

Optimizing Study Management Using



A secure web application for building and managing surveys and databases

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October 11, 2013

Presentation Outline

REDCap Overview and OUHSC History

Scenarios Favoring REDCap

Accessing REDCap at OUHSC

Security Practices and Policies

Citing REDCap in grants/IRB/manuscripts

Advanced Uses of REDCap: Time Permitting

Reports for Project Management

Reports for Outcomes

Replicable Research & Literate Programming

REDCap overview (<http://project-redcap.org/>)

- Secure web application for building and managing surveys and databases.
 - Developed by informatics core at Vanderbilt with support from NCRR and NIH.
 - Designed for academic biomedical researchers.
- Provides:
 - A centralized, back-end storage component.
 - Tools to create an interactive front-end html GUI.
 - An API to import & export data.
 - Example templates.
 - Instructional videos for training.
 - User-group network of institutional researchers.
 - Also included: built-in project calendar, scheduling module, ad hoc reporting tools, and advanced features, such as branching logic, file uploading, and calculated fields.
- It can reduce
 - Developing a lot of new software applications.
 - Anxieties related to security of home-grown software.

A Brief History of REDCap

REDCap Project History

- 2004 Needs Assessment
 - Researchers needed help managing data for small/medium sized non-trial research projects (pilot, R01, PPG)
- Hypothesis
 - Researchers will do the right thing (secure, audit trails, etc) if provided an easy way to get needed tools
- Problem
 - Many projects, few resources

REDCap Project History

- Solution:
 - Metadata-driven application
(no per-project programming)
- 2004 - First REDCap project operational at Vanderbilt
- 2006 - REDCap Consortium
 - Launched REDCap Consortium to share with other universities and foster collaboration for future development

REDCap Project History



 [Consortium Wiki](#) (Login Required)

Upcoming Events:

- Weekly All-Hands Consortium Meeting - Every Friday, 1-2PM Central

[Introduction](#)[Software](#)[Consortium Partners](#)[Become a Partner](#)[Video Resources](#)[Citing REDCap](#)[Library](#)

The REDCap Consortium is composed of **812 active institutional partners** from CTSA, GCRC, RCMI and other institutions in **64 countries**. The consortium supports a secure web application (REDCap) designed exclusively to support data capture for research studies.

The REDCap application allows users to build and manage online surveys and databases quickly and securely, and is currently in production use or development build-status for more than **85,000 projects** with over **111,000 users** spanning numerous research focus areas across the consortium. To find out if your institution is already running REDCap, you will find contact information on the [Consortium Partners](#) page. Learn more about REDCap by watching a [brief summary video \(4 min\)](#).

Map of REDCap Consortium Partners



Recent publications using REDCap:

Preoperative B-type natriuretic peptide levels are associated with outcome after total cavopulmonary connection (Fontan). *J Thorac Cardiovasc Surg.* 2013 Sep 27; pii: S0022-5223(13)00922-7. doi: 10.1016/j.jtcvs.2013.08.009. [Epub ahead of print].

Impact of Guideline Implementation on Transfusion Practices in a Surgical Intensive Care Unit. *J Cardiothorac Vasc Anesth.* 2013 Sep 21; pii: S1053-0770(13)00315-7. doi: 10.1053/j.jcva.2013.05.040. [Epub ahead of print].

The Usefulness of a Yearly Head and Neck Surgery Trip to Rural Kenya. *Otolaryngol Head Neck Surg.* 2013 Sep 17. [Epub ahead of print].

A History of Smoking is Associated with Improved Survival in Patients Treated with Mild Therapeutic Hypothermia Following Cardiac Arrest. *Resuscitation.* 2013 Sep 12; pii: S1526-5900(13)01128-0. doi: 10.1016/j.resuscitation.2013.07.008. [Epub ahead of print].

Vancomycin-Resistant Enterococci (VRE) Infection: Not Just for the Transplanted. *Leuk Lymphoma.* 2013 Sep 11. [Epub ahead of print].

Mechanical Pain Sensitivity and the Severity of Chronic Neck Pain and Disability Are Not Modulated Across the Menstrual Cycle. *J Pain.* 2013 Sep 7; pii: S1526-5900(13)01128-0. doi: 10.1016/j.jpain.2013.07.008. [Epub ahead of print].

[View all 753 articles](#)

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A Brief Perspective: *Why REDCap?*

Why REDCap?

- Designed for the Researcher



Why REDCap?

- Easy way for researchers to do the right thing
(e.g. compliance, security)



Why REDCap?

- **But Powerful!**

e.g.

- Data De-Identification Services
- Participant Scheduling Support
- Data Transfer Services & API
- Graphical Data Review
- Double-Data Entry
- Full audit trails and logging
- Shared Library (efficiency, standardization)
- Multi-site Collection (sequestered access)
- Data quality reports



... Constantly Evolving ...



Why REDCap?

- REDCap is easily configured to support a variety of single- and multi-site study needs.



Setup can be accomplished in hours if data collection plan is in order.

Why REDCap?

- Improves science

Workflow for creating projects includes all research team members and helps solidify the data management plan before enrolling the first patient.



Why REDCap?

- Diversity of Supported Research

Proven Track Record in:



Basic Research



Clinical Research



Global Health



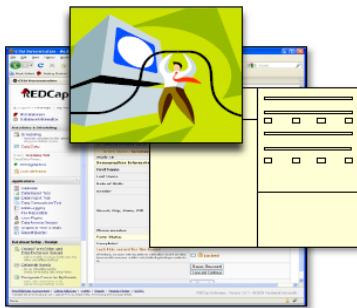
Community Research



Research
Operations and
Quality

Why REDCap?

- Promotes Standards and Standardization ...



Interface with External Clinical Systems

A screenshot of the REDCap Project Transfer Definition and Mapping interface. It shows a 'Project Transfer Definition' section with fields for 'REDCap Project' (set to 'longitudinal_no_scheduling'), 'DTS Transfer' (set to 'Lipids Transfer'), 'Target Identifier' (set to 'mm'), and 'Project Transfer Status' (set to 'Active'). Below this is a 'Project Transfer Mapping' section with tabs for 'Info Field', 'Screening', 'Baseline', and 'Week 6'. Under 'Redcap Temporal Variable' (set to 'visit_date'), there are three rows for 'LDL', 'Triglyceride', and 'HDL', each with a 'Measurement Notes' field and a dropdown menu set to 'Indl'.

Data Transfer Service: Variable Mapping

A screenshot of the REDCap Data Adjudication interface. It displays a table titled 'Data Adjudication Table' with columns for 'Form', 'Event', 'REDCap Variable', 'Source Date', 'REDCap Value', 'Source Value', and 'Info Status'. The table contains several rows of data, with some cells colored green, yellow, or red to indicate different status levels. At the bottom of the table, there are buttons for 'Print', 'Export', and 'Excel'.

Data Transfer Service: Adjudication

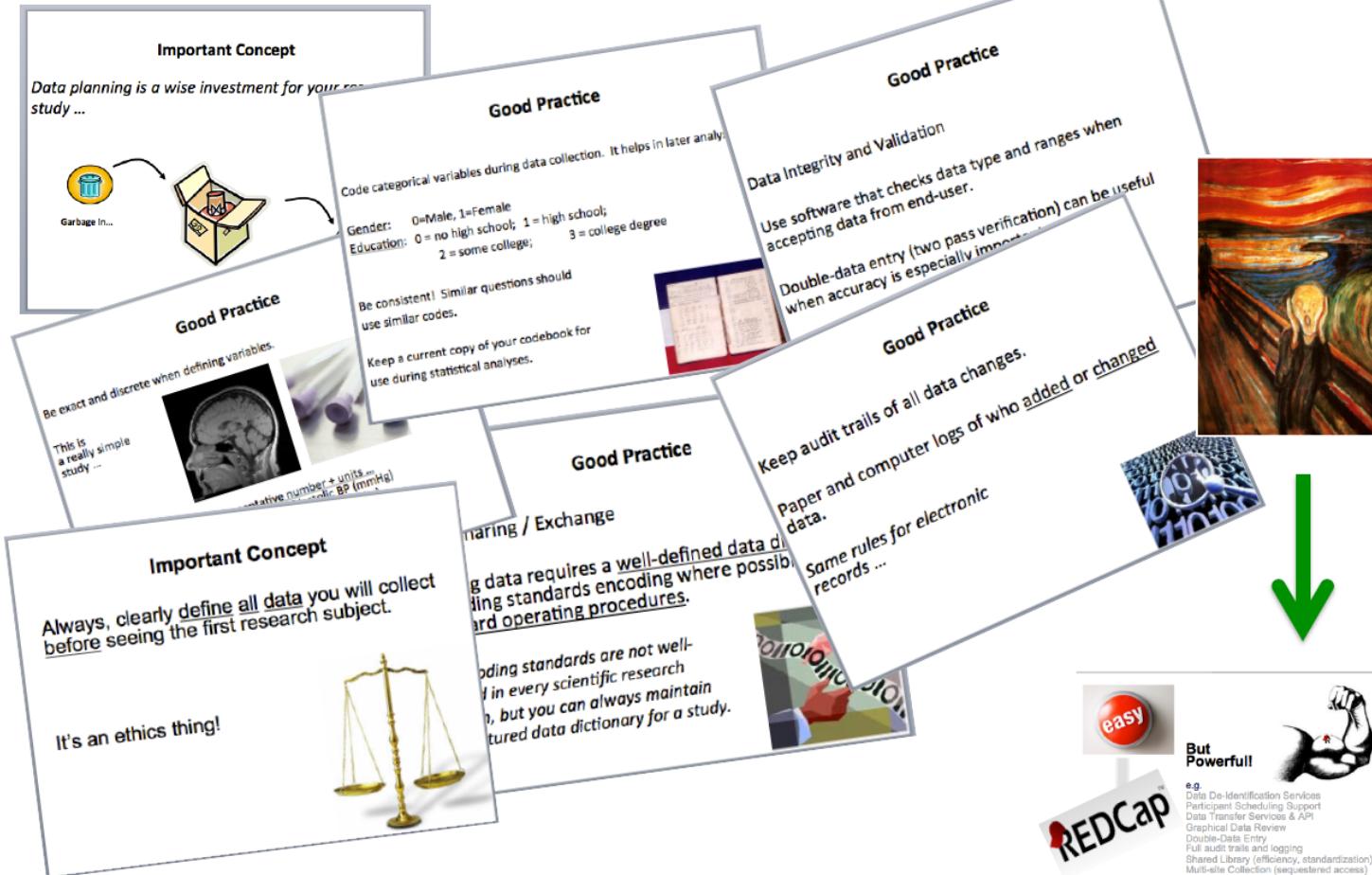
... to support de-centralized data collection (multi-center studies)

A screenshot of the REDCap Shared Library interface. At the top, there's a navigation bar with links for 'Introduction', 'Software', 'Consortium Partners', 'Become a Partner', 'Video Resources', 'Citing REDCap', and 'Library'. Below this is a 'Basic Search' section with a 'Keywords:' input field and a 'Search' button. To the right of the search section is a sidebar with links for 'Search', 'Basic Search', 'Advanced Search', 'Library Metrics', 'My Activity', 'Institution Activity', 'Consortium Activity', 'REDLOC', 'Approval List', 'Approval History', 'Change Password', and 'Logout'. At the very top of the page, it says 'Logged in as Paul Harris (Vanderbilt University)'.



Why REDCap?

Junior Faculty / Trainees - Great for teaching research data management



Why REDCap?

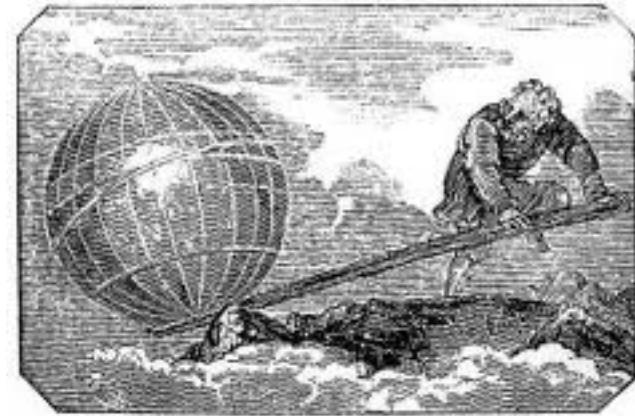
- **Flexible:** REDCap doesn't know or care if a record represents a patient, mouse, cage ...
(solid tools + smart people... amazing things happen)
- **Great for Multi-Center Studies**
 - Centralized: Use Data Access Groups to Sequester
 - De-Centralized:
 Metadata = Metadata (ad hoc standards)
- **Writing a grant or going to IRB?**
 Boilerplate language & create a REDCap shell project for screenshot

Why REDCap?

Cost Effective

Setup Infrastructure is
minimal

Most sites using
REDCap leverage 1-2 personnel to support
entire research enterprise



A Brief History of OUHSC REDCap

REDCap Software Features

Availability - Software available at no cost for REDCap partners.

Secure and web-based - Input data or build online survey anywhere in the world over secure web connection with authentication and data logging.

Multi-site access - REDCap databases/surveys can be used by researchers from multiple sites and institutions.

OUHSC Becomes REDCap Partner

- MIECHV grant (DBP) requests REDCap (Nov. 2011)
 - IT installs “DBP” REDCap instance, ver.4 (Jan. 2012)
- New DBP projects move to REDCap (2012-2013)
- Campus REDCap interest rises (2012-2013)
 - IT installs “Enterprise” REDCap instance, ver.5 (Mar. 2013)
 - IT installs “Development box” instance, ver.5 (Apr. 2013)
- Governance body requested (Mar. 2013)
 - Governance body formed (Jun. 2013)
- Funding for REDCap admin requested (Apr. 2013)
 - College of Medicine agrees to fund Dev box and Enterprise instance (Jun. 2013)
- **REDCap freely available to all**



REDCap Project Types

<https://redcap1.mayo.edu/redcap/index.php?action=training>

1. Traditional Database

classic model

2. Parent-Child Linking

linking together multiple databases

3. Operations

use case for non-study/non-trial

4. Longitudinal Database

multi-use forms with time points

REDCap Software Highlights: At a Glance

Built-in project Calendar

The screenshot shows a monthly calendar for April 2013. Tasks are represented by colored boxes: yellow for 'Initial Interview', light blue for 'Two-day Follow-up', light green for 'Four-day Follow-up', and light orange for 'Six-day Follow-up'. Some tasks have sub-tasks indicated by smaller boxes within them. The calendar includes a header with 'Day', 'Week', 'Month', and 'Agenda' tabs, and a footer with navigation arrows and a 'Print Calendar' link.

