

Using OpenClinica as a Safety Data Management System

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Safety data management is essential for all clinical trials and post-marketing analyses; however, managing serious adverse events can mean substantial investment in an independent system, costly contracting with a 3rd-party safety data management group, and/or spending significant resources creating a custom system that complies with 21 CFR Part 11. Additionally, these systems need to be easy to use and accessible to multiple individuals in disparate physical and logical locations to enable time-sensitive data to be processed efficiently.

This knowledge article (KA) introduces an alternative to an external safety data management system (SDMS) leveraging existing OpenClinica features. This KA discusses steps for creating the study schema and necessary forms to capture and manage safety data for multiple projects. While the concepts and tasks presented here can be applied to other versions of OpenClinica, the discussion and examples below are for an OCv4. The benefits of this approach include:

- Familiarity with the system and reduced ramp-up time
- Reuse across multiple clinical studies and multiple projects
- Consolidation of clinical and safety data on a single technology platform
- Standardization of data entry and management for both clinical and safety data
- Flexible data entry configuration (build to your specific workflow)

Scope

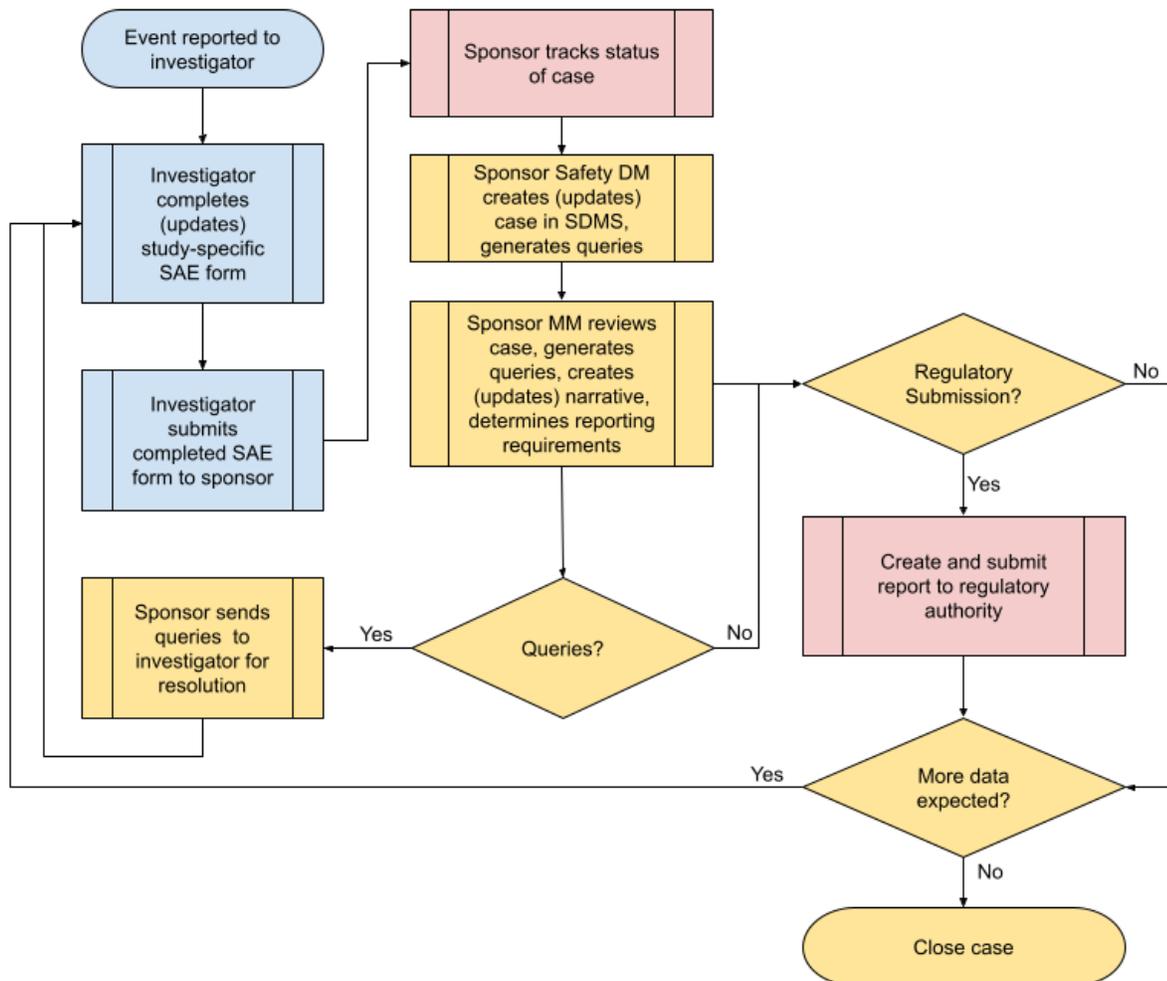
This KA describes a methodology for creating a safety data management system within your current installation of OpenClinica. It presents a high-level safety data management process flow and details how to configure the SDMS study and CRFs, using current EDC features, to enable safety data capture and management. Currently, enterprise OpenClinica features don't allow default system labeling to be altered, so to better understand the SDMS implementation this KA presents a mapping between current OpenClinica labels (e.g., "Study", "Site", "Participant ID", *etc.*) and their use within the proposed safety data management solution.

