REDCap Training 101

Introduction to building project in REDCap

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Introduction and Learning Objective

• Learn how to access training materials.
• Understand how to set up a REDCap project.
• Know how to manage user rights.
• Find out how to export data to statistical packages.
What is REDCap?

**Web-based software**
used to create and manage research databases and participant surveys.

**Developed as a tool**
to help researchers collect and manage data effectively and responsibly.
What are the advantages of REDCap?

**Accessible**
- remote web-based access (on and off campus)
- access for multi-site collaborations

**Customizable**
- fast and flexible to design
- modifications at anytime

**Accurate**
- ensures consistent and accurate data entry
- data quality checks to look for errors

**Secure**
- multi-factor user authentication using Yale Active Directory
- data stored on secure cloud servers protected by firewalls
How do I get set up in REDCap?

• To request a new account, select **Request Study Account** on the REDCap@Yale portal website.

• Two REDCap implementations available:

  REDCap at Yale University

  Yale New Haven Health

  Yale Center for Clinical Investigation
REDCap@Yale

- Yale NetID and password is required for login
  - CANNOT reset password in REDCap. Reset your Yale NETID through Yale ITS.

Question: *My project involves people outside Yale. How do they login?*
Answer: You can provide a Yale NET ID. Refer to the ITS website on how to obtain sponsored NetID for external collaborators.
Training Resources

23 training videos available in REDCap

REDCap Training Videos

Just Getting Started?
Explore these overviews of fundamental concepts and features.

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
<th>Watch Video</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Overview</td>
<td>A quick summary of what REDCap is and what it can do.</td>
<td>4 minutes</td>
</tr>
<tr>
<td>Detailed Overview</td>
<td>This video provides an overview of basic functions and features within a REDCap project. It will serve as a starting point for learning about the basic concepts of REDCap, what REDCap projects are, how to create them, and how to use them.</td>
<td>14 minutes</td>
</tr>
<tr>
<td>Data Entry Overview</td>
<td>A focused exploration of basic data entry workflow. Suitable for training data entry staff.</td>
<td>19 minutes</td>
</tr>
</tbody>
</table>
List of Training Videos

1. Brief Overview
2. Detailed Overview
3. Data Entry Overview
4. Introduction to Instrument Development
5. Online Designer
6. Data Dictionary
7. Project Field Types
8. Applications Overview
9. The Calendar
10. Scheduling Module
11. Data Access Groups for multi-site projects
12. Types of Projects
13. Traditional Project
14. Single Survey Project
15. Longitudinal Project
16. Longitudinal Project + Scheduling
17. Operations
18. Defining Events in Longitudinal Projects
19. Designating Instruments for Events in Longitudinal Projects
20. Repeatable instruments and events
21. REDCap Mobile App
22. Locking Records
23. Data Resolution Workflow
Training Resources

Where can you find help and answers?

HELP & FAQ in REDCap

- This is also a good place to look up syntax for calculated field, branching logics or piping.

![REDCap Help & FAQ](image-url)
Training Resources

• ‘How to’ links throughout REDCap. For example, in online designer:

This page allows you to build and customize your data collection instruments one field at a time. You may add new fields or edit existing ones. New fields may be added by clicking the Add Field buttons. You can begin editing an existing field by clicking on the Edit icon. If you decide that you do not want to keep a field, you can simply delete it by clicking on the Delete icon. To reorder the fields, simply drag and drop a field to a different position within the form below. NOTE: While in development status, all field changes will take effect immediately in real time.

Learn how to use: [Smart Variables] [Piping] [Action Tags] [Field Embedding] [Special Functions]

[Return to list of instruments]

Current instrument: Survey

[Variable: record_id]
Record ID

NOTE: The field above is the record ID field and thus cannot be deleted or moved. It can only be edited.
MORE Training Resources

Where can you find help and answers?

HELP & FAQ on the REDCap@Yale portal website

- We also offer a library of step-by-step tutorials to address commonly asked questions from our Yale end-users.
QUESTIONS?
SETTING UP YOUR PROJECT:

WHERE DO I BEGIN?
How do I create a new project in REDCap?

- Click the ‘+New Project’ tab, fill in the form
  - Remember to enter the PI and study information
- Click ‘Send Request’.

After we verify you have an account, we will create the project and notify you via email within 1-2 business days.
Decide What Type of Project is Needed

1. Classic Database – Each form can only be completed once. One record per subject.

2. Longitudinal –
   - Data collected multiple times per subject
     - Fixed number of collection points that correspond to pre-defined events (e.g. initial evaluation, 3mo. follow-up, 6mo. follow-up, 1yr follow-up)
   - Optional scheduling via a project calendar
   - Can have multiple study arms
Decide How to Collect the Data

• Data Entry
  – Data entered by REDCap users (i.e. research staff).
  – Offline data collection available via mobile app.

