus (SLE) | <input type="checkbox"/> 92.9 Other neurologic diseases/NOS |
| <input type="checkbox"/> 10.2 Placental abruption | <input type="checkbox"/> 83.9 Other collagen vascular diseases/NOS | <input type="checkbox"/> 93 Renal disease |
| <input type="checkbox"/> 10.3 Placenta previa | <input type="checkbox"/> 85 Conditions unique to pregnancy (e.g. gestational diabetes, hyperemesis, liver disease of pregnancy) | <input type="checkbox"/> 93.1 Chronic renal failure/End-stage renal disease (ESRD) |
| <input type="checkbox"/> 10.4 Ruptured ectopic pregnancy | <input type="checkbox"/> 88 Injury | <input type="checkbox"/> 93.9 Other renal disease/NOS |
| <input type="checkbox"/> 10.5 Hemorrhage - uterine atony/postpartum hemorrhage | <input type="checkbox"/> 88.1 Intentional (homicide) | <input type="checkbox"/> 95 Cerebrovascular accident (hemorrhage/ thrombosis/aneurysm/ malformation) not secondary to hypertensive disease |
| <input type="checkbox"/> 10.6 Placenta accreta/increta/percreta | <input type="checkbox"/> 88.2 Unintentional | <input type="checkbox"/> 96 Metabolic/endocrine |
| <input type="checkbox"/> 10.7 Hemorrhage due to retained placenta | <input type="checkbox"/> 88.9 Unknown/NOS | <input type="checkbox"/> 96.1 Obesity |
| <input type="checkbox"/> 10.8 Hemorrhage due to primary DIC | <input type="checkbox"/> 89 Cancer | <input type="checkbox"/> 96.2 Diabetes mellitus |
| <input type="checkbox"/> 10.9 Other hemorrhage/NOS | <input type="checkbox"/> 89.1 Gestational trophoblastic disease (GTD) | <input type="checkbox"/> 96.9 Other metabolic/endocrine disorders |
| <input type="checkbox"/> 20 Infection | <input type="checkbox"/> 89.3 Malignant melanoma | <input type="checkbox"/> 97 Gastrointestinal disorders |
| <input type="checkbox"/> 20.1 Postpartum genital tract (e.g. of the uterus/ pelvis/perineum/necrotizing fasciitis) | <input type="checkbox"/> 89.9 Other malignancies/NOS | <input type="checkbox"/> 97.1 Crohn's disease/ulcerative colitis |
| <input type="checkbox"/> 20.2 Sepsis/septic shock | <input type="checkbox"/> 90 Cardiovascular conditions | <input type="checkbox"/> 97.2 Liver disease/failure/transplant |
| <input type="checkbox"/> 20.4 Chorioamnionitis/antepartum infection | <input type="checkbox"/> 90.1 Coronary artery disease/myocardial infarction (MI)/atherosclerotic cardiovascular disease | <input type="checkbox"/> 97.9 Other gastrointestinal diseases/NOS |
| <input type="checkbox"/> 20.5 Non-pelvic infections (e.g. pneumonia, TB, meningitis, HIV) | <input type="checkbox"/> 90.2 Pulmonary hypertension | <input type="checkbox"/> 100 Mental health conditions |
| <input type="checkbox"/> 20.6 Urinary tract infection | <input type="checkbox"/> 90.3 Valvular heart disease congenital and acquired | <input type="checkbox"/> 100.1 Depression |
| <input type="checkbox"/> 20.9 Other infections/NOS | <input type="checkbox"/> 90.4 Vascular aneurysm/dissection (non-cerebral) | <input type="checkbox"/> 100.9 Other psychiatric conditions/NOS |
| <input type="checkbox"/> 30 Embolism - thrombotic (non-cerebral) | <input type="checkbox"/> 90.5 Hypertensive cardiovascular disease | <input type="checkbox"/> 999 Unknown COD |
| <input type="checkbox"/> 30.9 Other embolism/NOS | <input type="checkbox"/> 90.6 Marfan Syndrome | |
| <input type="checkbox"/> 31 Embolism – amniotic fluid | <input type="checkbox"/> 90.7 Conduction defects/arrhythmias | |
| <input type="checkbox"/> 40 Preeclampsia | <input type="checkbox"/> 90.8 Vascular malformations outside head and coronary arteries | |
| <input type="checkbox"/> 50 Eclampsia | <input type="checkbox"/> 90.9 Other cardiovascular disease, including CHF, cardiomegaly, cardiac hypertrophy, cardiac fibrosis, nonacute myocarditis/NOS | |
| <input type="checkbox"/> 60 Chronic hypertension with superimposed preeclampsia | <input type="checkbox"/> 91 Pulmonary conditions (excludes ARDS-Adult respiratory distress syndrome) | |
| <input type="checkbox"/> 70 Anesthesia complications | <input type="checkbox"/> 91.1 Chronic lung disease | |
| <input type="checkbox"/> 80 Cardiomyopathy | <input type="checkbox"/> 91.2 Cystic fibrosis | |
| <input type="checkbox"/> 80.1 Postpartum/peripartum cardiomyopathy | <input type="checkbox"/> 91.3 Asthma | |
| <input type="checkbox"/> 80.2 Hypertrophic cardiomyopathy | <input type="checkbox"/> 91.9 Other pulmonary disease/NOS | |
| <input type="checkbox"/> 80.9 Other cardiomyopathy/NOS | <input type="checkbox"/> 92 Neurologic/neurovascular conditions (excluding CVAs) | |
| <input type="checkbox"/> 82 Hematologic | | |
| <input type="checkbox"/> 82.1 Sickle cell anemia | | |
| <input type="checkbox"/> 82.9 Other hematologic conditions including thrombophilias/TTP/HUS/NOS | | |



CONTRIBUTING FACTOR DESCRIPTIONS

DELAY OR FAILURE TO SEEK CARE

The woman was delayed in seeking or did not access care, treatment, or follow-up care/actions (e.g. missed appointment and did not reschedule).