Safety data management frequently requires reporting to regulatory authorities; however, since there are several ways to export data and to generate reports outside of OpenClinica we have chosen not to address reporting in this KA. Additionally, since there are several ways to implement a custom SDMS solution using the current EDC features, please reach out to OpenClinica support if you have any process or implementation questions.

Safety Data Management Process Flow

Exhibit 1 below provides an example of a high-level safety data management process flow. Each step has sub-processes that are specific to a company's needs and may influence the final configuration of the SDMS in OpenClinica. The blue shapes are the investigator's responsibility and outside the scope of this KA. The red shapes are the sponsor's responsibility and outside the scope of this KA. The yellow shapes are the sponsor's responsibility and are the focus of this KA.

Exhibit 1 - High-Level Safety Data Management Process



Mapping of EDC Labels to Intended SDMS Use

Label translations cannot currently be performed in OC4, so we apply the following SDMS meanings to existing EDC feature labels. In Table 1 below, the listed EDC labels have been mapped to their intended SDMS meaning.

Table 1 - Map of EDC Label to SDMS Meaning

EDC Label	SDMS Meaning
Study	SDMS
Site	Clinical project (optional)
Site Name	Clinical project name
Site ID	Clinical project identifier
Lead Investigator	Clinical project lead
Expected Number of Participants	Expected number of studies under a clinical project
Site status	Overall status of clinical project
Participant Matrix	Project-specific clinical study listing
Participant ID	Project-specific clinical study ID
Casebook	Study casebook

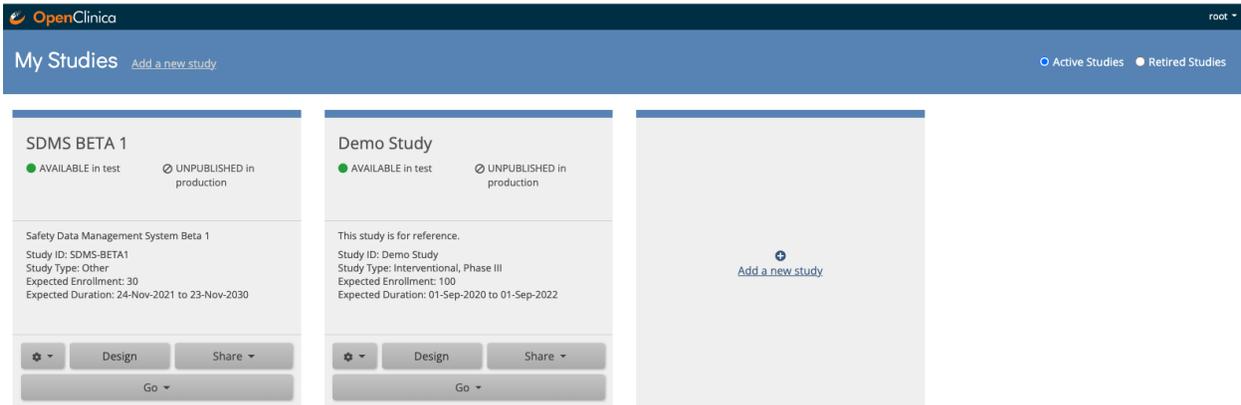
Study Design and Configuration Steps for SDMS

Our example SDMS implementation consists of two OpenClinica forms:

1. **SAE Report - This** form captures the event information from the site. We recommend putting it in a repeating common event. SAE reporting frequently involves collecting data that is also recorded in the EDC (e.g., ConMeds, Labs, MedHx, etc.). A report can be built in Insight (OpenClinica's comprehensive integrated reporting tool) to merge data from the EDC and the SDMS and minimize duplicate data entry.
2. **Medical Monitor Review - This** form is used to record the sponsor's Medical Monitor assessment of the event. Permission tags can be used to ensure that only a Medical Monitor has access to this form.

