

Sisällys

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Creating a New Project

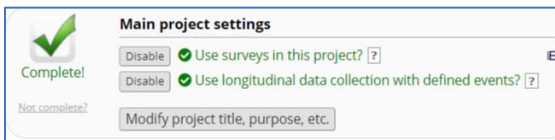
Log in to the UH REDCap system <https://redcap.helsinki.fi/>

Create a new blank project with the title "Emollient for atopic eczema".

Select "Practice / Just for fun" as the project purpose.

Project settings


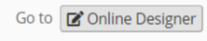

Enable **Use surveys** and **Use longitudinal data collection with defined events**

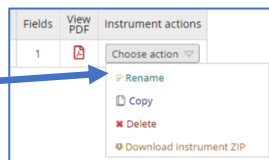


Data Collection Instruments

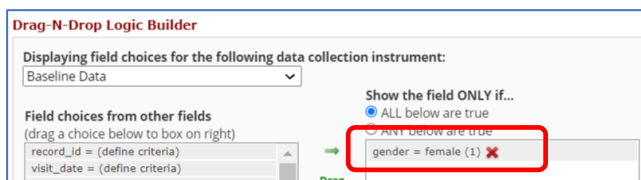
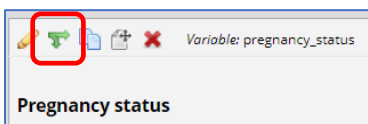
In this project we'll create instruments for **baseline data**, **severity of symptoms** and **participant survey**

Baseline Data

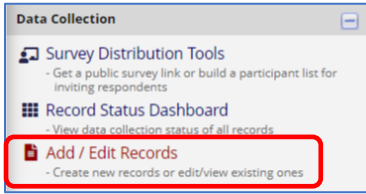
1. Go to **Designer / Online Designer**.  
2. Change the name "Form 1" to "**Baseline Data**" 
3. **Click the instrument name** to edit it.
4. Add a field by clicking **Add Field** in the desired location.
5. Select a field type from the dropdown menu. Review and set each field attribute. Then click **Save**.



Field Label	Field Type	Notes
1. Record ID	Text Box	Validation: Integer
2. First Name	Text Box	Identifier, Required
3. Last Name	Text Box	Identifier, Required
4. Email	Text Box	Validation: Email, Required
5. Visit Date	Text Box	Validation: Date (D-M-Y), Required
6. Gender	Multiple Choice - Radio Buttons (Single Answer)	Required; female, male, other
7. Pregnancy Status	Multiple Choice - Radio Buttons (Single Answer)	Required; pregnant, not pregnant, unknown. Use branching logic to make this field available when Gender = "female"



To test, go to **Add / Edit Records** and add your own information to the Baseline Visit.



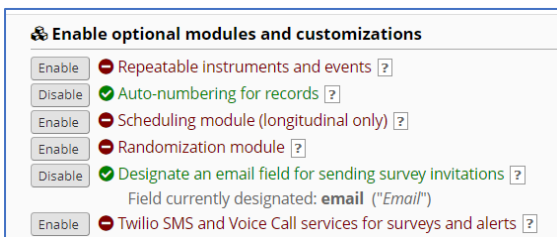
Severity of Symptoms

1. Go to Online Designer.
2. Click **+ Create** a new instrument from scratch. Then click **+ Add instrument here**.
3. Type the instrument name **“Severity of Symptoms”** and click **Create**.
3. **Click the instrument name** to edit it.
5. Add a field by clicking **Add Field** in the desired location.
6. Select a field type from the dropdown menu. Review and set each field attribute. Then click **Save**.

Field Label	Field Type	Response Options
Symptoms severity score	Multiple Choice - Radio Buttons (Single Answer)	Required, Score 0 None, absent 1 Mild (just perceptible) 2 Moderate (obvious) 3 Severe

Participant Survey

1. Go to **Designer**.
2. Click **+ Import**. Search for **“participant survey”**.
3. Click on **“Research Participant Perception Survey – UP”**
4. Click **Import into my RedCap project**.
5. Read and agree with **the terms of use** and **Add**
6. Go to the project settings and enable **Designate an email field for sending survey invitations**



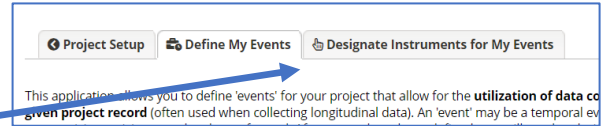
7. Go to Designer.

