REDCap Practice Workshop

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Introduction

REDCap is a secure, web-based application for building and managing online surveys and databases. REDCap's easy design environment allows you to quickly create web-based databases and data capture forms with special features like ad-hoc reporting and scheduling.

How to Use This Workshop

This workshop will lead you through the process of creating and customizing a project in REDCap. Each step demonstrates one or more core elements of the platform, including creating projects, building forms, collecting responses, and downloading data for analysis.

For each exercise, the tasks you need to complete are described in text. An answer key with screenshots is also available to illustrate each step. We recommend that you work through the exercises in order, as many refer to previous sections.

To complete this workshop, you will need a REDCap user account. If you do not have an account, you can request one HERE.

Resources and Support

For information about UCH REDCap, see the website.

More about the platform and additional training resources are available through the Project REDCap website.

If you still have questions after completing this workshop, please contact the UCH REDCap support team at redcap@uchc.edu.

Project Setup

In this section, you will create a new sample project in REDCap and add users with custom data-access rights.

Creating a New Project

Log in to the UCH REDCap system. Create a new blank project with the title "[your name]_Test [date]." Select "Practice / Just for fun" as the project purpose.

1.   Visit https://dev-redcap.uchc.edu/redcap/ and log in with your username and password.
2.   At the top of the REDCap home screen, click `+ New Project`.
3.   Fill out each project field. Then click `Create Project`.

Open the Online Designer to start customizing your project.

1.   In the left menu under Project Home and Design, click `Project Setup`.
2.   Click `Online Designer`.

Tip: You can also access the Online Designer directly. Click `Designer` in the left menu under Project Home and Design.

User Rights

Add another user to your project and set the user's Data Exports privileges to No Access.

1.   In the left menu under Applications, 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.   Under Privileges for data exports, select `No Access`. Review all other settings and then click `Add user`.

Tip: If you have several users who will need the same level of access to your project, consider creating a named role with defined privileges. You can then assign new users to this role.

Data Collection Instruments

In this section, you will create two data collection instruments.

Eligibility Questionnaire

Create a data collection instrument (form) called "Eligibility Questionnaire."

1.   Click `Designer` in the left menu under Project Home and Design.
2.   Click `+ Create`. Then click `+ Add instrument here`.
3.   Type the instrument name and click `Create`.

Build the Eligibility Questionnaire using the field names, field types, and validation rules listed in Table 1.

1.   To open the instrument for editing, click its name.
2.   Add a field by clicking `Add Field` in the desired location.
3.   Select a field type from the dropdown menu. Review and set each field attribute. Then click `Save`.

Table 1: Eligibility Questionnaire Field Properties

Field	Field Type	Notes
1. Record ID	Text Box	Validation: "Integer"
2. Child's First Name	Text Box	Mark this field as an identifier.
3. Child's Last Name	Text Box	Mark this field as an identifier.
4. Parent's Email	Text Box	Validation: "Email"
5. Screening Date	Text Box	Validation: "Date (M-D-Y)"
6. Child's Date of Birth	Text Box	Validation: "Date (M-D-Y)"
7. Child's Age	Calculated Field	Write an equation that calculates the child's age from Screening Date and Child's Date of Birth.
8. English Fluency (Understood/Spoken)	Yes-No	
9. Ethnicity	Multiple Choice - Radio Buttons (Single Answer)	Options: 1) Hispanic; 2) Non-Hispanic; 9) Other
10. Specify Ethnicity	Text Box	Use branching logic to make this field available when Ethnicity = "Other"
11. Child's Height (unit in cm)	Text Box	Validation: "Number"
12. Child's Weight (unit in kg)	Text Box	Validation: "Integer"
13. BMI	Calculated Field	Write an equation that calculates BMI from Child's Height and Child's Weight.
14. Are you the parent or legal guardian of [Child's First Name]?	Multiple Choice - Radio Buttons (Single Answer)	Options: 1) Yes; 0) No (Ineligible). Use piping to display Child's First Name in the question text.
15. Treated for asthma exacerbation?	Multiple Choice - Radio Buttons (Single Answer)	Options: 1) Yes; 0) No (Ineligible)
16. Sorry, you're not eligible.	Descriptive Text	Use branching logic to show this text when ineligible

		answers are selected for questions 14 or 15.
17. Thanks. You're eligible to participate in our research study.	Descriptive Text	Use branching logic to show this text when eligible answers are selected for questions 14 and 15. Use HTML to make the text larger and red.

Pediatric Asthma Caregiver's Quality of Life Questionnaire

Create a data collection instrument called "Pediatric Asthma Caregiver's Quality of Life Questionnaire."

