REDCap: Research Electronic Data Capture

All Purpose Data Tool

Mary Geda
Sui Tsang
September 15, 2022
Today’s Audience

How many years have you used REDCap?

- 0 yrs - I'm new to...
- < 1 yrs
- 1 - 3 yrs
- 4 - 5 yrs
- > 5 yrs
Introduction and Learning Objectives

• Learn about REDCap:
  – What it is
  – How to access it
  – Quality control and compliance functions
  – What steps are used to build projects
  – How you can get data into REDCap
  – Tools: reports, statistics, and exports
  – Resources to help you get started
  – [If time]: Advanced features
- REDCap (Research Electronic Data Capture) is a secure web-based application for data capture and study management.
- Developed at Vanderbilt in 2004 by Paul A. Harris and colleagues
  - Clinical and Translational Science Award (CTSA) funding
- REDCap Consortium: >6,000 institutions in 147 countries around the world

https://projectredcap.org/about/
How does REDCap work?

- Direct data entry (i.e., form), survey, or data import
- Exports to Excel, CSV, SPSS, SAS, Stata and R, and CDISC ODM.
- Anyone can learn to use it
Advantages: User Friendly

**REDCap Learning Curve**

- Do it yourself. Confidence Building.
- Basic Features, Exports, User Rights
- Advanced Features, Customization, Imports, APIs
- Third party resources: libraries, external modules from repository
- Custom built software (external modules)
- Welcome to software development

**Knowledge/Capabilities**

- 1st build
- Where the hard stuff lives.
- Might work. Might not.

**Time/Effort**
Advantages

- Accessible
- Organized
- Secure
- Quality & Accuracy
- Cost Effective
1. Yale NETID credentials and multi-factor authentication

Coming Soon: InCommon

2. Secure servers behind an enterprise firewall, encrypted with TLS

3. Regulatory Requirements

HIPAA, FDA 21 Part 11, GDPR

https://portal.redcap.yale.edu/resources/security-compliance
Navigating - How do I get access?

Research Project Data Triage Team (YCCI)

HIPAA

GDPR

21 PART 11

REDCap at Yale University

Yale NewHaven Health

Yale Center for Clinical Investigation
QUESTIONS or COMMENTS?

Next: Quality Control/Compliance Functions
Quality Control and Compliance

1. Logging: Audit trails
2. User Rights and Access
3. Data Quality
4. Field Level Controls

REDCap 201
Winter/Spring 2023
Logging: Audit trails

This module lists all changes made to this project, including data exports, data changes, and the creation or deletion of users.

<table>
<thead>
<tr>
<th>Time / Date</th>
<th>Username</th>
<th>Action</th>
<th>List of Data Changes OR Fields Exported</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/22/2021 2:52pm</td>
<td></td>
<td>Manage/Design</td>
<td>Copy project as PID=2139 (&quot;Copy of eConsent Scanned Image Demo&quot;)</td>
</tr>
<tr>
<td>09/14/2021 12:54pm</td>
<td></td>
<td>Manage/Design</td>
<td>Download instrument ZIP file</td>
</tr>
<tr>
<td>09/09/2021 12:11pm</td>
<td></td>
<td>Manage/Design</td>
<td>Download instrument ZIP file</td>
</tr>
<tr>
<td>09/09/2021 11:47am</td>
<td></td>
<td>Manage/Design</td>
<td>Download instrument ZIP file</td>
</tr>
<tr>
<td>07/08/2021 2:53pm</td>
<td></td>
<td>Manage/Design</td>
<td>Edit project field</td>
</tr>
<tr>
<td>07/08/2021 2:52pm</td>
<td></td>
<td>Manage/Design</td>
<td>Reorder project fields</td>
</tr>
<tr>
<td>05/04/2021 9:08pm</td>
<td>[survey respondent]</td>
<td>Updated Response 224</td>
<td>date_signed = '2021-05-04', fname = 'aaa', lname = 'bbb', participant_sign = '156712', participant_consent_v2_complete = '0'</td>
</tr>
<tr>
<td>05/04/2021 8:42pm</td>
<td>[survey respondent]</td>
<td>Updated Response 225</td>
<td>participant_sign = '156705'</td>
</tr>
<tr>
<td>05/04/2021 8:42pm</td>
<td>[survey respondent]</td>
<td>Updated Response 225</td>
<td>date_signed = '2021-05-04', fname = 'test', lname = 'test',</td>
</tr>
</tbody>
</table>
User Rights & Access