Beside “the Research Participant Perception Survey – UP”, click **Enable** on **Enabled as survey**. A Set Up My Survey tab will open.



Defining Events

1. Go to Project Setup
2. Click **Define My Events**.
3. Edit **Event 1** name to **Baseline Visit**
4. Add three new events
 - **Month 1 Visit**
 - **Month 2 Visit**
 - **Final Participant Survey**

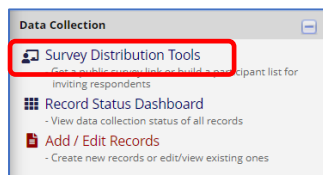


5. Click **Designate Instruments for My Events**.
6. Click **Begin Editing**. Check the appropriate boxes for each instrument. Then click Save.

Data Collection Instrument	Event 1 (1)	Month 1 Clinic Visit (2)	Month 2 Clinic Visit (3)	Final Participant Survey (4)
Baseline Data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Severity of Symptoms	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Research Participant Perception Survey - UP (survey)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Distributing Survey

1. Click on **Survey Distribution Tools** (on the left)



2. On **Participant List** you will see all the email addresses from the Baseline Visit email field.

Email	Record ID	Participant Identifier	Responded?	Invitation Scheduled?	Invitation Sent?	Link	Survey Access Code and QR Code
katri.larmo@helsinki.fi	1	Disabled	<input type="checkbox"/>	-	<input type="checkbox"/>	Link	
test.person@helsinki.fi	2	Disabled	<input type="checkbox"/>	-	<input type="checkbox"/>	Link	

3. Click **Compose Survey Invitations**.
4. Edit the text in the Compose box and review the message settings. Click Send Invitations.

NOTE: there is also a possibility for public survey link. If you prefer that the survey needs to be **the first instrument** and **first event** of the project.



User Rights

1. In the left menu click on **User Rights**.

2. Enter the user’s REDCap username or email address in the top box and click **Add with custom rights**.
3. Select **No Access to export data**. Review all other settings and then click Add user.

Tip: If you have many users who need the same level of access, you can create a **named role** with defined rights. You can then assign new users to this role.

Adding, Viewing and Exporting a Record

Adding a Record

1. Click on **Add / Edit Records**.
2. Click + **Add new record**.
3. Click the status icon beside the first data collection instrument to begin editing the record.
4. Enter data into each form as if you were a study participant.
5. When you have tested all fields on a form, save and exit.

Viewing a Record

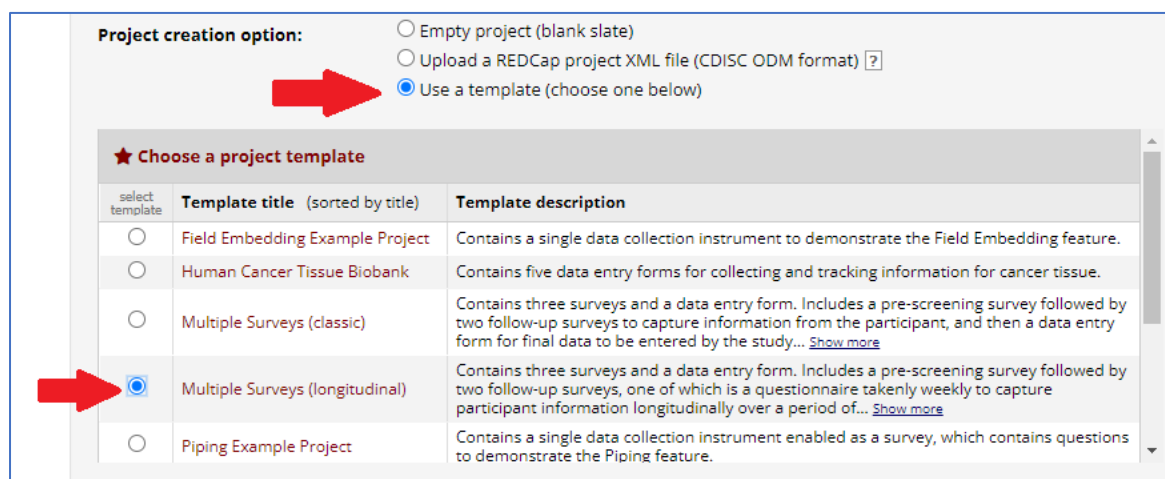
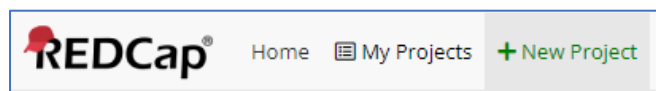
1. Click on **Add / Edit Records**.
2. **Choose a record ID** that you want to check.

