REDCAP OVERVIEW

Research Electronic Data Capture

Prepared by Angela Juan
What is REDCap?

- **REDCap (Research Electronic Data Capture)** is a browser-based, data-driven software solution for designing and building clinical and research databases.
- The REDCap application allows users to build and manage online surveys and databases quickly and securely.
- Data entry operators enter data in a web browser, either locally or from remote locations. The data is stored in a secure database.
- The REDCap Consortium supports this secure web application.
Process to collect data in REDCap

1. Create project
2. Build data collection instrument
   a. Online designer
   b. Data dictionary
3. Preview your data form or survey
4. Enter practice data
5. Test applications: data export, data comparison, graphic data view and report builder
6. Modify project
7. Move to production mode to capture real data
How to manage your projects in REDCap

- (1) My Projects: summary of all projects and details
- (2) Project Home and Project Setup
  - 1. When you click on one project in the lists of My Projects page
  - 2. Left side menu (project setup, data collection and applications).
  - 3. Right side main working page
  - 4. Project Home: Quick tasks
  - 5. Project Setup:
    - (a) Main project settings
    - (b) Design your data collection instruments and enable survey
    - (c) Customization: auto-numbering for records
    - (d) Move your project to production
Development mode and production mode

1. Development mode means that you are still building and testing your project.
2. In development mode, test all aspects of your project. Changes will happen immediately, allowing you to quickly and interactively refine your data collection instruments.
3. When you have done all the tests in the development mode, your project should be moved to production mode.
4. Once you are in production mode, all the practice data entered in development mode would be deleted.
5. In production mode, adding new forms/fields is typically safe and will not affect any saved data.
6. In production mode, problems typically occur when changing variable names, coding, and field types. These changes will likely result in data loss.
7. Changes in the production mode needs to be approved by your local REDCap administrator.
Type of projects

- 1. Single survey
- 2. Data entry form
  - a. classic (single data entry form enter single time)
  - b. longitudinal (single data entry form enter multiple times at different time point). i.e. medical study with repeated measures.
- 3. Single survey + Data entry form
Single survey:

1. Use REDCap to create a secure public webpage for collecting your project data.
2. Send the project link to your respondents.
3. Respondents do not need the login account to REDCap.
4. Respondents go to the webpage (the webpage URL is sent to their email box) and submit their data directly to your REDCap project.
5. Login to your project to view and analyze their data.
Eating habit survey

juanhs@shrp.rutgers.edu

Sent: Tue 8/6/2013 10:51 AM
To: Juan, HsinHui

Please complete this online survey. Thanks.

You may open the survey in your web browser by clicking the link below:

Eating habit

If the link above does not work, try copying the link below into your web browser:

https://research.njms.rutgers.edu/redcap/surveys/?s=HLKFrC

This link is unique to you and should not be forwarded to others.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Gender</td>
<td></td>
</tr>
<tr>
<td>* must provide value</td>
<td></td>
</tr>
<tr>
<td>○ Male</td>
<td>○ Female</td>
</tr>
<tr>
<td>2) Age</td>
<td></td>
</tr>
<tr>
<td>* must provide value</td>
<td></td>
</tr>
<tr>
<td>3) How many times a week do you eat breakfast?</td>
<td></td>
</tr>
<tr>
<td>* must provide value</td>
<td></td>
</tr>
<tr>
<td>4) How many times a week do you eat vegetable?</td>
<td></td>
</tr>
<tr>
<td>* must provide value</td>
<td></td>
</tr>
</tbody>
</table>

Submit
Data entry form:

1. Use REDCap to create your data collection instruments.
2. Enter data directly into REDCap.
3. Users need login account to access REDCap.
Eating habit

You may view an existing record/response by selecting it from one of the drop-down lists below. The records are separated into each drop-down list according to their status for this particular data collection instrument. To create a new record/response, click the button below.