**Basic Privileges**

- Expiration Date
- Project Design and Setup
- User Rights
- Data Access Groups

**Highest level privileges:**

- Project Design and Setup
- User Rights
- Data Access Groups

**Other privileges:**

- Calendar
- Add/Edit/Organize Reports
- Stats & Charts
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- Data Quality

**Privileges for Viewing and Exporting Data**

Data Viewing Rights pertain to a user's ability to view or edit data on pages in the project (e.g., data entry forms, reports). Users with 'No Access' Data Viewing Rights for a given instrument will not be able to view that instrument for any record, nor will they be able to view fields from that instrument on a report. Data Export Rights pertain to a user's ability to export data from the project, whether through the Data Export page, API, Mobile App, or in PDFs of instruments containing record data. Note: Data Viewing Rights and Data Export Rights are completely separate and do not impact one another.

<table>
<thead>
<tr>
<th>Data Viewing Rights</th>
<th>No Access</th>
<th>Read Only</th>
<th>View &amp; Edit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening Form</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Information Form</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consent Call Log</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consent Form</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview Call Log</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview Start</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESAS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Function: Activities Of Daily Living</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Activity: Leisure Time (Baseline)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Export Rights</th>
<th>No Access</th>
<th>De-Identified*</th>
<th>Remove All Identifier Fields</th>
<th>Full Data Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening Form</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Information Form</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Consent Call Log</td>
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<td>Consent Form</td>
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<tr>
<td>Interview Call Log</td>
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<tr>
<td>Interview Start</td>
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<td>ESAS</td>
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<tr>
<td>Physical Function: Activities Of Daily Living</td>
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<tr>
<td>Physical Activity: Leisure Time (Baseline)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Data Quality

REDCap allows you to create rules that can be used to monitor and check data quality.

<table>
<thead>
<tr>
<th>Rule #</th>
<th>Rule Name</th>
<th>Rule Logic</th>
<th>Real-time execution</th>
<th>Total Discrepancies</th>
<th>View</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Missing values*</td>
<td>-</td>
<td></td>
<td>313</td>
<td>view</td>
</tr>
<tr>
<td>B</td>
<td>Missing values* (required fields only)</td>
<td>-</td>
<td></td>
<td>0</td>
<td>view</td>
</tr>
<tr>
<td>C</td>
<td>Field validation errors (incorrect data type)</td>
<td>-</td>
<td></td>
<td>0</td>
<td>view</td>
</tr>
<tr>
<td>D</td>
<td>Field validation errors (out of range)</td>
<td>-</td>
<td></td>
<td>0</td>
<td>view</td>
</tr>
<tr>
<td>E</td>
<td>Outliers for numerical fields (numbers, integers, sliders, calc fields)</td>
<td>-</td>
<td></td>
<td>0</td>
<td>view</td>
</tr>
<tr>
<td>F</td>
<td>Hidden fields that contain values**</td>
<td>-</td>
<td></td>
<td>0</td>
<td>view</td>
</tr>
<tr>
<td>G</td>
<td>Multiple choice fields with invalid values</td>
<td>-</td>
<td></td>
<td>0</td>
<td>view</td>
</tr>
<tr>
<td>H</td>
<td>Incorrect values for calculated fields</td>
<td>-</td>
<td></td>
<td>0</td>
<td>view</td>
</tr>
</tbody>
</table>
Field-Level Controls

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 (4 min).

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

Field Label

Variable Name (utilized during data export)

ONLY letters, numbers, and underscores

Enable auto naming of variable based upon its Field Label?

Validation? (optional) ---- None ----

—or-

Enable searching within a biomedical ontology?

