



Session 4: Cross-sectional and longitudinal studies

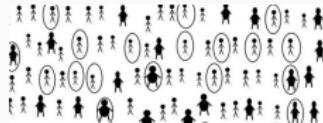
Biostatistics Support & Research Unit (BRU)
IGTP

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Contents

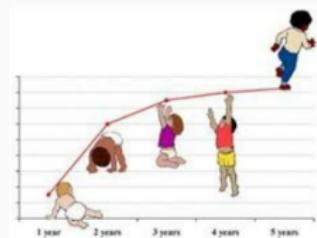
Cross-sectional project

1. Cross-sectional project
 2. Cross-sectional project in REDCap
-



Longitudinal project

1. Longitudinal project
 2. Longitudinal mode configuration
 3. Events
 4. Implications in the data
 5. Implications in the design
-



Repetition of instruments or events

1. Repetition of instruments or events
2. Repeated instrument
3. Repeated event



Cross-sectional project

1.Cross-sectional project



Definition

2.Cross-sectional project in REDCap



Definition



Activity

Cross-sectional project



Definition

A **cross-sectional study** is characterised by:

1. Being observational (no intervention).
2. Being retrospective or prospective.
3. Collecting a single measurement (the variables of interest are collected at a single point in time).

With this design, it is possible to estimate prevalences at a specific point in time (for example, the prevalence of a disease).

Cross-sectional project in REDCap



Definition

REDCap refers to cross-sectional or prevalence studies as a **classic project**.

- **Properties:**

- Default project.
- Longitudinal mode disabled.
- Each instrument can be filled once per record.

Cross-sectional project in REDCap



Activity: Cross-sectional project

- **Goal of the study:** Calculate the prevalence of diabetes mellitus.

Study scheme	
Instruments	Point of interest
Demographic	<input checked="" type="checkbox"/>
Comorbidities <i>Fields:</i> - Comorbidities (Yes/No) - Comorbidities matrix (previously created)* <i>*show it only if comorbidities = Yes (keep the filter for the COPD field)</i>	<input checked="" type="checkbox"/>



Enter a few records and calculate the prevalence of diabetes in your project.

Cross-sectional project in REDCap

Solution

Steps:

1. Create the instrument *Comorbidities*.
2. Add the field *Comorbidities* (Yes/No).
3. Move the matrix of *Comorbidities* to the new instrument
4. Only display the matrix fields if *comorbidities*=Yes.
5. Enter comorbidity data for some patients in order to calculate prevalence.
6. Calculate the prevalence of diabetes mellitus recorded in our project using the *Stat & Charts* functionality.

Cross-sectional project in REDCap

Solution

1. Create the instrument *Comorbidities*.

Online Designer » Add new instrument » Comorbidities

The screenshot shows the 'Data Collection Instruments' section of the REDCap Online Designer. At the top, there are three buttons: '+ Create' (new instrument from scratch), 'Import' (new instrument from the official REDCap Instrument Library), and 'Upload' (instrument ZIP file from another project/user or external libraries). To the right, 'Form options:' include 'Form Display Logic' and 'PDF Snapshots'. Below this, a table lists instruments by name, fields, and actions. The 'Demographic' instrument has 0 fields and a 'Choose action' button. The 'Comorbidities' instrument has 1 field and a 'Choose action' button.

Instrument name	Fields	View PDF	Instrument actions
Demographic	0		<input type="button" value="Choose action"/>
Comorbidities	1		<input type="button" value="Choose action"/>

2. Add the field *Comorbidities* (No/Yes).

Online Designer » Comorbidities » Add Field » Multiple Choice - Radio Buttons (Single Answer) » Choices: 0,No / 1,Yes

The screenshot shows the 'Add Field' screen for the 'Comorbidities' instrument. The 'Field Name' is set to 'comorbidities'. Below it, a 'Multiple Choice - Radio Buttons (Single Answer)' field is defined with two choices: 'No' and 'Yes'. The 'reset' button is visible at the bottom right.