ADHERENCE TO MEDICAL RECOMMENDATIONS

The woman did not accept medical advice (e.g. refused treatment for religious or other reasons or left the hospital against medical advice).

KNOWLEDGE - LACK OF KNOWLEDGE REGARDING IMPORTANCE OF EVENT OR OF TREATMENT OR FOLLOW-UP

The woman did not receive adequate education or lacked knowledge or understanding regarding the significance of a health event (e.g. shortness of breath as a trigger to seek immediate care) or lacked understanding about the need for treatment/follow-up after evaluation for a health event (e.g. needed to keep appointment for psychiatric referral after an ED visit for exacerbation of depression).

CULTURAL/RELIGIOUS, OR LANGUAGE FACTORS

Demonstration that any of these factors was either a barrier to care due to lack of understanding or led to refusal of therapy due to beliefs (or belief systems).

ENVIRONMENTAL FACTORS

Factors related to weather or terrain (e.g. the advent of a sudden storm leads to a motor vehicle accident).

VIOLENCE AND INTIMATE PARTNER VIOLENCE (IPV)

Physical or emotional abuse other than that perpetrated by intimate partner (e.g. family member or stranger); IPV: Physical or emotional abuse perpetrated by the woman's current or former intimate partner.

MENTAL HEALTH CONDITIONS

The woman carried a diagnosis of a psychiatric disorder. This includes postpartum depression.

SUBSTANCE USE DISORDER - ALCOHOL, ILLICIT/ PRESCRIPTION DRUGS

Substance use disorder is characterized by recurrent use of alcohol and/or drugs causing clinically and functionally significant impairment, such as health problems or disability. The committee may determine that substance use disorder contributed to the death when the disorder directly compromised a woman's health status (e.g. acute methamphetamine intoxication exacerbated pregnancy-induced

hypertension, or woman was more vulnerable to infections or medical conditions).

TOBACCO USE

Woman's use of tobacco directly compromised the woman's health status (e.g. long-term smoking led to underlying chronic lung disease).

CHRONIC DISEASE

Occurrence of one or more significant pre-existing medical conditions (e.g. obesity, cardiovascular disease, or diabetes).

CHILDHOOD SEXUAL ABUSE/TRAUMA

Woman experienced rape, molestation, or other sexual exploitation during childhood plus persuasion, inducement, or coercion of a child to engage in sexually explicit conduct; or woman experienced physical or emotional abuse or violence other than that related to sexual abuse during childhood.

LACK OF ACCESS/FINANCIAL RESOURCES

System issues, e.g. lack or loss of healthcare insurance or other financial duress, as opposed to woman's noncompliance impacted woman's ability to care for herself (e.g. did not seek services because unable to miss work or afford postpartum visits after insurance expired). Other barriers to accessing care: insurance non-eligibility, provider shortage in woman's geographical area, and lack of public transportation.

UNSTABLE HOUSING

Woman lived "on the street" or in a homeless shelter or lived in transitional or temporary circumstances with family or friends.

SOCIAL SUPPORT/ISOLATION - LACK OF FAMILY/ FRIEND SUPPORT SYSTEM

Social support from family, partner, or friends was lacking, inadequate, and/or dysfunctional (e.g. domestic violence, no one to rely on to ensure appointments were kept).

INADEQUATE OR UNAVAILABLE EQUIPMENT/ TECHNOLOGY

Equipment was missing, unavailable, or not functional, (e.g. absence of blood tubing connector).

LACK OF STANDARDIZED POLICIES/PROCEDURES

The facility lacked basic policies or infrastructure germane to the woman's needs (e.g. response to high blood pressure or a lack of or outdated policy or protocol).

POOR COMMUNICATION/LACK OF CASE COORDINATION OR MANAGEMENT/ LACK OF CONTINUITY OF CARE (SYSTEM PERSPECTIVE)

Care was fragmented (i.e. uncoordinated or not comprehensive) among or between healthcare facilities or units, (e.g. records not available between inpatient and outpatient or among units within the hospital, such as Emergency Department and Labor and Delivery).

LACK OF CONTINUITY OF CARE

Care providers did not have access to woman's complete records or did not communicate woman's status sufficiently. Lack of continuity can be between prenatal, labor and delivery, and postpartum providers.

CLINICAL SKILL/QUALITY OF CARE

Personnel were not appropriately skilled for the situation or did not exercise clinical judgment consistent with current standards of care (e.g. error in the preparation or administration of medication or unavailability of translation services).

INADEQUATE COMMUNITY OUTREACH/RESOURCES

Lack of coordination between healthcare system and other outside agencies/organizations in the geographic/cultural area that work with maternal child health issues.

INADEQUATE LAW ENFORCEMENT RESPONSE

Law enforcement response was not in a timely manner or was not appropriate or thorough in scope.

LACK OF REFERRAL OR CONSULTATION

Specialists were not consulted or did not provide care; referrals to specialists were not made.

FAILURE TO SCREEN/INADEQUATE ASSESSMENT OF RISK

Factors placing the woman at risk for a poor clinical outcome recognized, and the woman was not transferred/transported to a provider able to give a higher level of care.

LEGAL

Legal considerations that impacted outcome.