Scientific Computing and Data
Research Data Services

Introduction to REDCap

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Scientific Computing and Data Mission

To enable and accelerate biomedical discovery through collaborative research using high performance computing, biomedical informatics and data science

- We aim for our biomedical informatics ecosystem to be:
  - –**More accessible** to stakeholders, ensuring broad, user-friendly, integrated access to diverse data sources while maintaining robust, secure, bi-directional information flow between research programs and point-of-care information systems through a flexible infrastructure
  - –**More actionable**, to enable innovative applications of translational bioinformatics research and data-driven medicine

  …not just for the ecosystem at Sinai, but also for national research projects we lead and participate in.
  - High Performance Computing
  - Mount Sinai Data Warehouse
  - Research Data Services
- Unlike other computing resources, Scientific Computing stakeholders are also actively engaged in research projects
- We partner with other investigators to create a robust research environment at Mount Sinai, expand our profile in national research efforts, and help with grant funding success

REDCap at Mount Sinai

- Research Electronic Data Capture – a platform developed by Vanderbilt University as a proper replacement for pen and paper data collection
- 21 CFR Part 11 compliant – joint effort by Scientific Computing, IT, IRB and Privacy Offices
- Data resources and integration between many existing system with more to come
  - Import clinical data into REDCap from Epic (over 1800 mapped)
    - –Basic Demographics
    - –Conditions/Problems list
    - –Medications
    - –Vital signs
    - –Laboratory Results (lab results where LOINC code is stored in Epic)
  - –Submit requests to https://bit.ly/3guXoag
- We host more than 14,000 databases, with over 11,000 active users
- Services for project building, data protection, support, and training

Overview

- Creating your REDCap account
- Project Setup
  - Templates
  - Project page
  - Longitudinal Studies
  - Online Designer
    - Surveys
    - Variables
  - Obtaining Data
- Data Management
- Managing Users
- Project Life Cycle

Creating A REDCap Account

Mount Sinai Users:

- Mount Sinai faculty, students and staff can log into REDCap using their regular Mount Sinai username and password here: https://redcap.mountsinai.org

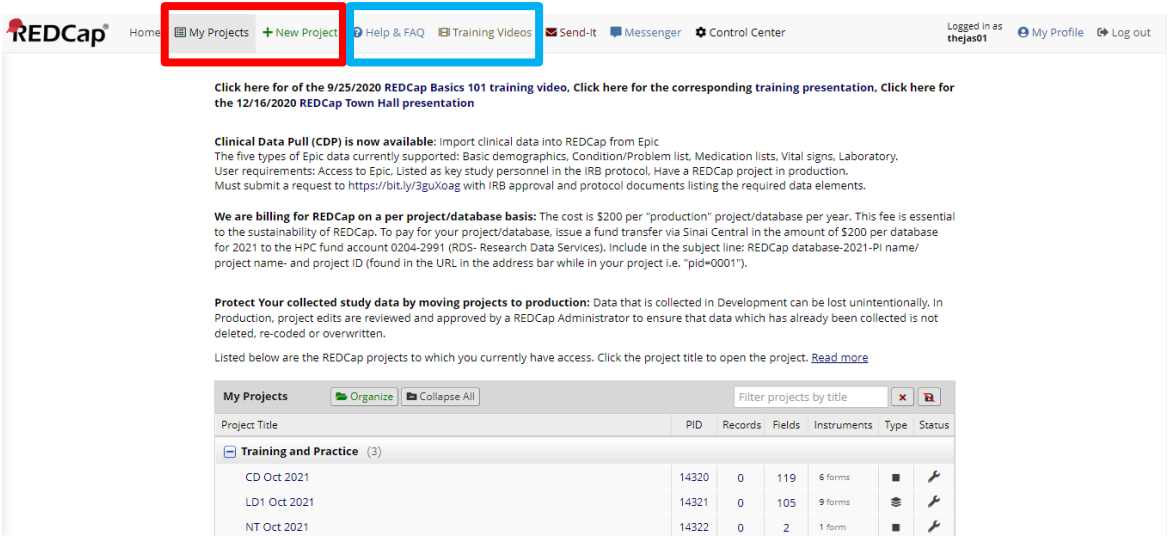
External Users:

- For users without Mount Sinai credentials, the PI or their delegate must request Mount Sinai credentials via SailPoint: https://sailpoint.mountsinai.org/

- Users new to Mount Sinai's REDCap instance will be presented email verification. After filling in their desired email, they will receive a verification link. Once verified, they can login to create projects or be added to existing ones.