Create SDMS

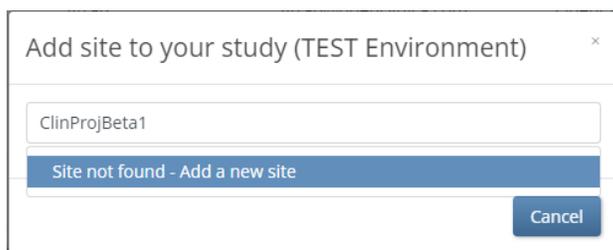
From the *My Studies* page in OpenClinica, click on the 'Add a new study' link to create your SDMS. Enter an ID and Name that uniquely and clearly identifies this study as your Safety Data Management System. As shown below, you can see we have named ours "SDMS BETA 1". Under Description enter 'Safety Data Management System'.



Site (Clinical Program - optional)

If your company has a program where it is conducting several clinical studies for the same product (e.g., an agent or a device) you may want to use the study site feature in OpenClinica to create a clinical program under which the respective studies' SAEs can be recorded. The following steps will help you create a clinical program.

1. From the *My Studies* page, click on the 'Share' button for your SDMS study and select the correct instance (Test or Production).
2. Click on the 'Add' button in the *Sites* section.
3. In the *Add site to your study* pop-up, begin typing a unique and easily understood clinical project name. This will prompt you to add a new site.



4. Click on the 'Site not found - Add a new site' drop down option.
5. Complete the required fields in the *Add site to your study* details pop-up.
 - a. 'Site Name' - a unique and easily understood clinical project name.
 - b. 'Site ID' - a unique and easily understood clinical project identifier.
 - c. 'Lead Investigator' - Employee responsible for overseeing the clinical project.

- d. 'Expected Number of Participants' - Best practice is to list the number of studies expected under this clinical project. Otherwise, this field can be used as to best fit your needs.
 - e. 'Status' - Best practice is to set this value according to the status of the overall clinical project.
6. Complete other fields as desired and document their meaning according to your SOPs.
 7. Click 'Save.'

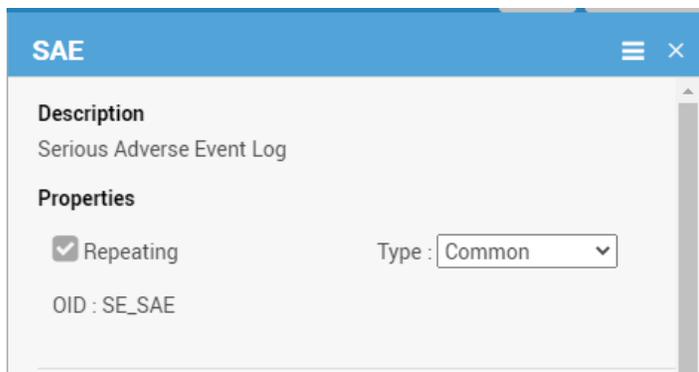
Add site to your study (TEST Environment) ×

Site Name *	<input type="text" value="ClinProjBeta1"/>
Site ID *	<input type="text" value="CPBeta1"/>
Lead Investigator *	<input type="text" value="John Smith"/>
IRB Approval Date	<input type="text" value="DD-MMM-YYYY"/>
Expected Start Date	<input type="text" value="DD-MMM-YYYY"/>
Expected Number of Participants *	<input type="text" value="4"/>
Status *	<input type="text" value="Design"/>
Site Location	
City	<input type="text"/>
State/Province	<input type="text"/>
Zip	<input type="text"/>
Country	<input type="text" value="Type to search..."/>
Primary Contact Info	
Name	<input type="text"/>
Phone	<input type="text"/>
Email	<input type="text"/>

Event (SAE common visit)

The SDMS presented here requires only one common (non-timepoint-specific) event to log all SAEs and Medical Monitor assessments for a study. No other events are required. The following steps will help you create the necessary common event.