<table>
<thead>
<tr>
<th>Total records: 8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incomplete Records</strong> (0)</td>
</tr>
<tr>
<td><strong>Complete Records</strong> (8)</td>
</tr>
</tbody>
</table>

Add new record
## Eating habit

### Adding new Record ID 9

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record ID</td>
<td>9</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>How many times a week do you eat breakfast?</td>
<td></td>
</tr>
<tr>
<td>How many times a week do you eat vegetable?</td>
<td></td>
</tr>
</tbody>
</table>

### Form Status

- **Complete?** Incomplete
- **Lock this record for this form?**
  - Description: If locked, no user will be able to edit this record on this form until someone with Lock/Unlock privileges unlocks it.
  - **Lock**

### Actions

- **Save Record**
- **Save and Continue**
- **Cancel**
Add Users and Manage User Rights

1. Inform REDCap super user add the people to REDCap user accounts. (name, email address)
2. Once created, the user will receive an email with log in information to REDCap.
3. Project manager needs to add the REDCap user to the project that he/she needs to work on.
4. Where to add users and manage user rights?
   - Left side menu. Applications. Click on User Rights.
   - Choose existing project user or type new user name.
   - Manage basic user rights and data entry rights.
Add Users and Manage User Rights

Applications
- Calendar
- Data Export Tool
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- User Rights
- DAGs
- Record Locking Customization
- E-signature and Locking Mgmt

Editing existing User “juanhs”

Basic User Rights
- Manage Survey Participants
- Calendar
- Data Export Tool
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- User Rights
- Data Access Groups
- Graphical Data View & Stats
- Data Quality
  - What is Data Quality?
- Reports & Report Builder
- Project Design and Setup
- API
  - What is the REDCap API?

Data Entry Rights

Data entry rights only pertain to a user’s ability to view or edit data on the web page. It has no effect on what data is included in data exports.

<table>
<thead>
<tr>
<th>Course Evaluation</th>
<th>No Access</th>
<th>Read Only</th>
<th>View &amp; Edit</th>
<th>Edit survey responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Data collection

1. Online designer
2. Data dictionary
   - They can be used interchangeably.
   - When you make changes in one, the other would be updated
3. Import from REDCap shared library

![Data collection setup](image-url)
Edit data in Online Designer

- 1. Add/edit/delete/copy
- 2. Enable validation
- 3. Move orders of data field
- 4. Preview data instrument
- 5. Change different data types
- 6. Add section header
- 7. Add matrix of fields
- 8. Add branching logic (hidden questions)
- 9. Create new data collection instrument
- 10. Download a new data collection instrument from REDCap shared library
- 11. Rename or delete data collection instrument
- 12. Enable as survey and survey setting
When you design your data collection forms, you can browse for pre-built data collection forms in REDCap shared library.
### BRFSS 2009 Module 27: Childhood Immunization

**Details:**
- **Institution:** REDLOC
- **Contact:** Brenda Minor
- **Contact email:** brenda.minor@vanderbilt.edu
- **Submitted by:** Brenda Minor
- **Description:** The Behavioral Risk Factor Surveillance System (BRFSS) is the world's largest, ongoing telephone health survey system, tracking health conditions and risk behaviors in the United States yearly since 1984. Currently, data are collected monthly in all.
- **Terms of use:** Data and materials produced by federal agencies are in the public domain and may be reproduced without permission.
- **Last updated:** April 21, 2010

**Downloads:** 37

**View options:**
- [View as web page](#)
- [View as PDF](#)
- [Import into my REDCap project](#)

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**BRFSS 2009 Section 16: Immunization**

**Indicates a REDLOC curated instrument**
After practice data are collected, you need to test these features

1. Project dashboard
2. Manage survey participants
3. Export data
4. Graphic data view
5. Report builder
6. Modify your data collection instruments
Data export tool

1. Microsoft excel CSV (comma-separated) format
   - Labels data: the data either with the full headers and answer labels
   - Raw data: just with the answer codes
2. Other analysis and statistical software
Enable survey in the project

- Project Setup
- 1. Main project settings
  - Enable use surveys in this project
- 2. Design your data collection instruments
  - Online designer or upload data dictionary
Survey settings

- Online designer has survey-related options
- View PDF (print out survey PDF file)
- Survey settings