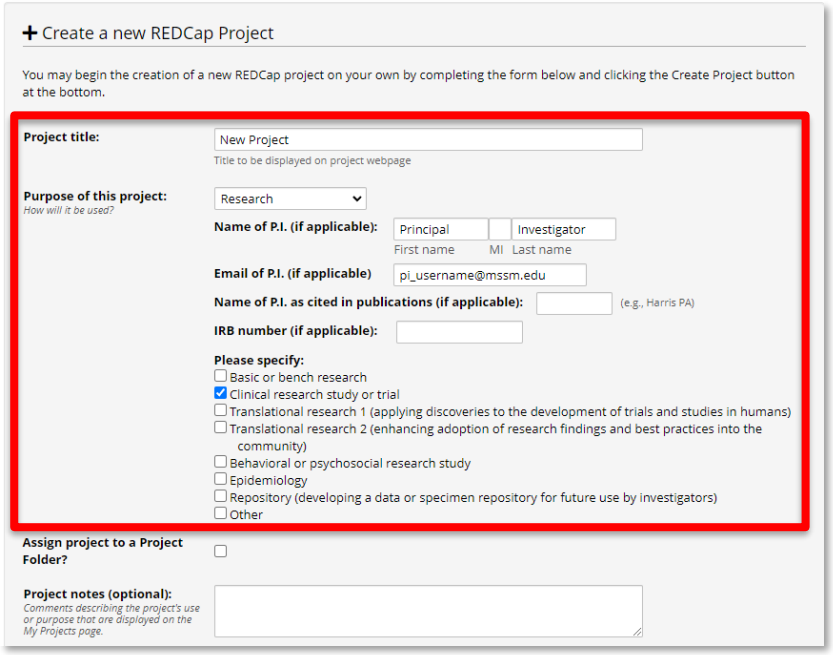
Creating a New Project

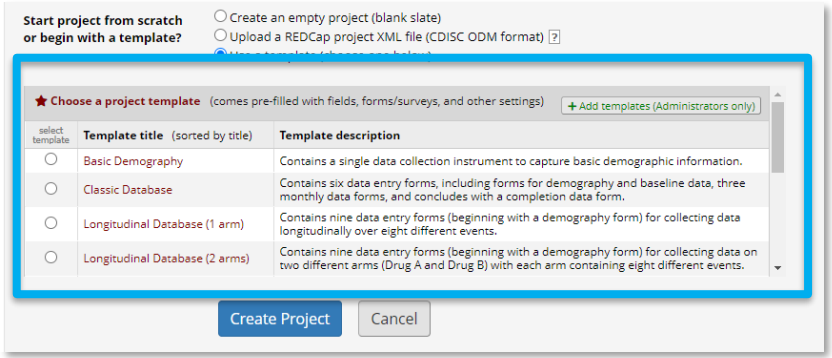
- Users can find the projects they have access to under **My Projects** at the top of the page. These are projects they've been added to or have created.
- To create a project, click on the adjacent **New Project** button.
- Along the top bar, users will also find great resources under **Help & FAQ** as well as **Training Videos** for learning to use REDCap.



Creating a New Project Cont'd

- When creating a new project, users can fill out **project details** and the type of research that will be conducted
- On the same page are **templates** for getting started on a new project