— choose ontology to search —

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

Save Cancel
QUESTIONS or COMMENTS?

Next: Building a Project
Before You Start:
Decide What Type of Project Design is Needed

- Classic Database
- Longitudinal
Before you Start:
Decide How to Collect the Data

• Case Report Form/Data Collection Form
• Survey

REDCap projects can have both FORMS and SURVEYS.
Overview: How a project is built

Create a new REDCap Project
You may begin the creation of a new REDCap project on your own by completing the form below and clicking the Create Project button at the bottom.

- **Project Title:** Training Demo
  Title to be displayed on project webpage

- **Purpose of this project:**
  How will it be used?
  - Practice / Just for fun

- **Assign project to a Project Folder?**
  -

- **Project notes (optional):**
  Comments describing the project's use or purpose for documentation purposes only
  - training

- **Start project from scratch or begin with a template?**
  - Create an empty project (blank slate)
  - Upload a REDCap project XML file (CDISC ODM format)
  - Use a template (choose one below)

**Choose a project template**
(comes pre-filled with fields, forms/surveys, and other settings)

- Basic Demography
  - Contains a single data collection instrument to capture basic demographic information.

- Classic Database
  - Contains six data entry forms, including forms for demography and baseline data, three monthly data forms, and concludes with a completion data form.

- Human Cancer Tissue Biobank
  - Contains five data entry forms for collecting and tracking information for cancer tissue.

- Longitudinal Database (1 arm)
  - Contains nine data entry forms (beginning with a demographic form) for collecting data longitudinally over eight different events.

- Longitudinal Database (2 arms)
  - Contains nine data entry forms (beginning with a demographic form) for collecting data on two different arms (Drug A and Drug B) with each arm containing eight different events.

- [Create Project]
- [Cancel]

**REDCap 101**
Wednesday, 10/12, 1:00-2:00
Setting up a Project: Step-by-Step
**Example of a Build: Field Bank**

Using the Field Bank, search for fields in various catalogs below by selecting a catalog and entering specific keyword. When reviewing the results of your search, click the "Add Field" button for the field to add that field to the current data collection instrument.

**NIH/NLM Catalog**

61 fields found for NIH/NLM Catalog → All Classifications - Keyword: race

- Native Hawaiian or Other Pacific Islander
- American Indian or Alaska Native
- Asian
- Black or African American
- White

Classification: NLM
Description: The race of a person based on the Office of Management and Budget (OMB), Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity (Oct. 30, 1997).
**Example of a Build: Creating Fields**

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 (4 min)](#).

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

**Field Label**

Explanatory notes - not displayed on any page

**Variable Name** (utilized during data export)

ONLY letters, numbers, and underscores

**Validation?** (optional)

--- None ---

--- or ---

**Enable searching within a biomedical ontology**

-- choose ontology to search --

**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

[Save] [Cancel]
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.
QUESTIONS or COMMENTS?

Next: Collecting Data
Collecting Data: How Data is Captured

- Chart abstractions
- Telephone interviews
- Face-to-face interviews
- Transcriptions from paper forms

**Direct Entry**

**Self-Completed Online Surveys**

**Off-Site Entry (mobile app)**

**Third-Party Cloud Data** (e.g., Fitbit)

**Third-Party API**

**RedCap API**

**Data Exports** (e.g., JDAT)

**Data Warehouse** (e.g., Epic)

**Open Standards Data Layer**

**External Application**

**Study Documents**

**Sync**

**Upload**

**Pull**

**Push**

API: Application Programming Interface
JDAT: Joint Data Analytics Team
FHIR: Fast Healthcare Interoperability Resources
Example of Case Report Form
Data Collection Form

Data Entry Form – completed by study staff
Example of Data Collection Form: Surveys

Survey – completed by a participant
QUESTIONS or COMMENTS?