• Survey
  – On-line survey completed by participants.
  – Participants do not need to have a Yale NetID.

A project can have both surveys and data entry forms.
How to Set Up your Project

Main project settings
- Enable Use surveys in this project?
- Disable Use longitudinal data collection with defined events?
- Modify project title, purpose, etc.

Design your data collection instruments
Add or edit fields on your data collection instruments. This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method). Quick links: Download PDF of all instruments OR Download the current Data Dictionary.

Go to Online Designer or Data Dictionary. Explore the REDCap Shared Library.

Have you checked the Check For Identifiers page to ensure all identifier fields have been tagged?

Learn how to use Smart Variables, Piping, Action Tags, Field Embedding.

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.

Enable optional modules and customizations
- Enable Repeatable Instruments and events
- Disable Auto-numbering for records
- Enable Scheduling module (longitudinal only)
- Enable Randomization module
- Enable Designate an email field for communications (including survey invitations and alerts)
- Additional customizations
Project Setup: Enable Settings

If applicable:
1. Enable longitudinal setting
2. Enable survey setting
How to Set Up your Project

**Main project settings**

- Enable Use surveys in this project?
- Disable Use longitudinal data collection with defined events?

[VIDEO: How to create and manage a survey]

Modify project title, purpose, etc.

**Design your data collection instruments**

Add or edit fields on your data collection instruments. This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method). Quick links: Download PDF of all instruments OR Download the current Data Dictionary

Go to Online Designer or Data Dictionary

Explore the REDCap Shared Library

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**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

**Enable optional modules and customizations**

- Enable Repeatable instruments and events
- Enable Auto-numbering for records
- Enable Scheduling module (longitudinal only)
- Enable Randomization module
- Enable Designate an email field for communications (including survey invitations and alerts)

Additional customizations
Design the project instruments using either (a.) online designer or (b.) data dictionary.

Design your data collection instruments

Add or edit fields on your data collection instruments. This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method). Quick links: Download PDF of all instruments OR Download the current Data Dictionary

Go to Online Designer or Data Dictionary

Explore the REDCap Shared Library

Have you checked the Check For Identifiers page to ensure all identifier fields have been tagged?

Learn how to use Smart Variables, Piping, Action Tags, Field Embedding
a. On-line Designer

- Allows you to create/modify/delete data collection instruments and fields (questions) using your web browser.
- Changes are made in real time and available immediately for review and testing.

The Online Designer will allow you to make project modifications to fields and data collection instruments very easily using only your web browser. NOTE: While in development status, all field changes will take effect immediately in real time.

<table>
<thead>
<tr>
<th>Data Collection Instruments</th>
<th>Survey options:</th>
<th>Automated Survey Invitation options:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add new instrument:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Import</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upload</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrument name</td>
<td>Fields</td>
<td>View PDF</td>
</tr>
<tr>
<td>Enrollment</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Survey</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Test</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Project Set Up: Building with the On-line Designer

1. Edit field
2. Copy field
3. Specify branching logic
4. Move field (can move to other form)
5. Delete field
Project Set Up: Building with the Data Dictionary

b. Data Dictionary

- The Data Dictionary is a formatted spreadsheet in CSV (comma separated format) containing the metadata used to construct data collection instruments and fields.

This is recommended for advanced users.
Project Set Up: Building with the Data Dictionary

• To use this feature, you will download the current dictionary, make modifications, and THEN upload the modified data dictionary on the data dictionary page.

**IMPORTANT**: Always upload the ENTIRE data dictionary. Never upload a partial data dictionary.

**Steps for making project changes:**
1.) [Download the current Data Dictionary](#) OR [Download Data Dictionary with drafted changes](#)
2.) Edit the Data Dictionary (see the Help & FAQ for help)
3.) Upload the Data Dictionary using the form below
4.) The changes will be made to the project after the Data Dictionary has been checked for errors

**Upload your Data Dictionary file** (CSV file format only)

Format for min/max validation values for date and datetime fields: MM/DD/YYYY or YYYY-MM-DD

- [Browse...](#)
- No file selected.