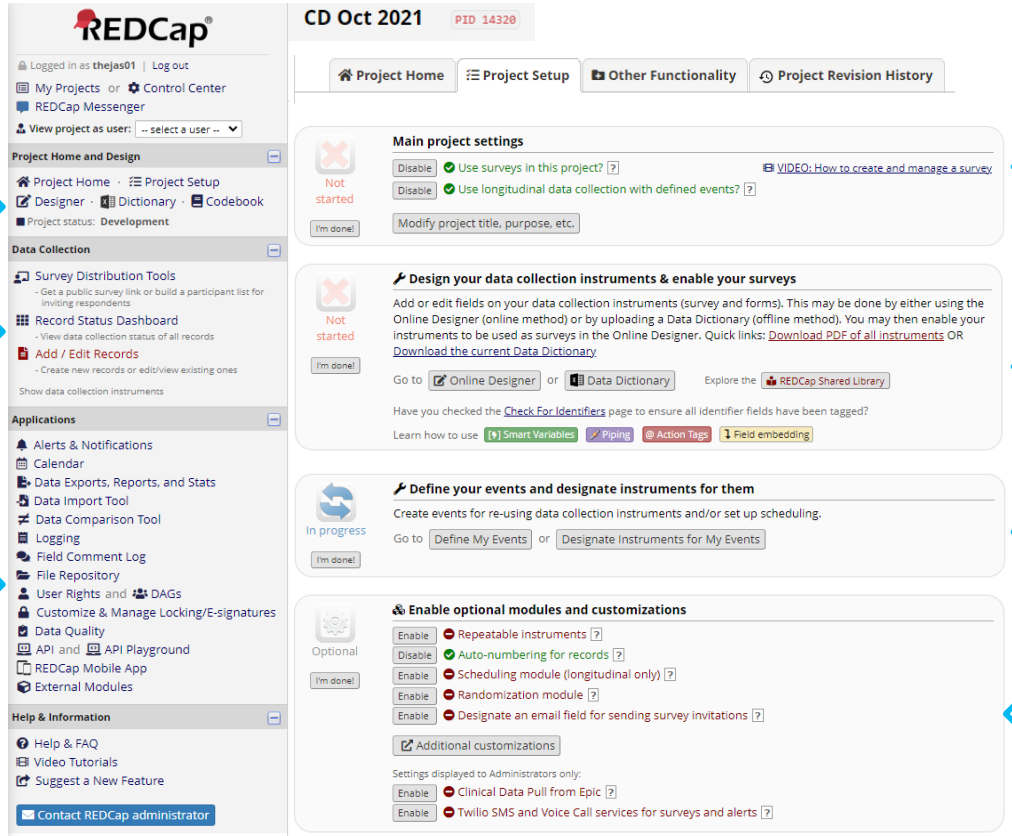


Getting Familiar with the Project Page

- Manage a project

- Check and edit participants' records, share survey invitation links and QR code

- Import, Export, and run Reports on collected data
- Modify User Access
- Configure External Modules



- Modify project title, PI, and descriptions
- Enable Longitudinal data collection

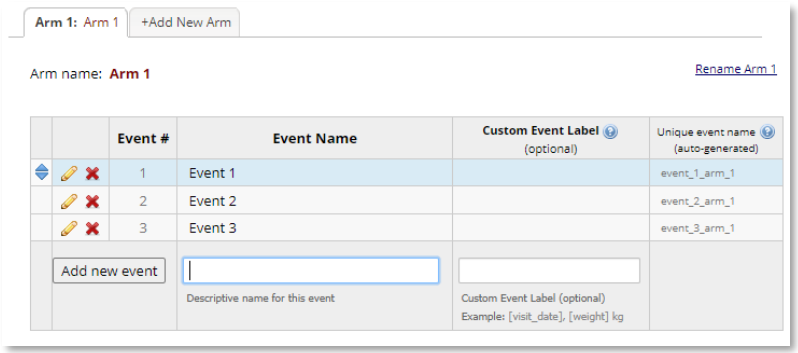
- Access the Online Designer
- Access/download the data dictionary
- Find information on unique REDCap functions

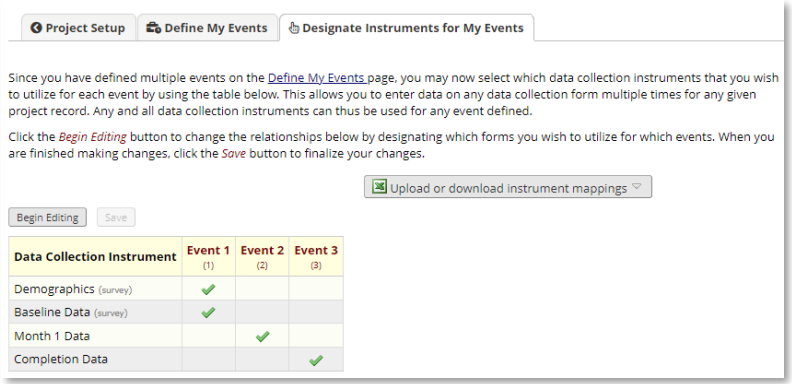
- Define how a longitudinal study is structured

