

REDCap Overview



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https://icts.uiowa.edu/confluence/download/attachments/53149797/REDCap_Overview_RPN_Group.pdf



What is REDCap?

(Research Electronic Data Capture) is a web based application used to create and manage databases and surveys in order to support data capture for research studies.



Who can use REDCap?

Any University of Iowa investigator or research team can use REDCap.

People use REDCap by logging into

- <https://redcap.icts.uiowa.edu/redcap/>

Video training modules are available here:

- <https://redcap.icts.uiowa.edu/redcap/index.php?action=training>



Why are people choosing REDCap over Excel and Access?

- Access is authenticated
 - Using University of Iowa LDAP hawkId and password
- Secure hosting and regular data backups
 - Data backups, software grades, and system maintenance are handled automatically by ICTS
 - More on security shortly
- Allows multi site access
 - research teams can input data simultaneously, from across the hall or across the country.



Why are people choosing REDCap over Excel and Access?

- Research teams can quickly develop databases
 - Any user can login in and start a project
- Research teams have autonomy
 - Creating a new database or survey
 - Assigning user permissions and roles
 - This should be in accordance to what is submitted to the IRB
 - Granting rights for data import and export



REDCap Features

- Form creation and data entry are easy in the web interface

Field Type: Text Box (Short Text)

Field Label: First Name

--- Select a Type of Field ---

- Text Box (Short Text)
- Notes Box (Paragraph Text)
- Calculated Field
- Multiple Choice - Radio Buttons (Only One Answer)
- Multiple Choice - Drop-down List (Only One Answer)
- Checkboxes (Check All That Apply)
- Yes - No
- True - False
- Slider / Visual Analog Scale
- File Upload (for users to upload files)
- Descriptive Text (with optional Image/File Attachment)
- Begin New Section (Section Header with Descriptive Text)
- Dynamic Query (SQL)



Current instrument: **Demographics**

[Preview instrument](#)

[Add Field Here](#)



Variable: study_id

Study ID

[Add Field Here](#)



Variable: consent

Has the subject been consented?

☐ Yes ☐ No

[reset value](#)

[Add Field Here](#)



Variable: date_consented

Date Consented



[Today](#)

[Add Field Here](#)



Variable: date_consented_was

Days since consented:

[View equation](#)

[Disclaimer](#)

[Add Field Here](#)



Variable: consent_form

[Branching logic exists]

Please upload the consent form:



[Upload document](#)

[Add Field Here](#)

Study ID	<input type="text" value="vol15"/>
Has the subject been consented?	<input type="radio"/> Yes <input type="radio"/> No reset value
Date Consented	<input type="text"/> <input type="text" value="31"/> <input type="button" value="Today"/>
Days since consented:	<input type="text"/> View equation Disclaimer
Demographics Information	
First Name	<input type="text"/>
Last Name	<input type="text"/>
Street, City, State, ZIP	<input type="text"/> Expand
Phone number	<input type="text"/>
Date of Birth	<input type="text"/> <input type="text" value="31"/> <input type="button" value="Today"/>
Age	<input type="text"/> View equation Disclaimer
Age at time of consent	<input type="text"/> View equation Disclaimer
Ethnicity	<input type="radio"/> Hispanic or Latino <input type="radio"/> NOT Hispanic or Latino <input type="radio"/> Unknown / Not Reported reset value
Race	<input type="radio"/> American Indian/Alaska Native <input type="radio"/> Asian <input type="radio"/> Native Hawaiian or Other Pacific Islander <input type="radio"/> Black or African American <input type="radio"/> White

REDCap Features

- Researchers can make modifications to their database at any time during the study
 - In draft mode
 - In production mode
- Questions using branching logic and calculated fields are supported
- Researchers can copy databases
- Researchers can clear all data from a database




REDCap Features

- Research teams can easily mark identified data in the interface and create access limits on those fields that include identifying information



Edit 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 automatically be appended to the form on this page. For an overview of the different field types available, you may view the  [Field Types video \(5 min\)](#).

Field Type: Text Box (Short Text)

Field Label

First Name

Variable Name (utilized during data export)

first_name

ONLY letters, numbers, and underscores

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

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

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

Save

Cancel

REDCap Features

- Researchers choose what people and groups have access to:
 - Data, both identified and de-identified
 - Data export & import capability
 - User rights management
 - View reports
 - View logging



Choose existing project user	-- select user --
OR type a new user and hit the TAB key	
New user name	

[illegible]

REDCap Features

- Researchers can export data to a variety of statistical analysis packages (SPSS, SAS, R or Excel)
 - Researchers can grant or restrict access to export data for analysis
 - Data exports are customizable including all or some of the data forms and fields
 - Exports can include identified or only de-identified data depending on user and group rights



Form: **Diagnostic List**

AP Window - Aortopulmonary Window (*ap_window_aortopulmonary_w*) ☐

ASD (PFO) -- Atrial septal defect (patent foramen ovale) (*asd_pfo*) ☐

AVC (AVSD) -- Atrioventricular Canal (Atrioventricular Septal Defect) (*avc_avsd_atriontricular*) ☐

