

# Data and Data Collection

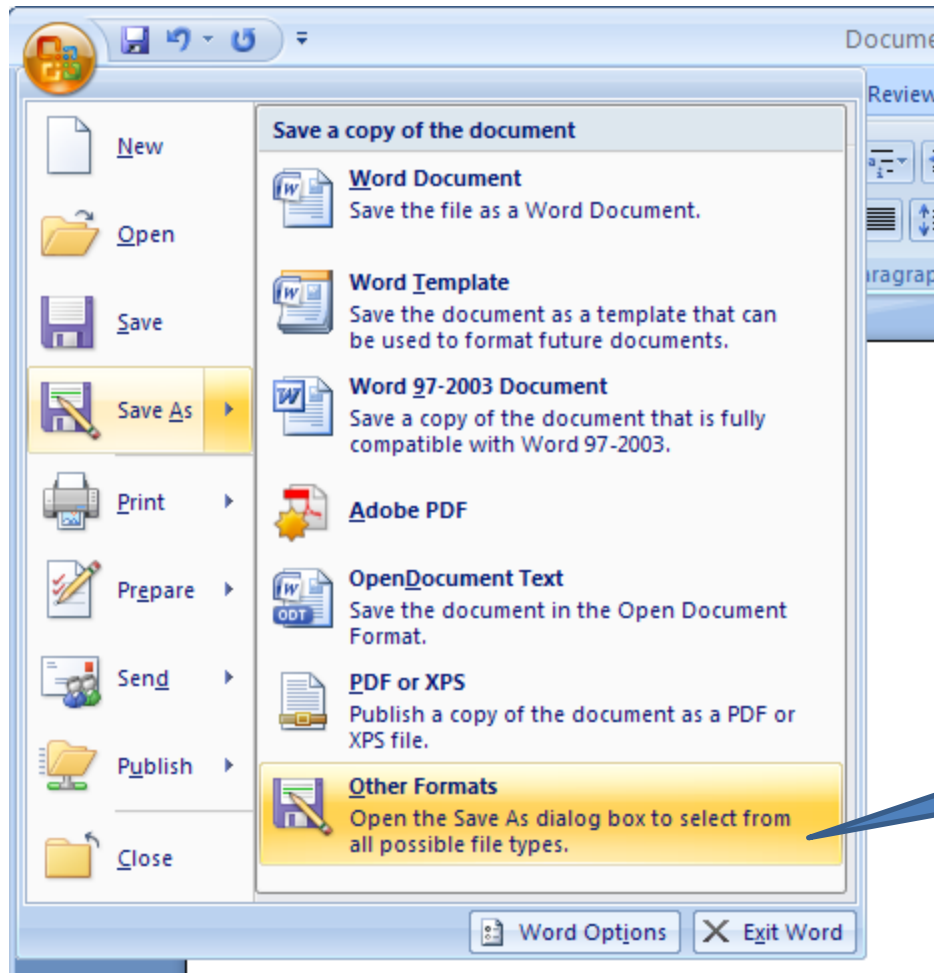
HRP223 – Topic 1

Sept 26<sup>th</sup>, 2012

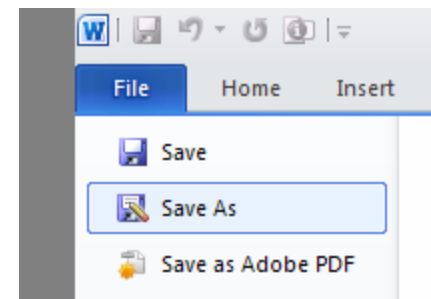
# Topics for Today

- Working with your website
- Standards for setting up a database
- What is a database?
  - Why Excel is not a good database
- How to design your data storage for analysis
- An introduction to REDCap

