Research Electronic Data Capture (REDCap) 102

REDCap Tutorial 102

UCSF Academic Research Systems

Presented by

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ARS Services

- **MyResearch**
  - Secure, HIPAA compliant web-based environment for the storage, sharing, and analysis of PHI and RHI

- **Research Electronic Data Capture (REDCap)**
  - Secure, HIPAA compliant web-based system for research surveys and databases

- **Clinical Data Research Consulting Services**
  - The extraction of data from the UCSF Medical Center APeX EMR
  - The extraction of data from the SFGH Lifetime Clinical Record
What this training class will cover

Release 5.0.10 new features
Agenda

- Enhanced graphical presentation of project data
- New data quality screening capabilities
- Ability to search data records in real-time
- Display Data Access Group labels on calendar events
- Enhanced management capabilities for survey participant lists
- New calculated field functions
- Expanded Datediff functionality, negative date differences
- Ability to use calculations across multiple events
- Checkbox fields can now be referenced in calculated fields
- Ability to use branching logic across multiple events
- Randomization Module
- Matrix Field Types
Enhanced Graphical Project Data

<table>
<thead>
<tr>
<th>Total (N)</th>
<th>Missing</th>
<th>Unique</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>StDev</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>210</td>
<td>389 (64.9%)</td>
<td>209</td>
<td>304,872.00</td>
<td>573,372.00</td>
<td>389,235.44</td>
<td>50,258.78</td>
<td></td>
</tr>
</tbody>
</table>

Percentile values:
- .05: 322,409.50
- .10: 328,141.50
- .25: 345,431.00
- .50 Median: 381,448.50
- .75: 435,579.50
- .90: 460,104.00
- .95: 474,865.50

Lowest values: 304872, 310956, 310983, 310996
Highest values: 476920, 477124, 483648, 485273

Applications:
- Calendar
- Data Export Tool
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- User Rights
- Record Locking Customization
- E-signature and Locking Mgmt
- Graphical Data View & Stats
- Data Quality
- API
- Report Builder

Graphical representation of data:
- Pie chart showing percentages of Yes (63.8%) and No (36.3%)
- Scatter plot with various values
- Bar chart showing counts/frequency: Yes (51, 63.8%), No (29, 36.3%)

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San Francisco

Information Technology
ACADEMIC RESEARCH SYSTEMS
Click the Data Quality link under Applications. Once open, click the Execute button to run an existing rule. Or write your own rules. Click the View link to open the report.
Click on the links in the report to open the record in question.
Data Access Groups will now appear on the Calendar App. First add users, assign them to Data Access Groups, and assign your instruments to Data Access Groups.
Clicking on your forms (in addition to allowing you to add a new form or view an existing form) will allow you to search your records by field and search term.
Enhanced Management Capabilities for Survey Participant Lists

New features include multiply surveys per project with management capabilities, survey short-cut, and Open public survey

Using a public survey link is the simplest and fastest way to collect responses for your survey. You may obtain the survey link below to email it to your participants. Responses will be collected anonymously (unless the survey contains questions asking for identifying data from the participant). NOTE: Since this method uses a single survey link for all participants, it allows for the possibility of participants taking the survey multiple times, which may be necessary in some cases.

To obtain the survey link, copy the URL below and paste it into the body of an email message in your own email client. Your email recipient(s) can then click the link to begin taking your survey. Get shorter survey link or Get embed code to place link on a webpage.

Public Survey URL: https://redcap.ucsfopenresearch.org/surveys/?s=LIBhs4
Enhanced Management Capabilities for Survey Participant Lists (cont.)

Survey features are separated into tabs. New features include Remove all participants, and Export list buttons.
Listed below are the survey invitations that have already been sent or have been scheduled to be sent to survey participants in this project. For each invitation it displays the participant email, participant identifier (if exists), survey name, and the date/time in which the invitation was (or will be) sent. You may even view the invitation email itself by clicking the icon in the 'View Email' column.

Please note that all times below correspond to the time zone "America/Los_Angeles", in which the current time is 04/24/2013 11:45am.

New snap-shot of participant activity and filters to find participants on large lists.
## New Calculated Field Functions

### Enter numbers for calculations

<table>
<thead>
<tr>
<th>Calc Test No</th>
<th>Data 2</th>
<th>Data 3</th>
<th>Data 4</th>
<th>Data 5</th>
<th>Data 6</th>
<th>Data 7</th>
<th>Data 8</th>
<th>Data 9</th>
<th>Data 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10.24</td>
</tr>
</tbody>
</table>

### Calculations

- **Sum**: 54.24
- **Mean**: 6.02666666666667
- **Median**: 6
- **Min**: 2
- **Max**: 10.24
- **Round Data_10**: 10.2
- **Rounddown Data_10**: 10.2
- **Roundup Data_10**: 10.3
- **Abs Data_6**: 6
- **Stdev**: 2.783235527236664

**Calculation:** `stdev([data_2],[data_3],[data_4],[data_5],[data_6],[data_7],[data_8],[data_9],[data_10])`
Expanded DateDiff Functionality

DateDiff calculations can now show minutes/seconds and give a negative time difference.

Include "Return Signed Value" in your equation to calculate negative date differences.

datediff([date1], [date2], "units", "dateformat", true)
Branching Logic & Calculations Across Multiple Events

When you create events REDCap will auto-generate the event variable name to include in your calculations.

Both Branching Logic and Calculations are represented above. Choosing “yes” or “no” branches to either “Patient Enrolled” or “Patient Not Enrolled” and enters the value assigned (1 or 2).
Checkboxes can now be used in your calculations.
Randomization Module

The Randomization Module enables randomization of records in a project. A user will be guided through defining the randomization model with various parameters and then upload that model to the project.

Create a new REDCap Project

- Project title: 102randomMod
- Purpose of this project: Practice / Just for fun

Design your project:

1. Choose the type of project you want to build:
   - Single Survey
   - Data Entry Forms (e.g., traditional database)
   - Single Survey + Data Entry Forms (e.g., pre-screening)

2. Choose collection format for data entry forms:
   - Classic (each form available for use once for each subject/record)
   - Longitudinal / repeating forms (each form available subject/record)

Additional options:

- Enable the randomization module?
Matrix Field Type

When using the Online Designer, clicking the Add Matrix of Fields button will enable the creation of either Single Answer format (i.e. radio buttons) or Multiple Answer format (i.e. checkboxes) on compact grid layout on forms or surveys.

<table>
<thead>
<tr>
<th>Field Type</th>
<th>Extremely Important</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Slightly Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td><img src="H" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
</tr>
<tr>
<td>Childcare</td>
<td><img src="H" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
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<tr>
<td>Tuition benefits</td>
<td><img src="H" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
</tr>
<tr>
<td>Matching 403b</td>
<td><img src="H" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
</tr>
<tr>
<td>Sabbaticals</td>
<td><img src="H" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
<td><img src="O" alt="Select" /></td>
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</table>
Additional Help and Resources

• The REDCap Consortium website including demonstration/tutorial videos and the REDCap Shared Library are available at =>
  http://www.project-redcap.org/

• Submit an online request form for a new REDCap user account at =>
  https://ucsf.service-now.com/ess/order_accounts.do

• Assistance with technical issues while using REDCap, please contact
  ITS-ARSsupport@ucsf.edu

• ITS Help Desk 415-514-4100