Choose Any Diagnosis that applies (*choose_any_diagnosis_that*) ☐

Form Status

Complete? (*diagnostic_list_complete*) ☐

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 known Identifier fields (*tagged in Data Dictionary*)
- ☐ Hash the Study ID (*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 fields:

- ☐ Remove all date fields
- ☐ Shift all dates by value between 0 and 364 days (*shifted amount determined by algorithm for each record*)

[What is date shifting?](#)

[Deselect all options](#)

Submit

REDCap Features

- Reports can be generated:
 - on the fly
 - saved and used over and over within the interface



New Test Report

Study ID (study_id)	Has the subject been consented? (consent)	Date Consented (date_consented)	Age (age)	Ethnicity (ethnicity)	Race (race)	BMI (bmi)	Gender (sex)	Does this subject have asthma? (asthma)	Complete? (diagnostic_list_c
vol1		2010-12-13	19	Unknown / Not Reported (2)	White (4)	28.3	Female (0)	No (2)	Incomplete (0)
vol12	Yes (1)	2011-03-15	19	Hispanic or Latino (0)	Asian (1)	17.4	Male (1)		Incomplete (0)
vol14	Yes (1)	2011-03-31	19	Unknown / Not Reported (2)	Unknown / Not Reported (6)				Incomplete (0)
vol2		2011-02-25	42	NOT Hispanic or Latino (1)	White (4)	20.8	Male (1)	Yes (1)	Incomplete (0)
vol3		2011-01-19	37	Hispanic or Latino (0)	Multiracial (5)	16.8	Male (1)	Yes (1)	Incomplete (0)
vol4		2010-02-10	26	NOT Hispanic or Latino (1)	Black or African American (3)	16.2	Female (0)	Yes (1)	Incomplete (0)
vol5		2011-02-14	68	NOT Hispanic or Latino (1)	White (4)	11.6	Male (1)	Yes (1)	Incomplete (0)
vol6		2011-02-23	29	NOT Hispanic or Latino (1)	White (4)	8.7	Male (1)	Yes (1)	Incomplete (0)
vol7		2010-12-31	67	NOT Hispanic or Latino (1)	White (4)	12.3	Female (0)	No (2)	Incomplete (0)
vol8		2011-02-21	58	NOT Hispanic or Latino (1)	White (4)	30.1	Female (0)	Yes (1)	Incomplete (0)
vol9	Yes (1)		28	NOT Hispanic or Latino (1)	White (4)	12.1	Female (0)	No (2)	Incomplete (0)



REDCap Features

Data logging

- provides information about
 - who has changed the instrument
 - who has changed the data
 - who has accessed data
 - when these events occurred



Logging

 [Download entire logging record to Microsoft Excel \(CSV\)](#)

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

Filter by event:

Filter by user name:

Filter by record:

Displaying events (by most recent):

Time / Date	HawkID	Action	List of Data Changes OR Fields Exported
5:55pm 04/04/2011	hdavis	Page View	Page accessed: https://redcap.icts.uiowa.edu/redcap/redcap_v4.0.3/Logging/index.php?pid=8&usr=&record=&logtype=page_view
5:55pm 04/04/2011	hdavis	Page View	Page accessed: https://redcap.icts.uiowa.edu/redcap/redcap_v4.0.3/Logging/index.php?pid=8
5:54pm 04/04/2011	hdavis	Page View	Page accessed: https://redcap.icts.uiowa.edu/redcap/redcap_v4.0.3/edit_field_ajax.php?pid=8&field_name=first_name
5:54pm 04/04/2011	hdavis	Page View	Page accessed: https://redcap.icts.uiowa.edu/redcap/redcap_v4.0.3/design.php?pid=8&page=demographics
5:54pm 04/04/2011	hdavis	Page View	Page accessed: https://redcap.icts.uiowa.edu/redcap/redcap_v4.0.3/design.php?pid=8
5:54pm 04/04/2011	hdavis	Page View	Page accessed: https://redcap.icts.uiowa.edu/redcap/redcap_v4.0.3/setup.php?pid=8
5:54pm 04/04/2011	hdavis	Page View	Page accessed: https://redcap.icts.uiowa.edu/redcap/redcap_v4.0.3/calendar.php?pid=8

REDCap System Security

(This is what the IRB will want to know)

- Physical Security

- Primary Data HCIS Pomerantz Data Center
- Data backups – ITS Lindquist Data Center

- Operating System Security

- HawkID Based Logins
- Data Encrypted at Rest
- Remote System Logging
- Configuration and Change Management



REDCap System Security cont.

- ITS System Security Scan
 - All identified issues mitigated
- ITS Web Application Evaluation
 - In progress
- FISMA Moderate
 - National Children's Study
 - Received Authority to Operate



REDCap Data Backups

- Backups are always encrypted both in flight and at rest
- Copies of data replicated to remote data center every 15 minutes
- 100+ point in time copies of data available at any time
- Tested good disaster recovery strategy