Built-in Export Formats

This screenshot shows the 'Data Export Tool' interface. It lists five software packages with their respective export instructions:

- Microsoft Excel:** May download the survey results in CSV (comma-separated) format, which can be opened in Excel. You have the choice of downloading the data either with the full headers and answer labels or just with the answer codes (i.e., raw data).
NOTE: If you are using a version of Microsoft Excel prior to Excel 2007, due to limitations the data will only be read to 255 columns when opened.
- SPSS Statistical Analysis Software:** After selecting all files on the right to a common location, first double-click on the 'Pathway Manager (.bat)' file, which will run quickly and invisibly. (If you are not using a Windows operating system, such as Mac or Linux, please see the Additional Instructions.) Now double-click on the *.sav file, which will open SPSS. When the file is loaded and displayed, choose Run->All from the top menu options. This will run the script that will automatically read in all data and manipulate data fields with labels, option values, etc.
Additional instructions
- SAS Statistical Software:** Instructions: Download and save all files on the right to a common location. First, double-click on the 'Pathway Manager (.bat)' file, which will run quickly and invisibly. (If you are not using a Windows operating system, such as Mac or Linux, please see the Additional Instructions.) Now double-click on the *.sas file, which will open SAS. When the file is loaded and displayed, choose Run->All from the top menu options. This action will launch the script that will automatically read in all data and manipulate data fields with labels, option values, etc.
Additional instructions
- R Statistical Software:** Instructions: Use command read.csv('filename') to read in data file.
- STATA Analysis and Statistical Software:** Instructions: Download both files to common location and double-click on *.dta file. This will run the script that will automatically read in all data and manipulate data fields with labels, option values, etc.

Scheduling Module (Define Events)

The screenshot shows the 'Scheduling Module' interface for 'Arm 1'. It displays a table with columns for Event #, Days Offset, Offset Range Min / Max, Event Name, and Unique event name (auto-generated). There are four rows corresponding to different follow-up events. A button for 'Add new event' is at the bottom left, and a note about converting from other units is at the bottom right.

	Event #	Days Offset	Offset Range Min / Max	Event Name	Unique event name (auto-generated)
	1	0	-0/+0	Initial Interview	initial_interview_arm_1
	2	2	-0/+0	Two-day Follow-up	twoday_followup_arm_1
	3	4	-0/+0	Four-day Follow-up	fourday_followup_arm_1
	4	6	-0/+0	Six-day Follow-up	sixday_followup_arm_1

(Assign Instruments)

[Begin Editing](#) [Save](#)

Data Collection Instrument	Events			
	Initial Interview (1)	Two-day Follow-up (2)	Four-day Follow-up (3)	Six-day Follow-up (4)
Survey				

(Schedule Participant)

Add new Participant ID: OR

Start Date:

Projected Schedule for "2" (NOTE: The dates below have NOT yet been scheduled)

The projected schedule below was automatically generated for Participant ID "2" based on your pre-defined Events. You may change the value of any dates generated below simply by clicking inside the date box and selecting a new date. Any dates generated below that fall on weekends will be listed in red. Click the Create Schedule button to finalize this schedule, which will then be added to the Calendar.

Time (optional)	Date / Day of Week	Event Name
	04/18/2013 Thursday	Initial Interview
	04/20/2013 Saturday	Two-day Follow-up
	04/22/2013 Monday	Four-day Follow-up
	04/24/2013 Wednesday	Six-day Follow-up

[Create Schedule](#) [Cancel](#)

NOTE: Clicking the Create Schedule button will additionally add "2" as a new Participant ID.

REDCap Help & FAQ

[Home](#)[My Projects](#)[Training Resources](#)[Help & FAQ](#)[Send-It](#)

REDCap FAQs

- [What's new in REDCap v4.0](#)
- [General](#)
- [Project Setup / Design](#)
- [Online Designer / Data Dictionary](#)
- [Data Entry](#)
- [Survey](#)
- [Applications](#)
- [Post Production Changes](#)

What's New in REDCap 4.0

Q: What types of projects can I create?

Now that REDCap and REDCap Survey are merged, you can create surveys, database projects (data entry forms) and projects with a mix of survey and data entry forms, in which new records can be initiated with a survey response and additional data can be added to the response on follow-up data entry forms.

Q: Has the merging of REDCap and REDCap Survey caused any changes to the data dictionary format?

Yes. The data dictionary now includes metadata required for both data collection forms and surveys.

New Field Types:

DESCRIPTIVE	- text displayed with no data entry and optional image and file attachment
SLIDER	- visual analogue scale
YESNO	- radio buttons with yes and no options; coded as 1, Yes 0, No
TRUEFALSE	- radio buttons with true and false options; coded as 1, True 0, False

**On-line User Manual
is always available &
up to date**

REDCap Training Resources

Just Getting Started?

If you are new to REDCap, this first set of videos below can help you get started to learn the basics of REDCap and provide a general overview for some of REDCap's preliminary concepts and features.

Title	Description	Watch Video
REDCap Overview	This video provides an overview of basic functions and features within a REDCap project. It will serve as a starting point for learning about the basic concepts of REDCap, what REDCap projects are, how to create them, and how to use them.	 50 minutes
Building Your Data Collection Forms	The Online Designer Use this online method for making modifications to project fields and data collection instruments very easily using only your web browser. Changes can be made quickly and viewed immediately as you build your data collection forms in real time.	 5 minutes
The Scheduling Module	If you elect to utilize the Scheduling module, generate schedules based upon scheduled events get added to conjunction with proper data collection forms.	

Types of REDCap Projects

There are several flavors of REDCap projects to choose from as you begin thinking about building your own project. Each type of project has its advantages and disadvantages, and may fit the specific needs better of one type of project over another. Please review the different types below, and you may even view a live example of each project type in action or view a short video about it.

Project Type	Description	View Example	Watch Video
Traditional Project (classic model)	The traditional project is typically used for the primary purpose of simple data collection and data export. Multiple data collection instruments are often defined. While this model is not specifically aimed for capturing data in a longitudinal fashion, it can sometimes be utilized this way (with some limitations).		 5 minutes
Longitudinal Project (multi-use forms, abstract time-points)	A project with the Longitudinal module enabled allows one to utilize data collection instruments multiple times for any given project record/patient so that the same data may be captured over and over again longitudinally. This model allows one to define time-points/events /visits that will be used to capture data over time. A grid to monitor all data collection instruments is provided for all data collection instruments.		
Longitudinal Project + Scheduling (multi-use forms, defined time points)	Utilizing the Scheduling module allows one to utilize the Longitudinal module to capture data at specific time-points/visits. Data capture is done at specific time-points/visits that have been modified after the project has been created.		
Scheduling Only (participant tracking, minimal data collection)	The Scheduling module is used for participant tracking purposes, but does not utilize the Longitudinal module to capture data.		

Special Features within REDCap Projects

Every REDCap project is capable of utilizing special features, some of which can be enabled by normal users and some by REDCap administrators. Below is a listing of these features.

Feature	Description	Watch Video
Data Access Groups for multi-site projects	The Data Access Groups feature can be enabled within any REDCap project, and allows users to be designated into groups; after which any user in a Data Access Group may only see records created by another person in that group. Thus, groups may enter data but not be allowed to see other group's data/records. This is especially useful for multi-site projects that may require each site to enter data but not have access to what the other sites are entering.	 3 minutes
Double Data Entry	The Double Data Entry module may be enabled for any REDCap project, and allows two specific project users to be designated as double data entry persons. This permits each of the two users to create and enter data for the same records independently of each other, and afterward, a 'reviewer' user will have the option to compare and merge any pair of records entered by the double data entry persons.	 Not available
Locking Records	It may be necessary in some projects for a project record to be locked so that certain users may not alter it, while still being able to view it. The Lock Records setting can be enabled for any project user on the User Rights page, which allows them to lock either 1) one form for any given record, or 2) all forms for a given record. After being locked, only users with locking/unlocking privileges may unlock it to allow it to be modified again.	 3 minutes

Training

Videos & examples also have links on screens where you need them

Only projects YOU
have right to see

My Projects

Home My Projects Training Resources Help & FAQ Send-It

Listed below are the REDCap projects to which you currently have access. Click the project title to open the project. Newly created projects begin in **Development status** as you begin to build and design them. When you are ready to begin entering real data in the project, you may move it to **Production status** to designate the project as officially collecting data. When you are finished collecting data or if you wish to stop collection, the project may be set to **Inactive status** , although it may be brought back to Production status at any time when you are ready to begin collecting data again. Also listed is the project type, which designates if the project contains **surveys** , **data entry forms** , or **both** .

My Projects	Records	Fields	Type	Status
9908 REDCap Basic Double Data Entry	26	95		
9909 REDCap Basic	47	96		
9910 REDCap Longitudinal & Scheduling	11	76		
9919 Pre-Screening Survey and Database Demo	0	17		
9920 Survey Demo Basic	2	34		
9925 test demo	7	14		
9929 Single Survey Demo	1	3		
CCHMC REDCap survey Test 2 Production	3	17		
REDCap Survey Test in development	1	21		

Project status: Development

Default screen for project in development



Complete!

Modify project settings or make customizations

You have created your project and are ready to begin building on it. If you would like to modify the general project settings that you set when creating the project or if you wish to make some customizations to the project (e.g. enable auto-numbering for new records), use the buttons below.

Go to [Modify project settings](#) or [Make customizations](#)



In progress

Design your data collection instruments

Add or edit fields on your data collection instruments. This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method), in which you may use either method or both. Quick link: [Download the current Data Dictionary](#)

Go to [Online Designer](#) or [Upload Data Dictionary](#) or [Shared Library](#)

Have you checked the [Check For Identifiers](#) page to ensure all identifier fields have been tagged?



Optional

I'm done!

User Rights and Permissions

You may grant other users access to this project or edit the user privileges of current users on this project by navigating to the User Rights page. Additionally, if you wish to limit user access to certain records/responses for this project, you may want to use Data Access Groups, in which only users within a given Data Access Group can access records created by users within that group.

Go to [User Rights](#) or [Data Access Groups](#)



Not started

Move your project to production status

Move the project to production status so that real data may be collected. Once in production, you will not be able to edit the project fields in real time anymore. However, you can make edits in Draft Mode, which will then need to be approved by a REDCap administrator before taking effect.

Go to [Move project to production](#)

Project
Setup
leads you
through
project
creation

Project Setup

Library of published, validated instruments, REDCap coded, no license fee

This page allows you to build and customize your data collection instruments one field at a time. Existing ones. New fields may be added by clicking the Add Field Here buttons. You can begin on the Edit icon. If you decide that you do not want to keep a field, you can simply delete it. Reorder the fields, simply drag and drop a field to a different position within the form below. All field changes will take effect immediately in real time.

Current instrument: Demographics

Add Field Here

Variable: study_id
Study ID

Variable: date_enrolled
Date subject signed consent

YYYY-MM-DD

Today

Add Field Here

Variable: time_enrolled
Time subject signed consent

Now

Add Field Here

File Home Insert Page Layout Formulas Data Review View Acrobat Microsoft Excel E8 Street Address 9909REDCapBasic_DataDictionary_2011-04-29[1].csv A B C D E F Choices, Calculation 1 Variable / Field Name Form Name Section Header Field Type Field Label 2 study_id demographics text Study ID 3 date_enrolled demographics text Date subject signed consent 4 time_enrolled demographics text Time subject signed consent 5 first_name demographics text First Name 6 mid_name demographics text Middle Name: 7 last_name demographics text Last Name 8 address demographics Contact Information text Street Address 9 address2_f14 demographics text Street Address 2 10 state demographics text State 11 zipcode demographics text Zipcode 12 multichoice demographics checkbox How do you want us to contact you ?
 choose all that apply 0, none - do not contact 13 telephone_1 demographics text Phone number 14 telephone_2 demographics text Second phone number 15 email demographics text E-mail 16 sex demographics Demographics dropdown Gender 17 given_birth demographics dropdown Has the subject ever given birth? 0, Female | 1, Male 0, No | 1, Yes

Data Dictionary: design forms off line in Excel grid, upload and view in real time

Online Designer:
Design forms in real time, on screen, while in development status

Project Home

Default for project in production

Links to features used frequently

 Project Home  Project Setup  Other Functionality

Quick Tasks

[Export data](#)

Export your data from REDCap to open or view in Excel or various stats packages.

[Create a report](#)

Build custom reports for quick views of your data, and export reports to Excel/CSV.

[User Rights](#)

Grant new users access to this project or modify user privileges for current users.

[Online Designer and Data Dictionary Upload](#)

Create new fields/questions on your data collection instruments or modify existing ones using the Online Designer or by uploading a Data Dictionary. Quick link: [Download the current Data Dictionary](#)

[Copy this project](#)

Create an exact duplicate of this project, which copies over all data collection instruments, any surveys that exist, as well as the option to copy all users and reports to the new project.

[Data Access Groups](#)

Create groups of users to limit user access to certain records/responses, in which only users within a given Data Access Group can access records created by users within that group.

Project Dashboard

The tables below provide general dashboard information, such as a list of all users with access to this project, general project statistics, and upcoming calendar events (if any).

Current Users

User	Expires
bak6hh (Cyndie Baker)	never
kha123r (Mishall Khalid)	never
khaf7m (Mishall Khalid)	never
kuh9jd (Michael Kuhlmann)	never
masxz6	NEVER

Project Statistics

Records in project	17
Most recent activity	11:56am 04/29/2011
Space usage for docs	3.03 MB
Project status	 Development

Upcoming Calendar Events (next 7 days)

Time	Date	Description
		No upcoming events

User Rights

Project Setup

User Rights

Data Access Groups

Multi-center data can be limited to members of each group

This page may be used for granting new users access to the project and for editing the rights of current project users. You may edit the rights of a current user by selecting them from the dropdown list below or add a new user by entering their user name in the text box and hitting the Tab key.

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

Must be User who can login to REDCap – has System account

Comprehensive User Rights View

User name	Expiration	Calendar	Data Export Tool	Data Import Tool	Data Comparison Tool	Logging	File Repository	User Rights	Data Access Groups	Graphical Data View & Stats	Reports & Report Builder	Record Locking Customization	Lock/Unlock Records	Project Design and Setup	Create Records
bak6hh	never	✓	De-Identified	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓
KHA123R	never	✓	Full Data Set	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓

Project PI controls access to data: grants rights form by form, tool by tool

Data Export

Data Export Tool

Use the page below to select fields you wish to extract from the project. Each row contains language from the original data collection instrument, plus actual project field name.

You may use the buttons at the top of the form to select or deselect all fields for a given data collection instrument, duplicate your last data retrieval, or export. Once all fields are selected, go to the bottom of this page and click the Submit button. After submitting this page, wait for a page to appear on your computer. The files are comma-delimited and may be read into SPSS, Excel, R, SAS or other analysis packages. If any fields in the project have a those particular fields will be displayed below in red.

Use the buttons below to select fields by form - or click individual fields below. Click the SUBMIT button at bottom of page to finalize data export procedure.