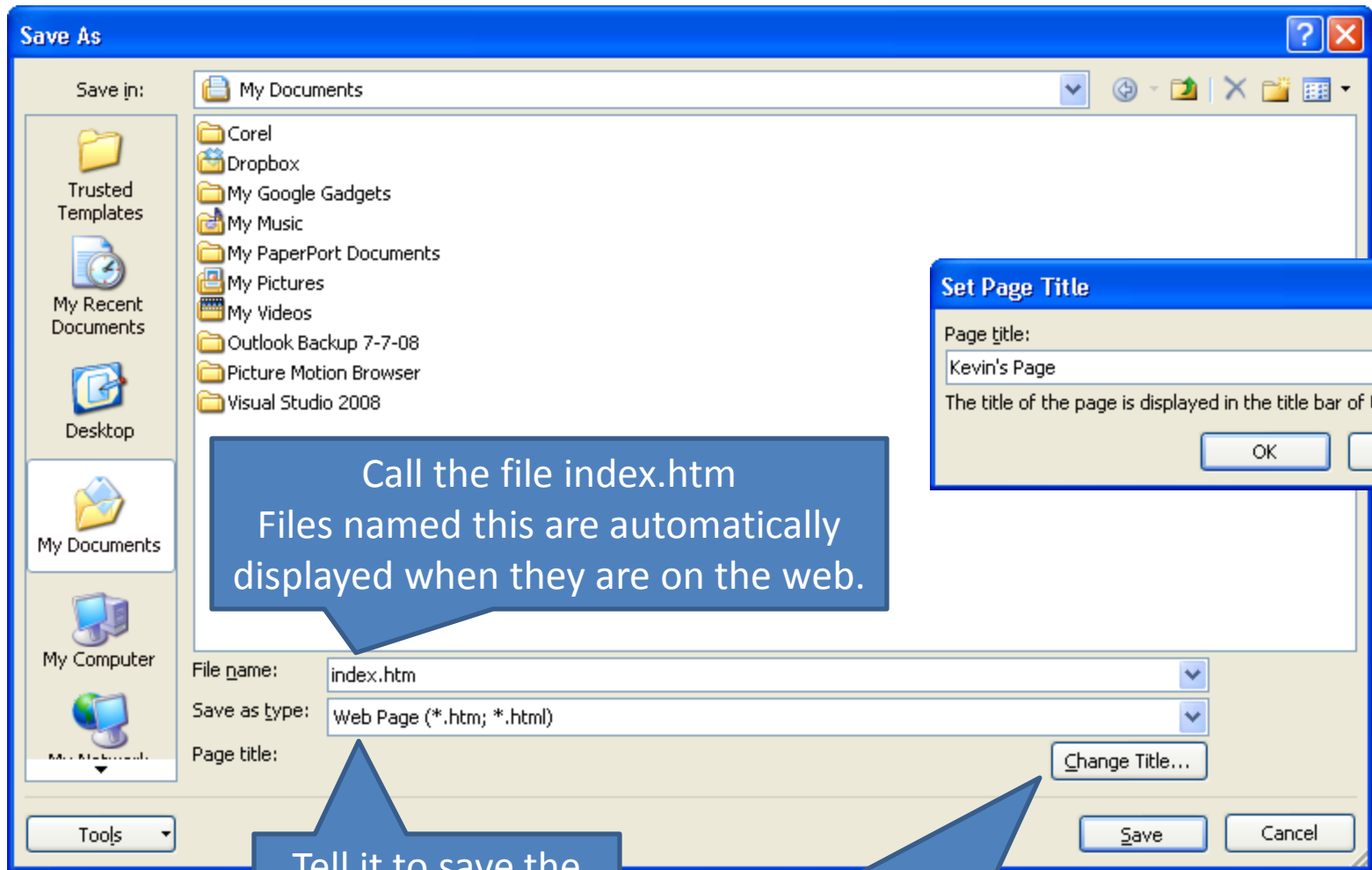
# Make a Web Page with Word



Start up Word and write something on the page. Then Save As...



Then do Save As > Other Formats



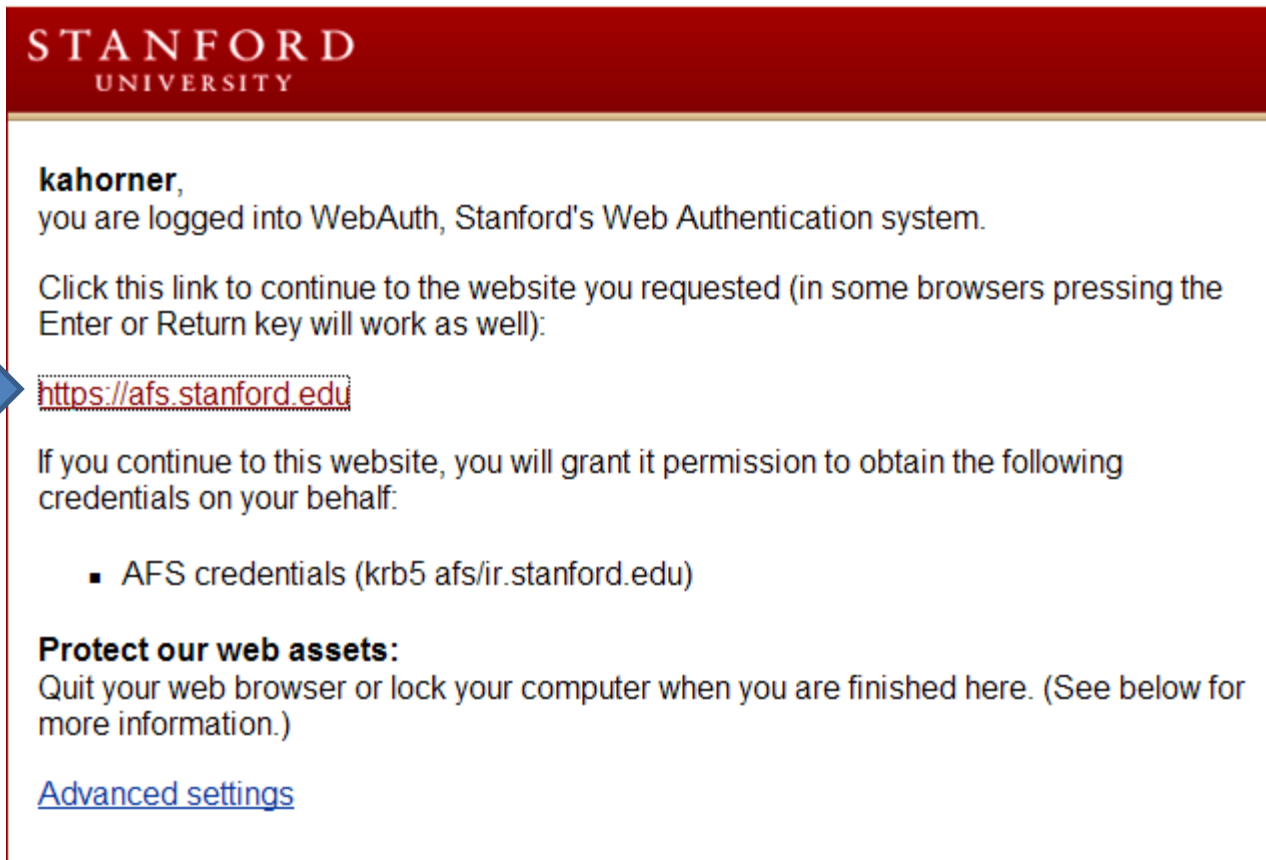
Call the file index.htm  
Files named this are automatically  
displayed when they are on the web.

Tell it to save the  
file as a Web Page

Click to add in a title for  
browser that use tabs.

# How to access your website

- Go to [afs.stanford.edu](https://afs.stanford.edu) and log in



**STANFORD**  
UNIVERSITY

**kahorner,**  
you are logged into WebAuth, Stanford's Web Authentication system.

Click this link to continue to the website you requested (in some browsers pressing the Enter or Return key will work as well):

<https://afs.stanford.edu>

If you continue to this website, you will grant it permission to obtain the following credentials on your behalf:

- AFS credentials (krb5 afs/ir.stanford.edu)

**Protect our web assets:**  
Quit your web browser or lock your computer when you are finished here. (See below for more information.)