Exporting Data

1. In the left menu click **Data Exports, Reports, and Stats**.
2. Click Export Data.
3. Review the possible formats, de-identification options, and advanced data formatting options. Choose the **“CSV/Microsoft Excel (raw data)”** format. Then click Export Data.

Using project templates, e.g. “Multiple Surveys (longitudinal)”

Create a new project, using REDCap template “Multiple Surveys (longitudinal)”



Project creation option:

- Empty project (blank slate)
- Upload a REDCap project XML file (CDISC ODM format) [?](#)
- Use a template (choose one below)

★ **Choose a project template**

select template	Template title (sorted by title)	Template description
<input type="radio"/>	Field Embedding Example Project	Contains a single data collection instrument to demonstrate the Field Embedding feature.
<input type="radio"/>	Human Cancer Tissue Biobank	Contains five data entry forms for collecting and tracking information for cancer tissue.
<input type="radio"/>	Multiple Surveys (classic)	Contains three surveys and a data entry form. Includes a pre-screening survey followed by two follow-up surveys to capture information from the participant, and then a data entry form for final data to be entered by the study... Show more
<input checked="" type="radio"/>	Multiple Surveys (longitudinal)	Contains three surveys and a data entry form. Includes a pre-screening survey followed by two follow-up surveys, one of which is a questionnaire taken weekly to capture participant information longitudinally over a period of... Show more
<input type="radio"/>	Piping Example Project	Contains a single data collection instrument enabled as a survey, which contains questions to demonstrate the Piping feature.

You will get a ready template, with some data collection instruments and defined events that you can further develop to meet your needs.

extra: Repeating Instruments

Enabling “Repeatable Instruments” allows you to collect multiple instances of the same data; an unlimited number of times without having to specify the amount needed. E.g. data from medication adverse events or repetitive surveys (weekly etc.)

Create an instrument called **Adverse Effect**

Field Label	Field Type	Notes
1. What is the symptom	Text Box	Field note: only adverse effect / instrument
2. Date the symptom started	Text Box	Validation: Date (D-M-Y), Required

Go to **Designate Instruments for My Events** and assign Adverse Effects instrument for Month 1 and Month 2 visits.

Data Collection Instrument	Event 1 (1)	Month 1 Visit (2)	Month 2 Visit (3)	Final Participant Survey (4)
Baseline Data	✓			
Severity of Symptoms	✓	✓	✓	
Adverse Effect		✓	✓	
Research Participant Perception Survey - UP (survey)				✓

Enable Repeatable instruments and events

Enable optional modules and customizations

Complete! Enable Repeatable instruments and events [?] Disable Auto-numbering for records [?] Enable Scheduling module (longitudinal only) [?]

Allow repeating the Adverse Effect instrument

Event Name	Repeat entire event or selected instruments?	Instrument name (select instruments to repeat)	Custom label for repeating instruments (optional)
Event 1	-- not repeating --	<input type="checkbox"/> Baseline Data <input type="checkbox"/> Severity of Symptoms	
Month 1 Visit	Repeat Instruments (repea	<input type="checkbox"/> Severity of Symptoms <input checked="" type="checkbox"/> Adverse Effect	
Month 2 Visit	Repeat Instruments (repea	<input type="checkbox"/> Severity of Symptoms <input checked="" type="checkbox"/> Adverse Effect	
Final Participant Survey	-- not repeating --	<input type="checkbox"/> Research Participant Percepti...	

Now you can get each adverse effect to its own form.

extra: Randomization

NOTE: RedCap does not create randomization. The **randomization table has to be generated outside of RedCap**, using other software (e.g. SAS, Stata, R) (Help for creating randomization: [Biostatistics unit](#)).

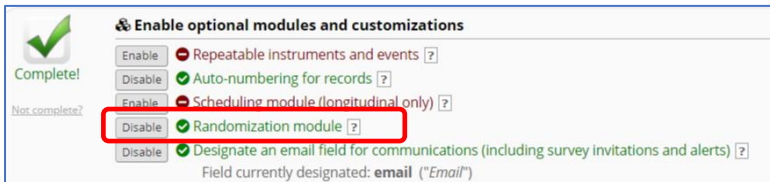
RedCap **helps you implement a defined randomization model** within your RedCap project.