1. From the *My Studies* page, click on the 'Design' button for your SDMS study and Click on the '+ Add an event' link.
2. Enter an event name that uniquely and clearly identifies the purpose of the event. Best practice is to name it "SAE."
3. Enter a meaningful visit description such as "Serious Adverse Event Log."
4. Under properties check 'Repeating' and select 'Common' as the event 'Type:'
5. Click 'Save'



The screenshot shows a web interface for configuring a Serious Adverse Event (SAE) form. The title bar is blue and contains the text 'SAE' on the left and a menu icon (three horizontal lines) and a close icon (an 'X') on the right. Below the title bar, the form is organized into sections. The 'Description' section contains the text 'Serious Adverse Event Log'. The 'Properties' section contains a checked checkbox labeled 'Repeating' and a dropdown menu labeled 'Type : Common'. Below these, the text 'OID : SE_SAE' is displayed. A vertical scrollbar is visible on the right side of the form content area.

CRFs (SAE Report and Medical Monitor Review forms)

The use case presented here recommends two data collection forms (SAE and MM). Other use cases may only require a single form or may require more than two forms. For example, you may wish to add a tracking form to record the Medical Monitors comments. The example forms presented in this KA are available in the [OpenClinica eCRF Library](#). Feel free to use them and adapt them to best suit your own requirements. Creating the SDMS forms employs the same steps as creating any OpenClinica form.

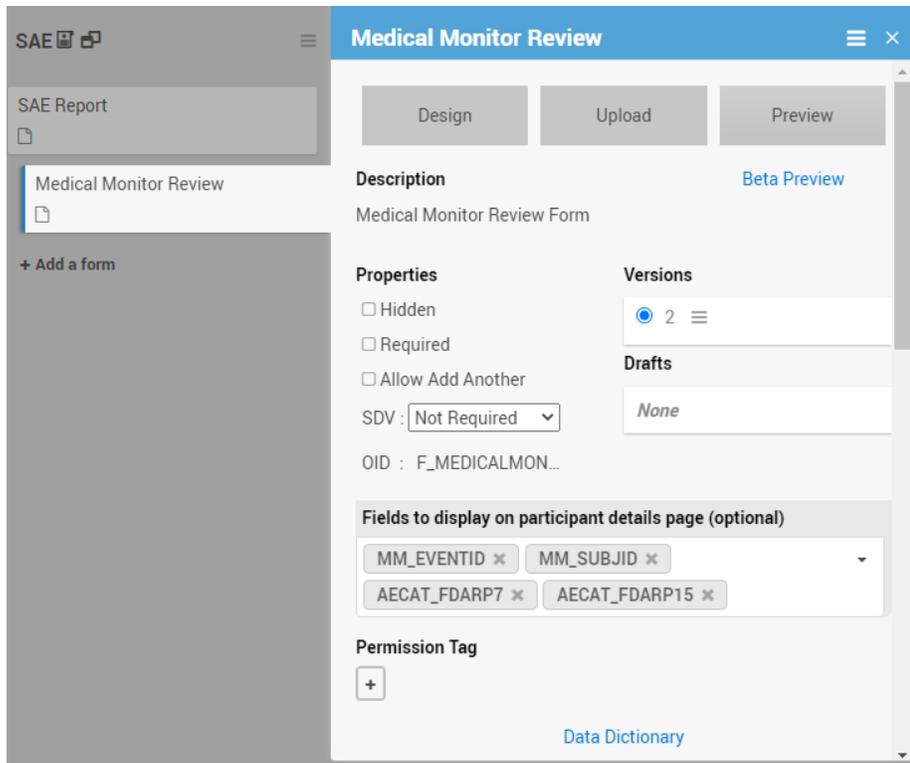
SAE Report form:

1. In the *Study Designer*, click on '+ Add a form' under your SAE common visit.
2. Enter a meaningful form name that clearly identifies the purpose of the form. Best practice is to name it something like "SAE Report." Click 'Add'.
3. Upload the default SAE form's Excel template located in [OpenClinica eCRF Library](#) or a customized version from a different location.
4. Enter a meaningful form description (if it didn't come from the Excel template) such as "Serious Adverse Event Report Form."
5. Under 'Fields to display on participant details page (optional)' select the form fields to display as a log in the 'Study Casebook'. The following fields are recommended but this list can be enlarged or reduced:
 - a. Study Protocol Number
 - b. Unique SAE Identifier
 - c. Participant ID
 - d. Event Reported Term
 - e. Date Event Reported to Site
 - f. Date Event Reported to Sponsor
6. Click 'Save.'

