REDCap

Introduction Class

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Goals & Agenda

Goals
Overview
Getting Started

Agenda
Introduction
Practical issues
Getting access to REDCap
Basic project workflow
Interactive Q&A
What is REDCap?

**REDCap** = **Research Electronic Data Capture**

- Web-based
- Cross platform
- Secure
- Built for research
- High customizability
Background Statistics

- Created by Vanderbilt University in 2004
- Supported by a consortium of 1581 institutions using REDCap in 92 countries:
  - over 192,000 projects in production
  - over 264,000 end-users
- At UW/ITHS since 2009:
  - over 2700 projects (over 1100 in production)
  - over 300 IRB approved research projects supported
  - over 2850 active users (total of 3700 users)
Why Use REDCap?

- Collection of data
  - Accessibility
  - Secure
  - Easy of Use
  - (Quality) Control
  - Flexibility
- Wide user base
  - Support
  - Training materials
  - Institutional knowledge
REDCap & Security

- Software Set Up
  - Managed by the UW
  - Encryption (256 bit) & Secure Servers
  - UW HIPAA protocols compliant

- 3-Tiered Access
  - System Login
  - Project Access
  - User Restrictions

- Audit Trails
  - Logging feature

- De-identified Data
  - Can identify variables as PHI
  - Export module with de-identifying option
Costs: Overview

No Charge
- Funded by NIH until 2017 to provide REDCap at no charge
- Post 2017: NIH or UW
- Basic level of support
  - Introductory classes
  - Advanced classes
  - Supplementary online documentation
  - Up to 1 hour consultation for new projects

Charges
- Project development
- EMR data import/export
- Recovering data deleted by user error
- High rate of post-production changes

Note: ITHS reserves the right to change these terms as needed to preserve, extend, and sustain the REDCap resource.
Responsibilities: Overview

STUDY TEAMS

- Request project creation
- Project setup and design
- Users rights management
- Regulatory approval to use REDCap
- Request to move project to production
- Inform ITHS when project completed
- Staff training for data entry
- Terms of use for published and validated forms – paid and contracted for appropriately
- Charges for associated ITHS fees
- Data management policies and procedures
- Attend ITHS training and learn to be self-sufficient in resolving problems using available resources, including REDCap community

ITHS

- Host secure, reliable REDCap software
- Periodically upgrade REDCap software
- Train end users
- Enable advanced features, such as Dynamic SQL, and double data entry
- Approve new project creation
- Review project changes to prevent data loss and ensure data integrity
- Provide limited technical support for difficult problems not resolved by users or REDCap community
Logging into REDCap

• Go to [https://redcap.iths.org](https://redcap.iths.org)
• Select one of the following credentials
  • UW net ID
  • Stanford University
  • Medical University of South Carolina
  • University of Alaska Statewide System
  • University of Chicago
  • Some Other Select University ID’s

• More info can be found at: [ITHS REDCap FAQ](https://redcap.iths.org)
• No ID? Go to: [ITHS New Outside User Request Form](https://redcap.iths.org)
General Orientation

• REDCap Overview
  • My Projects, Training Videos, Help & FAQ
• Project Level
  • Options dependent on your privileges

• Time-out: After 30 minutes of inactivity
Request Projects

- Name
- Purpose
- Project Notes (Optional)
- Blank Slate vs Project Template
Approval Process

• Project Creation
  • Security
  • Smooth Operations

• Production Approval
  • Double Check
  • Data Loss Prevention

• Done by a local REDCap Administrator
• Within 1 business day
Project Set-Up

Step by Step Process

- Main Project Settings
- Instrument Design
- Modules (Optional)
- Project Bookmarks (Optional)
- User Rights
- Move to Production
- Conditional Modules
  - Randomization
  - Twilio (Text & Voice Surveys)
  - Event Design
Main Project Settings

• Feature Toggles
  • Longitudinal
  • Surveys

• Name & Purpose
  • Project Title
  • PI Information
  • IRB Number
  • Purpose
  • Project Notes
Longitudinal Studies

Defined by:

• Arms
  • Events
  • Forms
• Creates Smaller Lists of Forms
• Overview in Big Studies
• Ideal for Clinical Trials
Surveys

- Enable in Main Project Settings
- Set Every Form as a Separate Survey
- Notifications
- Automated Invitations
- Survey Queue
- Survey Reminders
- Survey Confirmation
Design your Forms

**ONLINE DESIGNER**
- Point & Click
- Best suited < 30 variables

**DATA DICTIONARY**
- Spreadsheet
- Best suited > 30 variables

**REDCAP SHARED LIBRARY/ ZIP FORMS**
- Import directly into your project
- PI responsible for “terms of service”
Data Dictionary

• Excel: Comma Separated Value (CSV)
• Meta-Data
• Defines Entire Project
• Double Check on Import
• Back-up Your Project Beforehand
• Use Syntax Found in FAQ
Creating Fields

- Field Type
- Field Label
- Variable Name
- Validation?
  - Classifications
- Required?
- Identifier?
- Custom Alignment
- Field Note
- Options
- Field Annotation/Action Tags

Normal or Matrix field?