- Extended customizations and modules options

Longitudinal Studies

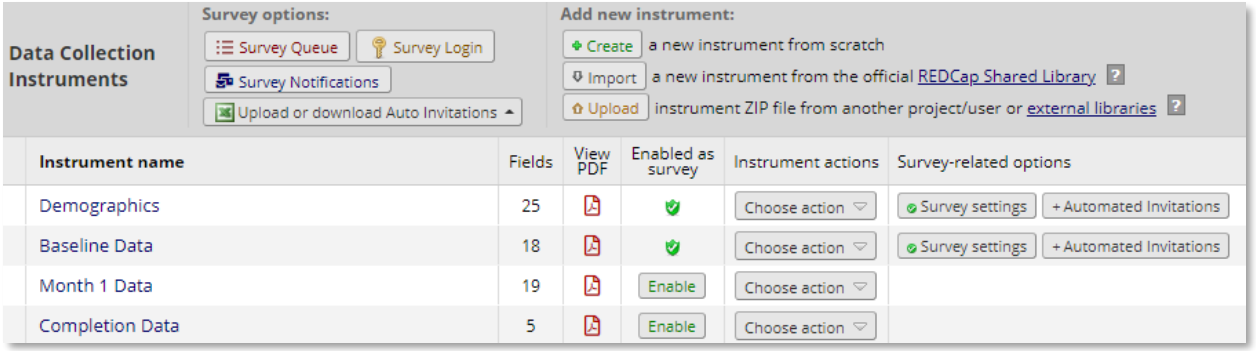
- With longitudinal studies, additional options are available
- Define each of the study **Arms** and **Events** for those Arms
- Designate Instruments for each Arm and Event





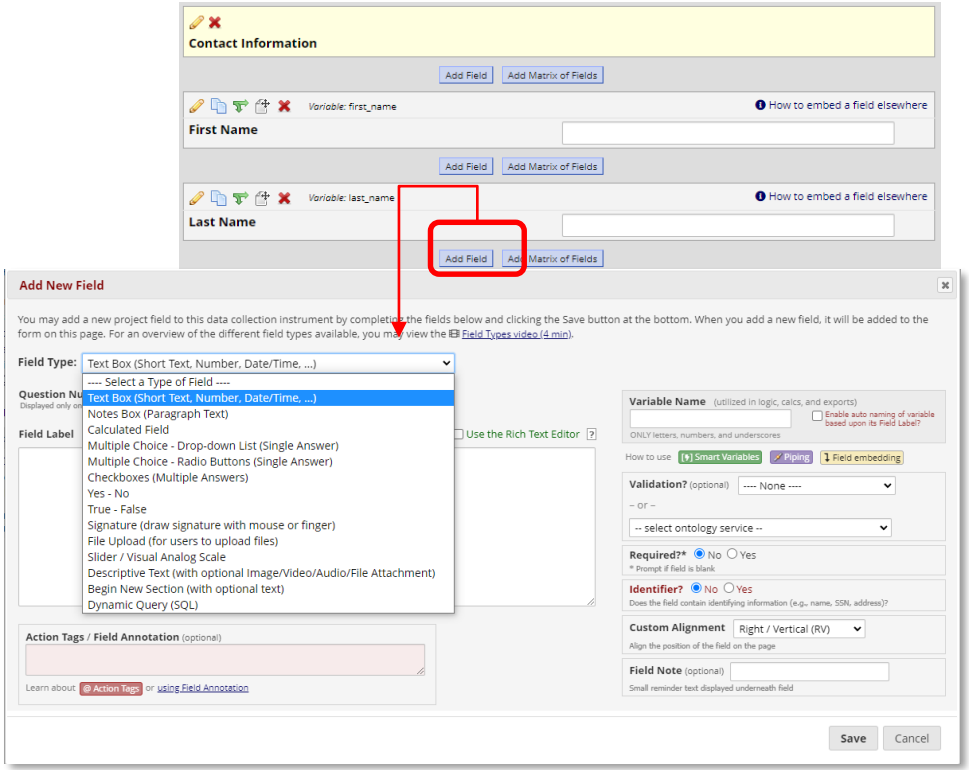
Online Designer – Instruments/Surveys

- Create, Import, and Manage data collection forms
- Enable instruments as surveys
- Edit data collection instruments and variables
- Define how participants can get automated invitations by email



