

Introductory Guide to REDCap

This guide provides practical tips and formulas researchers may use when building their REDCap research project database.

REDCap is a free, secure web-based software application for building and managing online surveys and databases. The system was developed to be used by researchers for management of research studies by a multi-institutional consortium initiated at Vanderbilt University. Northern Health (NH) has installed the REDCap software on its server.

The Research Development and Governance Unit (RDGU) strongly encourages study teams to use REDCap in the management of research studies and data wherever possible, including study databases (i.e., consent tracking database), participant surveys, eCRFs, and audits. NH does not currently have a license for any other suitable software for securely managing research databases and surveys.

Additional Resources:

- [REDCap consortium webpage](#) and [tutorial videos](#)
- RDGU's [Library of Resources](#)
- [University of Florida REDCap Users Guide](#)
- [University of Sydney REDCap How-to Guides](#)
- YouTube offers a large number of How-to and instructional videos
- External training and support seminar will be advertised via the NH Research mailing list.



Access via login to the
[NH REDCap portal](#).



Research Policy & Standard Operating Procedures (available on [PROMPT](#))

[Research](#)

[Research - Governance SOP](#)

[Research - Standard Operating Procedure for Clinical Trials](#)

- Note: Within Appendix 1 of this SOP is an extensive Glossary of Terms.

Research Development & Governance Unit

Level 3, NCHER

NH.Research@nh.org.au (for general enquiries related to research)

ResearchDGU@nh.org.au (for project-specific enquiries)

StudyStartup@nh.org.au (for feasibility and confidentiality agreements enquiries)



Getting Started

Project Lifecycle

There are four statuses that a REDCap project can be in at any time.

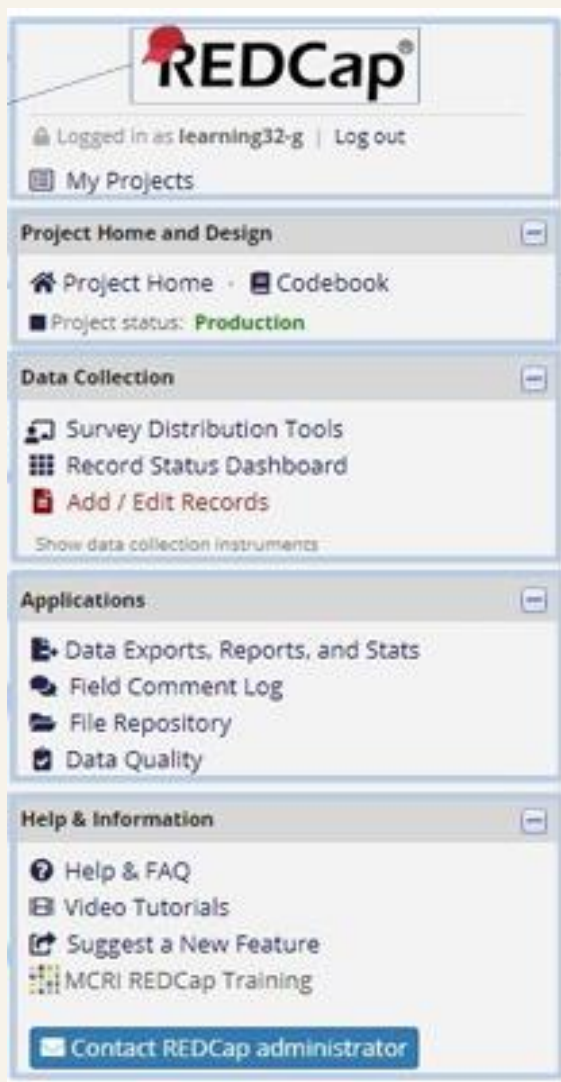
1. **Development** – Build phase
2. **Production** – Live phase
3. **Analysis/Clean up** – No new records being added
4. **Completed** – Project not shown under My Projects. May be returned to another state by admin only.

Note: A project may not necessarily progress through these stages sequentially. Some projects ("Practice projects") may never reach Production.

Log in using

➔ Northern Health SSO

Log into REDCap using the NH SSO



Direct to My Projects page

'Designer'/'Data Dictionary' -
permissions-dependent

Survey links and invitation log

Record access – *Create new, navigate to existing*

Other functionality you may have permission to use

Useful links



Getting Started

Field Type – multiple types to collect different kinds of data

Add New Field

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](#).