1.   Click `Designer` in the left menu under Project Home and Design.
2.   Click `+ Create`. Then click `+ Add instrument here`.
3.   Type the instrument name and click `Create`.

Build the Pediatric Asthma Caregiver's Quality of Life Questionnaire using the field names, field types, and validation rules listed in Table 2.

1.   To open the instrument for editing, click its name.
2.   Add a field by clicking `Add Field` in the desired location.
3.   Select a field type from the dropdown menu. Review and set each field attribute. Then click `Save`.

Table 2: Pediatric Asthma Caregiver's Quality of Life Questionnaire Field Properties

Field	Field Type	Response Options
1. During the past week, how often did you feel helpless or frightened when your child experienced cough, wheeze, or breathlessness? [Check only one response]	Multiple Choice - Radio Buttons (Single Answer)	7) All of the time; 6) Most of the time; 5) Quite often; 4) Some of the time; 3) Once in a while; 2) Hardly any of the time; 1) None of the time
2. Please check all that happened to your child during last week [Check all that apply]	Checkboxes (Multiple Answers)	1) Cough; 2) Wheeze; 3) Breathlessness; 4) Skin rash

General Tips

To copy or rename an existing instrument, use the menu under Instrument actions.

We highly recommend that you create a short variable name for each field, rather than allowing auto-naming. Shorter names are easier to use in branching logic, piping, and exported datasets.

If any field contains identifying information such as name, SSN, or address, mark it as an identifier. Control who can view and download identifiers with the User Rights module.

Tips for multiple-choice and checkbox fields:

•   Each choice must consist of a numeric code, a comma separator (","), and a text label.
•   Assign choice codes that match your needs during analysis. For example, you may choose larger numbers to correspond to more severe symptoms.
•   Checkbox fields allow participants to choose more than one response. In the underlying dataset, REDCap creates a dummy variable for each response option. For example, the quality-of-life survey question about asthma symptoms allows participants to check up to four boxes. The underlying dataset includes the dummy variables `child_symptoms_1`, `child_symptoms_2`, `child_symptoms_3`, and `child_symptoms_4`, each with a value of 0 for no (unchecked) and 1 for yes (checked). Branching logic based on checkboxes takes the form `[child_symptoms(1)]='1'`.

Branching logic allows you to show or hide survey questions based on responses to other questions. For example, you may choose to show a comment box only when a participant responds "Other" to a multiple-choice question.

• To define branching logic for a question, click the green arrows above the question text.
• You can enter the syntax manually or use the Drag-N-Drop Logic Builder.

Piping allows a subject's previous survey responses to be incorporated into later questions. To use piping, include the relevant variable name, enclosed in brackets, in the text of another question. For more help with piping, click the purple `Piping` button.

You can format text in two ways.

• Use HTML syntax to change font size, color, and formatting.
• Use the Rich Text Editor to interactively format text.

Adding, Viewing, and Exporting Data

In this section, you will practice adding and viewing individual project records within REDCap. You will also export data for analysis.

Adding a Record

Create a new record. Add sample data to each field on each form. Try to enter nonsensical data to test the validation rules.

1.   Click on `Add / Edit Records`.
2.   Click `+ Add new record`.
3.   Click the gray 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.   An error alert will indicate when validation rules have been violated.
6.   When you have tested all fields on a form, save and exit.

Viewing a Record

Open an existing record. Then open an instance of a partial or complete response to view the data.

1.   Click on `Add / Edit Records`.
2.   Choose a record ID or search for a record by survey field.
3.   Click a survey status icon to view the corresponding response data. The icon color indicates the survey status.

Exporting Data

Export project data to a CSV file.

1.   In the left menu under Applications, 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`.

Working With Surveys

In this section, you will define separate project events and associate data collection instruments with them. You will also create and share a survey based on one of your instruments.

Longitudinal Data

Enable longitudinal data collection for this project.

1.   In the left menu under Project Home and Design, click `Project Setup`.
2.   Under Main project settings, beside "Use longitudinal data collection with defined events?", click `Enable`.

Create three events. Call them "Baseline," "3 Months," and "6 Months."

1.   On the Project Setup tab, click `Define My Events`.
2.   Enter each event's name and click `Add new event`.

Designate instruments for each event as follows. To collect eligibility data once, link the Eligibility Questionnaire to the baseline event only. To collect quality-of-life data at each timepoint, link the Pediatric Asthma Caregiver's Quality of Life Questionnaire to all three events.

1.   On the Project Setup tab, click `Designate Instruments for My Events`.
2.   Click `Begin Editing`. Check the appropriate boxes beside each data collection instrument. Then click `Save`.

Add a new record and observe the changes to the instrument structure.