Select All Deselect All Every field in the project

Duplicate Last Export Repeat field selection from your last export

Select All Deselect All Form: Demographics
 Select All Deselect All Form: Baseline Data
 Select All Deselect All Form: Month 1 Data
 Select All Deselect All Form: Month 2 Data
 Select All Deselect All Form: Completion Data

Form: Demographics

Study ID (study_id)

Date subject signed consent (date_enrolled)

Time subject signed consent (time_enrolled)

De-Identification Options (optional)

The options below allow you to limit the amount of sensitive information that you are exporting ou 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)
[What is date shifting?](#)

[Deselect all options](#)

Submit

Export controlled to field level

Options for de-identified data sets

Includes syntax files for 4 stats packages

Download Syntax & Data	
	Microsoft Excel You may download the survey results in CSV (comma-separated) format, which can be opened in Excel. You have the choice of downloading the data either with the full headers and answer labels or just with the answer codes (i.e. raw data). <i>NOTE: If you are using a version of Microsoft Excel prior to Excel 2007, due to limitations the data will only be read to 255 columns when opened.</i>
	SPSS Statistical Analysis Software Instructions: Download and save all 3 files on the right to a common location. First, double-click on the Pathway Mapper (.bat) file, which will run quickly and invisibly. (If you are not using a Windows operating system, such as Mac or Linux, please see the Additional Instructions.) Now double-click on the *.sps file, which will open SPSS. When the file is loaded and displayed, choose Run->All from the top menu options. This action will launch the script that will automatically read in all data and manipulate data fields with labels, option values, etc. Additional instructions
	SAS Statistical Software Instructions: Download both files to common location and double-click on *.sas file. When the file is loaded and displayed, choose from the menu options: Run-->Submit. This action will launch the script that will automatically read in all data and manipulate data fields with labels, option values, etc. Before running the syntax file, be sure to change the SAS current working folder to the folder where both files were saved.
	R Statistical Software Instructions: Use command read.csv('filename') to read in data file.
	STATA Analysis and Statistical Software Instructions: Download both files to common location and double-click on *.do file. This action will launch the script that will automatically read in all data and manipulate data fields with labels, option values, etc.

Log (Audit Trail) is HIPAA compliant and Part 11 capable

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: All event types (excluding page views) ▾

Filter by user name: All users ▾

Filter by record: All records ▾

Displaying events (by most recent): 1 - 100 ▾

Time / Date	User name	Action	List of Data Changes OR Fields Exported
11:46am 04/29/2011	mcg2xrc	Manage/Design	Make project customizations
11:45am 04/29/2011	mcg2xrc	Updated Record 232	date_visit_1 = '2011-04-29', alb_1 = '5', prealb_1 = '23', creat_1 = '12', hospit_1 = '0', month_1_data_complete = '0'
11:42am 04/29/2011	mcg2xrc	Data Export	study_id, date_enrolled, time_enrolled, first_name, mid_name, last_name, address, address2_f14, state, zipcode, multichoice, telephone_1, telephone_2, email, sex, given_birth, num_children, ethnicity, age, race, dob, weight, height, value, bmi, patient_document, subject_comments, demographics_complete, date_visit_b, date_blood_b, alb_value_b, prealb_b, creat_b, nprc_b, chol_b, transferrin_b, kt_v_b, drywt_b, plasma1_b, plasma2_b, plasma3_h_serum1_h_serum1_h_serum2_h_serum2_h_serum3_h_serum3_h

Ad Hoc Report Builder

Report Builder

You may use this page to build and save custom reports, which will query the project in real time and display the resulting data in a table format. Once created, you may view your reports at any time as well as modify or even delete them. Your saved reports be displayed on the right-hand menu as links, which can be clicked to display the report.

My Reports

- 1.) BMI for subjects [view] [edit] [copy] [delete]
- 2.) Study Progress [view] [edit] [copy] [delete]
- 3.) BMI for Subjects 2 [view] [edit] [copy] [delete]

Create a New Report

You may create a new report by selecting the fields/variables below that you want to include in the report. You may add as many fields to your report as you wish. You will also need to provide a name for your report, which will then be displayed on the project's right-hand menu. When you are finished selecting the fields you wish to include in the report, click the Save Report button at the bottom. The new report will then be added to your list of reports above.

Name of Report:			
	Field Name / Label	Limiters (optional) Operator / Value	
Field 1			
Order the Results (optional)			
First by		Ascending order	
Then by		Ascending order	
<input type="button" value="Save Report"/>			

9909 REDCap Basic

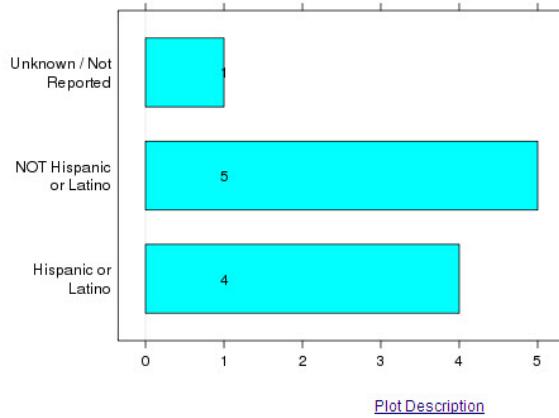
Download report as: Microsoft Excel (CSV) XML
[Print page](#) [Edit this report](#)

Number of results returned: 16
Total number of records queried: 17

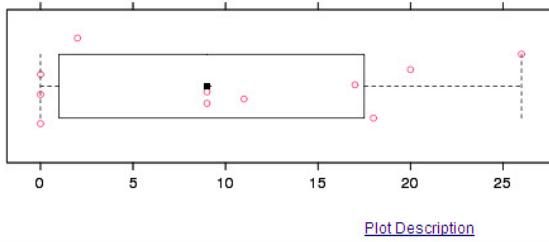
BMI for subjects						
Last Name (last_name)	Date subject signed consent (date_enrolled)	Height (cm) (height)	Weight (kilograms) (weight)	BMI (bmi)	State (state)	Gender (sex)
Bird	2010-01-04	214	125	27.3	OH	Male (1)
Bird	2011-01-04	155	123	51.2	OH	Male (1)
nnn	2011-04-06	130	105	62.1		
Four	2009-10-13	188	97	27.4	ST	Female (0)
Five	2008-08-13	168	66	23.4	state	Female (0)
Three	2008-11-03	178	64	20.2	State	Male (1)
Two	2009-11-01	165	59	21.7	OH	Male (1)
jklij		56	56	178.6	j	Male (1)
Mouse	2010-12-29	125	45.8	0.3	FL	Male (1)
	2011-04-26					
Test						Female (0)
last						
zzz						
Jones	2011-04-19					
xxxx	2010-11-03					Female (0)

Graphical View and Stats

Ethnicity: [Refresh Plot](#) | missing values (41.2%)



Age (years): [Refresh Plot](#) | missing values (35.3%) | [lowest values](#) | [highest values](#)



Real time data

Data Entry Form Baseline Data

Plots Descriptive Stats

Total records: 17

[Download Expanded Statistics Report as PDF](#)

Field	Missing	Min	Q1	Q2 Median	Q3	Max	Mean	StDev
Date of baseline visit	11							
Date blood was drawn	11							
Serum Albumin (g/dL)	13	3.00	3.75	4.00	4.25	5.00	4.00	0.82
Serum Prealbumin (mg/dL)	13	3.00	25.50	33.50	34.40	35.60	26.40	15.64
Creatinine (mg/dL)	12	0.50	2.00	2.00	2.00	10.00	3.30	3.80
Normalized Protein Catabolic Rate (g/kg/d)	13	1.00	1.00	1.20	1.55	2.00	1.35	0.47
Cholesterol (mg/dL)	13	100.00	108.25	160.00	210.00	213.00	158.25	61.10
Transferrin (mg/dL)	13	100.00	108.25	172.00	237.25	250.00	173.50	78.95
Kt/V	14	3.00	3.00	3.00	52.50	102.00	36.00	57.16
Dry weight (kilograms)	14	34.00	39.00	44.00	89.00	134.00	70.67	55.08
Collected Plasma 1?	13							
Collected Plasma 2?	13							
Collected Plasma 3?	13							
Collected Serum 1?	13							
Collected Serum 2?	13							
Collected Serum 3?	13							
Subject Global Assessment (score = 1-7)	14	2.00	2.00	2.00	2.50	3.00	2.33	0.58
Date patient begins supplement	13							
Complete?	7							

Longitudinal: Forms can be used multiple times

9910 REDCap Longitudinal & Scheduling

Data Entry: Event Grid

Special note to display at top of all Data Entry pages in database

The grid below displays the form-by-form progress of data entered into the project for one particular events. You may click on the colored buttons to access that form for that event. If you wish, you may r navigating to the [Define My Events](#) page.

Study ID 2 (enrolled: 2009-06-03), (name: Mouse)

Data Collection Instrument	Events for Arm 1: Scheduled events						
	Baseline (1)	Visit 1 (2)	Visit 2 (3)	Visit 3 (4)	Completion (5)	Followup (6)	2 yr (7)
Demographics	●						
Baseline Data	●				●		●
Month Data	●	●	●	●	●	●	●
Completion Data					●	●	●

Lock all forms across all Events

Unlock all forms across all Events

Generate, edit, export schedule for participant and add to project calendar

Projected Schedule for "333" (NOTE: The dates below have NOT yet been scheduled)

The projected schedule below was automatically generated for Study ID "333" based on your pre-defined may change the value of any dates generated below simply by clicking inside the date box and selecting generated below that fall on weekends will be listed in red. Click the Create Schedule button to finalize th then be added to the Calendar.

Time (optional)	Date / Day of Week	Event Name
X	04/29/2011 Friday	Baseline
X	05/29/2011 Sunday	Visit 1
X	06/28/2011 Tuesday	Visit 2
X	07/28/2011 Thursday	Visit 3
X	10/26/2011 Wednesday	Completion
X	04/28/2012 Saturday	Followup
X	12/19/2012 Wednesday	2 yr

Create Schedule

Cancel

REDCap Front-End Data Entry

- You have 2 options
 - Survey-based data entry
 - “Prettier” interface
 - Public and private audience options
 - Email tracking system
 - Form-based data entry
 - One-stop shop for data entry, scheduling, and data management
 - Familiar interface, resembles most form-based database software (e.g., MS Access)

REDCap Survey

9920 Survey Demo Basic

[Project Setup](#) [Modify Survey Settings](#)

You may edit the survey's basic information by modifying the fields below and clicking the Save Changes button.

Survey Title

Survey Demo Basic

Title to be displayed to participants at the top of the survey page

Question Numbering

Custom numbered

Question numbers will not display correctly if using auto numbering if some questions have branching logic employed. Question auto numbering has been automatically disabled because some of your survey questions use branching logic.

Question Display Format

One section per page

Allow 'Save & Return Later' option for respondents?

Yes

This option provides respondents with which allows them to save their progress survey any time in the future. They will be required to enter in order to continue the survey.

Logo

(Optional: display an image above the survey title)

Add new logo:

(Images wider than 670 pixels will be downsized to)

If using a logo, hide survey title on survey

Survey Instructions

(Displayed at top of survey after title)

Please take my survey

Survey Acknowledgement

Design and data handling same as database

Send link in email or post to webpage

Can invite & manage list of participants

Survey Demo Basic

[Returning?](#)

Please take my survey

Page 1 of 2

First Question Section

Enter today's date

Date?

What is the date of first incident

How long did it take? Please enter as HH:MM:SS
for example, 30 minutes = 00:30:00 or
1 hour 15 minutes 30 seconds = 01:15:30

Example: Survey-based Data Entry

- Login to REDCap (all instances use OUHSC username and password authentication)
- Go to My Projects and select BBMC Demo: Survey
 - Click “Manage Survey Participants”
 - Click “Open Survey” button under Public Survey Link tab
 - Click “Add Participants” link under Participant List tab, then click the  icon under the Link field
 - Notice url
 - Click “Compose Survey Invitations”
 - Check email addresses then click “Send Emails”

Example: Survey-based Data Entry

[REDCap] Your survey link for forwarding to participants - Message (HTML)

File Message Adobe PDF

Ignore Delete Reply Forward All More Team E-mail Done Move Rules OneNote Mark Unread Categorize Follow Up Translate Find Related Select Zoom

Delete Respond Quick Steps Move Actions Tags Editing

From: Bard, David E. (HSC)
To: Bard, David E. (HSC)
Cc:
Subject: [REDCap] Your survey link for forwarding to participants

Sent: Tue 6/11/2013 9:54 AM

[This message was automatically generated by REDCap]

You may open the survey in your web browser by clicking the link below:
[REDCap Demo Survey](#)

If the link above does not work, try copying the link below into your web browser:
<http://miechvprojects.ouhsc.edu/redcap/surveys/?s=nYxhle>

Click on a photo to see social network updates and email messages from this person.



Example Form-based Data Entry

Editing existing Study ID c

Event Name: **Event 1**

Study ID c
(To rename this record, modify the value immediately below.)

Study ID (H) c

TANF
 Self
 WIC
 Medicaid
 Other

Referral Source

Has this individual taken the interview? (H) Yes
(H) No [reset value](#)

Which data collector? (H) Geneva
(H) Nicole
(H) La Chanda
(H) dc4
(H) dc5
(H) dc6 [reset value](#)

Was this participant referred by someone? (H) Yes
(H) No [reset value](#)

If yes, enter the participant id of the person who made the referral. (H) []

Are the consent forms scanned? (H) Yes
(H) No [reset value](#)

This section of the survey is to be filled out by the data collector. The following questions are about the individual who is participating in this survey. Provide as much detail as possible when completing this section of the survey.