[Advanced settings](#)

https://afs.stanford.edu/

File Edit View Favorites Tools Help

★ Favorites | Suggested Sites | Free Hotmail | Web Slice Gallery

Stanford WebAFS

STANFORD  
UNIVERSITY

STANFORD WEBAFS  
FILE MANAGEMENT TOOL

IT Services » AFS at Stanford » Stanford WebAFS

#### FOLDER PROPERTIES



kahorner

#### ACTIONS

(Hide)

- [Upload File\(s\)](#)
- [Cut Selected Item\(s\)](#)
- [Copy Selected Item\(s\)](#)
- [Paste to This Folder](#)
- [Delete Selected Item\(s\)](#)
- [Create a New Folder](#)
- [Rename Selected Item](#)
- [Set Permissions for Folder](#)
- [Favorite Locations](#)

#### VIEW OPTIONS

- [Show Hidden Files](#)

#### CURRENT AFS DIRECTORY PATH

/afs/ir/users/k/a/kahorner

	Type	Title ▲	Size	Last Modified
<input type="checkbox"/>	Folder	Desktop	2 KB	4/20/2009
<input type="checkbox"/>	Folder	Downloads	2 KB	4/20/2009
<input type="checkbox"/>	Folder	Mail	2 KB	1/10/2006
<input type="checkbox"/>	Folder	News	2 KB	1/10/2006
<input type="checkbox"/>	Folder	WWW	2 KB	1/10/2006
<input type="checkbox"/>	Folder	documents	2 KB	4/20/2009
<input type="checkbox"/>	Folder	private	2 KB	1/10/2006
<input type="checkbox"/>	Folder	public	2 KB	1/10/2006

Stuff in here shows up on the web. Double click to browse the empty folder

# Upload the File

STANFORD  
UNIVERSITY

STANFORD WEBAFS  
FILE MANAGEMENT TOOL

IT Services » AFS at Stanford » Stanford WebAFS

## FOLDER PROPERTIES



## ACTIONS

(Hide)

- Upload File(s)
- Cut Selected Item(s)
- Copy Selected Item(s)
- Paste to This Folder
- Delete Selected Item(s)
- Create a New Folder
- Rename Selected Item
- Set Permissions for Folder
- Favorite Locations

## Upload Files to AFS

[X]

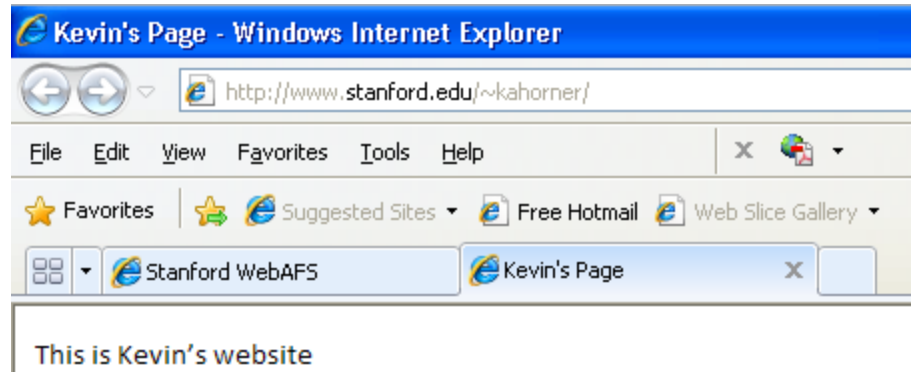
C:\Documents and Settings\kahorner.WIN\M

Overwrite files during upload?

Size

Last Modified

# It worked!



IT Services » AFS at Stanford » Stanford WebAFS

## FOLDER PROPERTIES



## ACTIONS (Hide)

- [Upload File\(s\)](#)
- [Cut Selected Item\(s\)](#)
- [Copy Selected Item\(s\)](#)
- [Paste to This Folder](#)
- [Delete Selected Item\(s\)](#)
- [Create a New Folder](#)
- [Rename Selected Item](#)
- [Set Permissions for Folder](#)
- [Favorite Locations](#)

## CURRENT AFS DIRECTORY PATH

/afs/ir/users/k/a/kahorner/WWW


	Type	Title ▲		Size	Last Modified
<input type="checkbox"/>		index.htm		21.2 KB	9/27/2011



# Adding a folder to hold secret results

IT Services » AFS at Stanford » Stanford WebAFS



**FOLDER PROPERTIES**

 WWW


**ACTIONS** (Hide)

- Upload File(s)
- Cut Selected Item(s)
- Copy Selected Item(s)
- Paste to This Folder
- Delete Selected Item(s)
- Create a New Folder**
- Rename Selected Item
- Set Permissions for Folder
- Favorite Locations

**CURRENT AFS DIRECTORY PATH**  
/afs/ir/users/k/a/kahorner/www

	Type	Title ▲		Size	Last Modified
<input type="checkbox"/>		index.htm		21.2 KB	9/27/2011


**Create a New Folder** [X]



Use a meaningful project name

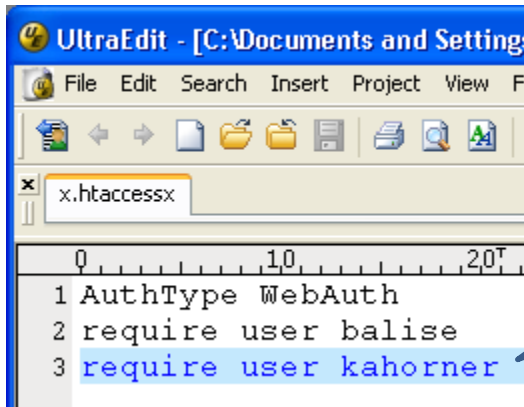
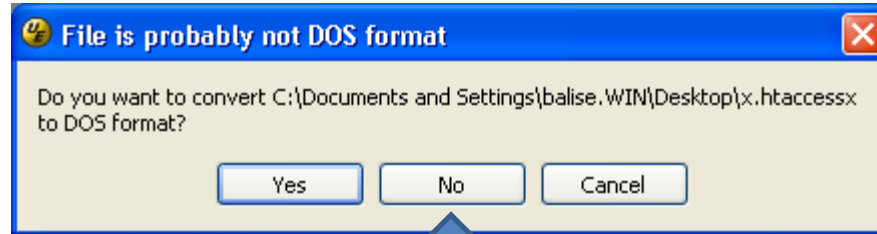
# Edit Your Access File

- You control access to this directory/folder by adding permitted people to a text file. This is a TEXT file not word processing file. You use a text editor to tweak it:

		A Text Editor	
		Free	Cheap
Windows			
Mac			

Click icons to get the program

# I use UltraEdit



Add the SUNet IDs of your collaborators.