1. Go to **Baseline Data** and add a field called **Randomization Group**

Field Label	Field Type	Notes
Randomization Group	Multiple Choice - Radio Buttons (Single Answer)	variable: random_group Required; Choices: placebo intervention

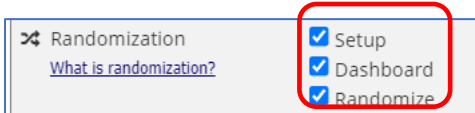
2. Enabling the Randomization Model

Click on **Enable** Randomization module under the “Enable optional modules and customizations.”



3. User Rights

Go to user rights and give yourself rights for randomization.

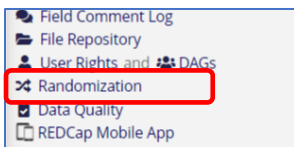


User rights for randomization:

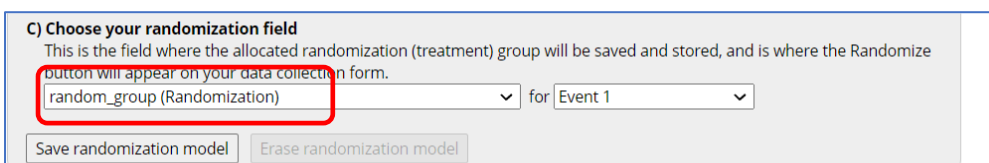
- Setup (setup the randomization)
- Dashboard (view the used randomization numbers)
- Randomize (perform the randomization of participants)

Be sure the user who sets up the randomization can be unblinded to the randomization (usually a statistician or data analyst, not the PI or coordinator).

4. Now you can start **setting up the randomization**, by clicking Randomization on the left panel.



5. Choose your Randomization Field



6. Upload your randomization table as a cvs file.

	A	B	C	D	E	F
1	random_group					
2	1					
3	2					
4	2					
5	2					
6	1					
7	2					
8	1					
9	2					
10						
11						
12						

Upload allocation table (CSV file) for use in DEVELOPMENT status

Delete allocation table? Download table

Already uploaded

Upload allocation table (CSV file) for use in PRODUCTION status

Valitse tiedosto Ei valittua tiedostoa

Upload File Upload File

7. Add a record to Baselin Data => click on Randomize and the participant will be randomized.

Record ID 1

First Name * must provide value

Last Name * must provide value

Email * must provide value

Visit Date * must provide value Today D-M-Y

Severity of Symptoms (Baseline) * must provide value EASI Severity Score <https://dermnetz.org/topics/easi-score/>

Randomization * must provide value ↻ Randomize

Note: The allocation table used in Development status **cannot be exactly the same as the allocation table used in Production status**. The allocation table in Development status is only used for testing of you project.

Upload allocation table (CSV file) for use in DEVELOPMENT status

Delete allocation table? Download table

Already uploaded

extra: Multiple Arms

Arms represent different sequences of assessments or treatments undertaken by the study participants. E.g.

- The **intervention group** may have a different study visit schedule from the **control group**.
- Separate arms for the **pediatric patients** and for their **caregivers**, e.g. when studying their experiences
- **Multi-site** studies

Notes: Differences between REDCap arms and traditional study arms?







- REDCap does not link the randomization module to arms. If randomization to an arm is required, the assignment to the study arm must be performed manually during data entry. See more on randomization and arms e.g. <https://youtu.be/aVe6lpiRHtc> video by Lead Data Intelligence Analyst Edward Kowalewski, Cedars-Sinai Health Services
- Normally a participant would be assigned to a single study arm. However, REDCap allows a participant ID to be present in each arm simultaneously. REDCap displays a warning if a participant ID is present in more than one arm.

1) Go to **Define my events**

2) Rename Arm 1 to **Study Site1**

3) **Add a New Arm** and rename it as Study Site 2. **Define events and instruments** for the Study Site 2.