Next: Data Management Tools
Advanced Overview: Data Management

**STATISTICAL SOFTWARE** (e.g., SAS, SPSS, R, STATA)

- **PROJECT ARCHIVE (CDISC-ODM)**
- **OFFLINE STORAGE**
- **DATA SHARING**
- **TRANSFER TO OTHER INSTITUTION**
- **TRANSFER TO OTHER DBMS**

**REPORTS and DATA IMPORT/EXPORT Winter/Spring 2023**

- **API**
- **CDISC** Clinical Data Interchange Standards Consortium
- **ODM** Operational Data Model
- **DBMS** Database Management System
- **DATAMART** A read-only, deidentified snapshot of the database, in a format compatible with statistical software. Used for conduct-of-study reporting, analyses and quality control.

**REDCap**

- **DATA EXPORT**
- **GENERATED CODE**

**STATISTICAL SOFTWARE** (e.g., SAS, SPSS, R, STATA)

- **REDCap API**
- **SPECIALIZED SAS PROGRAM**

**CODEBOOKS**

- **PRINTED FORMS**

**USER-DEFINED REPORTS**

**STATISTICS and DATA VISUALIZATIONS**

**DE-IDENTIFIED DATAMART**

**MANUAL DATAMART**

**AUTOMATED DATAMART**

**EXTERNAL DATABASE**

**EXTERNAL APPLICATION**
Data Management Tools: Reporting

Reports can be used to facilitate data management, interim results and analysis.

Data Exports, Reports, and Stats

This module allows you to easily view reports of your data, inspect plots and descriptive statistics of your data, as well as export your data to Microsoft Excel, SAS, Stata, R, or SPSS for analysis (if you have such privileges). If you wish to export your *entire* data set or view it as a report, then Report A is the best and quickest way. However, if you want to view or export data from only specific instruments (or events) on the fly, then Report B is the best choice. You may also create your own custom reports below (if you have such privileges) in which you can filter the report to specific fields, records, or events using a vast array of filtering tools to make sure you get the exact data you want. Once you have created a report, you may view it as a webpage, export it out of REDCap in a specified format (Excel, SAS, Stata, SPSS, R), or view the plots and descriptive statistics for that report.

<table>
<thead>
<tr>
<th>Report name</th>
<th>View/Export Options</th>
<th>Management Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  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>
</tr>
<tr>
<td>B  Selected instruments (all records)</td>
<td><img src="image" alt="Make custom selections" /></td>
<td></td>
</tr>
<tr>
<td>1  All active participants</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>
</tr>
<tr>
<td>2  Only &gt;200 cm height</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>
</tr>
<tr>
<td>3  Female participants</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>
</tr>
</tbody>
</table>
Data Management Tools: Statistics and Graphs/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
- Viewing options: Show plots & stats, Show plots only, Show stats only

- Total Count (N): 10
- Missing: 0 (0.0%)
- Unique: 8
- Min: 120.00
- Max: 146.00
- Mean: 135.70
- StdDev: 10.13
- Sum: 1,357.00
- Percentile:
  - Values: 121.35, 122.70, 127.25, 137.00, 144.50, 145.30, 146.65

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

**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**

- Total Count (N): 10
- Missing: 0 (0.0%)
- Unique: 8
- Min: 120.00
- Max: 146.00
- Mean: 135.70
- StdDev: 10.13
- Sum: 1,357.00
- Percentile:
  - Values: 121.35, 122.70, 127.25, 137.00, 144.50, 145.30, 146.65

- Lowest values: 120, 123, 125, 134
- Highest values: 140, 143, 145, 146
Data Management Tools: Exports

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?]
[Reselect all options]

Export Data  Cancel
The Data Dictionary Codebook is a ‘human’ readable, read-only version of the project data dictionary.

<table>
<thead>
<tr>
<th>#</th>
<th>Variable / Field Name</th>
<th>Field Label</th>
<th>Field Attributes (Field Type, Validation, Choices, Calculations, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Field Note</td>
<td></td>
</tr>
<tr>
<td>Instrument: <strong>Demographics</strong> (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>
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<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>
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<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 or COMMENTS?