Then save and upload the file into the folder you want to protect.

### FOLDER PROPERTIES



### ACTIONS (Hide)

- [Upload File\(s\)](#)
- [Cut Selected Item\(s\)](#)
- [Copy Selected Item\(s\)](#)
- [Paste to This Folder](#)
- [Delete Selected Item\(s\)](#)
- [Create a New Folder](#)
- [Rename Selected Item](#)
- [Set Permissions for Folder](#)
- [Favorite Locations](#)

### VIEW OPTIONS

- [Show Hidden Files](#)

Successfully received file(s).

[Go Up ↑](#) [Refresh](#)

	Type	Title ▲		Size	Last Modified
<input type="checkbox"/>		x.htaccessx		< .1 KB	9/27/2011

Check this box and remove the leading and trailing x. Keep the leading period.

## FOLDER PROPERTIES



## ACTIONS (Hide)

- [Upload File\(s\)](#)
- [Cut Selected Item\(s\)](#)
- [Copy Selected Item\(s\)](#)
- [Paste to This Folder](#)
- [Delete Selected Item\(s\)](#)
- [Create a New Folder](#)
- [Rename Selected Item](#)
- [Set Permissions for Folder](#)
- [Favorite Locations](#)

## VIEW OPTIONS

- [Show Hidden Files](#)

## CURRENT AFS DIRECTORY PATH

[/afs/ir/users/k/a/kahorner/WWW/protected](#)

Type	Title ▲	Size	Last Modified
<i>This directory only contains hidden files</i>			

Files that start with a period are hidden in UNIX.  
If you would like, click to show the file.

IT Services » AFS at Stanford » Stanford WebAFS

FOLDER PROPERTIES



protected

ACTIONS

(Hide)

- [Upload File\(s\)](#)
- [Cut Selected Item\(s\)](#)
- [Copy Selected Item\(s\)](#)
- [Paste to This Folder](#)
- [Delete Selected Item\(s\)](#)
- [Create a New Folder](#)
- [Rename Selected Item](#)
- [Set Permissions for Folder](#)
- [Favorite Locations](#)

VIEW OPTIONS

- [Hide Hidden Files](#)

CURRENT AFS DIRECTORY PATH

/afs/ir/users/k/a/kahorner/WWW/protected [Change](#)

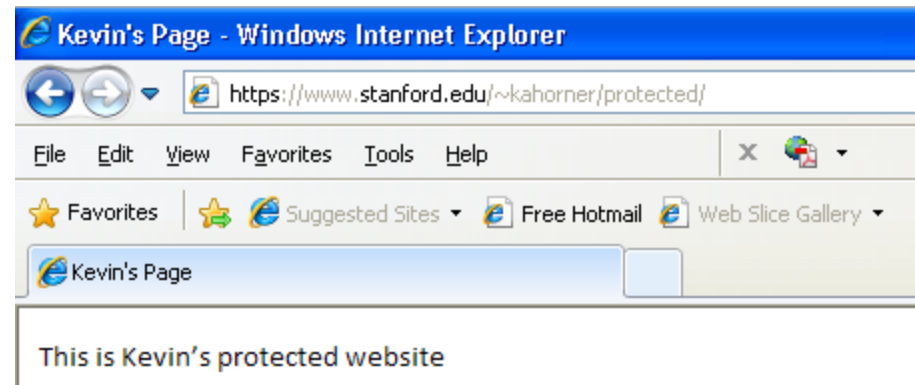
[Go Up ↑](#)

[Refresh](#)

	Type	Title ▲		Size	Last Modified
		.(current directory)		2 KB	9/27/2011
		..(parent directory)		2 KB	9/27/2011
<input type="checkbox"/>		.htaccess		< .1 KB	9/27/2011

# Add in Files to the Protected Directory.


- Kevin made another web page called index.htm and uploaded it to the directory. When people try to get to: <https://www.stanford.edu/~kahorner/protected/> they are asked for their SUNet ID and password if they give the info they can get to the super secret page:



# Keeping your work in one place

IT Services » AFS at Stanford » Stanford WebAFS

**FOLDER PROPERTIES**









 kahorner

**ACTIONS** (Hide)


- Upload File(s)
- Cut Selected Item(s)
- Copy Selected Item(s)
- Paste to This Folder
- Delete Selected Item(s)
- Create a New Folder**
- Rename Selected Item
- Set Permissions for Folder
- Favorite Locations

**CURRENT AFS DIRECTORY PATH**  
/afs/ir/users/k/a/kahorner

**Not in the WWW directory**

	Type	Title ▲	Size	Last Modified
<input type="checkbox"/>		Desktop	2 KB	4/20/2009
<input type="checkbox"/>		Downloads	2 KB	4/20/2009
<input type="checkbox"/>		Mail	2 KB	1/10/2006
<input type="checkbox"/>		News	2 KB	1/10/2006
<input type="checkbox"/>		private	2 KB	9/27/2011
<input type="checkbox"/>		public	2 KB	4/20/2009
<input type="checkbox"/>		private	2 KB	1/10/2006
<input type="checkbox"/>		public	2 KB	1/10/2006

**Create a New Folder** [X]




You may want to save your work in the private directory instead of the root.



Note he clicked on the projects folder.