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

Field Label: ---- Select a Type of Field ----

- Text Box (Short Text, Number, Date/Time, ...)
- Notes Box (Paragraph Text)**
- Calculated Field
- Multiple Choice - Drop-down List (Single Answer)
- Multiple Choice - Radio Buttons (Single Answer)
- Checkboxes (Multiple Answers)
- Yes - No
- True - False

Action Tag: Signature (draw signature with mouse or finger)

File Upload (for users to upload files)

Slider / Visual Analog Scale

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

Begin New Section (with optional text)

Text Editor ?

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

ONLY letters, numbers, and underscores

☐ Enable auto naming of variable based upon its Field Label?

How to use [Smart Variables](#) [Piping](#)

[Field Embedding](#)

Validation? (optional)

---- None ----

- OR -

-- select ontology service --

Required?* ☒ No ☐ Yes

* Prompt if field is blank

Identifier? ☒ No ☐ Yes

Does the field contain identifying information (e.g., name, SSN, address)?

Custom Alignment Right / Vertical (RV)

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Section Header – has no impact on functionality but is useful for visually grouping sets of related fields.

Performed by
Physical Measurements
Height (cm)
Weight (kg)

Rules of Naming Variables:

- Lower-case letters, digits 0-9, underscore characters only
- Begin with letter
- Not a reserved word – e.g., "integer"

Note: It is recommended to make your variable names easier to work with. Make them meaningful, concise, and consistent.

Validation – ensures data entered matches the mandatory formatting



CALCULATED FIELDS

What is 'Calculated Fields'?

Enables you to calculate a value from other data entered.

Below are examples of the types of formulas you may use:

`datediff([DATE1],[DATE2],"y")`

Yields the difference in years between two timepoints

Example:

`datediff([dob], "today", "y")` = current age (in years)

Note: you may substitute "y" for "M"/"d"/"h" to calculate months, days, or hour differences between timepoints

TIP!

Make sure variables are in the same format, i.e.:

- Dates = "d-m-y" or "y-m-d"
- Time = "h:m" or "h:m:s"

Calculation Equation [How do I format the equation?](#) [Learn h](#)

`datediff([dob], "today", "y")`

Test calculation with a record:

Result: 23.00115676571

TIP!

It is very important to test your fields (especially calculated fields) to make sure they work correctly.

You can create a 'test' record to test the data entry.

Basic Maths with [variables]

Performs basic math using [variables]

Example:

`[weight]/([height]*[height])` = BMI

Calculation Equation [How do I format the equ](#)

`[weight]/([height]*[height])`

Test calculation with a record:

Result: 24.444444444444

`returnSignedValue`

Parameter that denotes the result to be signed or unsigned (absolute value)

The default is "false" which returns the absolute value.

Example:

- `datediff("today",[dob], "y")` = d.o.b - "today" = age (in years)
- `datediff("today",[dob], "y", true)` = d.o.b - "today" = -age (in years)

`datediff("today",[dob], "y")`

Test calculation with a record:

Result: 23.00115676571

`datediff("today",[dob], "y", true)`

Test calculation with a record:

Result: -23.00115676571

BRANCHING LOGIC

What is 'Branching Logic'?

Enables fields to be shown or hidden based upon data entered elsewhere for the record.

Field Name: *sex*

Sex

Add Field Add Matrix of Fields Import from Field Bank

Field Name: *pregnant*

Is the patient pregnant?

☐ Yes
☐ No

reset

Add Field Add Matrix of Fields Import from Field Bank

Choose method below for the following field: **pregnant - Is the patient pregn...**

☐ **Advanced Branching Logic Syntax** How to use [Branching Logic](#)

☒ Smart Variables ☒ Special Functions

Show the field ONLY if...

[sex] = '1'

Clear logic

Test logic with a record: -- select a record --

— OR —

☒ **Drag-N-Drop Logic Builder**

Displaying field choices for the following data collection instrument:
Patient Demographics

Field choices from other fields
(drag a choice below to box on right)

age = (define criteria) →
sex = Female (1)
sex = Male (2)
height = (define criteria)
weight = (define criteria)
bmi = (define criteria)
form_1_complete = Incomplete →

Drag and Drop

Show the field ONLY if...