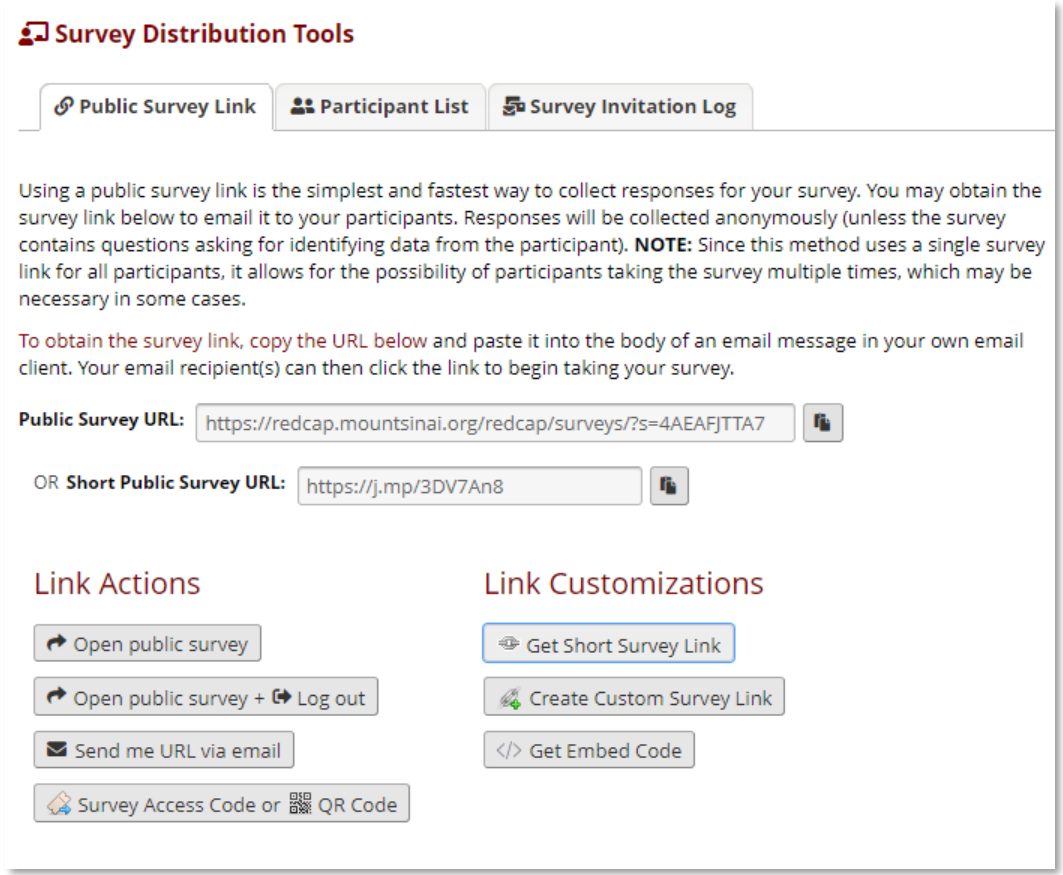
Online Designer – Variables

- Variables allow users to define discrete data points for collection
- Short, simple, and identifiable names for variables are preferred
- Choose the field type that best fits the data point
- Note: Collection and maintenance of PHI in a protected and confidential manner is the responsibility of the investigators