- [Upload File](#)
Building Forms: Using the Online Designer

- First field of the first form must be the record key (e.g. Participant ID).
  - This field cannot be deleted or moved.
  - Data in this field must be unique.
  - This field can be auto-assigned by REDCap

(Project Setup → Enable optional modules → Enable auto-numbering for records)
Building Forms: Field Name

• Each field name must be:
  – Unique
  – Lowercase
  – Contain fewer than 26 characters
  – Contain only letters, numbers, and underscores.

• In general, field names should be as short in length as possible and maintain meaning.
# Building Forms: Field Types

<table>
<thead>
<tr>
<th>Field Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEXT</td>
<td>single-line text box (for text, numbers and dates etc.)</td>
</tr>
<tr>
<td>NOTES</td>
<td>large text box for multiple lines of text</td>
</tr>
<tr>
<td>DROPDOWN</td>
<td>dropdown menu with options</td>
</tr>
<tr>
<td>RADIO</td>
<td>radio buttons with options</td>
</tr>
<tr>
<td>CHECKBOX</td>
<td>checkboxes to allow selection of more than one option</td>
</tr>
<tr>
<td>FILE</td>
<td>upload a document</td>
</tr>
<tr>
<td>CALC</td>
<td>perform real-time calculations</td>
</tr>
<tr>
<td>SQL</td>
<td>select query statement to populate dropdown choices</td>
</tr>
<tr>
<td>DESCRIPTIVE</td>
<td>text displayed with no data entry and optional image/file attachment</td>
</tr>
<tr>
<td>SLIDER</td>
<td>visual analogue scale;</td>
</tr>
<tr>
<td>YESNO</td>
<td>radio buttons with yes and no options; coded as 1, Yes</td>
</tr>
<tr>
<td>TRUEFALSE</td>
<td>radio buttons with true and false options; coded as 1, True</td>
</tr>
<tr>
<td>MATRIX</td>
<td>display a group of similar multiple-choice fields in a very compact area on a page</td>
</tr>
<tr>
<td>SIGNATURE</td>
<td>draw signature with mouse or finger</td>
</tr>
</tbody>
</table>
Building Forms: Using Validations

Validation is an important tool that can be used to prevent errors. It also helps when exporting data to statistical packages.
Building Forms: Drop Down 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 (4 min).

**Field Type:** Multiple Choice - Drop-down List (Single Answer)

**Field Label:**
Race

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

- Race

ONLY letters, numbers, and underscores

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

**How to use**

- [$] Smart Variables
- Piping

**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

Learn about [Action Tags] or [using Field Annotation]
Building Forms: Action Tags

- Action tags allow you to perform special actions within REDCap. Each action tag has a corresponding action that is performed for the field.

- In REDCap, action tags begin with the '@' sign – Placed inside a field’s “Field Annotation”.

Field Label
Test default value

Choices (one choice per line) Copy existing choices
1, Yes
2, No

How do I manually code the choices?

Action Tags / Field Annotation (optional)
@DEFAULT="2"

Learn about @ Action Tags or using Field Annotation

Adding new Participant ID code 1111
Event Name: Flu Clinic (Arm 1: U19)
Participant ID code
1111
test secondary unique field

Test default value

Yes
No
Building Forms: Action Tags

<table>
<thead>
<tr>
<th>Currently available action tags</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>@APPUSERNAME-APP</td>
<td>@INLINE</td>
</tr>
<tr>
<td>@BARCODE-APP</td>
<td>@LATITUDE</td>
</tr>
<tr>
<td>@CALCDATE</td>
<td>@LONGITUDE</td>
</tr>
<tr>
<td>@CALCTEXT</td>
<td>@MAXCHECKED</td>
</tr>
<tr>
<td>@CHARLIMIT</td>
<td>@MAXCHOICE</td>
</tr>
<tr>
<td>@DEFAULT</td>
<td>@NOMISSING</td>
</tr>
<tr>
<td>@HIDDEN</td>
<td>@NONEOFTHEABOVE</td>
</tr>
<tr>
<td>@HIDDEN-APP</td>
<td>@NOW</td>
</tr>
<tr>
<td>@HIDDEN-FORM</td>
<td>@NOW-SERVER</td>
</tr>
<tr>
<td>@HIDDEN-PDF</td>
<td>@NOW-UTC</td>
</tr>
<tr>
<td>@HIDDEN-SURVEY</td>
<td>@PASSWORDMASK</td>
</tr>
<tr>
<td>@HIDEBUTTON</td>
<td>@PLACEHOLDER</td>
</tr>
<tr>
<td>@HIDECHOICE</td>
<td>@RANDOMORDER</td>
</tr>
</tbody>
</table>

Refer to REDCap on-line designer for description of each action tag.
Building Forms: Smart Variables