IT Services » AFS at Stanford » Stanford WebAFS

**FOLDER PROPERTIES**

 **projects**

**ACTIONS** (Hide)


- Upload File(s)
- Cut Selected Item(s)
- Copy Selected Item(s)
- Paste to This Folder
- Delete Selected Item(s)
- Create a New Folder**
- Rename Selected Item
- Set Permissions for Folder
- Favorite Locations

**CURRENT AFS DIRECTORY PATH**

/afs/ir/users/k/a/kahorner/projects

Type	Title ▲	Size	Last Modified
This folder contains no files or folders.			

**Create a New Folder** [X]



Add a hrp223 folder to the project directory and you can keep your work synced to this folder.

# How Web Pages Work

- Word writes HUGE amounts of extra code into the web pages.
- Modern web pages are written as text files with “tags” added to identify different parts of the page. A second text page has details on how the different tagged sections should display.
- The what to display is a text file that has HTML or XHTML tags. The how to display information is in a text file with CSS instructions.

Raymond R. Balise Ph.D.  
Stanford University  
Redwood Bldg. T213D, MC 5405  
Stanford, California 94305

Voice/Data (650) 724-2602  
Fax (650) 725-6951

[SAS](#)  
[REDCap and SAS](#)

[R Programming for the Life Sciences](#)  
[R for Analysis](#)

[R summer 2011](#)  
[SAS summer 2011](#)

# [www.stanford.edu/~balise/](http://www.stanford.edu/~balise/)

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">

<head>
  <link rel="stylesheet" type="text/css" href="external.css" />
  <title>Balise</title>
</head>
<body>
  <p>
    Raymond R Balise Ph.D.<br />
    Stanford University<br />
    Redwood Bldg. T213D, MC 5405<br />
    Stanford, California 94305<br />
    <br /><br /><br /><br />
    Voice/Data (650) 724-2602<br />
    Fax (650) 725-6951<br />
  </p>
  <hr />
  <p>
    <a href="http://www.stanford.edu/class/hrp223/">SAS</a><br />
    <a href="http://www.stanford.edu/~balise/Lane/RedcapSAS20100805a.pptx">REDCap and SAS</a><br />
    <br />
    <a href="http://www.stanford.edu/~balise/SPCTRM/RProgrammingLifeSciences20100721.pptx">R Programming
    <a href="http://www.stanford.edu/~balise/HowToDoBiostatistics.htm">R for Analysis</a><br />
    <br />
    <a href="http://www.stanford.edu/~balise/R.htm">R summer 2011</a><br />
    <a href="http://www.stanford.edu/~balise/SAS.htm">SAS summer 2011</a><br />
  </p>
</body>
</html>
```

Start of the body of the document tag

Start of a paragraph tag

New line tag

This voodoo is xhtml

End of a paragraph tag

The XHTML text file had nothing about colors. It says the style sheet is in another file called external.css

```
<head>
  <link rel="stylesheet" type="text/css" href="external.css" />
  <title>Balise</title>
</head>
```

The external.css file has information about fonts, colors, etc.. You can swap out the color schemes by just changing the name of the referenced .css file.

```
body {
  background-color: black;
  color: white;
  font-family: tahoma, sans-serif;
  text-align: center;
}