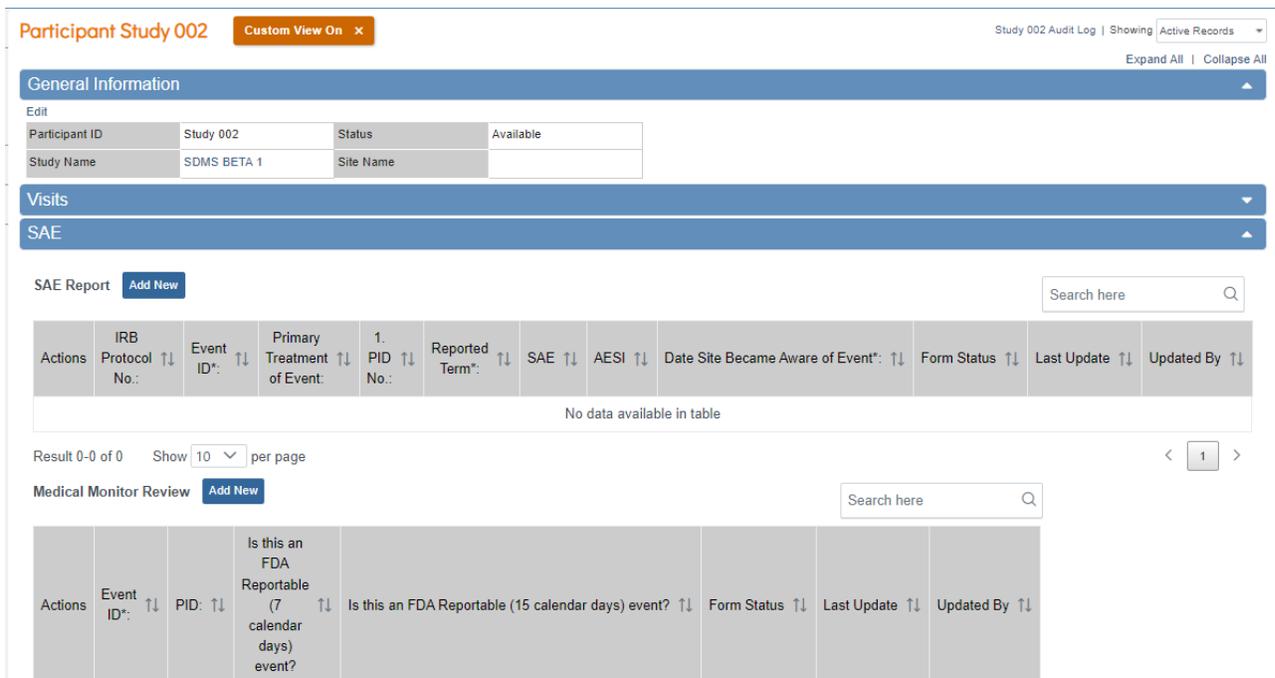
The screenshot shows the 'SAE Report' configuration page in OpenClinica. The interface is divided into a left sidebar and a main content area. The sidebar contains a search bar with 'SAE Report' and a document icon, a 'Medical Monitor Review' section with a document icon, and a '+ Add a form' button. The main content area has a blue header with 'SAE Report' and a close button. Below the header are three buttons: 'Design', 'Upload', and 'Preview'. The 'Description' section shows 'Serious Adverse Event Report Form' with a 'Beta Preview' link. The 'Properties' section includes checkboxes for 'Hidden', 'Required', and 'Allow Add Another', and a dropdown for 'SDV' set to 'Not Required'. The 'Versions' section shows version '1' selected. The 'Drafts' section is empty. The 'Fields to display on participant details page (optional)' section contains a list of fields: IRB_STUDYID, AESPID_EVID, PRTRT, SUBJID, AETERM, AESER, AESI, and RPTDTM. The 'Permission Tag' section has a '+' button.