- Allow reference information other than data fields (e.g., event, repeat instance, DAG or users)

Example: Set the default value of a field to be the value of the previous event.
# Building Forms: Smart Variables

<table>
<thead>
<tr>
<th>Name of Smart Variable</th>
<th>Description</th>
<th>Example of Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[user-name]</td>
<td>The current user’s REDCap username.</td>
<td>[user-name]</td>
</tr>
<tr>
<td>[user-fullname]</td>
<td>The current user’s first and last name (as listed on their My Profile page).</td>
<td>[user-fullname]</td>
</tr>
<tr>
<td>[user-email]</td>
<td>The current user’s primary email address (as listed on their My Profile page).</td>
<td>[user-email]</td>
</tr>
<tr>
<td>[user-dag-name]</td>
<td>The Data Access Group (the unique group name) to which the current user belongs (blank if not in a DAG).</td>
<td>[user-dag-name]</td>
</tr>
<tr>
<td>[user-dag-id]</td>
<td>The group ID number of the Data Access Group to which the current user belongs (blank if not in a DAG).</td>
<td>[user-dag-id]</td>
</tr>
<tr>
<td>[user-dag-label]</td>
<td>The name/label of the Data Access Group to which the current user belongs (blank if not in a DAG).</td>
<td>[user-dag-label]</td>
</tr>
<tr>
<td><strong>Record</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[record-name]</td>
<td>The record name of the current record.</td>
<td>[record-name]</td>
</tr>
<tr>
<td>[record-dag-name]</td>
<td>The Data Access Group (the unique group name) to which the current record belongs (blank if not in a DAG).</td>
<td>[record-dag-name]</td>
</tr>
<tr>
<td>[record-dag-id]</td>
<td>The group ID number of the Data Access Group to which the current record belongs (blank if not in a DAG).</td>
<td>[record-dag-id]</td>
</tr>
<tr>
<td>[record-dag-label]</td>
<td>The name/label of the Data Access Group to which the current record belongs (blank if not in a DAG).</td>
<td>[record-dag-label]</td>
</tr>
<tr>
<td><strong>Form</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[is-form]</td>
<td>Detects if the current instrument is being viewed as a data entry form (returns 1 for True, 0 for False), as opposed to a survey.</td>
<td>[is-form]</td>
</tr>
</tbody>
</table>
Building Forms: Smart Variables Examples

Other examples:

1. Branching logics based on event name
   
   [event-name]=‘baseline_arm_1’

2. Branching logics based on arm number
   
   [arm-number]=‘1’

3. Age at first instance of repeating instrument
   
   [age][first-instance]
Building Forms: Tagging Identifiers

• Fields that constitute protected health information (PHI) can be marked as an “Identifier”

• These fields can then be excluded on data export, allowing for analysis of “de-identified” data

• Users can also be restricted in their ability to export Identifier fields based on access rights
Building Forms: Calculated Fields

- Calculations can only result in numbers (i.e., cannot use calculated field to concatenate strings or return a date).

**Examples:**

Age calculation: `rounddown((datediff([dob],[hosp_date],"y")),0)`

Sum of scores: `sum([field1], [field2], [field3])`

Refer to ‘Help and FAQ’ for more examples or click in the online designer.
Building Forms: Branching Logic

• You can use a Drag-N-Drop Logic Builder or Advanced Branching Logic Syntax

• You can use fields on the current data entry form OR other forms

• If fields from different events are used in branching logic, the field name needs to be preceded by an event name, e.g. [screening_arm_1][field1]
  – Event names can be found in ‘Define My Events’ page

Drag-N-Drop Logic Builder

Advanced Branching Logic Syntax

Displaying field choices for the following data collection instrument:
Screening & Enrollment Form

Field choices from other fields
(drag a choice below to box on right)
- testrowz = Bad (4)
- testrow2 = Worst (5)
- test_field2 = (define criteria)
- age = (define criteria)
- ageout = Yes (1)
- ageout = No (2)
- agegroup1 = 21-30 (1)

Show the field ONLY if...
○ ALL below are true
○ ANY below are true
ageout = No (2)

Test logic with a record: -- select record --
Building Forms: Piping

Without Piping:

What kind of ice cream do you like?
- Chocolate
- Strawberry
- Vanilla

How often do you eat _____ ice cream?
- Once a week
- Twice a week
- Three times a week

With Piping:

What kind of ice cream do you like?
- Chocolate
- Strawberry
- Vanilla

How often do you eat Chocolate ice cream?
- Once a week
- Twice a week
- Three times a week
Building Forms: Piping

How to use piping:

[Image of a screenshot showing an example of how to use piping in a REDCap application to create a survey question about ice cream preferences. The screenshot includes options for selecting ice cream flavors and how often the person eats ice cream.]
Building Forms: Field Embedding

No field embedding:

<table>
<thead>
<tr>
<th>Test Date 1</th>
<th>Test Result 1A</th>
<th>Test Result 1B</th>
<th>Test Date 2</th>
<th>Test Result 2A</th>
<th>Test Result 2B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With field embedding:

<table>
<thead>
<tr>
<th>Date</th>
<th>Test Result A</th>
<th>Test Result B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field Embedding
QUESTIONS?
How to Set Up your Project

**Main project settings**
- Use surveys in this project?
- Use longitudinal data collection with defined events?
Modify project title, purpose, etc.

**Design your data collection instruments & enable your surveys**
Add or edit fields on your data collection instruments (survey and forms). This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method). You may then enable your instruments to be used as surveys in the Online Designer.

Quick links: Download PDF of all instruments OR Download the current Data Dictionary

Go to Online Designer or Data Dictionary

Have you checked the Check For Identifiers page to ensure all identifier fields have been tagged?

Learn how to use Smart Variables, Piping, Action Tags

**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

**Enable optional modules and customizations**
- Repeatable instruments and events
- Auto-numbering for records
- Scheduling module (longitudinal only)
- Randomization module
- Designate an email field for sending survey invitations

Field currently designated: testemail ("Test email")
Additional customizations
Defining Events
Longitudinal Projects

- Defining Events allows you to:
  - Use data collection forms multiple times for any given project record.
  - Generate new schedules to display on the Calendar.

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
### How to Define Events

**WARNING:** Deleting any events below will result in data loss. Please proceed with caution.

#### Unique event name is auto-generated.

This is where you will find the event names for use in branching logic.

#### Table: Event Details

<table>
<thead>
<tr>
<th>Event #</th>
<th>Days Offset</th>
<th>Offset Range Min / Max</th>
<th>Event Name</th>
<th>Custom Event Label (optional)</th>
<th>Unique event name (auto-generated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>-0/+0</td>
<td>Flu Clinic</td>
<td></td>
<td>flu_clinic_arm_1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>-0/+2</td>
<td>Day 2-4 Blood Draw</td>
<td></td>
<td>day_24_blood_draw_arm_1</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>-0/+0</td>
<td>Day 7 Blood Draw</td>
<td></td>
<td>day_7_blood_draw_arm_1</td>
</tr>
<tr>
<td>4</td>
<td>28</td>
<td>-0/+0</td>
<td>Day 28 Blood Draw</td>
<td></td>
<td>day_28_blood_draw_arm_1</td>
</tr>
<tr>
<td>5</td>
<td>70</td>
<td>-0/+0</td>
<td>Day 70 Blood Draw</td>
<td></td>
<td>day_70_blood_draw_arm_1</td>
</tr>
<tr>
<td>6</td>
<td>100</td>
<td>-0/+0</td>
<td>Non-Flu Blood Draw</td>
<td></td>
<td>nonflu_blood_draw_arm_1</td>
</tr>
</tbody>
</table>

Add new event: [Days: -0 to 0]
How to Designate Instruments to Events

The event list and instrument mappings can be downloaded from one project and uploaded to another project.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening &amp; Enrollment Form</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Interview</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Draw Form</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Frailty Assessment</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Withdrawal</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genetic Data Repository Consent</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Blood Draw Form (Non-Flu)</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>
How to Set Up a Survey

Enable any form as a survey in On-line Designer

1. Open survey setting
2. Configure the survey

Survey features:

– Schedule automated survey invitations
– Set up a survey queue
– Create unique login code for survey respondents
– Set up researcher notifications upon survey completion
How to Send Surveys to Participants

1. Public link: survey must be the first form. Record will be created as each survey is completed

2. Designate an email field for sending survey (recommended method)

3. Add participants to ‘Manage survey participants’ page

REDCap has many advanced features that can be used for setting up surveys. This will be covered in the survey training.
How to Set Up your Project

**Main project settings**
- Use surveys in this project?
- Use longitudinal data collection with defined events?

**Design your data collection instruments & enable your surveys**
Add or edit fields on your data collection instruments (survey and forms). This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method). You may then enable your instruments to be used as surveys in the Online Designer.

Quick links: Download PDF of all instruments OR Download the current Data Dictionary

Go to [Online Designer] or [Data Dictionary]

Explore the [REDCap Shared Library]

Have you checked the [Check For Identiﬁers] page to ensure all identiﬁer fields have been tagged?