Cross-sectional project in REDCap

Solution

3. Move the matrix of **Comorbidities** to the new instrument.

Online Designer » Demographic »  Move matrix of fields to another location » Move the matrix of fields above so that it will be located immediately *AFTER* the following field: » Comorbidities



Cross-sectional project in REDCap

Solution

4. Only display the matrix if *comorbidities*=Yes

Branching Logic » Drag-N-Drop Logic Builder/Advanced Branching Logic
Syntax » [comorbidities]='1'

The screenshot shows the REDCap Drag-N-Drop Logic Builder interface. At the top, there's a toolbar with icons for edit, delete, and add, followed by the text "Matrix Group: comorbidities". Below this is a section titled "Comorbidities" with a yellow background. The logic for this group is defined as "[comorbidities]='1'".

	No	Yes
Hypertension	<input type="radio"/>	<input type="radio"/>
EPOC	<input type="radio"/>	<input type="radio"/>
Diabetes Mellitus	<input type="radio"/>	<input type="radio"/>

Each row has a "reset" button to its right. At the bottom of the matrix section, there are three buttons: "Add Field", "Add Matrix of Fields", and "Import from Field Bank".

Cross-sectional project in REDCap



Solution

- 5 Calculate the prevalence of diabetes mellitus recorded in our project using the ***Stat & Charts*** functionality.

Data Exports, Reports, and Stats » All data » Stat & Charts

Cross-sectional project in REDCap



Activity Overview

Proposed scheme

Study scheme	
Instruments	Point of interest
Demographic	<input checked="" type="checkbox"/>
Comorbidities	<input checked="" type="checkbox"/>

REDCap scheme

Record ID 1	
Data Collection Instrument	Status
Demographic	●
Comorbidities	●

Individual dashboard

Record ID	Demographic	Comorbidities
1	●	●
2	●	●
3	●	●

Global dashboard

Longitudinal project

1. Longitudinal project



Definition



Longitudinal project in REDCap

2. Longitudinal mode configuration



Definition



Enable

3. Events



Definition



Configuration



Activity

Longitudinal project



Definition

A **longitudinal study** is characterized by:

1. Collecting data from the same subjects repeatedly over time to assess changes.
2. Being observational or interventional in nature.
3. Being prospective, retrospective, or ambispective.

Longitudinal project en REDCap



Definition

- **Properties:**

- Longitudinal mode enabled.
- Multiple events (visits).
- Instruments can be linked to multiple events.

Longitudinal mode configuration



Longitudinal mode

In order to create **longitudinal projects**, REDCap offers a **longitudinal mode**.

The **longitudinal mode** allows any form or survey to be used multiple times: the form is created once and then assigned to different events/visits throughout the project.

Longitudinal mode configuration



Enable longitudinal mode

1. Access to Project setup.
2. Enable longitudinal mode.

Use longitudinal data collection with defined events? » Enable

Not started

Main project settings

Use surveys in this project? [?](#) [VIDEO: How to create and manage a survey](#)

Use longitudinal data collection with defined events? [?](#)

Not started

Main project settings

Use surveys in this project? [?](#) [VIDEO: How to create and manage a survey](#)

Use longitudinal data collection with defined events? [?](#)

Events



Definition

Events allow instruments to be used a *finite* number of times for any project record.
It is normally used to collect the same instrument during different events/visits.



Events



Definition

The events allow the creation of a **longitudinal project**.

- **Properties:**

- Longitudinal mode enabled.
- Instruments can be linked to multiple events.

Events



To configure events, follow these two steps:

- STEP 1: Define events

- STEP 2: Link instruments to events

Events



STEP 1: Define event

1. Access to Project setup.
2. Define events

Define your events and designate instruments for them » Define My Events.

The screenshot shows a user interface for defining events. At the top, there's a title: **Define your events and designate instruments for them**. Below it, a sub-instruction says: **Create events for re-using data collection instruments and/or set up scheduling.** There are two main buttons at the bottom: **Define My Events** and **Designate Instruments for My Events**. A green arrow points to the **Define My Events** button. On the left side of the interface, there's a circular icon with a double-headed arrow and the text **In progress**. At the bottom left, there's a small button labeled **I'm done!**.



By default, REDCap creates a single event.

	Event #	Event Name	Custom Event Label (optional)	Unique event name (auto-generated)
		1	Event 1	event_1_arm_1

Events

Configuration

STEP 1: Define events

3 Functionalities

Download events in CSV

Edit

Rename and label.