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>Instrument name</th>
<th>Fields</th>
<th>View PDF</th>
<th>Enabled as survey</th>
<th>Instrument actions</th>
<th>Survey-related options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating habit</td>
<td>5</td>
<td></td>
<td>✅</td>
<td>Rename Delete</td>
<td>Survey settings, Notifications, Automated Invitations</td>
</tr>
</tbody>
</table>
Modify survey settings

- 1. Survey status (active/offline)
- 2. Edit your survey title, logo, instructions text, acknowledge text
- 3. Survey access: survey expiration date

You may edit the survey’s basic information by modifying the fields below and clicking the Save Changes button.
Manage survey participants

Steps:

1. Add participants. You can copy and paste a list of emails.

2. Participant identifier is optional.

3. Compose survey invitations.

4. Send out survey invitations emails.

5. Check the participant list for responded.

6. The survey URL is auto populated in the email body. You do not need to type the URL.

7. You can load message box with text from a previous email.
Manage survey participants

Data Collection
Edit instruments

Manage Survey Participants
- Get a public survey link or build a participant list for inviting respondents

Participant List belonging to [Initial survey] "Eating habit"

<table>
<thead>
<tr>
<th>Email</th>
<th>Participant Identifier (optional)</th>
<th>Disable</th>
<th>Link</th>
<th>Invitation Scheduled?</th>
<th>Invitation Sent?</th>
<th>Responded?</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:amaryp@shrp.rutgers.edu">amaryp@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:cifelido@shrp.rutgers.edu">cifelido@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:dwojakej@shrp.rutgers.edu">dwojakej@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:geigermh@shrp.rutgers.edu">geigermh@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:jaingaj@shrp.rutgers.edu">jaingaj@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:jones20@shrp.rutgers.edu">jones20@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:juanhs@shrp.rutgers.edu">juanhs@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:leckyal@shrp.rutgers.edu">leckyal@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:malencde@shrp.rutgers.edu">malencde@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:penasy@shrp.rutgers.edu">penasy@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:troutmkj@shrp.rutgers.edu">troutmkj@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:watsonwi@shrp.rutgers.edu">watsonwi@shrp.rutgers.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add participants
Compose Survey Invitations

Export list
Remove all participants
Compose survey invitations

**Email a Survey Invitation to Participants**

**Info**
- **Survey title:** Eating habit

**When should the emails be sent?**
- **Immediately**
- **At specified time:** [ ]
  - The time must be for the time zone America/New_York, in which the current time is 08-20-2013 15:30.

**Compose email message**
- **From:** Juanhs@shrp.rutgers.edu
- **To:** [All emails selected from Participant List]
- **Subject:** Eating habit survey

Please complete the survey.

**Participant List**

<table>
<thead>
<tr>
<th>Email</th>
<th>Participant Identifier</th>
<th>Scheduled?</th>
<th>Sent?</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:jaingaji@shrp.rutgers.edu">jaingaji@shrp.rutgers.edu</a></td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><a href="mailto:jones20@shrp.rutgers.edu">jones20@shrp.rutgers.edu</a></td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><a href="mailto:leckyal@shrp.rutgers.edu">leckyal@shrp.rutgers.edu</a></td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><a href="mailto:penasy@shrp.rutgers.edu">penasy@shrp.rutgers.edu</a></td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><a href="mailto:troutmkj@shrp.rutgers.edu">troutmkj@shrp.rutgers.edu</a></td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><a href="mailto:watsonei@shrp.rutgers.edu">watsonei@shrp.rutgers.edu</a></td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**NOTE:** The survey link will be automatically included in the email message. You may use HTML formatting in the email message: `<b>` bold, `<u>` underline, `<i>` italics, `<a href=“...”>` link, etc.
Import existing data to REDCap

- Please complete this test in development mode first.
- We do not suggest you to import your excel data sheet directly to REDCap.
- Reasons: The answer codes that assigned by REDcap must be consistent to the data you want to import.