1.   Click on `Add / Edit Records`.
2.   Click `+ Add new record`.
3.   Notice how the instrument structure now allows longitudinal data collection.

Surveys

Enable surveys in this project.

1.   In the left menu under Project Home and Design, click `Project Setup`.
2.   Click `Enable` beside "Use survey in this project?"

Enable the Pediatric Asthma Caregiver's Quality of Life Questionnaire as a survey. Allow users to save their progress and return later.

1.   Click `Designer` in the left menu under Project Home and Design.
2.   Beside the second instrument, click `Enable`. A Set Up My Survey tab will open.
3.   In the Survey Access section of the setup page, select `Yes` beside "Allow 'Save & Return Later' option for respondents?"

Open an existing record and view the second instrument as a survey.

1.   Click on `Add / Edit Records`.
2.   Choose a record ID or search for a record by survey field.
3.   Click a survey status icon to view the corresponding response data. The icon color indicates the survey status.
4.   Under Survey options, click on `Open Survey`.

Using a personal email address, invite yourself to complete the survey via the Survey Distribution Tool. Follow the email link to complete the survey.

1.   In the left menu under Data Collection, click on `Survey Distribution Tools`.
2.   On the Participant List tab, click `Add participants`.
3.   Enter one or more email addresses and click `Add participants`.
4.   At the top of the Participant List, click `Compose Survey Invitations`.
5.   Edit the text in the Compose box and review the message settings. Make sure your personal email is selected in the Participant List. Click `Send Invitations`.

Check the response status of invited participants.

1.   In the left menu under Data Collection, click on `Survey Distribution Tools`.
2.   View each participant's status on the Participant List tab.

Note About Public Surveys

REDCap allows use of a public survey URL when a project's first instrument is set up as a survey. In that case, you can also create a shorter, more memorable version of the URL by clicking `Create Custom Survey Link`.

For this exercise, you cannot use a public URL because the first instrument is not set up as survey.

Production Mode

After project instruments have been created and tested, the project should be moved to production mode. You will need to request the project be moved to production via clicking 'move to production' button on the bottom of the project setup tab. A REDCap administrator will then process your request. Once a project is in production, a REDCap administrator will need to approve any further edits.

If changes do not cause any critical issues for existing data, they should be approved automatically. You will receive an email notification when changes have been approved.

Other changes, like changing field options or deleting a field, may cause critical issues for existing data. This kind of change will not be approved automatically while in production mode. Instead, a REDCap administrator will contact you via email to confirm the revision.

In this section, you will move your project to production mode, make draft changes, and request approval from the REDCap administrator.

Moving to Production Mode

Initiate the move to production mode. Keep all records submitted while in development status and confirm the change.
1.   In the left menu under Project Home and Design, click `Project Setup`.
2.   At the bottom of the page, click `Move project to production`.
3.   Read the notice and click `I Agree`.
4.   Select `Keep ALL data saved so far.` Click `YES, Move to Production Status`.

Working in Production Mode

Enter draft mode.

1.   Click `Online Designer`.
2.   Read the notice and then click `Enter Draft Mode`.

Add a field to a data collection instrument. Submit the changes for review by a REDCap administrator.

1.   To open the instrument for editing, click its name.
2.   Add a field by clicking `Add Field` in the desired location.
3.   Select a field type from the dropdown menu. Review and set each field attribute. Then click `Save`.
4.   Click `Submit Changes for Review`.

Delete a field from one of the forms. View the draft changes without submitting.

1.   To open the instrument for editing, click its name.
2.   Delete a field by clicking the red `X` above the field name.
3.   Click `View detailed summary of all drafted changes`.
4.   Notice the potentially critical issues that will occur if this field is deleted.
5.   Do not submit the change.

Copying and Deleting Projects

In this section, you will explore some of REDCap's Other Functionality options, including copying and deleting projects.

Copying Projects

Make a duplicate of the current project named "[your name]_Test [date]_v2."

1.   In the left menu under Project Home and Design, click `Project Home`.
2.   Click on the Other Functionality tab.
3.   Click `Copy the project`.
4.   Edit the project name. Review other options without making changes. Click `Copy Project`.

Note the structure and status of the duplicate project.

1.   In the left menu under Project Home and Design, click `Project Home`.
2.   Click on the Other Functionality tab.
3.   The new project should be an exact copy of the original. However, the new project is still in development status, regardless of the status of the original.

Deleting Projects

Initiate deletion of the project.

1.   In the left menu under Project Home and Design, click `Project Home`.
2.   Click on the Other Functionality tab.
3.   Click `Delete the project`.

Confirm that you wish to delete all project data.

1.   Type "DELETE" and click `Delete the project`.
2.   To confirm and delete the project permanently, click `Yes, delete the project`.