Create a new event

Upload or download arms/events

Arm 1: Arm 1 [+Add New Arm](#)

Arm name: **Arm 1** [Rename Arm 1](#)

	Event #	Event Name	Custom Event Label <small>(optional)</small>	Unique event name <small>(auto-generated)</small>
	1	Event 1		event_1_arm_1
Add new event				

Events

Configuration

STEP 2: Link instruments to events

1. Access to Project setup.
2. Link instruments to events.

Define your events and designate instruments for them » Designate Instruments for My Events.

 **Define your events and designate instruments for them**

Create events for re-using data collection instruments and/or set up scheduling.

Go to [Define My Events](#) or [Designate Instruments for My Events](#)



 Instruments can only be linked if two or more events have been defined.

NOTE:

This page may ONLY be used if multiple events have been defined. To be able to utilize this page, you will need to [define more 'events'](#) for this project.

Events



STEP 2: Link instruments to events

3 Functionalities

Begin editing

Relate

events-instruments



Begin Editing	Data Collection Instrument	Baseline visit (1)	Second visit (2)	Final visit (3)
	Form 1			

Events



Activity: Events configuration

Study scheme			
Instruments <i>Label:</i>	Baseline visit	Second visit <i>sample date</i>	Final visit <i>sample date</i>
Demographic	<input checked="" type="checkbox"/>		
Comorbidities	<input checked="" type="checkbox"/>		
Laboratory results <i>Fields:</i> - <i>Sample date (D-M-Y)</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



Solution

1. Add a new instrument: *Laboratory results* with the variable *Sample date*, format D-M-Y.
2. Create the events *Baseline visit* (previous name: Event 1), *Second visit* and *Final visit*.
3. Use the field *Sample date* as the event label for *Second visit* and *Final visit*.
4. Link instruments *Demographic* and *Comorbidities* to the *Baseline visit* event.
5. Link the new *Laboratory results* instrument to all three events: *Baseline visit*, *Second visit* and *Final visit*.

Events



Solution

1. Add a new instrument: *Laboratory results* with the variable *Sample date*, format D-M-Y:

Online Designer » Add new instrument » Create » *Laboratory results*
Add Field » Text Box » Validation: Date (D-M-Y) » *Sample date*

Current instrument: **Laboratory Results** Preview instrument

Add Field Add Matrix of Fields Import from Field Bank

Field Name: date_sample

Sample date Today D-M-Y

Add Field Add Matrix of Fields Import from Field Bank

Events



Solution

2. Create the events *Baseline visit*, *Second visit* and *Final visit*.

- 2.1 Project setup » Define your events and designate instruments for them » Define My Events
- 2.2 Edit » Event Name: "*Baseline visit*"
- 2.3 Add new event » Event Name: "*Second visit*"
- 2.4 Add new event » Event Name: "*Final visit*"

		Event # [event-number]	Event Label [event-label]	Custom Event Label (optional)	Unique event name (auto-generated) [event-name]	Event ID (auto-generated, unchangeable) [event-id]
		1	Baseline visit		baseline_visit_arm_1	1807
		2	Second visit	[date_sample]	second_visit_arm_1	1808
		3	Final visit	[date_sample]	final_visit_arm_1	1809

Events

Solution

3. Use the field **Sample date** as the event label for **Second visit** and **Final visit**.

Project setup » Define your events and designate instruments for them » Define My Events »  Edit » Custom Event Label: "[date_sample]"

	Event # [event-number]	Event Label [event-label]	Custom Event Label  (optional)	Unique event name  (auto-generated) [event-name]	Event ID (auto-generated, unchangeable) [event-id]
 	1	Baseline visit		baseline_visit_arm_1	1807
 	2	Second visit	[date_sample]	second_visit_arm_1	1808
 	3	Final visit	[date_sample]	final_visit_arm_1	1809

Data Collection Instrument	Baseline visit	Second visit	Final visit
Demographic		12-02-2025	08-10-2025
Comorbidities			
Laboratory Results			

Events



Solution

- 4 Link instruments *Demographic* and *Comorbidities* to the *Baseline visit* event.
- 5 Link the new *Laboratory results* instrument to all three events: *Baseline visit*, *Second visit* and *Final visit*.