☒ ALL below are true
☐ ANY below are true

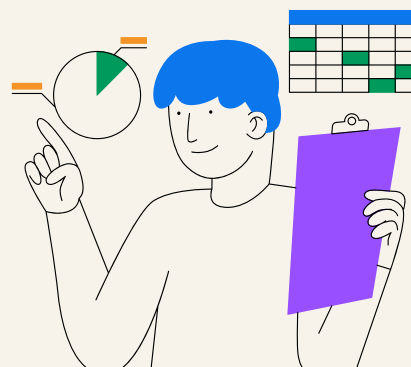
sex = Female (1) ✖

Clear logic

Click on the 'Branching Logic' icon for the field that branching logic would be applied to. In this example, 'Is the patient pregnant' would only become visible when the condition 'Patient is female' is true.

TIP!

'Drag-N-Drop Logic Builder' is easier to navigate Branching Logic.



PIPING

What is 'Piping'?

Allows you to see data entered for the record on a previous form or into a previous field within the current form.

Example: Data Entered on Previous Form

Record ID	1
Name * must provide value	Jane Doe
URN	123456
Date of Birth * must provide value	1991-07-2 Today Y-M-D

Piping How-to:

- 'Edit' field of choice – e.g., Participant
- Place variable name of the data you want inserted in square brackets – e.g., [name]
- Click 'Save'.

Field Type:	Begin New Section (with optional text) ▼
Field Label	☐ Use the Rich Text Editor ?
Patient: [name]	

Piping Outcome:

Record ID	1
Patient: Jane Doe	

Frequently Asked Questions

Is there a cost to help me design REDCap forms?

NH does not have a REDCap development service, so access to REDCap is free of charge for researchers/users.

Can I see other people's projects?

No, you cannot see other people's projects by default. However, if you are given permission by a project owner, you will be able to see this project dependent upon the permissions provided. Likewise, you can permit other users to see your project(s).

Can I still maintain a paper trail for my study, even if I use REDCap?

All surveys and forms can be downloaded as a universal PDF file to be printed and filed (as per ethics/project approval data security plan).

Can I use a general email or email not in REDCap to send notifications to?

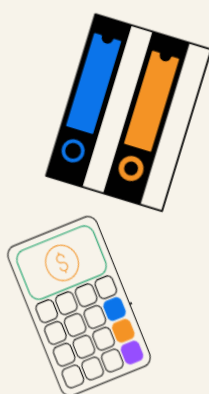
Within the REDCap Menu sidebar, Alerts&Notifications allow you to program alerts and add any email needed to send alerts/notifications to. This is independent of NH REDCap access.

How do I get a REDCap login or reset my password?

Request a NH REDCap personal login via email to

NH.Research@nh.org.au

Login via NH username and password once access is granted. Each user must have a unique login to use REDCap. As password is linked to your NH account, if you cannot login, reset your NH password. [Instructions here](#).



Do I need a computer to login to REDCap or can I use another device?

No, any device with internet access can be used to login to the database. You cannot log on to REDCap without internet connection.

Note: REDCap is not specifically designed for small screens though and works best on tablet or larger.

Can I create multiple projects using one REDCap account?

Yes, you can create as many projects as you want.

Frequently Asked Questions

Can I analyse the data collected/entered into REDCap in the database for advanced analysis at various points during the study?

Yes. However, it is easier and more useful to export survey results to common data analysis packages. Export your data to Microsoft Excel, R, SAS, STATA, or SPSS etc., for analysis.

How do I reference the database?

The following should be referenced in citations if using the NH Database:

"Study data were collected and managed using REDCap electronic data capture tools hosted at Northern Health."

Is my data backed up?

The REDCap server is backed regularly, but because it is a whole-of-server image, there isn't a way to extract just the relevant portion out of it in the event you accidentally delete or corrupt your project. As such it is your responsibility to regularly back up your data and store it on a secure research drive.

How do I get a login for a non-NH user? Can I use a generic email account for multiple users?

The NH study owner will need to sponsor the non-NH user for them to gain access to REDCap to their specific project at NH. The license only allows individuals with an NH email to get full access. Externals will get limited access. The RDGU can add externals one by one or in bulk. Send requests to NH.Research@nh.org.au. It is not possible to use a generic email with multiple users. Audit trail is key to quality of a database. Generic emails do not have a username and password you can use.

Can I use REDCap for multi-site projects?

Yes, the system allows for multi-person/site access. The study owner can give permission to others from multiple sites and institutions. Permissions are managed on a per person basis, so the access can be tailored to the individual's role/requirements, for instance only being able to view data at a specific institution.