Social Security # (H) []

Medicaid # (H) []

First Name (H) []

Last Name (H) []

Nickname (H) []

Alternate name (H) []

Date of Birth (H) [] 31 Today M-D-Y

Gender (H) []

Data Entry Demonstration

1. Go to REDCap
2. Login
3. Select project “testing123”
4. Enter some more test data
5. Create a calendar entry

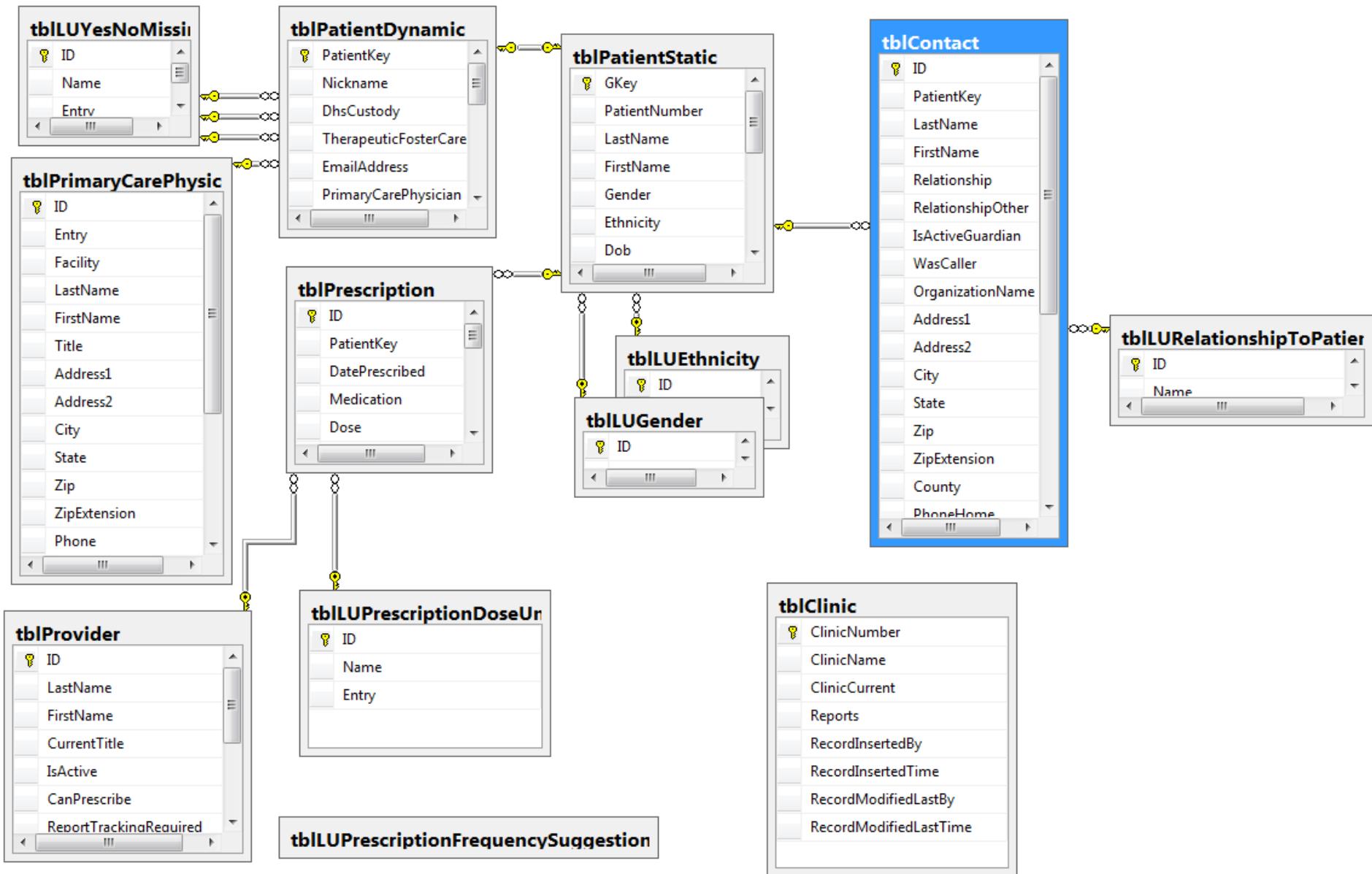
Data Dictionary Demos

- Can create an entire project by uploading pre-existing data dictionary .csv file
 - Click “My Projects” and select ‘BBMC Demo: Data Dictionary Upload’
 - Click “Upload Data Dictionary” button and select dictionary file
- Change existing field using data dictionary
 - Click “Project Setup” button, then “Upload Data Dictionary”
 - Select new dictionary file and “Commit Changes”
- Add new fields using data dictionary
 - Same as change existing fields

Scenarios Favoring REDCap

- Project requires a centralized data store, but multiple locations for data entry.
 - Avoid syncing different locations manually.
- You want a flexible, universal framework to create consistent data systems for multiple clinical projects (research and possibly operations).
 - Reduces your development time & your staff's training time.
 - Reduces writing new text for grant proposals and IRB?
- Project has a relatively flat data structure.
 - Typically accommodates 2 or 3 levels well, but is clumsy beyond that. County, Practice, Provider, Patient, Time, Family.

Scenario NOT favoring REDCap



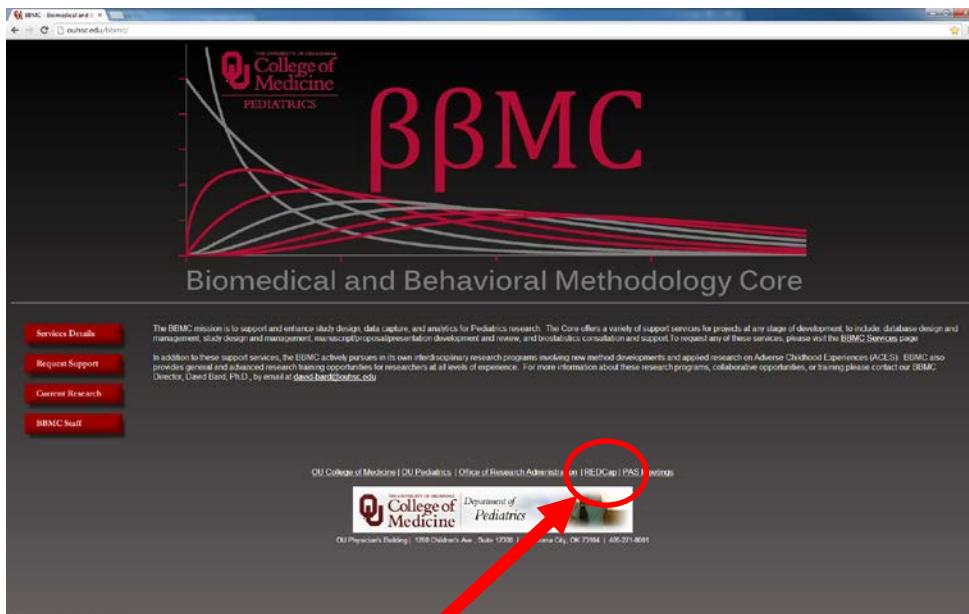
Scenarios Favoring REDCap

- No professional software developer on the project
 - There's nothing magical about REDCap; it accommodates the designs and needs of many clinical projects.
 - To develop a comparable system from scratch, you'd need experience with several technologies.
- There are lots of dimensions and trade-offs when designing clinical research, and REDCap is **close to the sweet spot** for most designs.
- Candidate for replacing Access, Survey Monkey, Excel.

Accessing OUHSC REDCap

- OUHSC REDCap website:

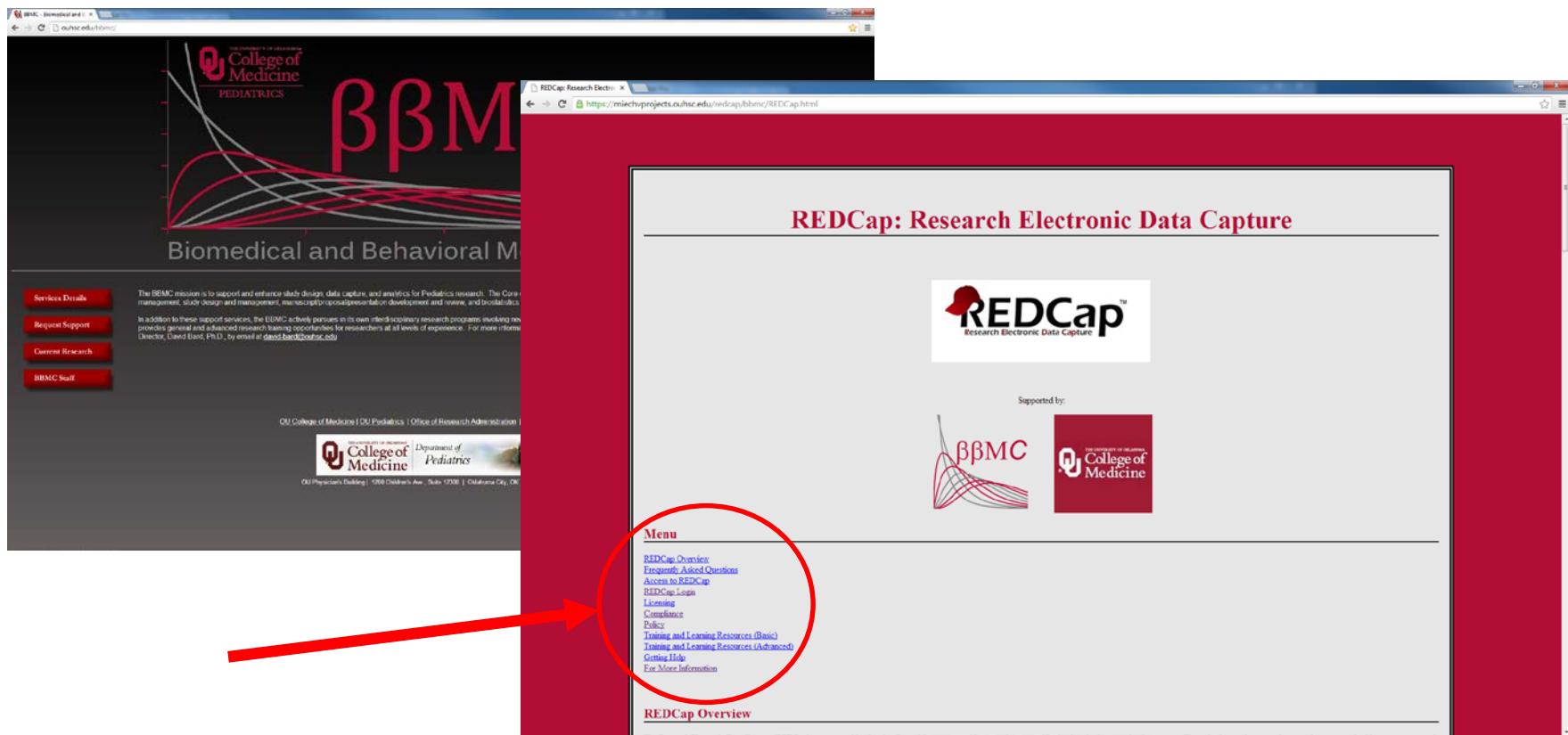
<http://ouhsc.edu/bbmc/> and click on REDCap



Accessing OUHSC REDCap

- OUHSC REDCap website:

<http://ouhsc.edu/bbmc/> and click on REDCap



Intro to Security Concepts

- College of Medicine has devised a REDCap governance body to oversee data security concerns
 - In a nut-shell, looking to see if investigators and staff have proper IRB clearances for storing PHI on REDCap.
 - Will provide general advice on secure best practices
 - To gain access to REDCap, you must have seal of approval of this governance body
 - Please visit REDCap website to initiate request and review security policies and procedures under Compliance links
<https://miechvprojects.ouhsc.edu/redcap/BBMC/redcap.html>
 - After request is initiated, the REDCap Appropriate Use Policy must be reviewed and the REDCap Data Use Agreement must be signed (BBMC will circulate after request is made)
<https://miechvprojects.ouhsc.edu/redcap>

Citing REDCap in Grants/IRB

- How should I describe REDCap in grant or IRB applications?
 - Data for this study will be entered into REDCap, a database software system developed by Vanderbilt University for electronic collection and management of research and clinical trial data. REDCap uses a MySQL database via secure web interface with data checks used during data entry to ensure data quality. REDCap includes a complete suite of features to support HIPAA and FERPA compliance, including a full audit trail, user-based privileges, and integration with the institutional LDAP server. REDCap also enables automated export mechanism to common statistical packages (SPSS, SAS, Stata, R/S-Plus), simultaneous multi-user and multi-site access, full control over individual-level data access permissions, and remote survey and form-based data capture methods. REDCap technical support is provided by the Biomedical and Behavioral Methodology Core of the Department of Pediatrics, College of Medicine. The MySQL database and the web server will both be housed on secure servers operated by the University of Oklahoma Health Sciences Center Information Technology. The servers are in a physically secure data center on campus and are backed up nightly, with backups stored in accordance with the OUHSC IT schedule of daily, weekly, and monthly tape retentions of 1 month, 3 months, and 6 months, respectively. Weekly backup tapes are stored offsite. The OUHSC IT servers provide a stable, secure, well-maintained high-capacity data storage environment, and both REDCap and MySQL are widely-used, powerful, reliable, well-supported systems. Access to the study's data in REDCap will be restricted to the members of the study team by username and password.

Citing REDCap in Manuscripts

- How should I cite REDCap in study manuscripts?
 - Study data were collected and managed using REDCap electronic data capture tools hosted at the University of Oklahoma Health Sciences Center.¹ REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing: 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources.

¹ Paul A. Harris, Robert Taylor, Robert Thielke, Jonathon Payne, Nathaniel Gonzalez, Jose G. Conde, Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support, J Biomed Inform. 2009 Apr; 42(2): 377-81. Link to article:
<http://dx.doi.org/10.1016/j.jbi.2008.08.010>

Feature

REDCap

Qualtrics

Feature	REDCap	Qualtrics
Data Dictionary	Y	?
Data Import	Y	n
Data Export & Summaries	Y	Y
E-mail survey	Only using a survey form, not a data collection form.	Y
Copy other surveys	Y	n
Survey templates	n	Y
Branching logic	Branching logic for individual Qs.	Branching for individual Qs and for groups of Qs.
Audio capabilities	Done via html	?
Expiration capabilities: (eg, 1 week to respond)	n	Y
Spell check	n	Y
API	Y	n
Free to academic institutions	Y	n?
Offline data capture	Currently, there is not an official REDCap offline data capture component. However, CCAN has created an "in-house" off-line version of REDCap that is currently in use.	

Our exposure to Qualtrics is limited.
Please don't interpret this as the authoritative guide.

Project Management with REDCap

While the original intent of the development of REDCap was to provide researchers with a secure web application for research, a REDCap project can be designed to simultaneously aid in project management and productivity monitoring.