Project setup » Define your events and designate instruments for them » Designate Instruments for My Events » Begin Editing

Begin EditingSave

Data Collection Instrument	Baseline visit (1)	Second visit (2)	Final visit (3)
Demographic	✓		
Comorbidities	✓		
Laboratory Results	✓	✓	✓

Events

Activity Overview

Proposed scheme

Study scheme			
Instruments <i>Label:</i>	Baseline visit	Second visit <i>sample date</i>	Final visit <i>sample date</i>
Demographic	<input checked="" type="checkbox"/>		
Comorbidities	<input checked="" type="checkbox"/>		
Laboratory results	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

REDCap scheme

Record ID 1			
Data Collection Instrument	Baseline visit	Second visit	Final visit
Demographic	●		
Comorbidities	●		
Laboratory Results	●	●	●

Individual dashboard

Record ID	Baseline visit			Second visit	Final visit
	Demographic	Comorbidities	Laboratory Results	Laboratory Results	Laboratory Results
1	●	●	●	●	●
2	●	●	●	●	●
3	●	●	●	●	●

Global dashboard

Implication in the data

 Visualisation /  Download data

Cross-sectional projects: A single record is created for each individual.

Longitudinal projects: Projects involving repeated instruments or repeated events

For each individual, a row is created for:

- Each event

Record ID record_id	Event Name redcap_event_name	Repeat Instrument redcap_repeat_instrument	Repeat Instance redcap_repeat_instance	Date of creation of the record date_recorded	Weight weight	Height height	Date of birth date_birth	Sex sex	Menopause menopause	Medication		
										Status medication_0	Anticoagulants medication_1	Antidiabetics medication_2
1	Baseline visit									Unchecked (0)	Unchecked (0)	Unchecked (0)
2	Baseline visit									Unchecked (0)	Unchecked (0)	Unchecked (0)
2	Second visit											
2	Final visit									Unchecked (0)	Unchecked (0)	Unchecked (0)
3	Baseline visit											

*Variable that identifies the register: redcap_event_name

Implications in the design

[⚡] Smart variables

There are **smart variables** specific to **Events** and they only work if we have longitudinal mode enabled.

Smart variable	Action	Result example*
[event-number]	Number ordinal event	2
[event-name]	Name event	baseline_visit_arm_1
[event-label]	Label event	Baseline visit
[previous-event-name]**	Name previous event	Does not exist
[previous-event-label]	Label previous event	Does not exist
[next-event-name]**	Name next event	second_visit_arm_1
[next-event-label]	Label next event	Second visit

*Example: Event (Baseline visit)

** Smart variables can be linked to fields, for example:

[previous-event-label][date_sample]

Implications in the design

[⚡] Smart variables

Smart variable	Action	Result example*
[first-event-name]**	Name first event	baseline_visit_arm_1
[first-event-label]	Label first event	Baseline visit
[last-event-name]**	Name last event	final_visit_arm_1
[last-event-label]	Label last event	Final visit

*Example: Event (Baseline visit)

**Smart variables can be linked to fields, for example: [last-event-name][date_sample]

Implications in the design

Piping

Cross-sectional projects

1. Define the **field**
2. —

[date_sample]

» *dates of laboratory results at a single point in time.*

Longitudinal projects

1. Define the **event**
2. Define the **field**

[baseline_visit_arm_1][date_sample]

» *date of laboratory results at baseline visit*

Implications in the design

Branching logic ↴

Cross-sectional projects

Logic context: If of legal age.

1. Define the **field**
2. Define the **operator**
3. Define the **value of comparison**
4. —

[age]>18

Longitudinal projects

Logic context: If of legal age.

1. Define the **event**
2. Define the **field**
3. Define the **operator**
4. Define the **value of comparison**

[baseline_visit_arm_1][age]>18

Implications in the design



Activity: Implications in the design

1. Ensure that the sample date (laboratory results) is not visible at the final visit.
2. Add a variable called 'Previous sample date' (laboratory results) and set it to the date of the previous visit.

Implications in the design

Solution

1. Ensure that the sample date (laboratory results) is not visible at the final visit.

Online Designer » "Laboratory results" » "Sample date" » Branching Logic » Advanced Branching Logic Syntax » [event-name] <>'final_visit_arm_1'

Choose method below for the following field: **date_sample - Sample date**

Advanced Branching Logic Syntax

How to use

 Branching Logic

 Smart Variables

 Special Functions

Show the field ONLY if...