Learn how to use [Smart Variables], [Piping], [Action Tags]

**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]

**Enable optional modules and customizations**
- Repeatable instruments and events
- Auto-numbering for records
- Scheduling module (longitudinal only)
- Randomization module
- Designate an email field for sending survey invitations

Field currently designated: `testemail` ("Test email")

Additional customizations
REDCap can repeat a data collection instrument or an entire event an unlimited number of times without having to pre-specify the frequency.

<table>
<thead>
<tr>
<th>Event Name</th>
<th>Repeat entire event or selected instruments?</th>
<th>Instrument name (select instruments to repeat)</th>
<th>Custom label for repeating instruments (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (Arm 1: Intervention)</td>
<td>Repeat Instruments (repeat)</td>
<td><a href="#">Screening</a>, <a href="#">Tracking Visits</a>, <a href="#">Goal Facilitation Visit</a>, <a href="#">PCP Visit</a>, <a href="#">Cardiology Visit</a>, <a href="#">OPACIC</a>, <a href="#">Collaborate V5.0</a>, <a href="#">MoCA Recall Introduction</a>, <a href="#">TBQ</a>, <a href="#">Global Health Promis Scale V1.2</a>, <a href="#">MoCA Recall</a>, <a href="#">Demographics</a>, <a href="#">Interviewer Observation</a>, <a href="#">Discontinuation</a>, <a href="#">Eligibility Waiver</a>, <a href="#">Medication</a>, <a href="#">Chronic Condition</a>, <a href="#">Chronic Condition Category</a></td>
<td></td>
</tr>
<tr>
<td>FU (Arm 1: Intervention)</td>
<td>-- not repeating --</td>
<td><a href="#">OPACIC</a>, <a href="#">Collaborate V5.0</a>, <a href="#">TBQ</a>, <a href="#">Global Health Promis Scale V1.2</a></td>
<td></td>
</tr>
</tbody>
</table>
Optional Modules: Repeatable Instruments

- Repeatable instruments shown on record home page:

<table>
<thead>
<tr>
<th>Repeating Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal Facilitation Visit</strong>&lt;br&gt;Baseline (Arm 1: Intervention)</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>+ Add new</td>
</tr>
</tbody>
</table>

| **PCP Visit**<br>Baseline (Arm 1: Intervention) |
| 1 | 10-10-1966 |
| 2 | 01-24-1967 |
| 3 | 03-20-1967 |
| 4 | 04-12-1967 |
| 5 | 04-27-1967 |
| 6 | 05-25-1967 |
| + Add new |

| **Chronic Condition**<br>Baseline (Arm 1: Intervention) |
| 1 | F32.9, Depression |
| 2 | I10, Hypertension |
| 3 | K21.9, Esophageal reflux |
| 4 | Z00.00, Encounter for preventive health examination |
| 5 | G20, Parkinson's disease |
| 6 | M54.6, Pain, upper back |
| 7 | I49.3, Premature ventricular contractions |
QUESTIONS?
FINAL STEPS BEFORE IMPLEMENTATION:

USER RIGHTS AND TESTING
Granting User Rights in REDCap: Individual Users

- User access can be set up by “Custom Right” or “Role Based” access
- **Best Practice**: “Role Based” access

This page may be used for granting users access to this project and for managing the user privileges of those users. You may also create roles to which you may assign users (optional). User roles are useful when you will have several users with the same privileges because they allow you to easily add many users to a role in a much faster manner than setting their user privileges individually. Roles are also a nice way to categorize users within a project. In the box below you may add/assign users or create new roles, and the table at the bottom allows you to make modifications to any existing user or role in the project as well as view a glimpse of their user privileges.

**Add new users**: Give them custom user rights or assign them to a role.

- Add new user
- Assign new user

**Create new roles**: Add new user roles to which users may be assigned.

- Enter new role name
- Create role
Granting User Rights in REDCap:
Individual Users

Basic Rights = Access to the Project

Data Viewing Rights = Access to Individual Forms

Exporting data is NOT linked to Data Entry Rights. User with Full Export Rights can export ALL data from the data collection instruments.
Granting User Rights in REDCap: Data Access Groups (DAGs)

- “Data Access Group” is an advanced feature that is useful for multi-center trials and collaborations, especially for HIPAA compliance.

- Users in a particular Data Access Group can only see records entered by other users in that Data Access Group.

