



Session 4: Cross-sectional and longitudinal studies

Biostatistics Support & Research Unit (BRU)

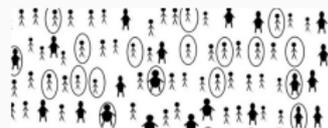
IGTP

November, 2025

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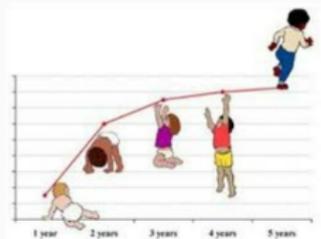
Cross-sectional project

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



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).



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)* *show it only if comorbidities = Yes (keep the filter for the COPD field)	<input checked="" type="checkbox"/>



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



Solution

Steps:

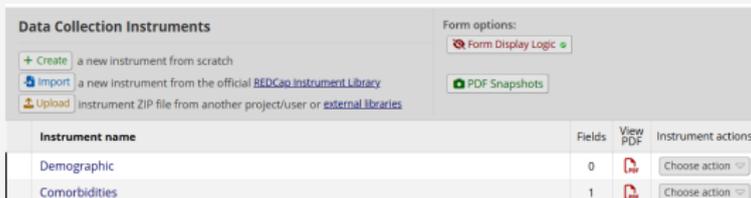
1. Create the instrument *Comorbidities*.
2. Add the field *Comorbidities* (Yes/No).
3. Move the matrix of *Comorbidities* to the new instrument
4. Only display the matrix fields if *comorbidities=Yes*.
5. Enter comorbidity data for some patients in order to calculate prevalence.
6. Calculate the prevalence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



Data Collection Instruments

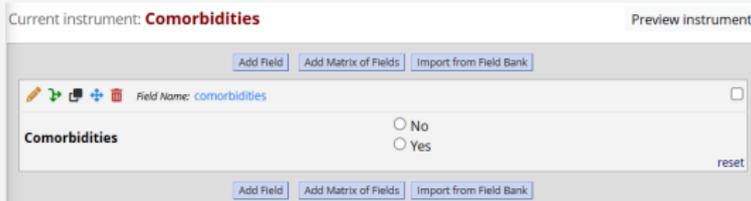
Form options:

- Form Display Logic
- PDF Snapshots

Instrument name	Fields	View PDF	Instrument actions
Demographic	0		Choose action
Comorbidities	1		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



Current instrument: **Comorbidities** Preview instrument

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

Field Name: comorbidities

Comorbidities

No
 Yes

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

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

Move matrix of fields to another location?

You may move the matrix of fields listed below to any location on the current or another data collection instrument. Choose from the drop-down below the location to which you wish to move this matrix of fields. Note: if the matrix contains a section header, the section header will be moved with the matrix.

Matrix group to be moved: **list**

Move the matrix of fields so that it will be located immediately **after** the following field:

comorbidities "Comorbidities"

location "Location"

metopress "Metopress"

Comorbidities

... Open at the top of this form ...

comorbidities "Comorbidities"

CREATE NEW INSTRUMENT AND ...

Cross-sectional project in REDCap

Solution

- Only display the matrix if *comorbidities=Yes*

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



Matrix Group: comorbidities

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

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



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	<input type="radio"/>
Comorbidities	<input type="radio"/>

Individual dashboard

Record ID	Demographic	Comorbidities
1	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>

Global dashboard

Longitudinal project

1. Longitudinal project



Definition



Longitudinal project in REDCap

2. Longitudinal mode configuration



Definition



Enable

3. Events



Definition



Configuration



Activity



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.



Definition

- **Properties:**

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



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

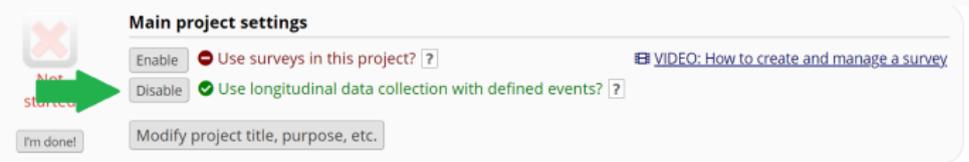


Main project settings

 Not started 

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

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



Main project settings

 Not started 

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

Use longitudinal data collection with defined 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.





Definition

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

- **Properties:**

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

Configuration

To configure events, follow these two steps:

- STEP 1:  Define events
- STEP 2:  Link instruments to events

Configuration

STEP 1: Define event

1. Access to Project setup.
2. Define events

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



Define your events and designate instruments for them

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

In progress 

or



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

Configuration

STEP 1: Define events

3 Functionalities

Download events in CSV

Edit

Rename and label.

Create a new event



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

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

	Event #	Event Name	Custom Event Label (optional) 	Unique event name (auto-generated) 
	1	Event 1		event_1_arm_1
Add new event	<input type="text"/>	<input type="text"/>	<input type="text"/>	

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.



In progress

 Define your events and designate instruments for them

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

Go to or 



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.

Configuration

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			



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*.



