

REDCap

Data Quality

Working toward clean data



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About BRIC and CTSI

- Assist researchers across the colleges with development, management, and implementation of clinical research
- Collaborative relationships start from the pre-award stage, through the data collection period and continues through the analysis and presentation of findings

Plan / Propose

Budgeting Services
Letters of Support
Process Navigation
Recruitment Planning

Setup

Custom Development
Data Integrations
REDCap Training
Study Setup
Study Start-Up Planning

Manage

Clinical Research Coordination
Data Collection
Email and SMS Notifications
Research Facilities and Resources
ResearchMatch

Closeout

Data Sharing

What to Expect Today

1. REDCap Data Dictionary
2. Standard value formats
3. Missing data
4. Range checks
5. Design updates
6. Data resolution workflow
7. Questions

Expected Audience

- People who are just starting a new project
- People who have an active REDCap project at MSU
- People who already have messy data that they would like to clean

What we won't cover

- Reporting to catch workflow exceptions
- Multivariate rules
- Outliers
- Custom development

Data Dictionary

[illegible]

Value formats

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](#).

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

[Codebook](#)

Question Number (optional)
Displayed only on the survey page

Field Label ☐ Use the Rich Text Editor ?

Action Tags / Field Annotation (optional)

Learn about [@ Action Tags](#) or [using Field Annotation](#)

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

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

ONLY letters, numbers, and underscores

How to use [\[f\] Smart Variables](#) [Piping](#) [Field Embedding](#)

Validation? (optional) Date (M-D-Y)

Minimum:

Maximum:

Tip for min/max limits: You may pipe a value from another field to set dynamic range limits - e.g., `[event_1.date]` or `[event_1.arm_1][age]`. You may also use the word `today` or `now` (not wrapped in quotes) for date/time fields.

-- OR --

-- select ontology service --

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

Missing data

Form 1

Invitation status:
Survey options

Editing existing Record ID 7.

Event: Baseline

Record ID 7
To rename the record, see the record action drop-down at top of the [Record Home Page](#).

Name

Email address
* must provide valid email address

Form Status

Complete?

Lock this instrument ☐
If locked, no user with Instrument Level Lock/Unlock privileges unlocks it.

NOTE: Some fields are required!

Your data was successfully saved, but you did not provide a value for some fields that require a value. Please enter a value for the fields on this page that are listed below.

Provide a value for...

- Email address

Missing data



The screenshot shows the REDCap web interface. The top navigation bar includes the REDCap logo, a user login status (Logged in as babbagej | Log out), and links to My Projects, Control Center, and Contact REDCap administrator. Below this is a dropdown menu for 'View project as user:'. The main content area is divided into sections: 'Project Home and Design', 'Data Collection', and 'Applications'. The 'Project Home and Design' section contains links to Project Home, Project Setup, Designer, Dictionary, Codebook, and Project Navigation. The 'Project Navigation' link is highlighted with a red box. Below it is a text input field labeled 'Enter PID to go to project', which is also highlighted with a red box. The 'Data Collection' section contains links to Survey Distribution Tools, Record Status Dashboard, and Add / Edit Records. The 'Applications' section contains a list of various tools and features, including Project Dashboards, Alerts & Notifications, Multi-Language Management, Calendar, Data Exports, Reports, and Stats, Data Import Tool, Data Comparison Tool, Logging and Email Logging, Field Comment Log, File Repository, User Rights and DAGs, Customize & Manage Locking/E-signatures, Data Quality, API and API Playground, and REDCap Mobile App.

Range checks

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

Field Type:

[Codebook](#)

Question Number (optional)

Field Label ☐ Use the Rich Text Editor ?

Date of birth

Action Tags / Field Annotation (optional)

Learn about [@ Action Tags](#) or [using Field Annotation](#)

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

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

ONLY letters, numbers, and underscores

How to use [Smart Variables](#) [Piping](#) [Field Embedding](#)

Validation? (optional)

Minimum:

Maximum:

(Optional min/max limits: You may pipe a value from another field to set dynamic range limits (e.g., [visit_date] or [event_1_arm_1] [age]). You may also use the word today or now (not wrapped in quotes) for date/time fields.