- Example: I have course evaluation data in the excel sheet and I want to import this data to REDCap.
- You need to convert the excel data to the answer codes based on your design in REDCap.
Steps to import data

1. Complete your design in data collection forms. (questions, field type, answer options, etc).
2. Try to add a few data entries in REDCap. (Data collection – Add/edit records).
3. The purpose of #2 is to know the mapping between REDCap answer codes and the import data.
4. Download the data import template based on your design.
5. Modify your import data and convert data to REDcap answer codes.
7. Correct error if REDCap gives you the error message.
8. If no error, confirm your import.
9. Check your imported data in Record Status Dashboard. (data collection section).
Data import instructions

1. Download your data import template as a CSV (comma delimited) file. Save it locally to your computer and then open it to begin filling it with the data you wish to import.

2. In each column of the Data Import Template file that you downloaded, place the data for each record that you wish to import. Once all your data has been added, save the file.
   - Be sure not to change the Variables/Field Names in the file or an error may occur.
   - Also, for all of the 'dropdown' or 'radio' fields in the project, you must make sure that the numerical value (rather than the text value) is entered in those cells, or else it cannot be processed.
   - Any empty rows or columns in the file can be safely deleted before importing the file. Doing this reduces the upload processing time, especially for large projects.

3. Click the 'Browse' or 'Choose File' button below to select the file on your computer, and upload it by clicking the 'Upload File' button.

4. Once your file has been uploaded, the data will NOT be immediately imported but will be displayed and checked for errors to ensure that all the data is in correct format before it is finally imported into the project.
Build data collection form before import existing data

Current instrument: Course evaluation

Field Type: Multiple Choice - Radio Buttons (Single Answer)

Field Label:
SEMESTER

Choices (one choice per line)
1. SPRING
2. SUMMER
3. FALL

Variable: course_name
* This field will NOT be displayed on the survey page.

Variable: year
* must provide value

Variable: semester

Variable: text_books
* must provide value

Field Types video (4 min)
Build data collection form before import existing data

Current instrument: Course evaluation

Variable: course_name

Course Name

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

Variable: year

YEAR

* must provide value

Variable: semester

SEMESTER

* must provide value

Variable: text_books

text_books

* must provide value

Field Type: Multiple Choice - Radio Buttons (Single Answer)

Field Label
text_books

Choices (one choice per line)
1. very good
2. good
3. bad
4. very bad

How do I manually code the choices?
Form status code

- 0 = incomplete
- 1 = unverified
- 2 = complete
Convert your excel data before import

<table>
<thead>
<tr>
<th>course_name</th>
<th>year</th>
<th>semester</th>
<th>text_books</th>
<th>course_evaluation_complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>english001</td>
<td>2012</td>
<td>spring</td>
<td>good</td>
<td>complete</td>
</tr>
<tr>
<td>english002</td>
<td>2012</td>
<td>summer</td>
<td>very good</td>
<td>complete</td>
</tr>
<tr>
<td>english003</td>
<td>2012</td>
<td>fall</td>
<td>good</td>
<td>complete</td>
</tr>
<tr>
<td>english004</td>
<td>2013</td>
<td>spring</td>
<td>bad</td>
<td>complete</td>
</tr>
<tr>
<td>english005</td>
<td>2013</td>
<td>summer</td>
<td>good</td>
<td>complete</td>
</tr>
<tr>
<td>english006</td>
<td>2013</td>
<td>fall</td>
<td>very good</td>
<td>complete</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>course_name</th>
<th>year</th>
<th>semester</th>
<th>text_books</th>
<th>course_evaluation_complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>english001</td>
<td>2012</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>english002</td>
<td>2012</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>english003</td>
<td>2012</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>english004</td>
<td>2013</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>english005</td>
<td>2013</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>english006</td>
<td>2013</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Data import tool

Applications

- Calendar
- Data Export Tool
- Data Import Tool
- Data Comparison Tool

Record format: The file to be uploaded has its records stored as separate

Upload your CSV file:

Choose File CourseEval...9_NEW.csv

Upload File

Your document was uploaded successfully and is ready for review.
You are now required to view the Data Display Table below to approve all the data before it is officially imported into the project. Follow the instructions below.

Do you wish to import the new data (displayed above) into the project?
(Click the button below to import the data.)

Import Data