Medical Monitor Review form:

1. Follow steps 1-4 above for the Medical Monitor Review form.
2. Under 'Fields to display on participant details page (optional)' select the form fields to display as a log in the 'Study Casebook'. The following fields are recommended but this list can be enlarged or reduced:
 - a. Unique SAE Identifier
 - b. Participant ID
 - c. 7-Day Reportable to FDA?
 - d. 15-Day Reportable to FDA?
3. Click 'Save'



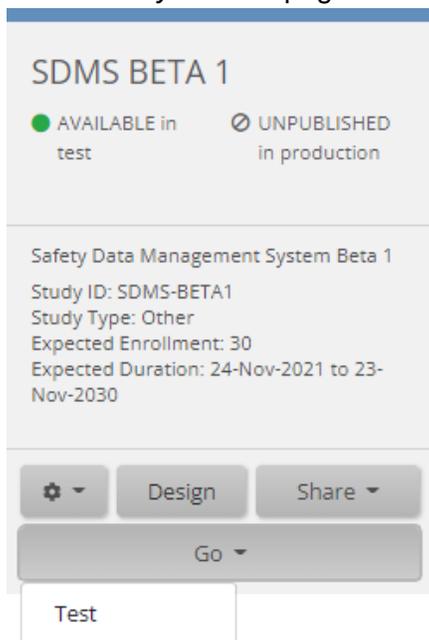
At this point, all the SDMS objects have been created and the system is ready for safety data entry. The *Participant Details* page should look like this:



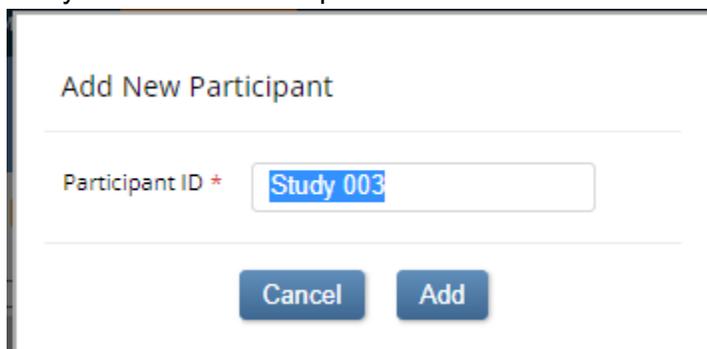
Safety Data Entry Process

The steps in this section follow the sponsor portion of the suggested, high-level workflow in Exhibit 1 and address the creation and management of an SAE in the new SDMS. This discussion assumes no clinical programs have been created using the study site feature in the SDMS and that the reader is already familiar with navigating and entering data into the OpenClinica EDC system.

1. From the *My Studies* page select 'Go' and choose **Test** or **Production**.



2. Use the Tasks → Add Participant menu item to add an SDMS study. Enter the sponsor's study short name Participant ID field and click 'Add'.



3. On the *Participant Details* page, click on the triangle in the 'SAE' header bar to reveal the *SAE Report* log.

SAE

SAE Report [Add New](#)

Actions	IRB Protocol No.:	Event ID*:	Primary Treatment of Event:	1. PID No.:	Reported Term*:	SAE	AESI	Date Site Became Aware of Event*:	Form Status	Last Update
	01-2021-1100	000100	Advil	0100	Pain in the head	Yes	No	15-Nov-2021	data entry started	24-Nov-2021

Result 1-1 of 1 Show 10 per page < 1 >

- Click on the 'Add New' button above the *SAE Report* log to enter the SAE data submitted from the site and save the data. The data in this form can be managed the same way that OpenClinica EDC data are managed.

Study 001: Serious Adverse Event

IRB Protocol No.:	Event ID*:	SAE	AESI
		none selected	none selected
Date Site Became Aware of Event*:	Date Site Reported Event to Sponsor/Contractor:	Sponsor:	
yyyy-mm-dd	yyyy-mm-dd		
Drug(s) Under Investigation:		IND No.:	
Study (Indication):			
1. PID No.:	2. Year of Birth	3. Weight at Time of Event:	Weight Units
	yyyy		none selected
4. Height at Time of Event:	Height Units	Gender	Race:
	none selected	none selected	none selected
Ethnicity:	Report Type:	Event Onset Date:	Event Approx. Time:
none selected	none selected	yyyy-mm-dd	

- Once all the available SAE data are entered into the SAE Report form, the Medical Monitor clicks on the 'Add New' button above the *Medical Monitor Review* log to complete this form. An Insight report can be configured to alert the medical monitor when an SAE is ready for review.