a:link { color: red; }
a:active { color: purple; }
a:visited { color: beige; }
a:hover { color: lightcoral; }
```

# FDA

- 21 CFR – Part 11 Electronic Records; Electronic Signatures  
[www.fda.gov/ora/compliance\\_ref/part11/FRs/background/pt11finr.pdf](http://www.fda.gov/ora/compliance_ref/part11/FRs/background/pt11finr.pdf)
  - Regulates electronic submissions to the FDA
  - Data systems must be validated “to ensure accuracy, reliability and consistent intended performance, and the ability to **discern invalid or altered records.**”
  - Mandates that people who develop, maintain or use electronic record/electronic signature systems have adequate **education, training and experience.**
  - Requires revision and change control procedures to maintain an **audit trail** that documents **time-sequenced development and modification of systems documentation.**
- Also see the Scope and Application document:  
<http://www.fda.gov/cder/guidance/5667fnl.pdf>

# The right way....

- If your data is going to the FDA you need a real database to store and monitor your data.
  - Med IRT
  - Data Coordinating Center (DCC)

Both use expensive tools like Oracle
- Med IRT is looking into less cost prohibitive tools:
  - REDCap      Currently free
  - Medrio      \$417/year per study
- Meet with me and Med IRT to design a data collection system.
  - They know how to safely store data and I know how it needs to be prepared for analysis.

# What can a database do?

- Track **who** did **what** to every bit of information in the data capture system and **when** they did it
  - Is every change logged?
  - Can you roll back mistakes 2 days later?
- Controls what a user can **see** and **modify**
- Prevents you from entering **garbage**
  - Can I possibly enter blue for gender?

# Excel...

- I think that modern Excel, in theory, can do all these requirements if you have an *extraordinarily* talented (VBA) programmer.
- I tried and I could not implement a satisfactory database model.
- Anybody that is good enough to make it work will tell you to use a different tool.
- Excel is **NOT** a database but it is not useless.



# Excel 2003 vs. 2007/2010

- Office 2007/2010 file suffixes end with an x (.xlsx vs. .xls)
- New graphical user interface (ribbon instead of menus)
  - Push F1 or the ? In the upper right corner.

If your default browser is not Internet Explorer copy and paste the URL it gives you into IE:  
<http://office.microsoft.com/en-us/support/office-ribbon-find-commands-FX101851541.aspx>

Interactive: Old to New

Comprehensive Reference

Search Tab Download

Online Training

Quick Reference Migration Guide

## Interactive guides for Office 2010

Use your knowledge of the old menus to find where things have moved in 2010. Simulations of the menu programs show you the new locations of commonly used commands.

[See all guides and learn more >](#)

Click a product below to start a guide now:



Word



Excel



Outlook



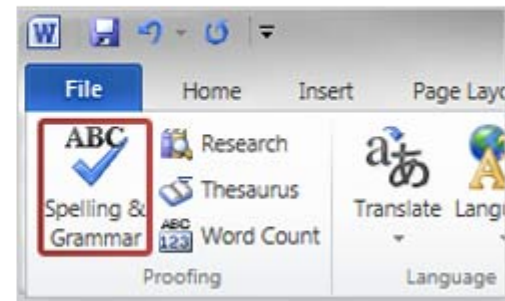
PowerPoint



Access



OneNote



Excel 2010: Menu to ribbon guide - Windows Internet Explorer

http://office.microsoft.com/en-us/support/office-ribbon-find-commands-FX101851541.aspx?CTT=5&origin=FH101832607

Office

Microsoft® Excel 2010: Interactive menu to ribbon guide

To find this command in Excel 2010:

Microsoft Excel

File Edit View Insert Format Tools Data Window Help

Type a question for help

Times New Roman 12 B I U

A1 fx

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															

Sheet1 / Sheet2 / Sheet3

Rest the mouse pointer over an Excel 2003 menu or button to learn its new location in Excel 2010. Click the command for a demonstration.

You point and click and it shows you where stuff has been moved.

# Before You Use Excel at All

- There is a major design flaw in the export system built into Excel. If you do not fix it, you are *very likely* to have any export from Excel *result in missing data*.
  - This happens when the data is read in by every analysis program I tried (SAS, R, SPSS) and even other Microsoft programs (Access).
- The problem happens when a column of data has character data after the top 8 rows had numbers.