Productivity Monitoring

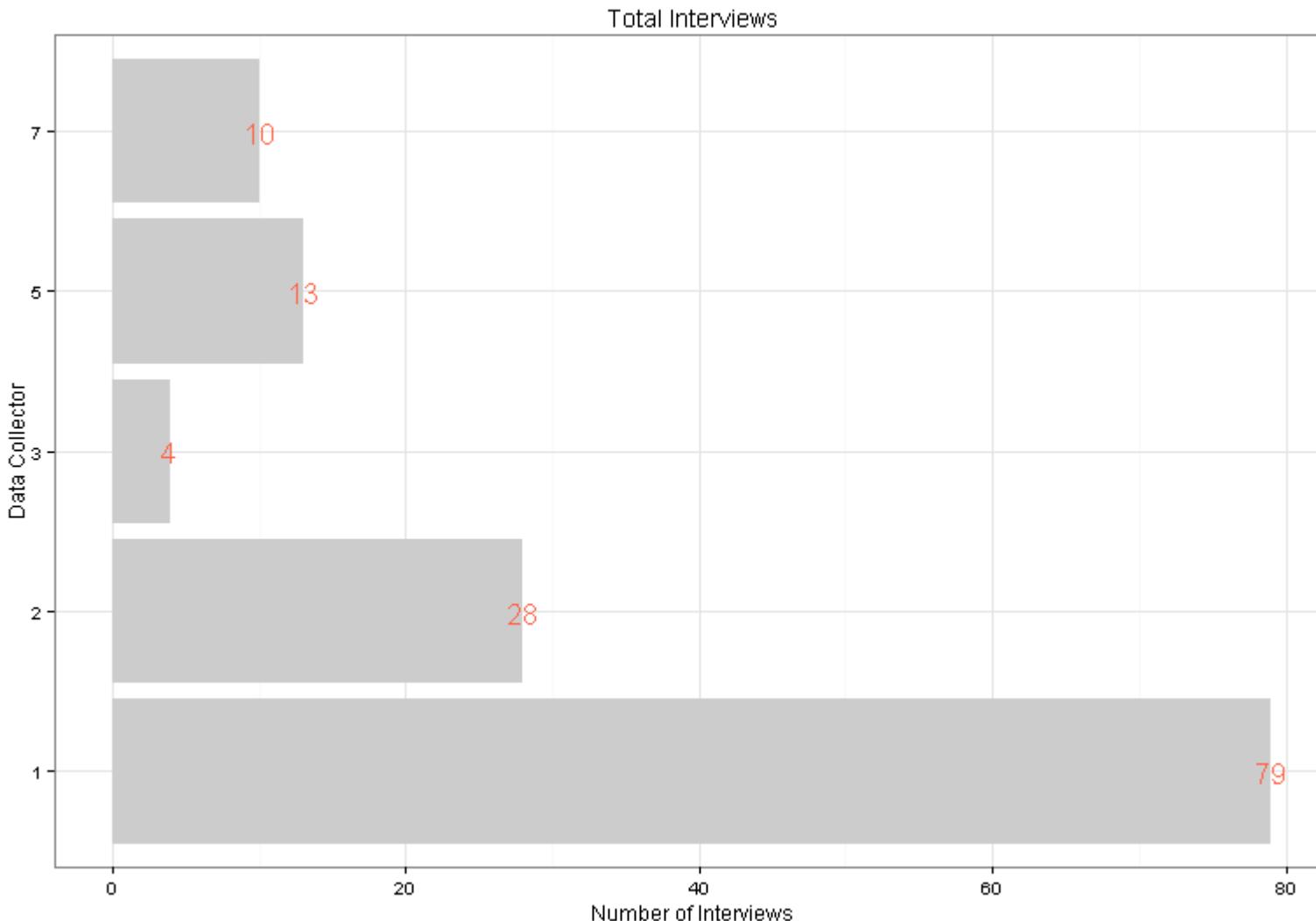
What do you want to monitor?

Productivity indicators can be incorporated in the original design phase of a REDCap project, or added to an existing project.

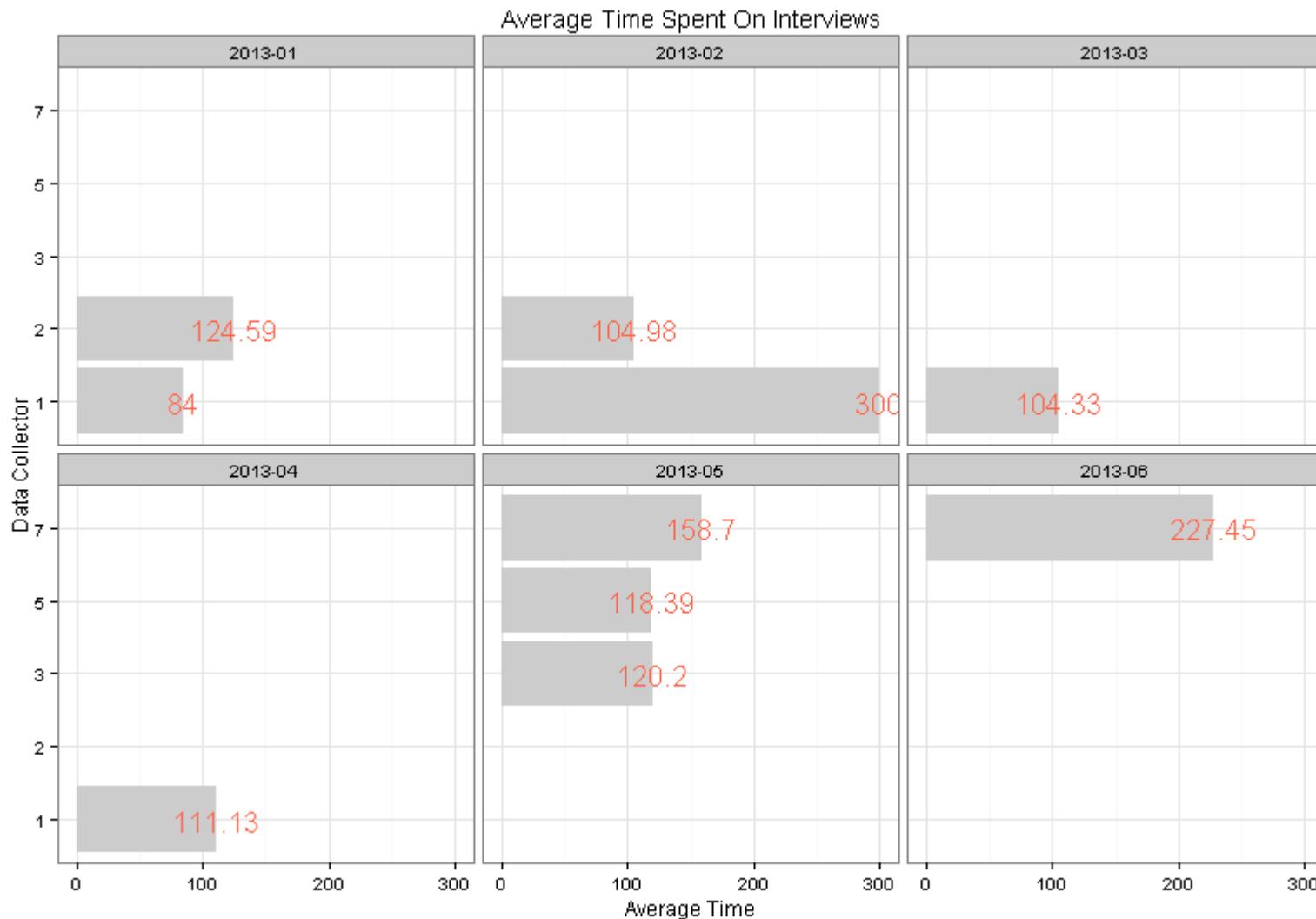
MIECHV Project Productivity Indicators

- Community Survey Recruitment
 - Total recruitment calls made
 - Time spent on recruitment calls
 - Average time per recruiting call
 - Number of recruits who agreed to participate
 - Percent of recruits who agreed to participate
- Community Surveying
 - Total interviews completed
 - Time spent conducting interviews
 - Average time per interview

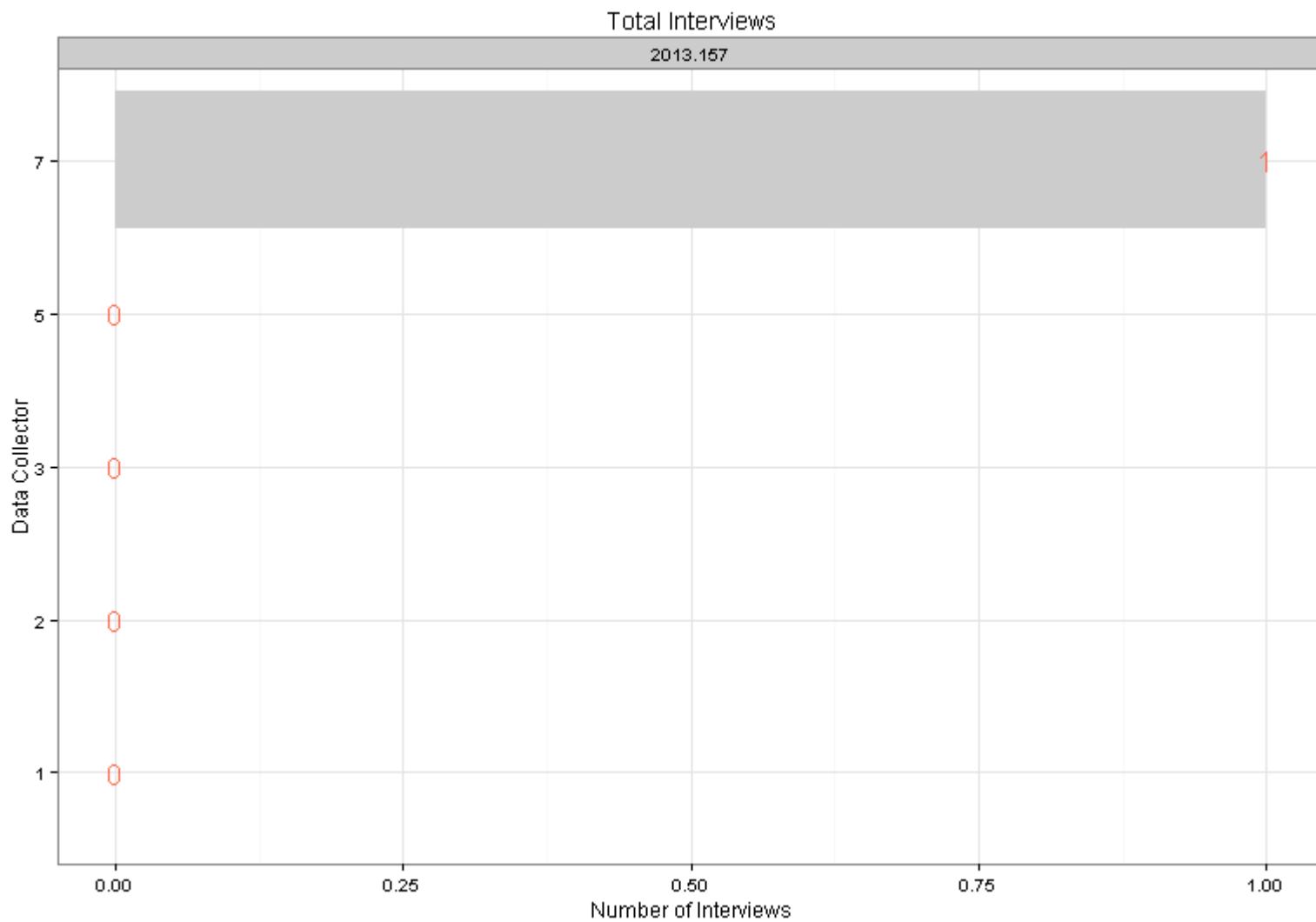
Example Report (Project Aggregate)



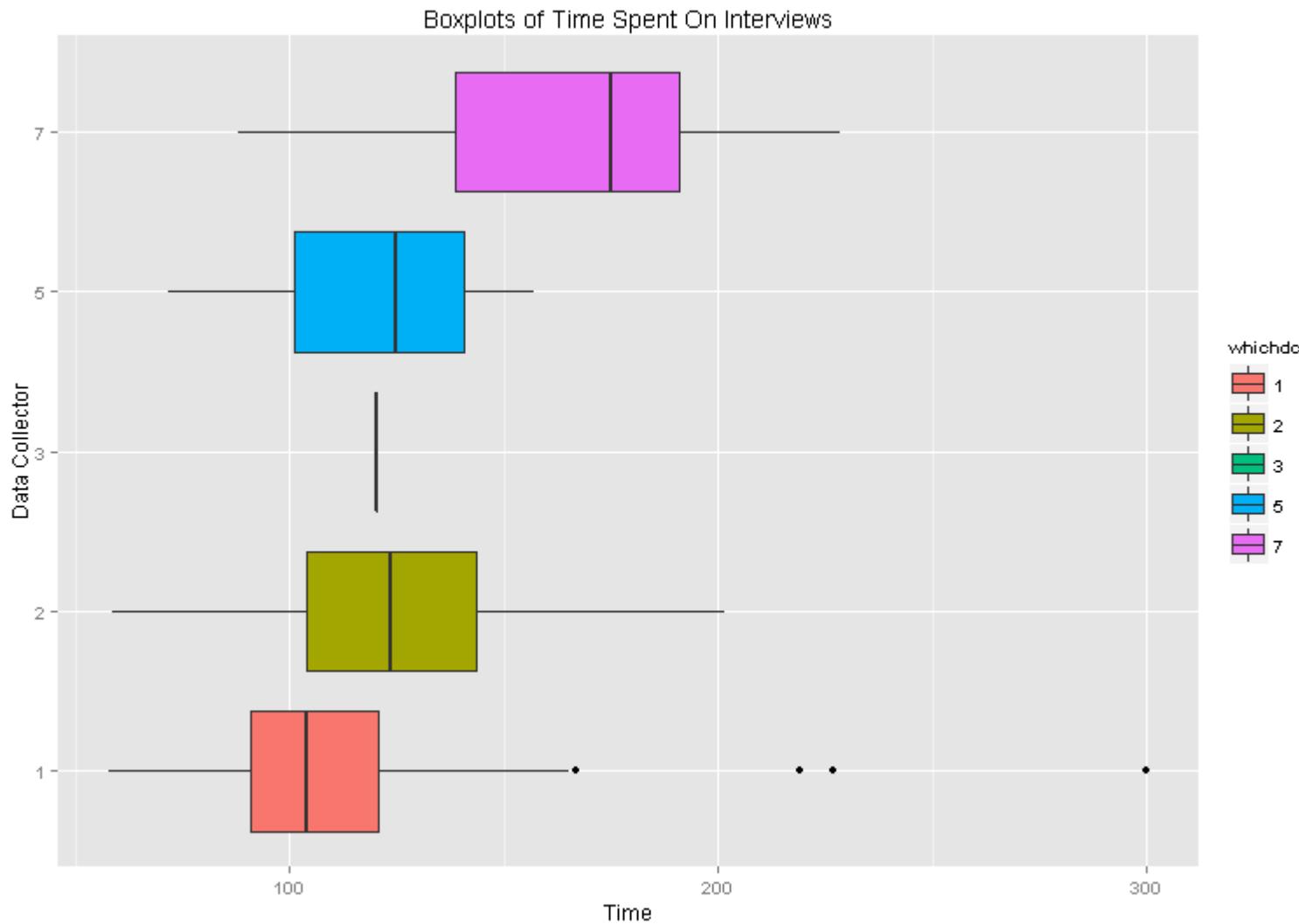
Example Report (6 Month History)