Arm name: **Study site 1**

	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	956
 	2	Month 1 Visit		month_1_visit_arm_1	961
 	3	Month 2 Visit		month_2_visit_arm_1	962

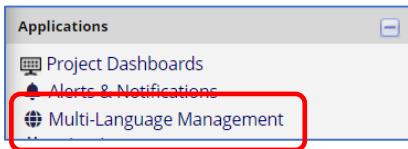
extra: Multi-Language Management

Notices:

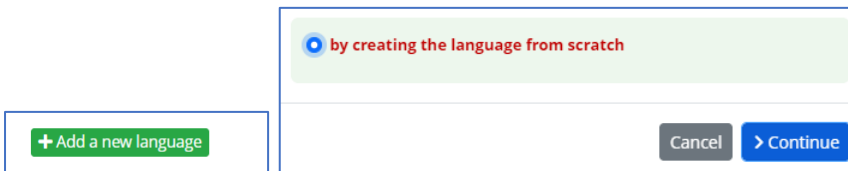
- Instead of using “Multi-Language Management”, you can simply create identical projects, just with different languages.

- If you use imported instruments from the REDCap shared library, remember to ask the permission for editing/translations.

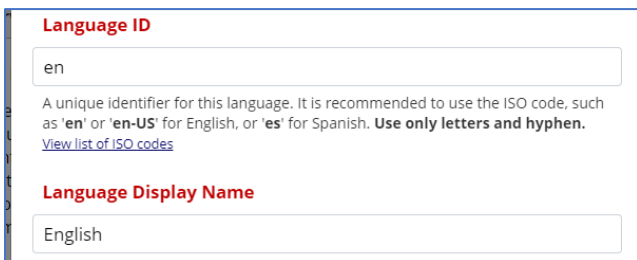
1) Go to Multi-Language Management (on the left column)



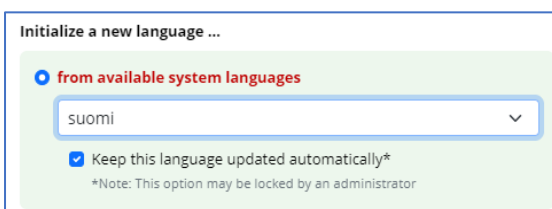
2) Click “Add a new language” by “creating the language from scratch”



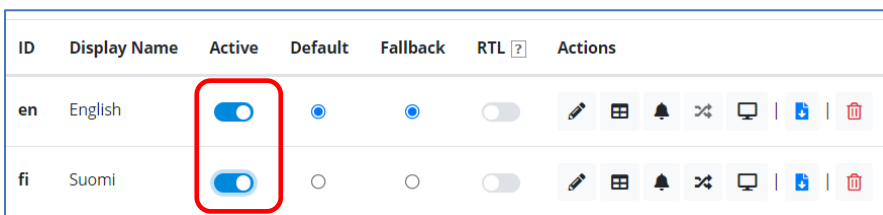
3) Give Language ID: **en** and Language Display Name: **English**















A screenshot of the 'Language ID' and 'Language Display Name' form. The 'Language ID' field contains the text 'en'. Below it is a small text block: 'A unique identifier for this language. It is recommended to use the ISO code, such as 'en' or 'en-US' for English, or 'es' for Spanish. Use only letters and hyphen. View list of ISO codes'. The 'Language Display Name' field contains the text 'English'.

4) Add another language: from available system languages => suomi.

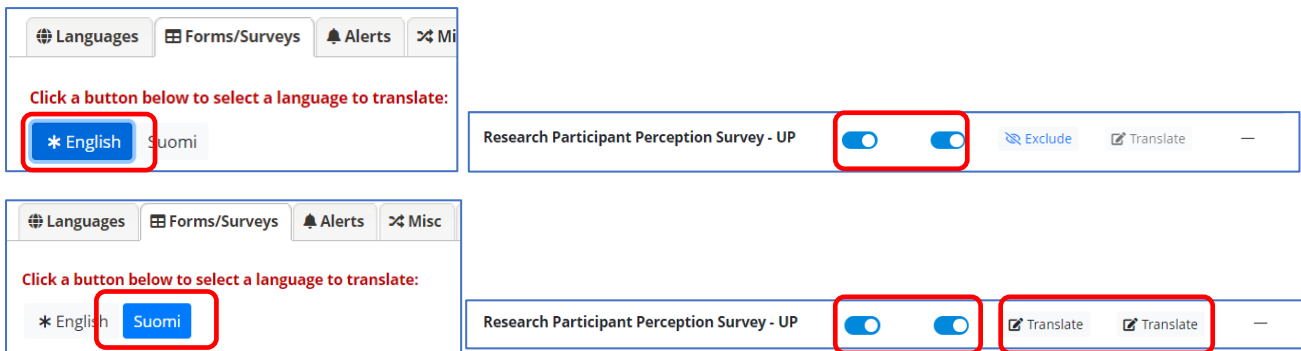
A screenshot of the 'Initialize a new language' dialog box. It features a green header with a radio button selected next to the text 'from available system languages'. Below the header is a dropdown menu showing 'suomi'. There is a checked checkbox for 'Keep this language updated automatically*'. A note below reads: '*Note: This option may be locked by an administrator'.