  - If somebody types a character into a column mostly full of numbers (typically a typo or a > or < symbol) the cell is silently set to blank.

Microsoft Excel - BUGGED.xls

File Edit View Insert Format Tools Data Window Help

Arial 10 B I U

A11 fx 10

	A	B	C	D	E	F
1	BLAH					
2	1					
3	2					
4	3					
5	4					
6	5					
7	6					
8	7					
9	8					
10	Q					
11	10					
12						
13						
14						

Sheet1 Sheet2 Sheet3

Microsoft Access - [Sheet1 : Table]

File Edit View Insert Format Records Tools Window Help

BLAH
1
2
3
4
5
6
7
8
#Num!
10

Record:  
Datash

\*Untitled2 [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

1 : blah	1	var	var	var	var	var
1	1.00					
2	2.00					
3	3.00					
4	4.00					
5	5.00					
6	6.00					
7	7.00					
8	8.00					
9	.					
10	10.00					
11						
12						
13						
14						

Data View Variable View

SPSS Proc

7% b...

BLAH
1
2
3
4
5
6
7
8
9
10

R

VIEWTABLE: Work.Bugged

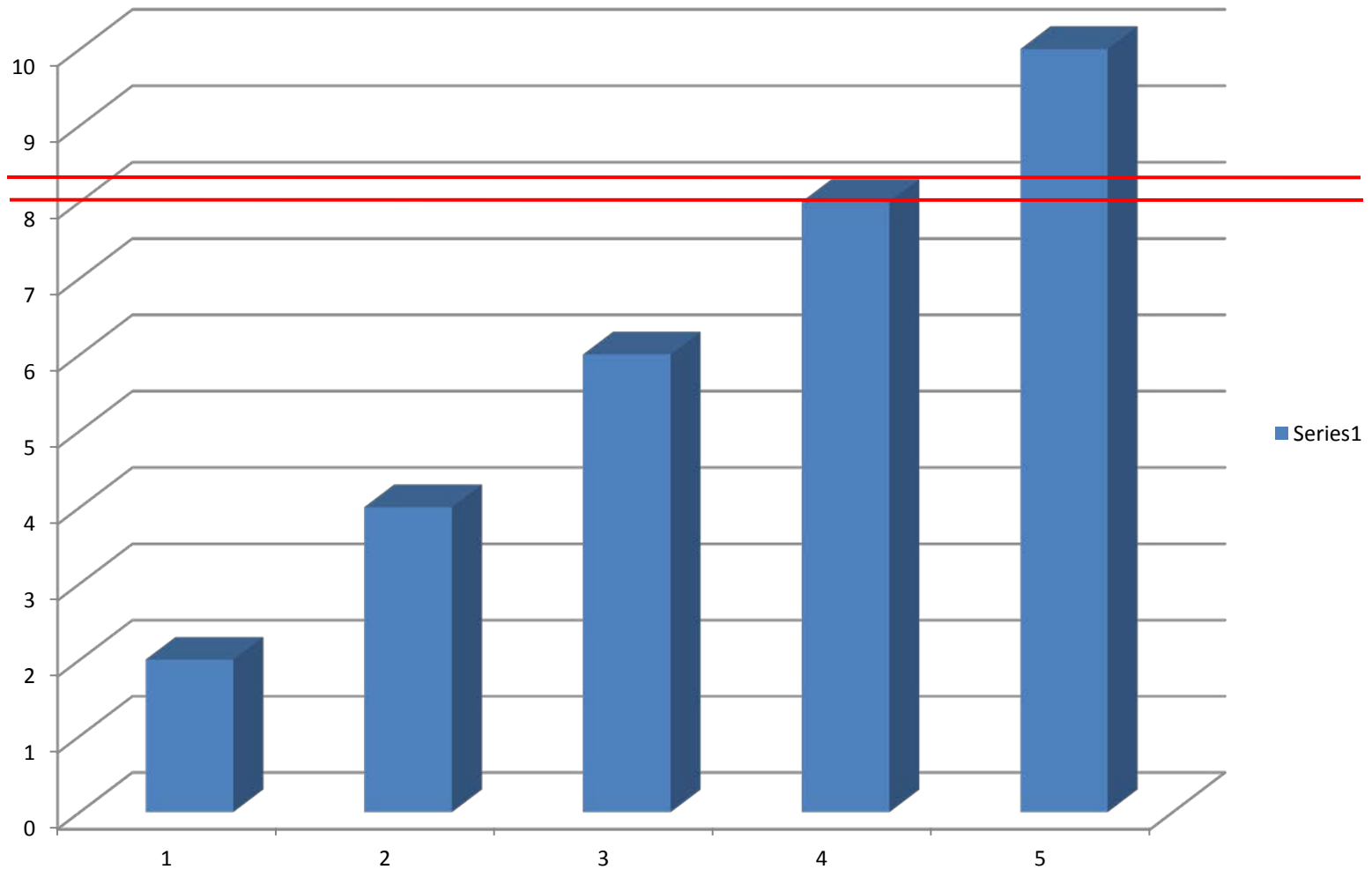
BLAH
1
2
3
4
5
6
7
8
9
10

SAS

# The Registry

- Deep inside of Windows is a repository of information on all the software on your computer. It is called the registry.
- In the registry there is a key that tells applications which are talking to Excel how many rows to check, going down a column, to figure out if a column should be called character or numeric.
  - It is set by default to only look in the first 8 rows!!!! So if you have character data for the first time in a cell after the first 8 rows, it guesses incorrectly that you have only numeric data in the column and your character cells will be **erased without warning** on import.

# Excel 2007 Graphics ... Awesome ...



# Before you Start a Data Collection/Entry Program

- Write on your questionnaire/case-report-form and abbreviate each question as a name that is easy to type.

- Use no spaces
- Use only letters or numbers
- Do not start the names with digits

See the slide labeled *Setting up a Spreadsheet* for more on the naming.

Patient demographic information:

Last name: last First name: first Middle initial: middle

DOB: dob Age: age

Country of birth: country

Race: racewhite  White  Black  Asian/Pacific Islander  East/South Asian  Other raceother

Ethnicity:  Hispanic  Non-hispanic ishispanic

racedetail

Reason for seeking care: What was the most important symptom that prompted you to **first** seek medical care for your cancer (what symptom did you have that led to the initial evaluation by a doctor)?

reason

- No symptoms – cancer found unexpectedly during a radiological test (CT, MRI, X-ray, ultrasound)
- No symptoms – cancer found unexpectedly during a sigmoidoscopy / colonoscopy
- Abdominal / belly pain
- Back pain
- Blood in stool
- Bone pain
- Chest pain
- Constipation
- Cough
- Diarrhea
- Difficulty swallowing (solid foods only)
- Difficulty swallowing (solids and liquids)
- Enlarged lymph nodes
- Excessive tiredness
- Fever / night sweats
- Flushing
- Jaundice / skin or eyes yellow
- Loss of appetite
- Shortness of breath
- Shoulder pain
- Vomiting blood
- Weight loss
- Other (Please specify: reasonother)

Symptomyear  
Symptommonth  
Symptomday

At approximately what date did this symptom become apparent to you?      /      /



# Before You Start

- Also write on your questionnaire to say if the questions produce characters or numeric data.

# Before You Start

- If you have “choose one” questions (like the subjects’ sex) draw a box around the choices and label that as a character field (count the number of letters in the longest text string).
- If you have “check all conditions that apply” questions, each of the sub-questions needs to have its own name.
  - To be humane, include a check box for “yes to all” and “no to all”.
  - Plan on all yes/no checkboxes being considered 7 characters wide (room for unknown or refused).

# Dates

- Spreadsheets and databases store dates as numbers (integers) that count the number of days since some start date.
  - Modern Excel:
    - Jan 1<sup>st</sup> 1900 is day 0, Jan 2<sup>nd</sup> 1990 is day 1, etc.
  - SAS:
    - Dec 31<sup>st</sup> 1959 is day -1, Jan 1<sup>st</sup> 1960 is day 0, Jan 2<sup>nd</sup> 1960 is day 1, etc.
- The columns of data are just formatted to look nice.
  - MM/DD/YYYY tends to import cleanly but gives massive headaches in international studies.