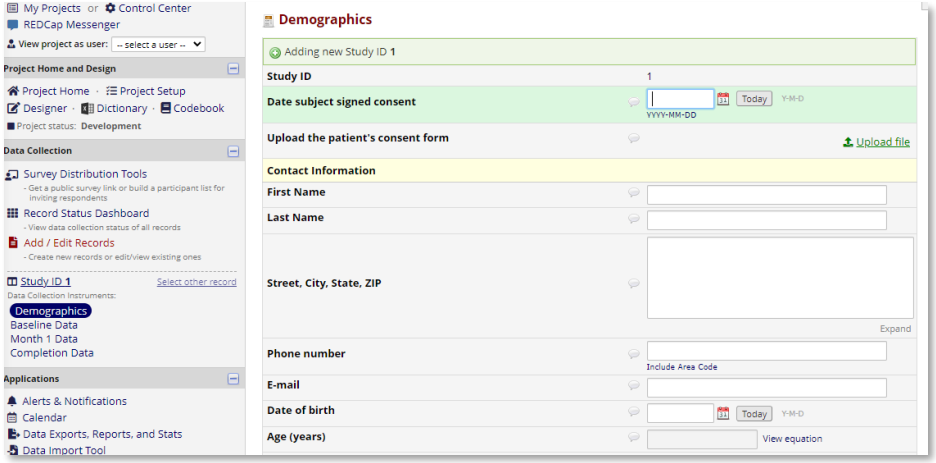
Obtaining Data

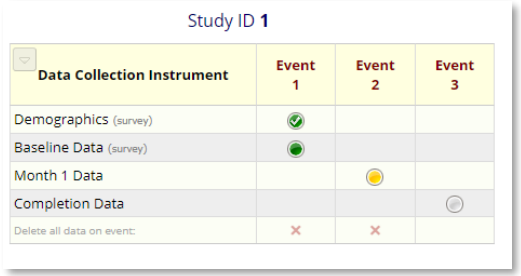
- Invite participants to take a survey by sharing Public Survey URLs or QR codes
- Monitor follow-up surveys and previously sent invitations, manage the survey's participants list



Obtaining Data – Data Entry Form

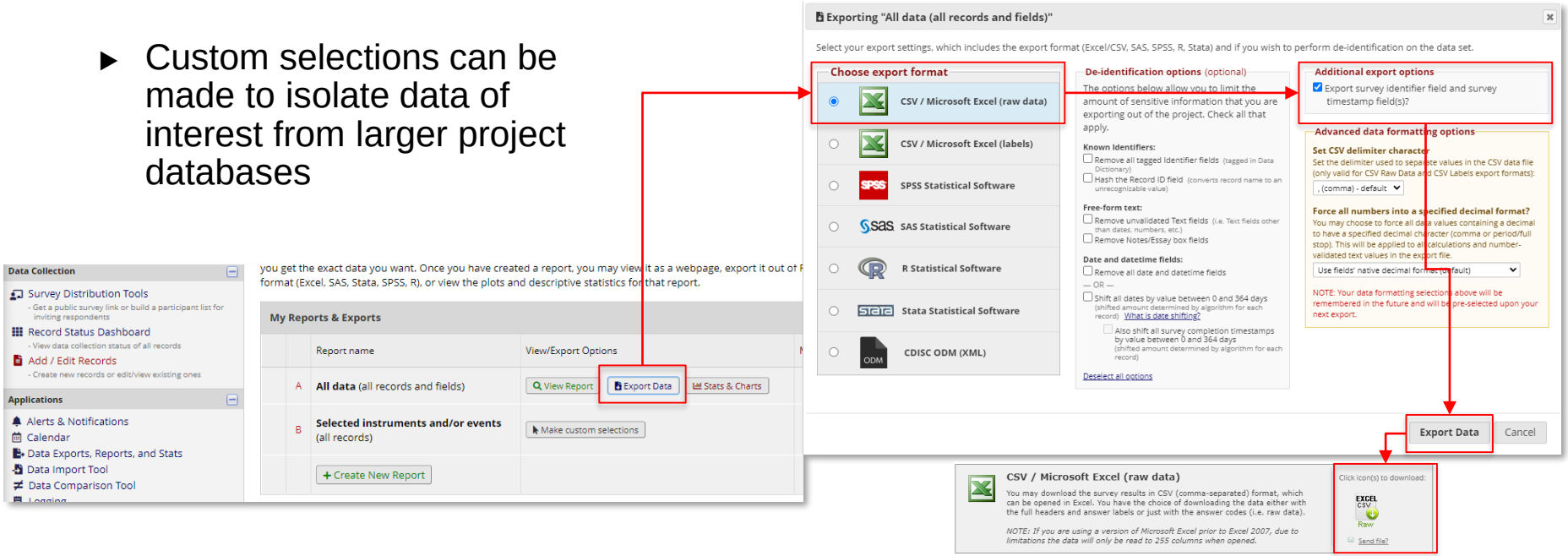
- For data points that are not collected during the surveys, they can be entered in the **Record Home Page**
- Can enter new data, overwrite data, or make notes on data for the record