**Create new groups:** Add new data access groups to which users may be assigned.

![Form](image)

**Assign user to a group:** Users may be assigned to any data access group.

![Form](image)

<table>
<thead>
<tr>
<th>Data Access Groups</th>
<th>Users in group</th>
<th>Number of records in group</th>
<th>Unique group name (auto-generated)</th>
<th>Group ID number</th>
<th>Delete group?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>test</strong></td>
<td></td>
<td>5</td>
<td>test</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td><strong>test2</strong></td>
<td>[redacted]</td>
<td>1</td>
<td>test2</td>
<td>1823</td>
<td></td>
</tr>
<tr>
<td>[Not assigned to a group]</td>
<td>[redacted]</td>
<td>134</td>
<td>* Can view ALL records</td>
<td></td>
<td>✗</td>
</tr>
</tbody>
</table>

*Can view ALL records*
Granting User Rights in REDCap: Assigning Users to multiple DAGs

- Users can be assigned to more than one DAG using the DAG Switcher setting.

**DAG Switcher: Enable multiple Data Access Groups for users**

Users assigned to Data Access Groups (DAGs) can optionally be assigned to multiple *potential* DAGs, in which they may be given the privilege of switching in and out of specific DAGs on their own whenever they wish. To assign a user to multiple DAGs, check the checkboxes below for that user. At least two DAGs must be checked for a user in order for them to use the DAG Switcher. NOTE: This does not override a user’s current DAG assignment, as set above or on the User Rights page.

<table>
<thead>
<tr>
<th>Data Access Groups</th>
<th>Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>[No Assignment]</td>
<td></td>
</tr>
<tr>
<td>test1</td>
<td></td>
</tr>
<tr>
<td>test2</td>
<td></td>
</tr>
</tbody>
</table>

**Display options:**
- Rows are DAGs
- Rows are Users
Testing, Testing, Testing!
Make sure you test your project thoroughly by entering test data. Have other users enter data or complete surveys. Also export the test data to make sure the format can be used for data analysis.

Test your project thoroughly
It is important to test the essential components of your project before moving it into production. Try creating a few test records and entering some data for each to ensure that your data collection instruments look and behave how you expect, especially branching logic and calculations. Then review your test data by creating reports and exporting your data to view in Excel or a statistical analysis package. If you have surveys, complete the surveys as if you were a participant by using the Public Survey Link or Participant List by sending a survey invitation to yourself. If other project modules will be used regularly, test them out a bit too. The best way to test your project is to use it as if you were entering real production data, and it is always helpful to have colleagues (especially team members) take a look at your project to get a fresh set of eyes looking at it.
Moving your Project to Production

Move your project to production status

Move the project to production status so that real data may be collected. Once in production, you will not be able to edit the project fields in real time anymore. However, you can make edits in Draft Mode, which will be auto-approved or else might need to be approved by a REDCap administrator before taking effect.

Go to Move project to production

Move Project To Production Status?

Are you sure you wish to leave the DEVELOPMENT stage? If you proceed, the project will be moved to PRODUCTION status so that real data may be collected. If you select the ‘Delete ALL data’ option below, all current collected data, calendar events, and uploaded documents will be deleted, otherwise all will remain untouched as the project is moved to production.

🌟 Have you checked the Check For Identifiers page to ensure all identifier fields have been tagged?

Keep existing data or delete?

- Keep ALL data saved so far.
- Delete ALL data, calendar events, documents uploaded for records/responses, survey responses (if applicable), and any logging events pertaining to data collection.

Once in production, you will not be able to edit the project fields in real time anymore. However, you can make edits in Draft Mode, which will be auto-approved or else might need to be approved by a REDCap administrator before taking effect.
QUESTIONS?
Using Data Exports, Reports and Stats
## Exporting Data

- You can export the entire dataset or select forms/fields

### Data Exports, Reports, and Stats

[VIDEO: How to use Data Exports, Reports, and Stats]

### Create New Report

### My Reports & Exports

<table>
<thead>
<tr>
<th>Report name</th>
<th>View/Export Options</th>
<th>Management Options</th>
<th>Report ID (auto-generated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All data (all records and fields)</td>
<td><img src="image" alt="View Report" />, <img src="image" alt="Export Data" />, <img src="image" alt="Stats &amp; Charts" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selected instruments and/or events (all records)</td>
<td><img src="image" alt="Make custom selections" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td>test (copy)</td>
<td><img src="image" alt="View Report" />, <img src="image" alt="Export Data" />, <img src="image" alt="Stats &amp; Charts" /></td>
<td><img src="image" alt="Edit" />, <img src="image" alt="Copy" />, <img src="image" alt="Delete" /></td>
<td>1322</td>
</tr>
<tr>
<td>frailty assessment</td>
<td><img src="image" alt="View Report" />, <img src="image" alt="Export Data" />, <img src="image" alt="Stats &amp; Charts" /></td>
<td><img src="image" alt="Edit" />, <img src="image" alt="Copy" />, <img src="image" alt="Delete" /></td>
<td>2</td>
</tr>
</tbody>
</table>
Exporting "All data (all records and fields)"

Select your export settings, which includes the export format (Excel/CSV, SAS, SPSS, R, Stata) and if you wish to perform de-identification on the data set.