5) Set both languages as active.



ID	Display Name	Active	Default	Fallback	RTL ?	Actions
en	English	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="checkbox"/>	      
fi	Suomi	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	      

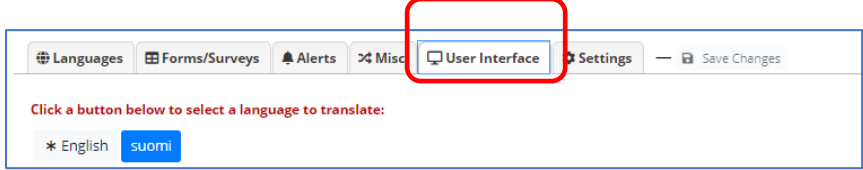
6) Set the Research Participant Perception Survey to be translated, **both in “English” and “Suomi”**



7) Translate on “Suomi” “Fields” and “Survey Settings” and provide the additional translations, if necessary. Remember to save changes.



8) NOTE: The Finnish “system languages” translation is not complete in all the fields, so you might want to check the “User Interface” translation also.



9) When the participants open the survey, they can choose their preferred language.



extra: Matrix (e.g. for Likert Scale)

- 1) Go to Designer
- 2) Click Create a New Instrument from scratch, called “Symptoms Experience by the Patient”
- 3) Click Add Matrix of Fields

Matrix Header Text (optional)

Select the suitable response for each question.

Matrix Rows

Each row represents a different field with its own label and variable name.

Field Label	Variable Name	Required?
Over the last week, on how many days have your skin been itchy?	itchy	<input type="checkbox"/>
Over the last week, on how many days have your skin felt dry?	dry	<input type="checkbox"/>
Over the last week, on how many days has your skin been cracked?	cracked	<input type="checkbox"/>

Matrix Column Choices

Choices (one choice per line) [Copy existing choices](#)

- 0, No days
- 1, 1-2 days
- 2, 3-4 days
- 3, 5-6 days
- 4, Every day

Other Matrix Info

Answer Format: Single Answer (Radio Buttons)

Ranking: [What is a ranked matrix of fields?](#)

Allow only 1 choice to be selected per column (radio buttons only)

Matrix group name: ONLY letters, numbers, and underscores

itchy_or_dry_patient_exp [What is a matrix group name?](#)

extra: Calculated Fields

To calculate symptoms score

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will be added to the form on this page. For an overview of the different field types available, you may view the [Field Types video \(4 min\)](#).

Field Type: Calculated Field

Field Label: Experienced symptoms score.

0 to 2 = Clear or almost clear
 3 to 7 = Mild eczema
 8 to 16 = Moderate eczema
 17 to 24 = Severe eczema
 25 to 28 = Very severe eczema

Calculation Equation: [itchy] + [dry] + [cracked]

Variable Name: experienced_score

Required?* No Yes

Identifier? No Yes

Custom Alignment: Right / Vertical (RV)

Field Note (optional):

Save Cancel

Designate events for collecting “Symptoms Experience by the Patient” data.

Data Collection Instrument	Event 1 (1)	Month 1 visit (2)	Month 2 visit (3)	Final survey (4)
Baseline Data	✓			
Symptoms Severity Score	✓	✓	✓	
Adverse Effects		✓	✓	
Symptoms Experience by the Patient	✓	✓	✓	
Research Participant Perception Survey - UP (survey)				✓

Go to Add/edit records and test how the calculated fields works.

Select the suitable response for each question.

	No days	1-2 days	3-4 days	5-6 days	Every day
Over the last week, on how many days have your skin been itchy?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Over the last week, on how many days have your skin felt dry?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Over the last week, on how many days has your skin been cracked?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Experienced symptoms score.