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](#)



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 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



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

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



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

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 12-02-2025	Final visit 08-10-2025
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 data_record	Weight weight	Height height	Date of birth date_birth	Sex sex	Menopause menopause	Medication Statin 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											
3	Baseline visit									Unchecked (0)	Unchecked (0)	Unchecked (0)

→ Identification of the record = 2
Final 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]

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*

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
```



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"
```

Test logic with a record:

[Clear logic](#)

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]`

The screenshot shows the configuration for a new field in REDCap. The field type is set to 'Text Box (Short Text, Number, Date/Time, ...)'. The field label is 'Previous sample date'. The variable name is 'date_sample_prev'. The validation is set to 'Date (D-M-Y)'. The action tags are '[previous-event-name][date_sample]'. The field is required.



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

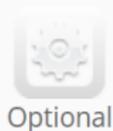
- You cannot add a repeat instrument to a repeat event.
- Repeating instruments or events will make the data more complex.

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



Enable optional modules and customizations

-  Repeating instruments and events ? 
-  Auto-numbering for records ?

Repetition of instruments or events

Configuration

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) Exa	Cus rep
✓	Baseline visit	Repeat Instruments (repeat	<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)	<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: start date - medicine</i>	<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

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

     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

<input type="button" value="Begin Editing"/>	<input type="button" value="Save"/>			
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) Example: [visit_date], [weight] kg	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	<input type="text"/> <input type="text"/> <input type="text" value="[date_start] - [medicine]"/> <input type="text"/>

Repeated instrument

Use

- Users can add recurring instruments in three ways:
 1. Symbol «+» to the initial page of the register.
 2. Button «Add New» to the main page of the register.
 3. 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:			

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
 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	<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"/>

Repeating Instruments

Regular medication	
Baseline visit	
(3)	
1	10-10-2007 - ibuprofen
2	30-07-2012 - Sintrom
3	23-10-2018 - Insuline

+ Add new

Dashboard individual

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

Dashboard global

Repeated event



Activity: Longitudinal project with one instrument and one repeated event

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



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](#)

The screenshot displays the configuration interface for an instrument named "Control of symptoms". It features two field configurations:

- Date of visit:** A text input field with a date picker icon and a "Today" button. The format is set to "D-M-Y".
- Visual Analogue Scale (VAS):** A horizontal slider with a range from 0 to 10. The slider is currently positioned at approximately 3. Below the slider, there is a red text prompt: "Change the slider above to set a response". A "reset" button is located at the bottom right of the slider field.

Each field configuration includes a toolbar with icons for edit, copy, paste, add, and delete, and a "Field Name" label (e.g., "date_visit" and "scale_vas"). Buttons for "Add Field", "Add Matrix of Fields", and "Import from Field Bank" are visible above and below each field configuration.

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 [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
	<input type="button" value="Save"/>	<input type="text" value="Control visit"/>	<input type="text" value="[date_visit]"/>		
<input type="button" value="Add new event"/>		<input type="text"/>	<input type="text"/>		
		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 Editing Save

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) Example: [visit_date], [weight] kg	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	<input type="text"/> <input type="text"/> [date_start] - [medicine] <input type="text"/>
Second visit	-- not repeating -- ▾	<input type="checkbox"/> Laboratory results	<input type="text"/>
Final visit	-- not repeating -- ▾	<input type="checkbox"/> Laboratory results	<input type="text"/>
✓ Control visit	Repeat Entire Event (repeat) ▾	<input checked="" type="checkbox"/> Control of symptoms	<input type="text"/>

Repeated event

Use

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

 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



Repeated instrument/event

Data Collection Instrument	Baseline visit	Second visit	Final visit	Control visit 19-10-2016 (#1)	06-10-2023 (#2)
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"/>	<input checked="" type="checkbox"/>
<small>Delete all data on event:</small>					
	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Repeating Instruments

Regular medication

Baseline visit

(5)

1	<input checked="" type="checkbox"/>	10-10-2007 - Ibuprofen
2	<input checked="" type="checkbox"/>	30-07-2012 - Sintrom
3	<input checked="" type="checkbox"/>	23-10-2018 - Insuline

+ Add new

Individual dashboard

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

Global 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 the record date_record	Weight weight	Height height	Date of birth date_birth
1	Baseline visit						
2	Baseline visit		1	09-10-2025			
2	Second visit						
2	Final visit						
2	Baseline visit	Regular medication	1				
2	Baseline visit	Regular medication	2				
2	Control visit		1				
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).

[⚡] 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]



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.



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]`

Field Type: Descriptive Text (with optional Image/Video/Audio/File Attachment) ▾

Codebook

Field Label

Use the Rich Text Editor [?](#)

Previous VAS Scale: [scale_vas][previous-instance]

Variable Name (utilized in logic, calcs, and exports)

scale_vas_prev

Enable auto naming of variable based upon its Field Label?

ONLY letters, numbers, and underscores

How to use

[Smart Variables](#)

[Piping](#)

[Field Embedding](#)

Thank you!