Data Management

- **Data Exports, Reports, and Stats** contain methods to export collected data in various formats
- Custom selections can be made to isolate data of interest from larger project databases



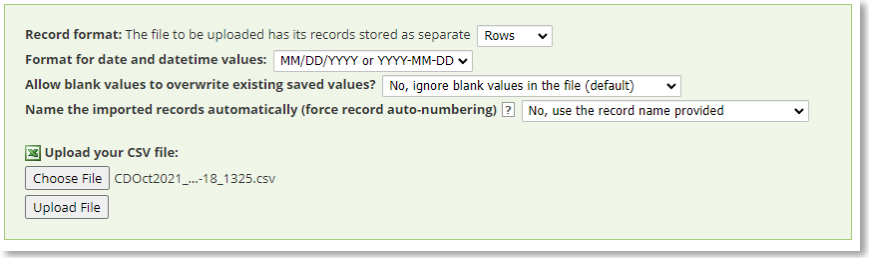
Data Management – Editing Data

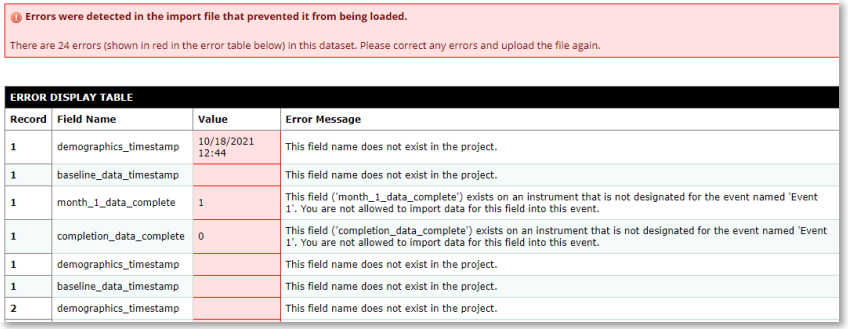
- Data edits can be made on csv files in Excel
- Records show all data collected for a specific **Event** and **Arm**
- Some data will appear as entered by survey participants with free text entry, while other data is coded as discrete selections as in the case of multiple-choice selections

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	study_id	redcap_event_name	redcap_su	demograp	date_enrc	patient_d	first_nam	last_name	address	telephone_1	email	dob	age	ethnicity	race	sex	given_birt
2	1	event_1_arm_1		########	########		test1	test1	Some place	(444) 444-4444		########	0	1	1	1	
3	1	event_2_arm_1															
4	2	event_1_arm_1			########		test2	test2	Somewhere	(555) 555-5555		########	0	2		0	0
5	3	event_1_arm_1		########	########		test1	test1	Some place	(444) 444-4444		########	0	1	1	1	
6	3	event_2_arm_1															
7	4	event_1_arm_1			########		test2	test2	Somewhere	(555) 555-5555		########	0	2		0	0
8	5	event_1_arm_1		########	########		test1	test1	Some place	(444) 444-4444		########	0	1	1	1	
9	5	event_2_arm_1															
10	6	event_1_arm_1			########		test2	test2	Somewhere	(555) 555-5555		########	0	2		0	0
11																	