Study 001: Medical Monitor Assessment

Event ID*: 000100	PID: 0100	Date of Medical Monitor Review 2021-11-17	
Medical Assessment of event Free text analysis by the MM.			
Medical Monitor Opinion of why serious Is life-threatening			
Specify: Headaches may kill you.			
Event Expected or Unexpected Expected	Medical Monitor Opinion of Relationship to Study Probable	Is this an FDA Reportable (7 calendar days) event? No	Is this an FDA Reportable (15 calendar days) event? No
>>If No, specify reason: Just don't want to			
Is more information expected? Yes			

NOTE: During the medical monitor review, we recommend opening the *SAE Report* form in one browser window and the *Medical Monitor Review* form in another, arranging them side-by-side. This will help speed the review process.

- At this point there should be a single row in each log. Both forms will have a status of 'Data Entry Started' until it is determined that no more data will be generated for, or collected on, the case; at which point each row/form can be marked "Completed".

Participant Study 001 Custom View On Study 001 Audit Log | Showing Active Records Expand All | Collapse All

General Information

Edit

Participant ID	Study 001	Status	Available
Study Name	SDMS BETA 1	Site Name	

Visits

SAE

SAE Report Add New Search here

Actions	IRB Protocol No.:	Event ID:	Primary Treatment of Event:	1. PID No.:	Reported Term*:	SAE	AESI	Date Site Became Aware of Event*:	Form Status	Last Update	Updated By
   	01-2021-1100	000100	Advil	0100	Pain in the head	Yes	No	15-Nov-2021	data entry started	24-Nov-2021	dmligram@ccsainc.com

Result 1-1 of 1 Show 10 per page < 1 >

Medical Monitor Review Add New Search here

Actions	Event ID:	PID:	Is this an FDA Reportable (7 calendar days) event?	Is this an FDA Reportable (15 calendar days) event?	Form Status	Last Update	Updated By
   	000100	0100	No	No	data entry started	24-Nov-2021	dmligram@ccsainc.com

Result 1-1 of 1 Show 10 per page < 1 >

Casebook ?

- All subsequent SAEs for this study are recorded in the same study casebook which can be accessed by clicking on the correct Study ID on the *Participant Matrix* page (under column labeled 'Participant ID').

Participant Matrix for SDMS BETA 1

    | 50 Show More Select An Event Add New Participant

Participant ID	Actions
	Apply Filter Clear Filter
Study 001	  
Study 002	  

Results 1 - 2 of 2.

- To enter an SAE for a new study, start from Step 2 above.

You may find it useful to enter the SAE ID into the search field above the right side of the *SAE Report* log or the *Medical Monitor Review* log to filter on that SAE. This reduces search time.

Actions	IRB Protocol No. ↑↓	Event ID: ↑↓	Primary Treatment of Event: ↑↓	1. PID No.: ↑↓	Reported Term*: ↑↓	SAE ↑↓	AESI ↑↓	Date Site Became Aware of Event*: ↑↓	Form Status ↑↓	Last Update ↑↓	Updated By ↑↓
   	01-2021-1100	000100	Advil	0100	Pain in the head	Yes	No	15-Nov-2021	data entry started	24-Nov-2021	dmlgram@ccsainc.com

Also, you may find it useful to use the 'Enter Participant ID' field in the upper left of the study casebook page to switch SDMS studies and enter SAE data on a different study.

OpenClinica SDMS BETA 1 (SDMS-BETA1) Test Environment | Change | Design | Share | Settings

Enter Participant ID View

NOTE: Always remember to verify the correct SDMS study by looking at the study id next to the word 'Participant' at the top of the study casebook page or in the 'Participant ID' field under the *General Information* section.

Alerts & Messages

Participant Study 001

Quick Access

My Queries

Recent Study 001

General Information

Edit

Participant ID Study 001

The SDMS that we have presented here is merely a jumping-off point. There are many other facets to safety data management and OpenClinica's features and flexibility, along with its Insight and ePRO modules, make it possible to further customize and add capabilities to suit investigator, sponsor, and regulatory needs.

CCS Associates is a CRO with more than 35 years' experience providing integrated technical, scientific, regulatory, safety, clinical, bioinformatics, and overall R&D support to government and private sector clients. CCSA's custom, validated, OpenClinica-based SDMS is central to the company's safety data management efforts and is continuously maintained and upgraded to take advantage of OpenClinica's latest, industry leading technologies. For further information about CCS Associates and its SDMS, please go to <https://www.ccsainc.com> or email info@ccsainc.com.