0 to 2 = Clear or almost clear
 3 to 7 = Mild eczema
 8 to 16 = Moderate eczema
 17 to 24 = Severe eczema
 25 to 28 = Very severe eczema

8 View equation

extra: Pagination (in Surveys)

Go to “Research Participant Perception Survey” => Survey settings and select Pagination => Multiple pages (display on section per page)

Pagination
 One page or multiple pages? Section headers, which begin new sections on the instrument, will serve as the page break in a multi-page survey, in which each page will begin with a section header.

Multiple pages (display one section per page)
 Display page numbers at top of survey page
 Hide the 'Previous Page' button (i.e., Back button) on the survey page (prevents respondents from going back to previous pages)

extra: Consent

1. Create a new instrument called “Consent”
2. Copy your consent text into the new instrument.

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

Field Label: Copy - paste your consent text here or attach it as a file. You may use Rich Text Editor for formatting the text.

Variable Name: consent_intro

Embed an external video:

Attach an image, file, or embedded audio: Upload file

Further information about the consent, see e.g. Flamma: <https://flamma.helsinki.fi/en/group/tutkimuksen-tuki/tutkimuksen-tietosuoja-asiat> (e.g. Privacy Notice for Research) or FSD’s [guide on informing research participants](#)

3. Add the signature under the consent statement and a date validated field.

4. Enable the consent instrument as a survey.

Instrument name	Fields	View PDF	Enabled as survey	Instrument actions
Consent	2		Enable	Choose action

5. Within survey settings, scroll down to eConsent framework. Enable the auto-archiver + eConsent Framework.

6. Finish up by clicking the Save Changes button.

7. Test the entire eConsent workflow to ensure everything is working as expected.

extra: Scheduling module

For generating schedules for calendar, based on the events in the “Define My Events” tab.

“Define My Events” table will look like this:

	Event # [event-number]	Days Offset	Offset Range Min / Max	Event Label [event-label]
	1	1	-0/+0	Baseline Visit
	2	30	-2/+2	Month 1 Visit
	3	60	-2/+2	Month 2 Visit
	4	70	-2/+2	Final Survey for Participants

1. Days Offset: The number of days since the start of the study this event is scheduled to occur.

2. Offset Range, Min/Max: Allows for scheduling within an assigned range of days.

To generate a schedule for an individual record, select the “Scheduling” tool under “Data Collection” on the left-hand panel.

✓ Successfully Scheduled "3"

Record ID "3" was successfully scheduled for the dates and times below and schedule or add more information, such as changing the status (e.g., 'Cancel View or Edit Schedule' tab above.

Schedule for "3"		
Time	Date	Event Name
	19.12.2023 Tuesday	Baseline Visit
	17.01.2024 Wednesday	Month 1 Visit
	16.02.2024 Friday	Month 2 Visit
	26.02.2024 Monday	Final Survey for Participants

Note: The scheduling module does not integrate with automatic survey invitations or alerts. Its intended use is for study staff to stay organized and generate participant schedules.

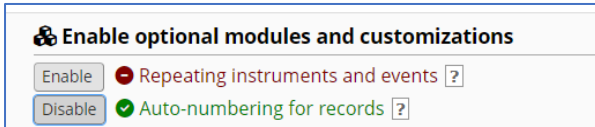
extra: Automated Survey Invitations

Online Designer => Automated Invitations => Set up

Compose message and define the conditions when the invitation is sent

extra: Removing automatic numbering of records

If you need to give the ID number for each record yourself, you can remove automatic numbering on “Enable optional modules and customizations”.



Acknowledgements:

These exercises are much inspired by

- [the Center for Clinical and Translational Science, University of Illinois Chicago RedCap Practice Workshop](#)
- RedCap education of biostatistician Eliisa Löyttyniemi, University of Turku
- [The University of Florida Clinical and Translational Science Institute \(CTSI\) RedCap education](#)
- [UofA REDCap Support - What are Arms?.](#) [25.2.2022]
- [How to set up eConsent in REDCap](#) by Vanderbilt Institute for Clinical and Translational Research
- [Longitudinal data collection in REDCap](#) by Illinois IHSI Interdisciplinary Health Sciences Institute
- [Automatic Survey Invitations \(ASI\)](#) by University of Wisconsin-Madison School of Medicine and Public Health
- [Data Structure with REDCap: Active Design Rather Than Passive](#) by Ali Chambers, Advance Clinical and Translational Research, Brown University
 - see e.g. 7:49 min: Repeated events wide format data structure vs. long format data structure (numerous rows per person)
- Ideas for the symptom score and experienced symptoms score taken from: [EASI score](#) and [POEM](#)