- Or -

Required?* ☐ No ☒ Yes

* Prompt if field is blank

Identifier? ☐ No ☒ Yes

Does the field contain identifying information (e.g., name, SSN, address)?

Custom Alignment

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Save

Cancel

Range checks

Form 1

Invitation status:

Survey options

Editing existing Record ID 7.

Event: Baseline

Record ID

7

To rename the record, see the record action drop-down at top of the [Record Home Page](#).

Name

Email address

* must provide value

Date of birth

02-19-2025

Today

M-D-Y

* must provide value

Form Status

Complete?

Lock this instrument

If locked, no user will be able to edit data at the Instrument Level Lock/Unlock

- Cancel -

Delete data for THIS FORM only

NOTE: To delete the entire record (all forms/events), see the

Alert

The value you provided is outside the suggested range (01-01-1950 - 01-01-2007). This value is admissible, but you may wish to double check it.

Close

Range checks

Record ID 7 [Select other record](#)

Event: Baseline

Data Collection Instruments:

☒ Form 1

☐ Administrative Data

Applications

Project Dashboards

Alerts & Notifications

Multi-Language Management

Calendar

Data Exports, Reports, and Stats

Data Import Tool

Data Comparison Tool

Logging and

Email Logging

Field Comment Log

File Repository

User Rights and

DAGs

Customize & Manage Locking/E-signatures

Data Quality

API and

API Playground

REDCap Mobile App

Project Dashboards

Search

Organize

Edit

1) Default

Reports

Search

Organize

Edit

1) Consented subjects

2) Refused consent

3) Did not consent; cannot be reached

4) Participants

5) Active Participants

6) Test subjects

7) Completed Visit 1

8) Completed Visit 2

Modules

Manage

View Logs

Project Compare: Stop Logic

Project Compare: Media

Project Compare: Metadata

Project Compare: Events

Find Unicode Characters in Metadata

Help & Information

Help & FAQ

Video Tutorials

Date of birth

* must provide value

b2-19-2025

Today

 M-D-Y

Form Status

Complete?

Incomplete

Lock this instrument?

☐ Lock

If locked, no user will be able to modify this instrument for this record until someone with Instrument Level Lock/Unlock privileges unlocks it.

Save & Exit Form

Save & ...

- Cancel -

Delete data for THIS FORM only

NOTE: To delete the entire record (all forms/events), see the record action drop-down at top of the [Record Home Page](#). Also, to delete all the data from THIS EVENT only, see the bottom row of the status table on the [Record Home Page](#).

Save & Exit Form

Save & ...

- Cancel -

Auto-fill form

Edit Field

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

School district

☰ Use the Choices Editor

☐ Enable auto-complete for this drop-down ?

Learn about [@ Action Tags](#) or using Field Annotation

Learn about [@ Action Tags](#) or [using Field Annotation](#)

Instructions:

Choices Change Summary

Existing Value	Existing Label	Draft Value	Draft Label	Status	Number of records having this value
1	Dewitt	-	-	Removed	1
2	East Lansing	2	East Lansing	Unchanged	0
3	Lansing	3	Lansing	Unchanged	0
4	Okemos	4	Okemos	Unchanged	0
5	Saint Johns	5	St. Johns	Altered	1

Close

district	dropout	School district	Possible label mismatch because of label changes. Check if okay.
			*Data MIGHT be lost due to deleted choice(s)
			Compare

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

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

Codebook

Question Number (optional)

Displayed only on the survey page

Field Label

☐ Use the Rich Text Editor

School district

Choices (one choice per line)

☰ Use the Choices Editor

↵ Copy existing choices

- 1, Dewitt
- 2, East Lansing
- 3, Lansing
- 4, Okemos
- 5, St. Johns

☐ Enable auto-complete for this drop-down ?

How do I manually code the choices?