**Choose export format**

- CSV / Microsoft Excel (raw data)
- CSV / Microsoft Excel (labels)
- SPSS Statistical Software
- SAS Statistical Software
- R Statistical Software
- Stata Statistical Software
- CDISC ODM (XML)

**De-identification options** (optional)

The options below allow you to limit the amount of sensitive information that you are exporting out of the project. Check all that apply.

**Known Identifiers:**
- Remove all tagged identifier fields (tagged in Data Dictionary)
- Hash the Record ID field (converts record name to an unrecognizable value)

**Free-form text:**
- Remove unvalidated Text fields (i.e. Text fields other than dates, numbers, etc.)
- Remove Notes/Essay box fields

**Date and datetime fields:**
- Remove all date and datetime fields
  - OR -
  - Shift all dates by value between 0 and 364 days
    (shifted amount determined by algorithm for each record)
    [What is date shifting?]
  - Also shift all survey completion timestamps by value between 0 and 364 days
    (shifted amount determined by algorithm for each record)

**Additional export options**

- Export Data Access Group name for each record (if record is in a group)?
- Export survey identifier field and survey timestamp field(s)?
Setting Up Reports in REDCap

REDCap has many advanced features that can be used for exports and reports. This will be covered in the Data Report, Export and Import training.
Stats and Charts

### Gender

- **Total Count (N)**: 30
  - **Missing**: 0 (0.0%)
  - **Unique**: 2

Counts/frequency: Male (19, 63.3%), Female (11, 36.7%), Other (0, 0.0%)

### height < 150

**DISPLAY OPTIONS**
Optional: Select a record to overlay onto the plots below
- select record –

**Viewing options**: Show plots & stats, Show plots only, Show stats only

### Height

**Total Count (N)**: 30
- **Missing**: 0 (0.0%)
- **Unique**: 2

Counts/frequency: Male (19, 63.3%), Female (11, 36.7%), Other (0, 0.0%)

- **Percentile**:
  - 0.05: 121.35
  - 0.10: 122.70
  - 0.25: 127.25
  - 0.50: Median: 137.00
  - 0.75: 144.50
  - 0.90: 146.30
  - 0.95: 146.65

**Lowest values**: 120, 123, 125, 134
**Highest values**: 140, 143, 145, 146

---

**REDCap @ Yale**
The Data Dictionary Codebook is a ‘human’ readable, read-only version of the project data dictionary. You can find the Codebook link on the left menu.

<table>
<thead>
<tr>
<th>#</th>
<th>Variable / Field Name</th>
<th>Field Label Field Note</th>
<th>Field Attributes (Field Type, Validation, Choices, Calculations, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument: Demographics (demographics)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>subj</td>
<td>Subject ID</td>
<td>text (integer, Min: 8000, Max: 8999), Required</td>
</tr>
<tr>
<td>2</td>
<td>demo_date</td>
<td>Date Completed Demographics Form</td>
<td>text (date_mdy), Required</td>
</tr>
<tr>
<td>3</td>
<td>demo_init</td>
<td>Staff Initial</td>
<td>text, Required</td>
</tr>
<tr>
<td>4</td>
<td>age</td>
<td>Section Header: Demographics Form Age</td>
<td>text (integer, Min: 40), Required</td>
</tr>
<tr>
<td>5</td>
<td>sex</td>
<td>Gender</td>
<td>radio, Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 Male</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 Female</td>
</tr>
<tr>
<td>6</td>
<td>ethnic</td>
<td>Ethnicity</td>
<td>radio, Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 Hispanic or Latino</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Not Hispanic or Latino</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 Unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 Declined to answer</td>
</tr>
<tr>
<td>7</td>
<td>race</td>
<td>Race</td>
<td>radio, Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 American Indian or Alaskan Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Asian</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 Black or African American</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 Native Hawaiian or Pacific Islander</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 White</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 Mixed race</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 Unknown</td>
</tr>
</tbody>
</table>
QUESTIONS?
Thank You!

Further Questions: Contact us at REDCap@yale.edu