[event-name] <> "final_visit_arm_1"

 Clear logic

Test logic with a record:

Implications in the design



Solution

- 2 Add a variable called 'Previous sample date' (laboratory results) and set it to the date of the previous visit.

2.1. Online Designer » "Laboratory results" » Add Field » Text Box » Validation: Date (M-D-Y)

2.2. Online Designer » "Laboratory results" » "Previous sample date" » Action Tags: [previous-event-name][date_sample]

Field Type: Text Box (Short Text, Number, Date/Time, ...)

Field Label: Previous sample date

Validation: Date (M-D-Y)

Action Tags / Field Annotation (optional): @DEFAULT = "[previous-event-name][date_sample]"

Variable Name: date_sample_prev

Validation7 (optional): Date (M-D-Y)

Minimum:

Maximum:

Required*: NO Yes



Remarks

- REDCap internally stores dates as M-D-Y
- Does it make sense to include this action tag in the baseline visit?
How can we deal with this?

Repetition of instruments or events

1. Repetition of instruments or events



Definition



Configuration

2. Repeating instrument



Activity



Use

3. Repeating event



Activity



Use

4. Implications in the data



Visualisation



Data download

5. Implications in the design



Smart variables

Repetition of instruments or events



Definition

Repetition of instruments

- Allows you to repeat an instrument as many times as necessary.
- Works on cross-sectional and longitudinal projects.
- Example of use: entry of multiple concomitant medication.

Repetition of events

- Allows you to repeat an event as many times as necessary.
- Only works on longitudinal projects (longitudinal mode enabled).
- Example of use: longitudinal study without a defined number of visits.

Limitations

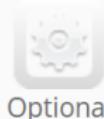
- You cannot add a repeat instrument to a repeat event.
- Repeating instruments or events will make the data more complex.

Repetition of instruments or events

Configuration

1. Access to Project setup.
2. Enable repeatable instruments and events setting.

Enable optional modules and customisations » Repeatable instruments and events



Optional

Enable optional modules and customizations

Enable



Repeatable instruments and events



Disable



Auto-numbering for records



Repetition of instruments or events



3. Select the action for each of the events:

3.1 Do not repeat.

3.2 Repeat the entire event (only for longitudinal projects).

3.3 Repeat instruments at the event.

Event Name	Repeat entire event or selected instruments?	Instrument name (select instruments to repeat)	Cu: rep
✓ Baseline visit	Repeat Instruments (repeat -- not repeating --)	<input type="checkbox"/> Demographic <input type="checkbox"/> Comorbidities <input checked="" type="checkbox"/> Regular medication	
Second visit	Repeat Entire Event (repeat all instruments together)		
Final visit	Repeat Instruments (repeat independently of each other) -- not repeating --	<input type="checkbox"/> Laboratory results	



Repeated instrument



Activity: Longitudinal project with a repeated instrument.

Study scheme			
Instruments <i>Etiqueta:</i>	Baseline visit	Second visit <i>data mostra</i>	Final visit <i>data mostra</i>
Demographic	<input checked="" type="checkbox"/>		
Comorbidities	<input checked="" type="checkbox"/>		
Regular medication ∞ <i>Fields:</i> - Start date - Medicine [text field] <i>Label:</i> start date - medicine	<input checked="" type="checkbox"/>		
Laboratory results	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



Repeated instrument

Repeated instrument



Solution

Steps:

1. Create a new instrument called *Regular medication*.
2. Create the fields: Start date and Medication.
3. Assign the instrument *Regular medication* to the first visit.
4. Label the instrument with the start date and the medication.