Action Tags / Field Annotation (optional)

@HIDECHOICE='1'

Learn about [@ Action Tags](#) or [using Field Annotation](#)

Data resolution

 Data Quality

 Data Resolution Workflow

[VIDEO: Data Resolution Workflow](#)

This pop-up displays the Data Resolution Workflow for the specified record for a given field and/or Data Quality rule. Users with appropriate user privileges may open data queries to begin a documented process of resolving an issue with the data. Opened data queries may thus be responded to by users with appropriate privileges, and then they may be closed once the issue has been resolved. All data queries can also be viewed on the Resolve Issues page in this project.

Record ID: **7**
Event: **Baseline**
Rule: **Rule D: Field validation errors (out of range)**
Field: **dob** ("Date of birth")
Status:  Not Opened

Date/Time	User	Comments and Details
02/19/2025 11:34am	babbagej	Data Changes Made: dob = '2025-02-19'
02/19/2025 12:18pm	babbagej	☐ Verified data value — OR — ☒ Open query Assign query to a user (optional): jb_test (jon tes... Notify this user of their assignment using: ☐ Email Comment:

Open query
Cancel

1	Weight has changed more than 25% between visits	[event-name] != 'visit_1_arm_1' and ([event-name][weight] > 1.25*[previous-event-name][weight] or [event-name][weight] < .75*[previous-event-name][weight])		Execute	
	Add Enter descriptive name for new rule (e.g., Participants below age 18)	Enter logic for new rule (e.g., [age] < 18) How do I use special functions?	☐	Execute in real time on data entry forms ?	

Data resolution

REDCap®

Logged in as babbagej | Log out

My Projects or Control Center

Contact REDCap administrator

View project as user: jb_test (jon tester)

Project Home and Design

Project Home · Codebook

Project Navigation

Project status: Production

Data Collection

Survey Distribution Tools

Record Status Dashboard

Add / Edit Records

Record ID 7

Select other record

Event: Baseline

Data Collection Instruments:

Form 1

Administrative Data

Applications

Calendar

Data Exports, Reports, and Stats

File Repository

Resolve Issues

Project Dashboards

Search

1) Default

Reports

Search

Organize

Edit

1) Consented subjects

2) Refused consent

3) Did not consent; cannot be reached

4) Participants

5) Active Participants

6) Test subjects

7) Completed Visit 1

8) Completed Visit 2

Help & Information

Help & FAQ

You are currently viewing this project as the user "jb_test" (jon tester), and their user privileges will be applied to you for the duration of this session.

MICHIGAN STATE UNIVERSITY

Michigan State University

Biomedical Research Informatics Core

Data Quality Dashboard

Data Resolution Workflow

[VIDEO: Data Resolution Workflow](#)

This pop-up displays the Data Resolution Workflow for the specified record for a given field and/or Data Quality rule. Users with appropriate user privileges may open data queries to begin a documented process of resolving an issue with the data. Opened data queries may thus be responded to by users with appropriate privileges, and then they may be closed once the issue has been resolved. All data queries can also be viewed on the Resolve Issues page in this project.

Record ID: 7

Event: Baseline

Field: dob ("Date of birth")

Status: Open / Unresolved (unresponded)

Date/Time	User	Comments and Details
02/19/2025 11:34am	babbagej	Data Changes Made: dob = '2025-02-19'
02/19/2025 12:19pm	babbagej	Action: Opened query Assigned to user: jb_test (jon tester) Comment: "Seems like a typo as this subject is only a day old" Assign to other user
02/19/2025 12:24pm	babbagej	Data Changes Made: dob = '2005-02-19'
02/19/2025 12:24pm	babbagej	☒ Reply with response: Corrected - Typographical error Upload file (optional): Upload file — OR — ☐ Close the query Comment:

Respond to query

Cancel

REDCap Support

- REDCap tutorial videos
- Additional Trainings from CTSI in the future
 - Join listserv at CTSI-subscribe-request@list.msu.edu for updates
- External resources
 - [Vanderbilt's REDCap Training Materials Repository](#)
 - [UW Institute of Translational Health Sciences REDCap Training Series](#)
 - [UA Center for Biomedical Informatics & Biostatistics REDCap Video Tutorials](#)

Help & Information

- Help & FAQ
- Video Tutorials
- Suggest a New Feature

Contact REDCap administrator



Questions?