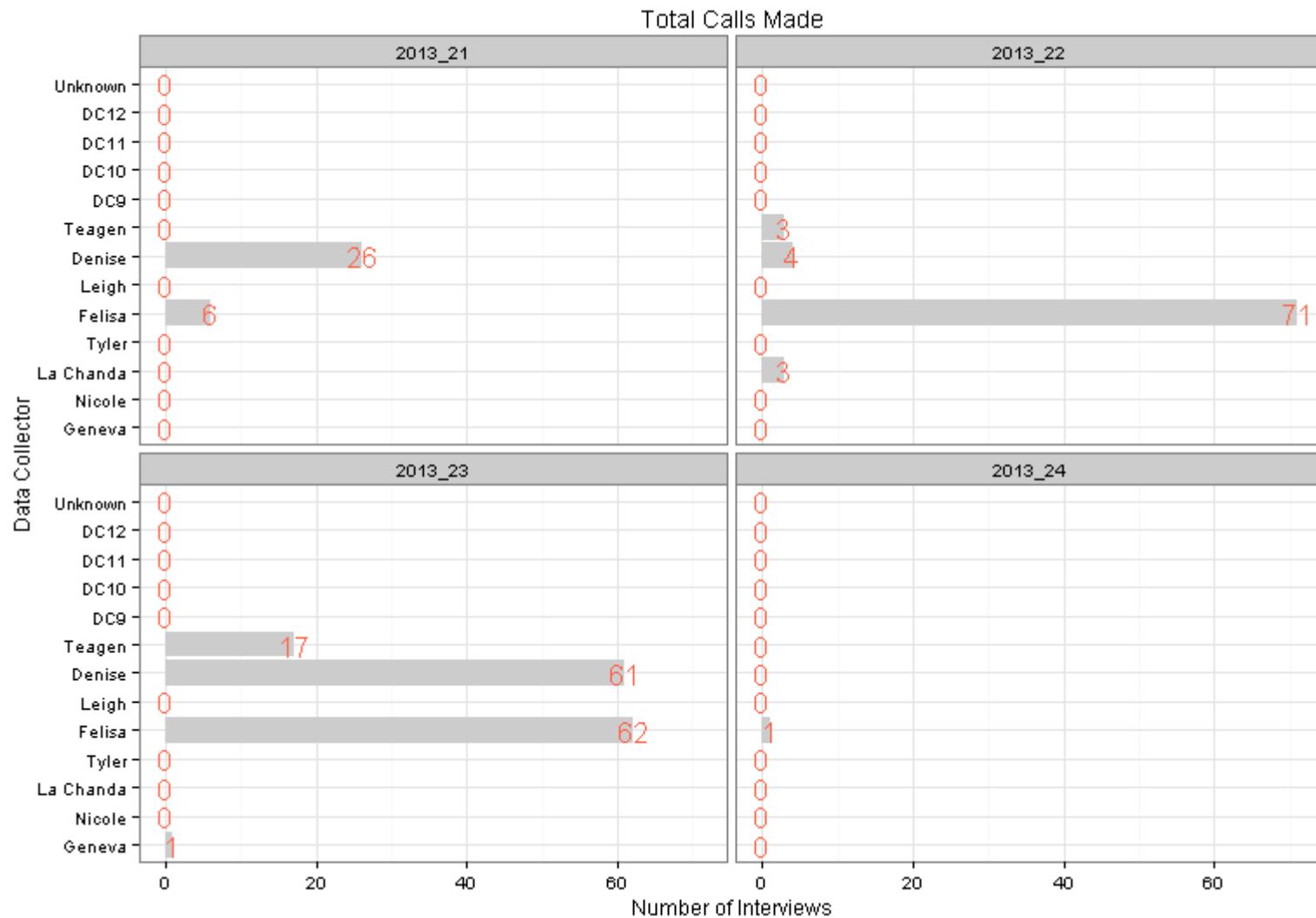
Example Report (7 Day History)



Example Report (Project Aggregate)



Example Report (4 Week History)



REDCap Advantages

- Flexibility:
 - Productivity indicators established by project team
 - Reporting methods determined by project needs
 - All aspects are customizable
 - Current and historical reports
- Automated:
 - Not necessary to compile data
 - Real-time data availability

Reports for Outcomes: within REDCap

Accommodates basic
descriptives & graphs,
but not much more.

Number of results returned: 3

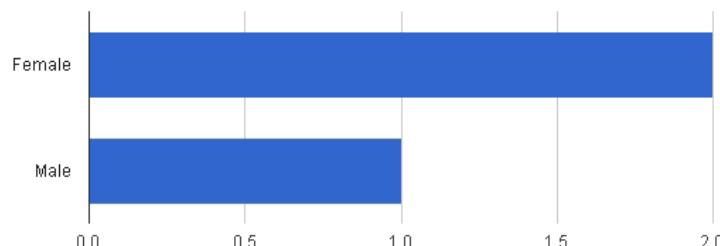
Total number of records queried: 12 ('records' =

PresentationDemo	
Ethnicity (ethnicity)	Gender (sex)
Non-Hispanic (1)	Female (0)
Hispanic (2)	Female (0)
Non-Hispanic (1)	Male (1)

Gender: [Refresh Plot](#) | [View as Bar Chart](#) ▾

Total (N)	Missing	Unique
3	9 (75%)	2

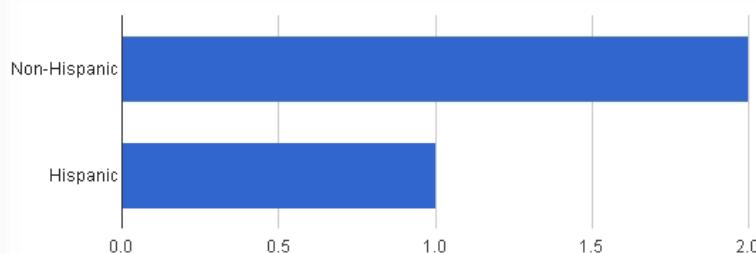
Counts/frequency: Female (2, 66.7%), Male (1, 33.3%)



Ethnicity : [Refresh Plot](#) | [View as Bar Chart](#) ▾

Total (N)	Missing	Unique
3	9 (75%)	2

Counts/frequency: Non-Hispanic (2, 66.7%), Hispanic (1, 33.3%)



Reports for Outcomes: External to REDCap

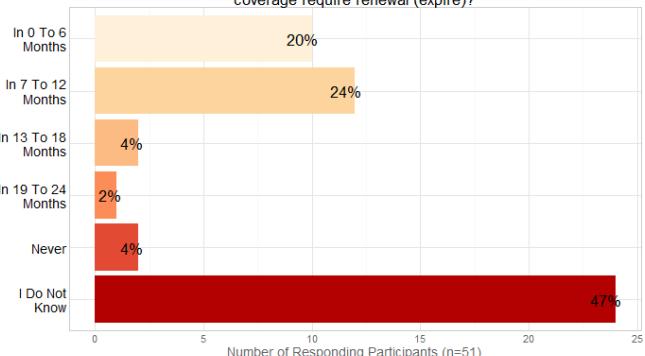
- Use automation to present results in a coherent document.
- Eliminate the need to repeatedly copy & paste:
 - Multiple descriptives, graphs, and model results.
 - Updated results after more data trickles in.
- Internal vs. External Audiences

Reports for Outcomes: Examples

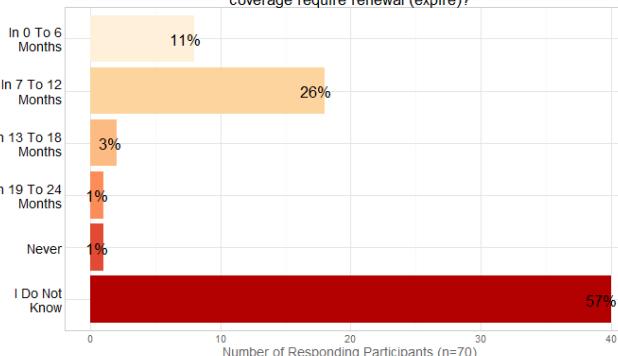
- Descriptives & graphs for internal audiences.
- Tables for external audiences.
- Text and Graphs for external audiences.
- Optionally hosted online.
<https://github.com/OuhscCcanMiechvEvaluation/MReporting/blob/master/OhcaReports/OhcaReport1/OhcaReport1.md>

Quick for Internal Audiences

When does your (not your child's) Medicaid/SoonerCare coverage require renewal (expire)?



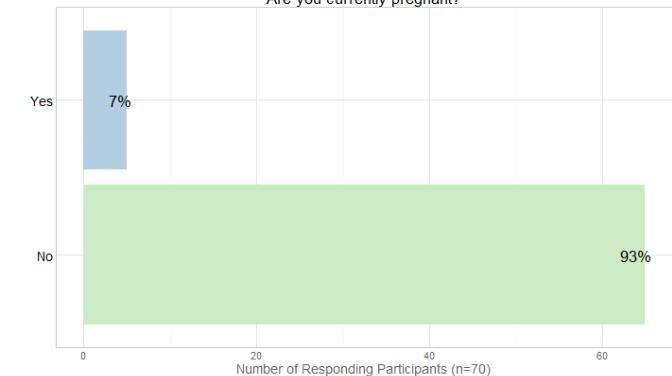
When does your child's Medicaid/SoonerCare coverage require renewal (expire)?



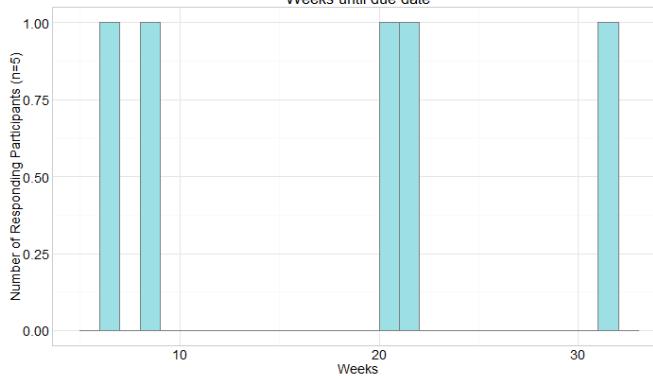
Section B: Pregnancy

Current and Previous Pregnancy

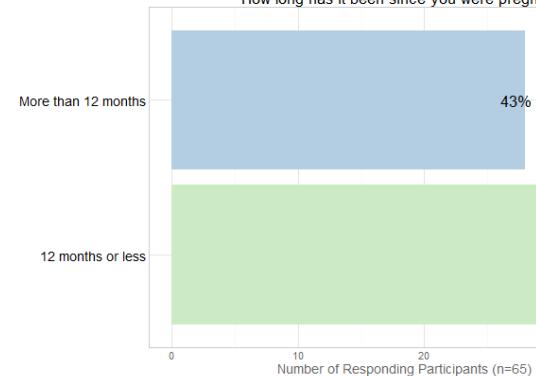
Are you currently pregnant?



Weeks until due date

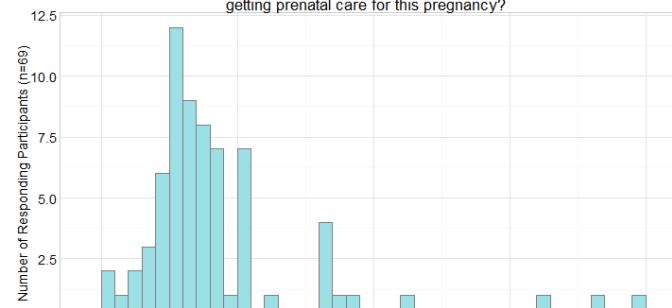


How long has it been since you were pregnant?

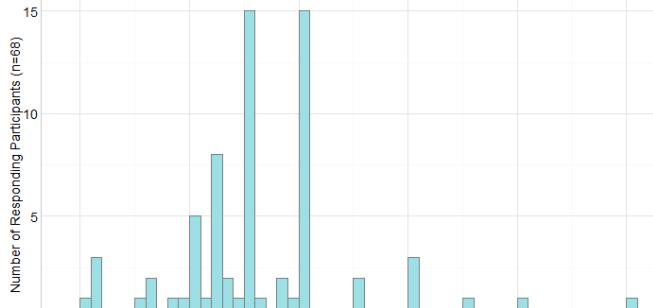


Prenatal Care and Education

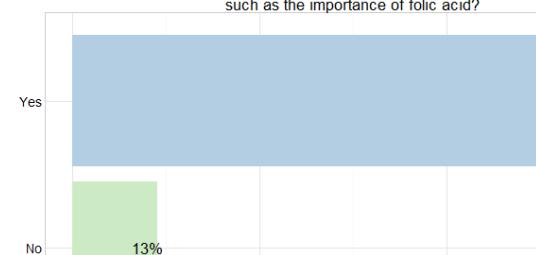
How many weeks pregnant were you when you began getting prenatal care for this pregnancy?



How many prenatal care visits did you have during your pregnancy?



Have you received education on pre-pregnancy/in-between pregnancies such as the importance of folic acid?



Text and Graphs for External Audiences

Draft of C1 Activity Level Report

OUHSC External MIECHV Evaluation Team
David Bard, Will Beasley, & Thomas Wilson

March 21, 2013

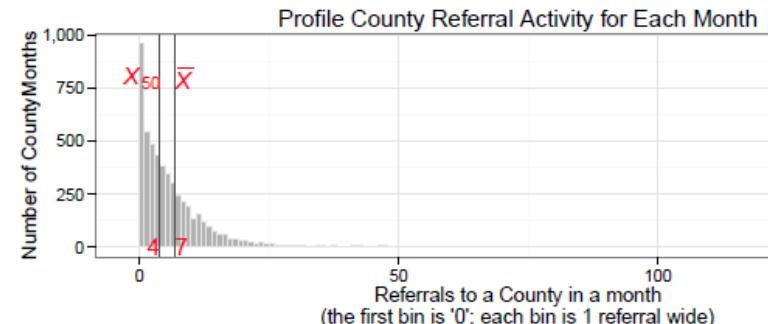
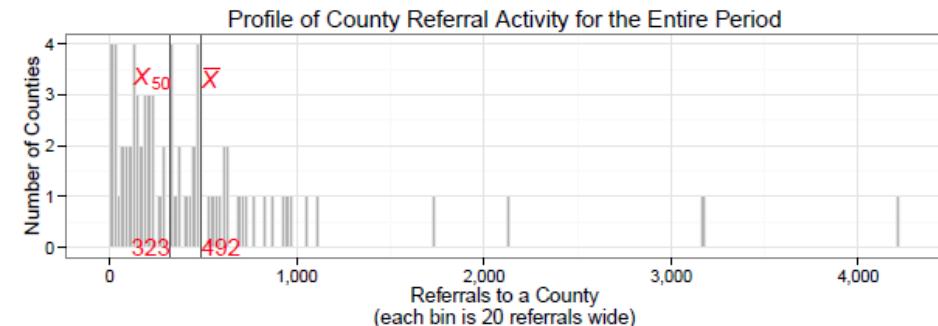
Note: This is a draft, and does not represent the official results. One next step is to address potential redundant records, which we believe represent fewer than 10% of the existing records. A second step is to account for the referrals that come from a county without an established health department or C1 program. Currently the analysis considers all referrals equivalently, which biases down the activity level so it appears that the performance is worse than it actually is.

This report contains information from 74 counties, 86 clinics, 33,170 parents, 36,379 referrals, 5,936 enrollments, 641 recorded graduations, and 2,826 recorded nongraduations. It summarizes C1 referrals between January 02, 2007 and November 29, 2012. The 3 referrals received by the central OSDH office (i.e., ID #99) have been excluded.