Example Text Box Type
Field Types

- Text Box
- Radio Buttons
- Drop-down List
- Checkboxes
- Notes Box
- File Upload
- Slider
- Yes – No
- True – False
- Calculated Fields
- Signature
- Descriptive Text (Video, Audio, Pictures)
- Section Headers
- Dynamic SQL

Example Case Report Form
Matrix Fields

• Radio Buttons/Checkboxes
• Quick and Easy
• Groups Questions
• Ranking Matrix

The following qualities are important in my supervisor:

<table>
<thead>
<tr>
<th></th>
<th>Extremely Important</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Slightly Important</th>
<th>Not Important at All</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) BELIEVABLE</td>
<td></td>
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<td></td>
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<tr>
<td>2) APPROACHABLE</td>
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<tr>
<td>3) HONEST</td>
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<td>4) SUCCESSFUL</td>
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<td></td>
<td></td>
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<tr>
<td>5) QUALIFIED</td>
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</tr>
</tbody>
</table>

Normal or Matrix field?
Branching Logic

- Hiding/Showing Fields
- Logic Based
- Project Limited
- Drag & Drop (Simple)
- Syntax Based (Complex)
- Functions (if, sum, etc)
- True or False?
Modules & Customization

Modules

• Auto-numbering
• Scheduling
• Randomization
• Specify email fields for invites

Project Customization

• Order the records by another field
• Set a custom record label
• Data history widget
• Display the Today/Now button
• Require a ‘reason’ for editing existing records
• Data Resolution Workflow/Field Comments
• Data Entry Triggers (Advanced Feature)
User Rights

- Powerful Tool
- Fine-Tune Rights
  - Form Level
  - Application Level
  - Expiration Dates
- User Roles

Data Access Groups
- Independent
- Useful for:
  - Double Data Entry
  - Multiple Sites

Example of User Rights options
Pre-Production Checklist

Project Setup Tab

• Design Data Collection Instruments

• Test Instruments

• Assign User Rights (& DAG’s)

• Move project to production status

Example of a Project Checklist
Moving a Project into Production

- Development vs Production
- Data Safe-Guard
- Variable Changes
- Events
- NO Nuclear Option
- Project Revision History

Practical Notes:

- Test Content can be deleted (controlled by checkbox)
- Have IRB approval.
- Be ready to screen, enroll or survey participants.
Make Changes in Production

Change Steps

• Enter Draft Mode (Online Designer)
• Make Changes
• Review Changes
• Submit Change for Approval
• YOU have final say!

Potential for Data Loss

• Change variable/form name or delete variable/form
• Change Choices in dropdowns, checkboxes, or radio buttons
• Change Field Type from text to radio buttons or dropdowns
• Remove an event or a form from an event
• Modify project settings

All changes reviewed by REDCap Admins

Example of Draft mode in production status
Different Data Entry Modes

- **User:**
  - Classical vs Longitudinal
  - Manage Survey Participants
  - Based on User Rights
- **Participant**
  - Public Links
  - Invitations (Email or Phone)
  - Survey Chains
- **Hybrids**
  - Surveys vs Forms
- **Hard vs Soft Requirement**
Data Entry Dashboard

- Table of Records
  - (100 records per screen)
- Different Statuses
  - Grey (Untouched)
  - Red (Incomplete)
  - Yellow (Unverified)
  - Green (Complete)
  - Green Checkmark (Survey Completed)
  - Orange Checkmark (Survey Partially Completed)

- Quick Navigation
- Very Wide in Longitudinal Mode
Data Exports

• Export Your Data:
  • CSV
  • SPSS
  • R
  • SAS
  • STATA
  • PDF

• Create Custom Reports
  • User Restrictions
  • Variable Picker
  • Filter Builder

• De-Identification Options
Advanced Classes

• Data Dictionary
  • Importing & Exporting
  • Branching Logic
• Best Practices
  • User Management
  • Randomization
  • Advanced Features
• Longitudinal Studies & Surveys
  • Data Quality

Schedule and Locations will be on the ITHS website & will be announced in email to users.

REDCap Class Schedule
Learn How To Use REDCap

REDCap Classes
• REDCap Class Schedule

ONLINE VIDEOS & HELP
• REDCap Training Resources
• Help & FAQ
• ITHS Specific FAQ
• Tip of the Month Archive

ONGOING HELP
EMAIL: iths_redcap@uw.edu
(REDCap community email list)
EMAIL: iths_redcap_admin@uw.edu
(REDCap administrators; last resort for help)