Data Management – Importing

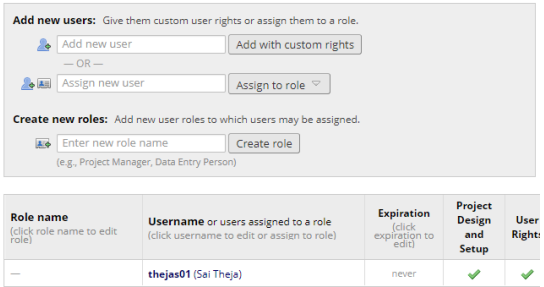
- **Data Import Tool** allows for users to import new data or edited data by each record
- An effective tool for importing larger blocks of data
- Don’t be intimidated by errors since they are a common occurrence in data imports
- Each error will need to be resolved before a set of data can be successfully uploaded

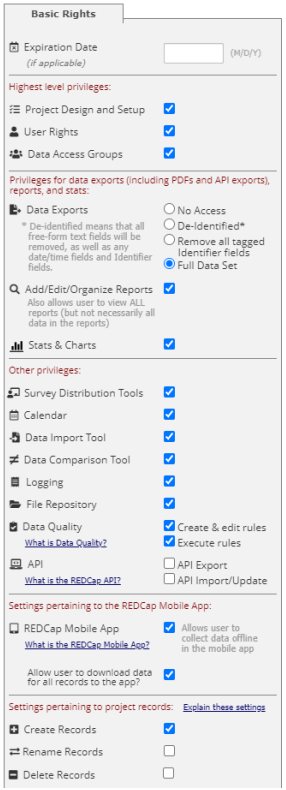


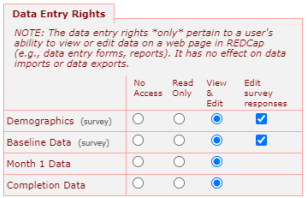


Managing Project Users

- Users with accounts can be added to a project in the **User Rights** section of your project
- When adding or modifying existing users, a long checkbox section will appear to manage their access
- It is important to properly manage user rights to protect data and PHI, control project design and life cycle, and maintain accountability

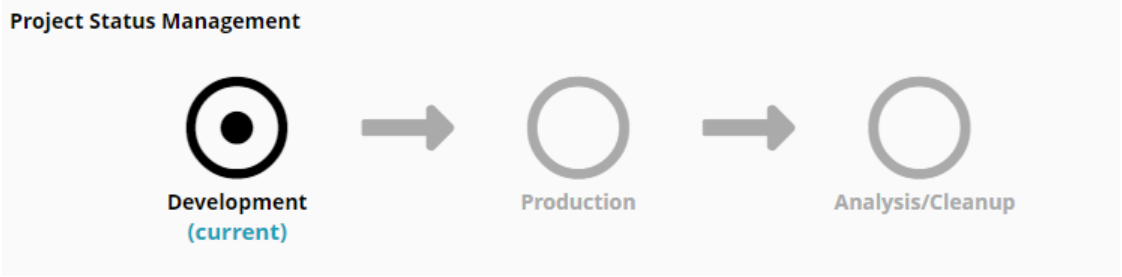






Project Life Cycle

- **Development** phase of the project is best for creating and testing a project
- **Production** phase protects collected data by flagging project changes for data loss review
- **Analysis/Cleanup** phase for finalizing analysis and ending a study



REDCap – 2021/2022 Updates

- New REDCap Production fee of $200 per project
- Database Improvements
  - –Stronger encryption for protecting PHI
- REDCap Upgrades
  - –Server hardware upgrades and consolidation
  - –Upgrade to REDCap version 11 in the works
    - –Project Dashboards, Smart Functions, Smart Tables, and Smart Charts
- Deploying External Modules
  - –Deployed 4 new external modules for use in projects
  - –Additional deployments underway and can also be requested by users

Digital Concierge Service - https://zoom.us/my/digitalconcierge

- Virtual REDCap Office Hours: Wednesdays from 3:30pm to 4:30pm
  - CRIO Office; Office of Research Services (ORS);
  - Scientific Computing; CTSA;
  - Levy Library ASC-IT; Research Academic IT
- Guiding use of self-service tools
- Directing to optimal digital services and data sources
- Identifying right data sets
- Formulating and/or executing search queries
- Advising on Mount Sinai policies including data sharing, security and patient privacy
- Posting de-identified counts for the most common queries
- Aggregating feedback and questions from research community
- Providing informatics support for grant submissions