Repeated instrument

Solution

1. Create a new instrument called *Regular medication*.

Online Designer » Add new instrument » Create

2. Create the fields: Start date and medication.

1.1. Add Field » Text Box » Validation: Date (D-M-Y)

1.2. Add Field » Text Box

Return to list of instruments << Previous instrument Next instrument >>

Current instrument: **Regular medication** Preview Instrument

Add Field Add Matrix of Fields Import from Field Bank

Field Name: date_start
Start date Today D-M-Y

Field Name: medicine
Medicine

Add Field Add Matrix of Fields Import from Field Bank

Repeated instrument

Solution

3. Assign the instrument *Regular medication* at the first visit.

Project setup » Define your events and designate instruments for them » Designate Instruments for My Events

Begin EditingSave

Data Collection Instrument	Baseline visit (1)	Second visit (2)	Final visit (3)
Demographic	✓		
Comorbidities	✓		
Regular medication	✓		
Laboratory results	✓	✓	✓

Repeated instrument

Solution

4. Label the instrument with the start date and medication.
 - 4.1. Project setup » Enable optional modules and customisations » Repeatable instruments and events
 - 4.2. Baseline visit » Repeat instruments » "Regular medication" » Label: "[date_start] - [medicine]"

Event Name	Repeat entire event or selected instruments?	Instrument name (select instruments to repeat)	Custom label for repeating instruments (optional) Example: [visit_date], [weight] kg
✓ Baseline visit	Repeat Instruments (repeat ▾)	<input type="checkbox"/> Demographic <input type="checkbox"/> Comorbidities <input checked="" type="checkbox"/> Regular medication <input type="checkbox"/> Laboratory results	[date_start] - [medicine]

Repeated instrument

Use

- Users can add recurring instruments in three ways:
 - Symbol «+» to the initial page of the register.
 - Button «Add New» to the main page of the register.
 - Option «Save & Add New Instance» to button «Save & Stay» in an instrument.



Repeated instrument

Solution

- Add three regular medications to a record

Data Collection Instrument	Baseline visit	Second visit	Final visit
Demographic	<input type="radio"/>		
Comorbidities	<input type="radio"/>		
Regular medication	<input checked="" type="radio"/> +		
Laboratory results	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delete all data on event:	<input type="checkbox"/>		

Repeating Instruments

Regular medication		
Baseline visit		
(3)		
1	<input checked="" type="radio"/>	10-10-2007 - Ibuprofen
2	<input checked="" type="radio"/>	30-07-2012 - Sintrom
3	<input checked="" type="radio"/>	23-10-2018 - Insuline
<input type="button" value="+ Add new"/>		

Repeated instrument

Activity Overview

Proposed scheme

Study scheme			
Instruments	Baseline visit	Second visit	Final visit
Demographic	<input checked="" type="checkbox"/>		
Comorbidities	<input checked="" type="checkbox"/>		
Regular medications	<input checked="" type="checkbox"/>		
Results laboratory	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

○○ Repeated instrument

REDCap Scheme

Data Collection Instrument	Baseline visit	Second visit	Final visit
Demographic	○		
Comorbidities	○		
Regular medication	○○	○	
Laboratory results	○○	○○	○○
Delete all data on event:	X		

Repeating Instruments

Regular medication		Baseline visit
Baseline visit		(3)
1	○	10-10-2007 - Ibuprofen
2	○	30-07-2012 - Sintrom
3	○	23-10-2018 - Insuline
+ Add new		

Record ID	Baseline visit				Second visit	Final visit
	Demographic	Comorbidities	Regular medication	Laboratory results		
1	○	○	○	○	○	○
2	○	○	○	○	○	○
3	○	○	○	○	○	○
4	○	○	○	○○	○	○

Dashboard global

Dashboard individual

Repeated event

Activity: Longitudinal project with one instrument and one repeated event

Study scheme				
Instruments <i>Label:</i>	Baseline visit	Second visit <i>sample date</i>	Final visit <i>sample date</i>	Control visit <i>visit date</i> 
Demographic	<input checked="" type="checkbox"/>			
Comorbidities	<input checked="" type="checkbox"/>			
Regular medication 	<input checked="" type="checkbox"/>			
Laboratory results	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Control of symptoms <i>Fields:</i> - Date visit - Visual Analogue Scale (VAS)(0-10)				<input checked="" type="checkbox"/>



Repeated instrument/event

Repeated event



Solution

Steps:

1. Create a new instrument called *Control of symptoms*.
2. Create the fields: *Date of visit* and *VAS scale*.
3. Create an event named *Control visit*.
4. Label the event *Control visit* with the visit date.
5. Assign the instrument *Control of symptoms* to the *Control visit*.
6. Ensure that the event *Control visit* can be repeated multiple times.