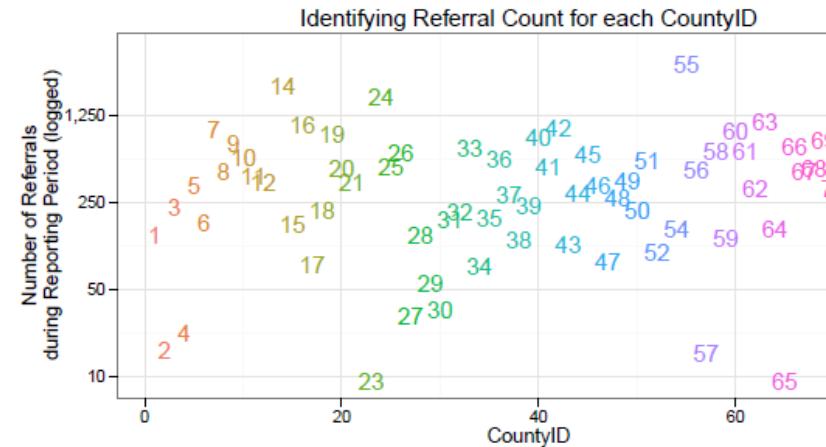
1 Referrals

The first histogram looks at the number of referrals received by the different *counties* during the reporting period. The second histogram looks at the number of referrals received by the different *county months* during the reporting period. Notice the median and mean are annotated each with a darker vertical gray line; the median is on the left, the mean is on the right.

There are many months where a county received few referrals. Several sources of these zeros have been identified, and we are deciding how to most accurately represent them in various contexts. For instance, when analyzing the cost-effectiveness of C1, an understaffed county should be treated differently than an adequately staffed county. We soon will incorporate a county's operational dates and its specific funding and staffing levels.



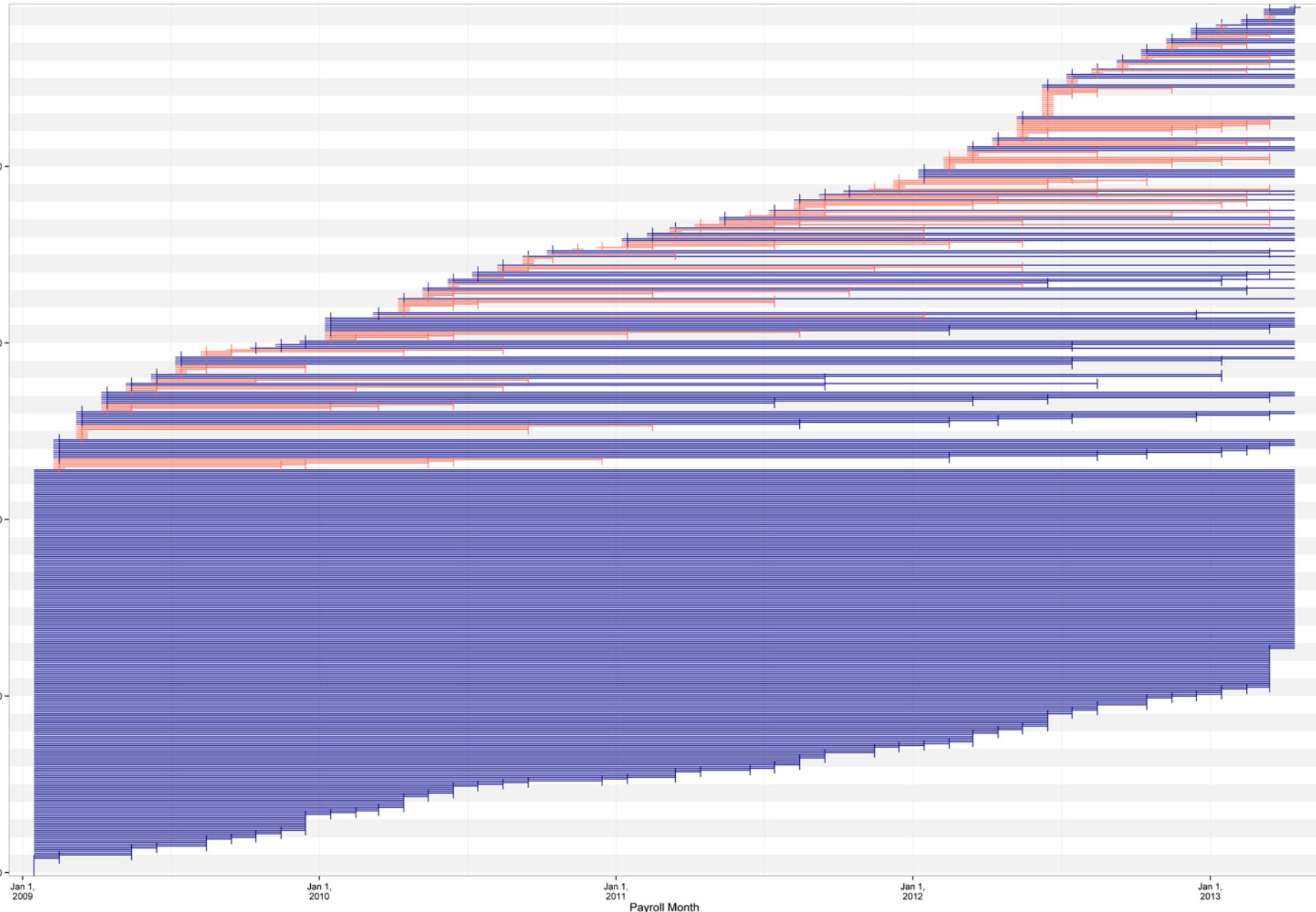
This scatterplot is atypical, because the horizontal is not a real quantitative dimension, it is the value of the county. The information is redundantly displayed by the numbers in the scatterplot. Notice the vertical is logged, so smaller counties will not be bunched together. This plot can serve as a legend for the subsequent line graphs. The county names corresponding to the numbers in the scatterplot corresponds to its color in the subsequent line graphs. The county names corresponding are decoded in the long table at the end of this document.



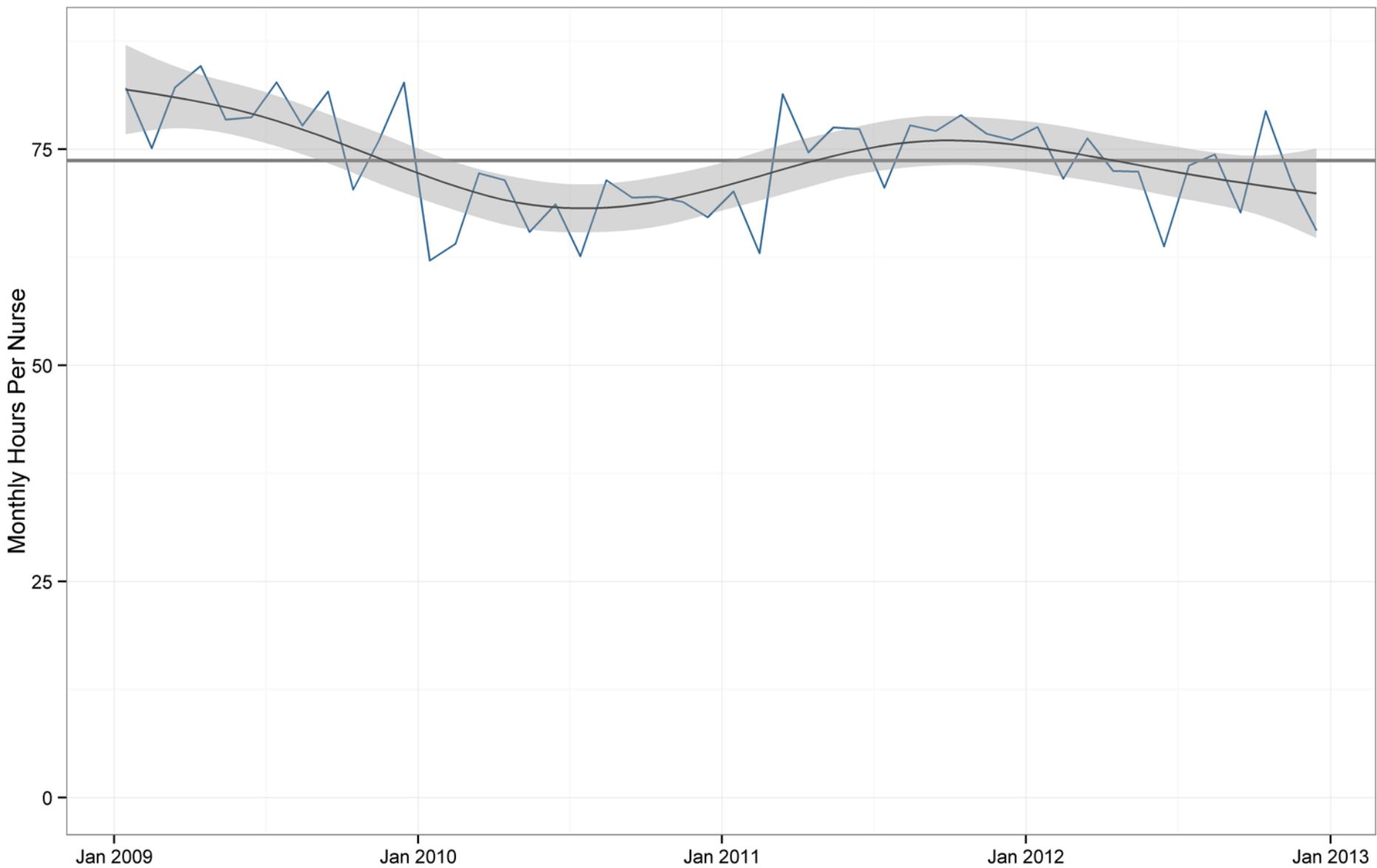
The next two graphs show the number of referrals received over time, by county. Each county has a unique color. The numbers on the graph denote a month's 25%, 50% and 75% counts of referrals to a county. For instance, when the middle of a bell curve is at 7, then 50% of the counties received 7 referrals or fewer.

The gray lines appear again as the median (on bottom) and mean (on top). A curvy longitudinal line shows the state's trend during the reporting period. The two graphs are identical, except the second one zooms in on the first 20 county IDs.