Next: Resources to help you get started
REDCap Support

+ Training Sessions
Consultations
25 training video tutorials
Help & FAQ

Embedded text and videos throughout.
For example, in the online designer:
Yale’s Do-It-Yourself Resources

https://portal.redcap.yale.edu/resources/

FAQ Library: Step-by-step instructions

How do I build an eConsent?
[Copy & Paste or Type Content]

There are two ways to build an electronic consent document (eConsent) using REDCap. These instructions explain how to copy and paste (or type) content into REDCap. To build an eConsent by scanning an image of the consent form, please refer to FAQ: Build an eConsent [Scanned Image].

Other Videos & Libraries

1. REDCap Advanced Tutorial 2: Repeating forms
2. REDCap Advanced Tutorial 2: Randomization
3. REDCap Advanced Tutorial 2: Survey Login
4. REDCap Advanced Tutorial 2: Smart variables
5. REDCap Advanced Tutorial 2: PDF and e-consent
2022-2023 Trainings

• New Features- Version 12
  – Friday, September 30 from 10:00 - 11:00 AM

• REDCap 101
  – When: Wednesday, October 12 from 1:00 -2:00 PM

• Yale Study Support Suite (YES3): Exporter
  – When: Tuesday, October 25 from 11:00 AM – 12:00 PM

• Survey Development
  – Friday, November 4 from 1:00 - 2:00 PM

Winter/Spring 2023: REDCap 201, Reports Data Import & Export, Survey Development
How many years have you used REDCap?

- 0 yrs - I'm new to...
- < 1 yrs
- 1 - 3 yrs
- 4 - 5 yrs
- > 5 yrs

NEW FEATURES
- REDCap: All Purpose Data Tool
- REDCap 101
  - Survey Development
- YES3 Exporter
- Reports & Data Import/Export

TRAININGS & AUDIENCE
https://portal.redcap.yale.edu/resources/training
QUESTIONS or COMMENTS?
REDCap@Yale Team

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Denise Acampora
Katy Araujo
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QUESTIONS from the audience

How do users choose between REDCap and Qualtrics?

-Kate
<table>
<thead>
<tr>
<th>Feature</th>
<th>Qualtrics</th>
<th>REDCap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expense/Cost</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Learning Curve</td>
<td>Easy</td>
<td>Moderate</td>
</tr>
<tr>
<td>Classic or Longitudinal Design</td>
<td>Classic</td>
<td>Both</td>
</tr>
<tr>
<td>Randomization</td>
<td>Yes (limited)</td>
<td>Yes</td>
</tr>
<tr>
<td>Instrument type (survey, direct data entry)</td>
<td>Survey</td>
<td>Both</td>
</tr>
<tr>
<td>Editable look-and-feel (graphic customization)</td>
<td>Yes</td>
<td>Yes (limited)</td>
</tr>
<tr>
<td>Data Quality Checks</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>File uploads - scans, images, documents</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>API integration</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Data Dictionary format</td>
<td>None (.qsf/JSON file)</td>
<td>Excel/CSV</td>
</tr>
<tr>
<td>Ability to import datasets</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Automated survey invitations and email alerts</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Data Export Types</td>
<td>SPSS, CSV, TSV, Excel, XML</td>
<td>SPSS, Stata, R, SAS, Excel, CSV, CDISC-ODM</td>
</tr>
</tbody>
</table>
REDCap Advantages
Features not available in Qualtrics

- Export to SAS, STATA, R, SPSS, .csv
- Data quality rules
- Longitudinal or repeated measures
- Audit trails in logins
- Automated Survey Invitation and email alert options
- Ability to use a survey as both a survey and a case report form
- eConsent frameworks in Survey Settings

Qualtrics Advantages: Features not available in REDCap

- Export to .tsv
- Flexibility to graphically customize survey forms, web browser format (e.g., page at a time), and mobile device format (e.g., one question at a time)
- Nice library of pre-built surveys, blocks, and questions
- Survey flow features not available in REDCap: Question Randomizer, Web Service, authenticator, embedded data, table of contents
- Additional survey question types: Side by Side, Constant Sum, Hot Spot, Drill down, Gap Analysis, Timing, Pick Group Rank, Heat Map, Graphic Slider, record browser information
  - Some of these additional field types may be supported by REDCap external modules
- Additional survey applications: Survey Scoring