Repeated event

Solution

1. Create a new instrument called *Control of symptoms*.

Online Designer » Add new instrument » Create » "Control of symptoms"

2. Create the fields: *Date of visit* and *VAS scale*.

2.1. Add Field » Text Box » Validation: Date (D-M-Y)

2.2. Add Field » Slider/Visual Analog Scale

Current instrument: **Control of symptoms** Preview instrument

[Add Field](#) [Add Matrix of Fields](#) [Import from Field Bank](#)

Field Name: date_visit

Date of visit [] Today D-M-Y

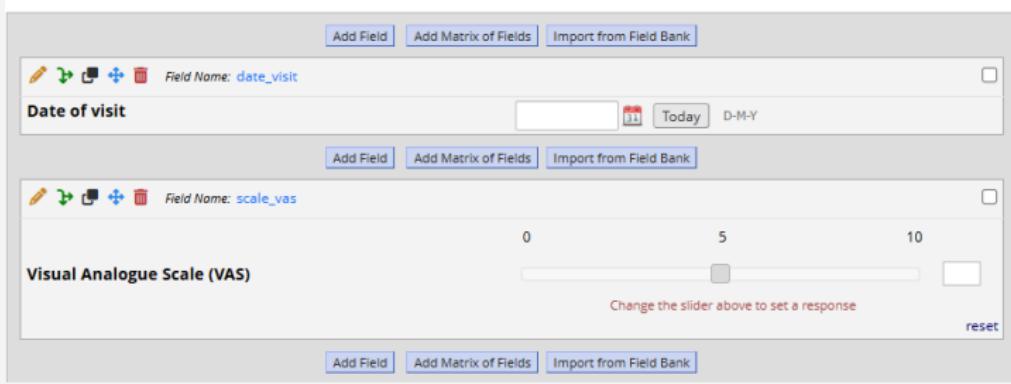
[Add Field](#) [Add Matrix of Fields](#) [Import from Field Bank](#)

Field Name: scale_vas

Visual Analogue Scale (VAS) 0 5 10 []

Change the slider above to set a response

[Add Field](#) [Add Matrix of Fields](#) [Import from Field Bank](#)



Repeated event



Solution

3. Create a new event *Control visit*.
4. Label the event *Control visit* with the date of visit.

Project setup » Define your events and designate instruments for them »

Designate Instruments for My Events » Add new event »

Label: "[date_visit]"

	Event # [event-number]	Event Label [event-label]	Custom Event Label Label  (optional)	Unique event name  (auto-generated) [event-name]	Event ID (auto-generated, unchangeable) [event-id]
 	1	Baseline visit		baseline_visit_arm_1	1840
 	2	Second visit	[date_sample]	second_visit_arm_1	1841
 	3	Final visit	[date_sample]	final_visit_arm_1	1842
 	4	Control visit	[date_visit]		
		Descriptive name for this event	Custom Event Label (optional) Example: [visit_date], [weight] kg		

Repeated event



Solution

5. Assign the instrument *Control of symptoms* to the *Control visit*.
- 5.1. Project setup » Enable optional modules and customisations » Repeatable instruments and events
- 5.2. Project setup » Define your events and designate instruments for them » Designate Instruments for My Events

Begin EditingSave

Data Collection Instrument	Baseline visit (1)	Second visit (2)	Final visit (3)	Control visit (4)
Demographic	✓			
Comorbidities	✓			
Regular medication	✓			
Laboratory results	✓	✓	✓	
Control of symptoms				✓

Repeated event



Solution

6. Ensure that the event *Control visit* can be repeated multiple times.

Project setup » Enable optional modules and customisations » Repeatable instruments and events

Control visit » Repeat Entire Event

Event Name	Repeat entire event or selected instruments?	Instrument name (select instruments to repeat)	Custom label for repeating instruments (optional) 
✓ Baseline visit	Repeat Instruments (repeat 	<input type="checkbox"/> Demographic <input type="checkbox"/> Comorbidities <input checked="" type="checkbox"/> Regular medication <input type="checkbox"/> Laboratory results	[date_start] - [medicine]
Second visit	-- not repeating -- 	<input type="checkbox"/> Laboratory results	
Final visit	-- not repeating -- 	<input type="checkbox"/> Laboratory results	
✓ Control visit	Repeat Entire Event (repeat 	<input checked="" type="checkbox"/> Control of symptoms	

Repeated event

Use

- Users can add recurring events as follows:
 - Symbol «+ Add new» to the initial page of the register.