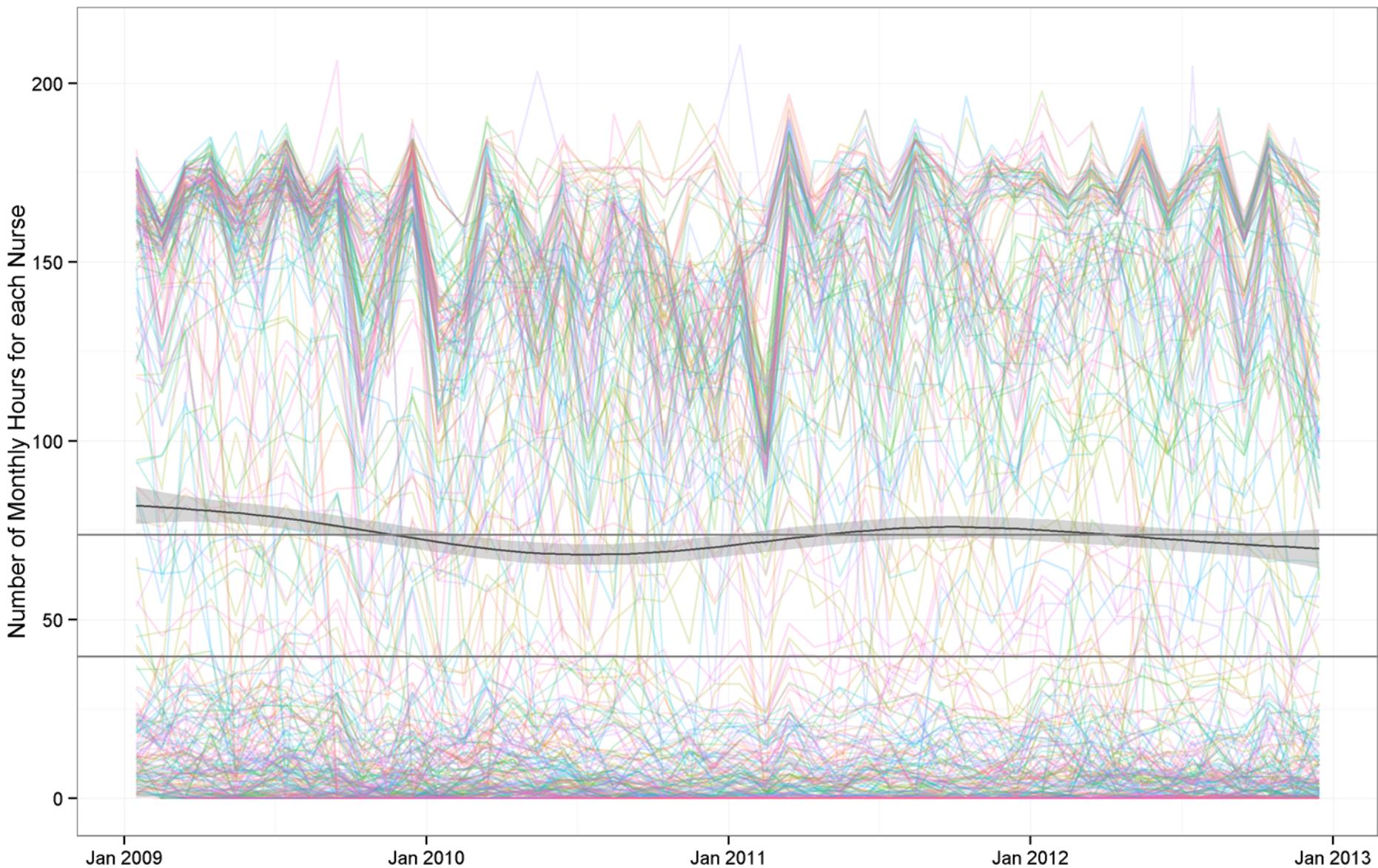
Text and Graphs for External Audiences



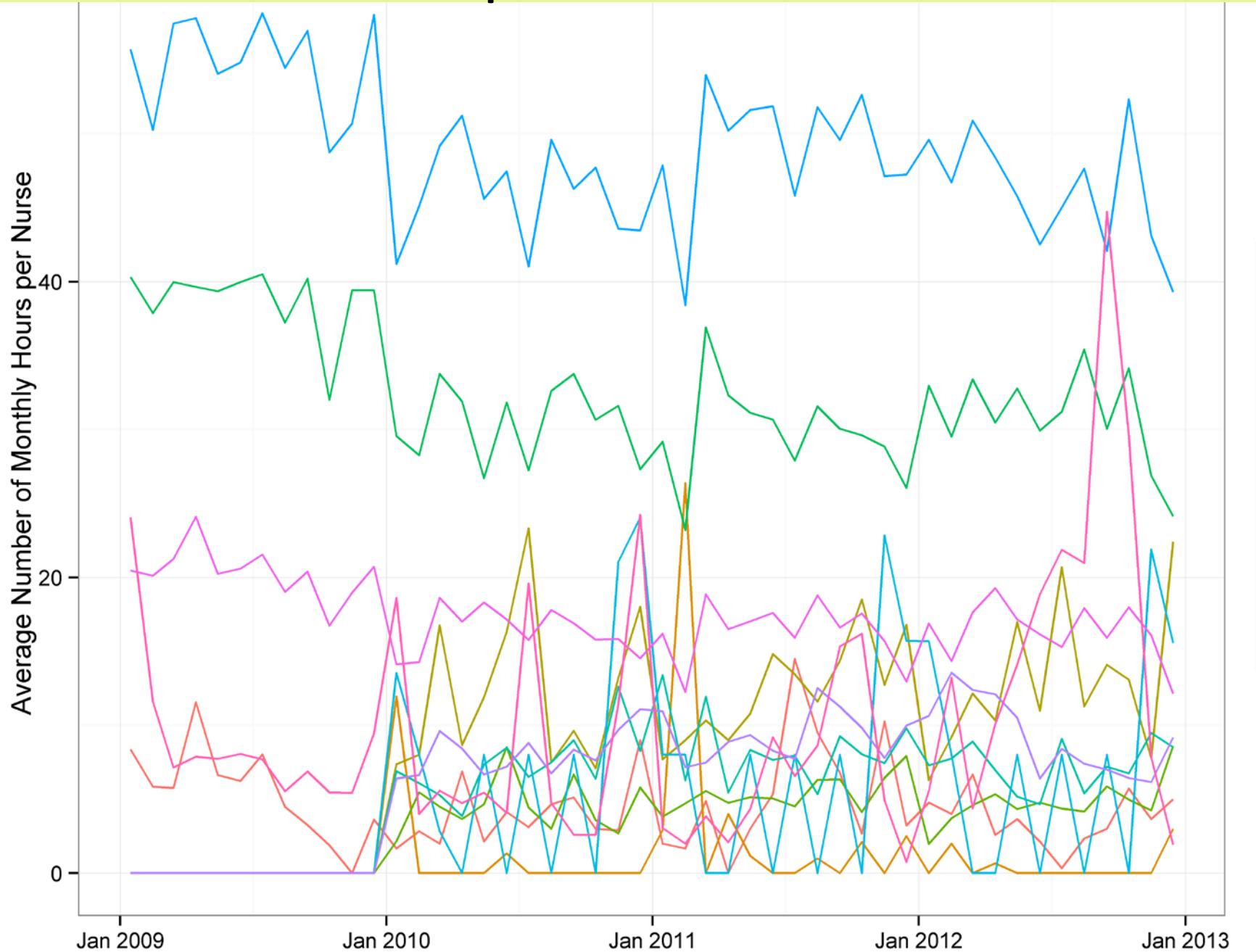
Text and Graphs for External Audiences



Text and Graphs for External Audiences



Text and Graphs for External Audiences



Tables for External Audiences

Comparison of Versions of Kinship Links Joe Rodger's BG Team

December 9, 2012

Outcome: HeightZGenderAge;
RelationshipPath: Gen1Housemates [ID:1]; Newer Links Version: 53; Older Links Version: 52;

Newer Links: R Excludes Gen1 R=0, .375, .75

Older Links: After chaning 'R' to 'RFull'; Excludes Gen1 R=0

R Groups specifically excluded: {}

Drop pair if housemates are not confirmed in the same generation: FALSE

1 Ace - Comparison of *R* Variants

(See the final table for an explanation of the different *R* variants.)

<i>R</i> Variant	a_{new}^2	c_{new}^2	e_{new}^2	N_{new}	a_{old}^2	c_{old}^2	e_{old}^2	N_{old}
R	.90	.00	.10	3729	.90	.00	.10	3784
RFull	.50	.19	.31	4227	.50	.19	.31	4227
RExplicit	.78	.06	.16	3702	.78	.06	.16	3702
RImplicit2004	.75	.09	.16	2262	.75	.09	.16	2262

Table 1: Comparison of *R* Variants (by rows) and of Links Versions (left vs right side).

2 Subgroups – R

<i>R</i>	Included in SEM	N_{Pairs}	s_1^2	s_2^2	$s_{1,2}$	r	Determinant	PosDefinite
0.125	TRUE	88	0.91	0.95	0.15	0.16	0.8	TRUE
0.250	TRUE	238	1.01	1.14	0.26	0.24	1.1	TRUE
0.500	TRUE	3392	0.97	1.02	0.44	0.44	0.8	TRUE
1.000	TRUE	11	0.29	0.61	0.37	0.89	0.0	TRUE

Table 2: R – Newer Version of Links

<i>R</i>	Included in SEM	N_{Pairs}	s_1^2	s_2^2	$s_{1,2}$	r	Determinant	PosDefinite
0.125	TRUE	88	0.91	0.95	0.15	0.16	0.8	TRUE
0.250	TRUE	238	1.01	1.14	0.26	0.24	1.1	TRUE
0.375	TRUE	45	1.00	1.18	0.48	0.44	1.0	TRUE
0.500	TRUE	3392	0.97	1.02	0.44	0.44	0.8	TRUE
0.750	TRUE	10	0.78	0.76	0.55	0.71	0.3	TRUE
1.000	TRUE	11	0.29	0.61	0.37	0.89	0.0	TRUE

Table 3: R – Older Version of Links

3 Subgroups – RFull

RFull	Included in SEM	N_{Pairs}	s_1^2	s_2^2	$s_{1,2}$	r	Determinant	PosDefinite
0.000	TRUE	443	0.93	0.82	0.23	0.26	0.7	TRUE
0.125	TRUE	88	0.91	0.95	0.15	0.16	0.8	TRUE
0.250	TRUE	238	1.01	1.14	0.26	0.24	1.1	TRUE
0.375	TRUE	45	1.00	1.18	0.48	0.44	1.0	TRUE
0.500	TRUE	3392	0.97	1.02	0.44	0.44	0.8	TRUE
0.750	TRUE	10	0.78	0.76	0.55	0.71	0.3	TRUE
1.000	TRUE	11	0.29	0.61	0.37	0.89	0.0	TRUE

Table 4: RFull – Newer Version of Links

RFull	Included in SEM	N_{Pairs}	s_1^2	s_2^2	$s_{1,2}$	r	Determinant	PosDefinite
0.000	TRUE	443	0.93	0.82	0.23	0.26	0.7	TRUE
0.125	TRUE	88	0.91	0.95	0.15	0.16	0.8	TRUE
0.250	TRUE	238	1.01	1.14	0.26	0.24	1.1	TRUE
0.375	TRUE	45	1.00	1.18	0.48	0.44	1.0	TRUE
0.500	TRUE	3392	0.97	1.02	0.44	0.44	0.8	TRUE
0.750	TRUE	10	0.78	0.76	0.55	0.71	0.3	TRUE
1.000	TRUE	11	0.29	0.61	0.37	0.89	0.0	TRUE

Table 5: RFull – Older Version of Links

4 Subgroups – RExplicit

RExplicit	Included in SEM	N_{Pairs}	s_1^2	s_2^2	$s_{1,2}$	r	Determinant	PosDefinite
0.250	TRUE	245	1.03	1.18	0.29	0.26	1.1	TRUE
0.375	TRUE	45	1.00	1.18	0.48	0.44	1.0	TRUE
0.500	TRUE	3412	0.96	1.01	0.44	0.44	0.8	TRUE

Table 6: RExplicit – Newer Version of Links

RExplicit	Included in SEM	N_{Pairs}	s_1^2	s_2^2	$s_{1,2}$	r	Determinant	PosDefinite
0.250	TRUE	245	1.03	1.18	0.29	0.26	1.1	TRUE
0.375	TRUE	45	1.00	1.18	0.48	0.44	1.0	TRUE
0.500	TRUE	3412	0.96	1.01	0.44	0.44	0.8	TRUE

Table 7: RExplicit – Older Version of Links

Quick for Internal Audiences

One-way General Linear Model

Predictor Variable:

▼

Show your score
 Show Summary

What is your gender?

▼

What is your age?

0
40
100

What is your marital status?

▼

How many children do you have?

▲
▼

What is your yearly income?

30,000
1,000,000

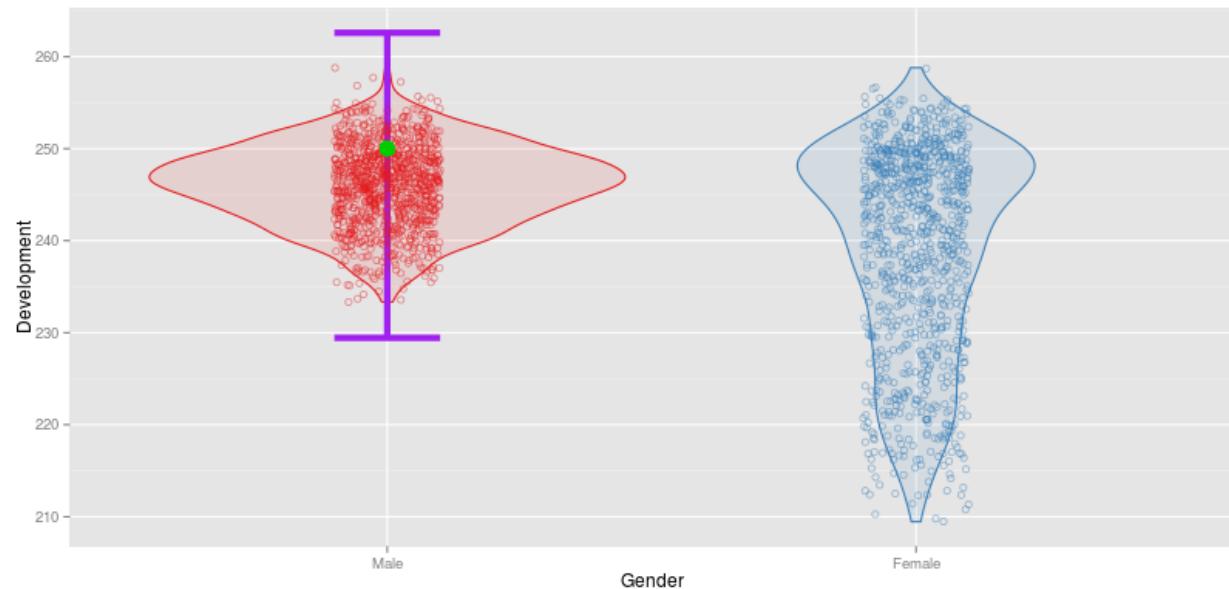
What is your Development Score ?

200
250
300

Predictor Variable: Gender

Dataset: /home/wibeasley/ShinyApps/Oneway/Data/FakeData.csv

Sample Scores



Most patients with your value of Gender fall between 229 and 263 points on the Development scale.

Subset of data:

Number of rows to display:

6

	SubjectID	Development	Gender	Age	MaritalStatus	ChildCount	Income	AgeGroup
1	1	247.24	Female	44.47	Unmarried	1	11508.09	[40,50)

Quick for Internal Audiences

One-way General Linear Model

Predictor Variable:

Age

Show your score
 Show Summary

What is your gender?

Male

What is your age?

0 30 100

What is your marital status?

Unmarried

How many children do you have?

3

What is your yearly income?

0 279,000 1,000,000

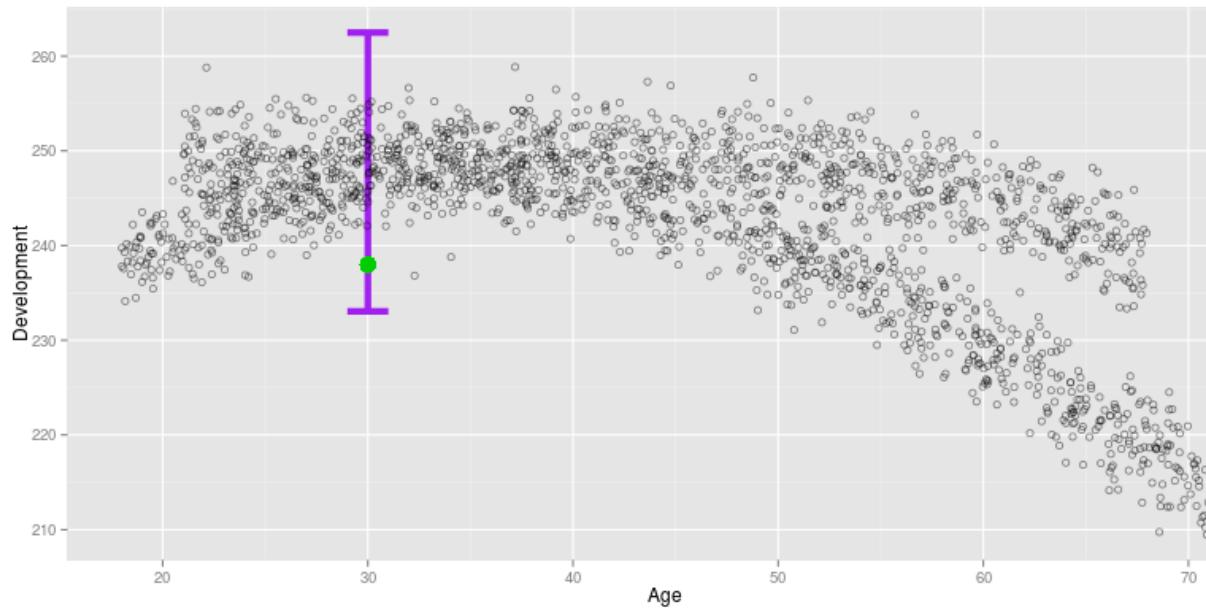
What is your Development Score ?

200 238 300

Predictor Variable: Age

Dataset: /home/wibeasley/ShinyApps/Oneway/Data/FakeData.csv

Sample Scores



Most patients with your value of Age fall between 233 and 262 points on the Development scale.

Subset of data:

Number of rows to display:

6

SubjectID	Development	Gender	Age	MaritalStatus	ChildCount	Income	AgeGroup
1	1	247.24	Female	44.47	Unmarried	1 11508.09	[40,50)

Goals

- Reproducible research.
 - Facilitates scientific replication.
 - Disseminates techniques to other subfields.
 - Promotes cumulative research.
- Literate programming.
 - Evaluated programs need fresh & frequent feedback.
- Collaborative Development.

Collaboration among

1. The 4 statisticians on the project.
sharing software development.
2. The 20 people on the project.
exchanging participant-level data.
3. The 3 partnering organizations. (OSDH, WIC, OHCA)
-receiving their subject-level & agency-level data.
-distributing our results –fresh & frequently.
4. Academics in different areas. (particularly at OUHSC)
exchanging tools and workflows.
5. Researchers in other states pursuing similar goals.
publishing ideas and replicating previous work.



Oklahoma Shared Clinical and Translational Resources program

Grant targets medically underserved Oklahomans

Modified: September 23, 2013 at 2:26 pm • Published: September 23, 2013

Comments or Questions???

OKLAHOMA CITY (AP) — The University of Oklahoma Health Sciences Center has received a \$20.3 million federal grant to target medically underserved Oklahomans, especially in rural areas of the state.

THANK YOU!