<input type="button" value="▼"/>	Data Collection Instrument	Baseline visit	Second visit	Final visit	+ Add new
				Control visit 02-10-2025	

Repeated event

Activity Overview

Proposed scheme

Study scheme				
Instruments	Visit baseline	Second visit	Visit final	Visit control
Demographic	<input checked="" type="checkbox"/>			
Comorbidities	<input checked="" type="checkbox"/>			
Regular medication	<input checked="" type="checkbox"/>			
Laboratory results	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Control of symptoms				<input checked="" type="checkbox"/>

REDCap scheme

Data Collection Instrument	Baseline visit	Second visit	Final visit	Control visit	+ Add new
Demographic	<input type="radio"/>				
Comorbidities	<input type="radio"/>				
Regular medication	<input checked="" type="radio"/>				
Laboratory results	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
Control of symptoms	<input checked="" type="radio"/>		<input checked="" type="radio"/>	<input checked="" type="radio"/>	

Repeating Instruments

Regular medication	
Baseline visit (3)	
1	<input checked="" type="radio"/> 10-10-2007 - Ibuprofen
2	<input checked="" type="radio"/> 30-07-2012 - Sintrom
3	<input checked="" type="radio"/> 23-10-2018 - Insuline

Record ID	Baseline visit					Second visit	Final visit	Control visit
	Demographic	Comorbidities	Regular medication	Laboratory results	Laboratory results			
1	<input checked="" type="radio"/>							
2	<input checked="" type="radio"/>							
3	<input checked="" type="radio"/>							
4	<input checked="" type="radio"/>							

Global dashboard

Individual dashboard

Implications in the data

Visualization /  Download the data

Cross-sectional projects: It creates a record for each individual.

Projects with repeated instruments or events

A row is created for each individual for:

- Every one of the events
- Every one of the repeated instruments.
- Every one of the repeated events.

Record ID record_id	Event Name redcap_event_name	Repeat Instrument redcap_repeat_instrument	Repeat Instance redcap_repeat_instance	Date of creation of record date_record	Weight	Height	Date of birth date_birth
1	Baseline visit						
2	Baseline visit			Identifier = 2 Baseline visit	09-10-2025		
2	Second visit						
2	Final visit						
2	Baseline visit	Regular medication	1		Identifier = 2 Baseline visit		
2	Baseline visit	Regular medication	2		First regular medication		
2	Control visit		1		Identifier = 2 First control visit		
2	Control visit		2				

*Identifying variables in the register: *redcap_event_name* (event name), *redcap_repeat_instrument* (instrument name) and *redcap_repeat_instance* (number of repetitions).

Implications in the design

[⚡] Smart variables

There are **smart variables** specific to **event and instrument repetition** that only work if we have the option of repeating instruments or events enabled.

Smart variable	Action	Result example*
[previous-instance]**	Previous instance number	1
[current-instance]**	Actual instance number	2
[first-instance]**	First instance number	1
[last-instance]**	Last instance number	2

*Example: Second instance

** Smart variables can be used with fields, for example: [date_visit][previous-instance]

Implications in the design



Activity: Smart variables with repeated events.

1. Create a descriptive variable to report the value of the *Visual Analogue Scale* from the previous control visit.

Implications in the design



Solution

1. Create a descriptive variable to report the value of the *Visual Analogue Scale* from the previous control visit.

Add Field » Descriptive text » *previous VAS Scale:*

[scale_vas][previous-instance]

The screenshot shows a software interface for creating a new field. The 'Field Type' is set to 'Descriptive Text (with optional Image/Video/Audio/File Attachment)'. The 'Field Label' is 'Previous VAS Scale: [scale_vas][previous-instance]'. The 'Variable Name' is 'scale_vas_prev', with a note 'ONLY letters, numbers, and underscores'. There is a checkbox 'Enable auto naming of variable based upon its Field Label?' which is unchecked. At the bottom, there are buttons for 'Smart Variables', 'Piping', and 'Field Embedding'.

Thank you!