  - Use 3 columns for each date if it is even remotely possible to have missing information.

The calendar in Excel can start on Jan 1<sup>st</sup> 1904

# No Protected Health Information (PHI)

- In the past, the culture around Stanford was to do data extraction from charts and type the data onto Excel on laptops. **Do not do that** without taking special the precautions explained on the next slide.
- **Do NOT put protected health information (aka, HIPAA sensitive data) on unencrypted mobile media!**
  - That means do not put Excel files (or any other type of files) with PHI on your laptop, CDs, DVDs, or flash drives without encryption.

# How to Protect Your Data

- You must set up encryption tools on your laptop if it will house PHI:

<https://itservices.stanford.edu/service/encryption/wholedisk>

- If you need to email PHI you must set up secure email:

<https://itservices.stanford.edu/service/secureemail>

# What Excel Can Do

- While Excel is not a real database it can be used store data. I will show you the “right” way to use it.
- You will want to know many of these techniques for playing with REDCap (the right way to collect data).
  - Editing REDCap dictionaries
  - Bulk loading data into REDCap

# Setting up a Spreadsheet

- Use the annotated questionnaire to make column headings
  - Keep names short but meaningful
  - No spaces
  - No special characters
    - ~ ! @ # \$ % ^ & \* ( ) \_ -
  - Use camelcase
    - First letter of each word is capitalized

	A	B	C	D	E	F	G
1	dude	ageAtInterview	DOB	ethnicity	gender	hasCancer	dateOfDx
2							
3							

# Include a Dummy Record

- Include a fake first patient
  - Make the width of the character fields as wide as the widest possible value
    - African-American is 16 letters wide so use it for the fake subject's race
    - X234567890123456 is a nice way to force the width to be 16 letters wide

	A	B	C	D	E	F	G
1	dude	dateOfInterview	DOB	ethnicity	gender	hasCancer	dateOfDx
2	0	12-Jan-09	12-Jan-90	African-American	Unknown	Unknown	12/12/1990

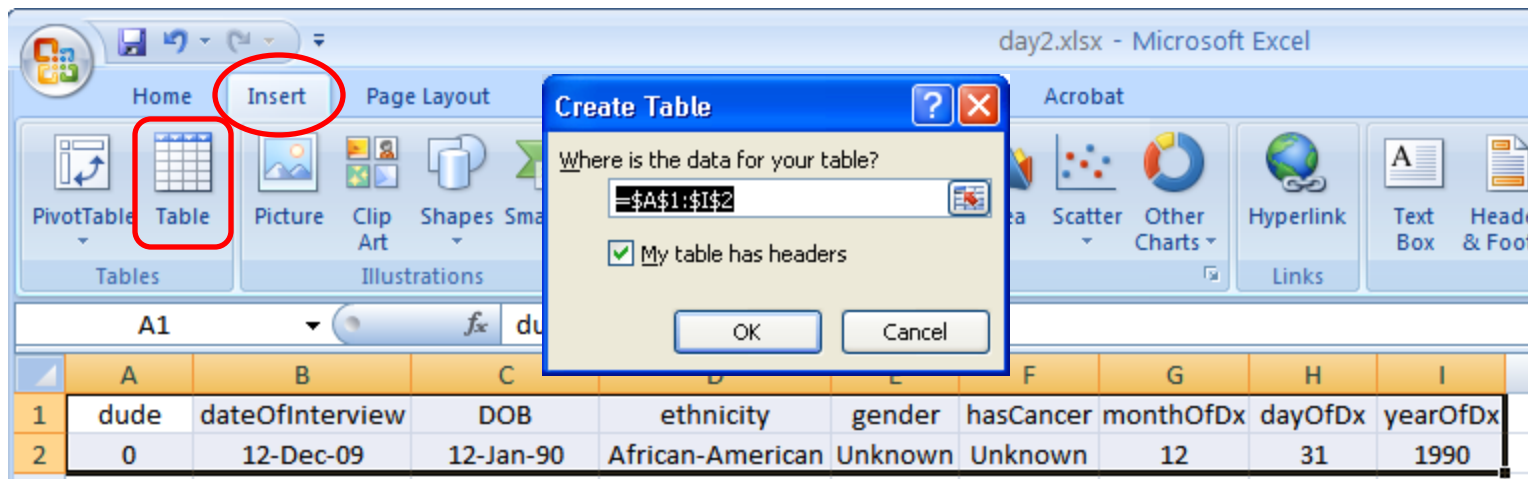


# NO Missing Data

- You want to have a value in every cell in your spreadsheets. If something is unknown, code it as “missing”, “unknown”, “refused”, “illegible”, “N/A”, etc..
- You want a **blank cell** to be a clear indicator that **something is wrong**.

# Make it a Table

- If you have Excel 2007, convert the values to be a table.
  - Select the header record and the dummy record



# Select Only the Real Table

- Do not select the entire spreadsheet and tell it to make it a table. That will cause headaches when the data is imported.
- If you inherit a spreadsheet that has the body of the table extended below or to the right of real data entry, delete the extra range of cells.
- You may need to copy and paste the data onto a new spreadsheet.

- The context specific Table tools show up when you have clicked anywhere inside of the table.

Give the table a name

Pick a color scheme

day2.xlsx - Microsoft Excel

Table Name: Table3

Table Tools Design

Table Styles

	A	B	C	D	E	F	G	H	I	J	K	L
1	dude	dateOfInterview	DOB	ethnicity	gender	hasCance	monthOfD	dayOfD	yearOfD			
2	0	12-Dec-09	12-Jan-90	African-American	Unknown	Unknown	12	31	1990			

day2.xlsx - Microsoft Excel

Table Name: Summary

Table Tools Design

Table Styles

	A	B	C	D	E	F	G	H	I	J	K	L
1	dude	dateOfInterview	DOB	ethnicity	gender	hasCancer	monthOfDx	dayOfDx	yearOfDx			
2	0	12-Dec-09	12-Jan-90	African-American	Unknown	Unknown	12	31	1990			

# Data Entry Help

- Row or column banding helps a LOT with data entry.

The screenshot shows the Microsoft Excel interface with the 'Table Tools Design' ribbon active. The 'Table Name' is 'Preg'. In the 'Table Style Options' group, the 'Banded Rows' checkbox is checked and highlighted with a red box. The table below has alternating row colors (purple and white) for rows 1 through 7.

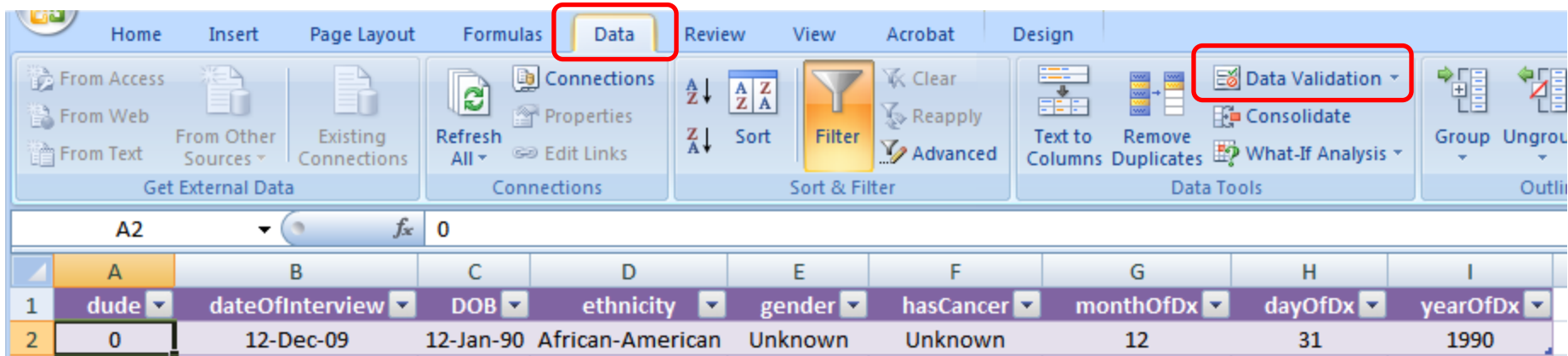
1	gender	gravidity	liveBirths	parityCalc	liveBirthsCalc
2	M	0	0	-999	-999
3	M			-999	-999
4	F	0	0	0	0
5	F	2	2	2	2
6	F	1	2	1	2
7	M	0	9	-999	-666

If you scroll down the table, the column headings are still displayed.

	gender	gravidity	liveBirths	parityCalc	liveBirthsCalc
4	F	0	0	0	0
5	F	2	2	2	2
6	F	1	2	1	2
7	M	0	9	-999	-666

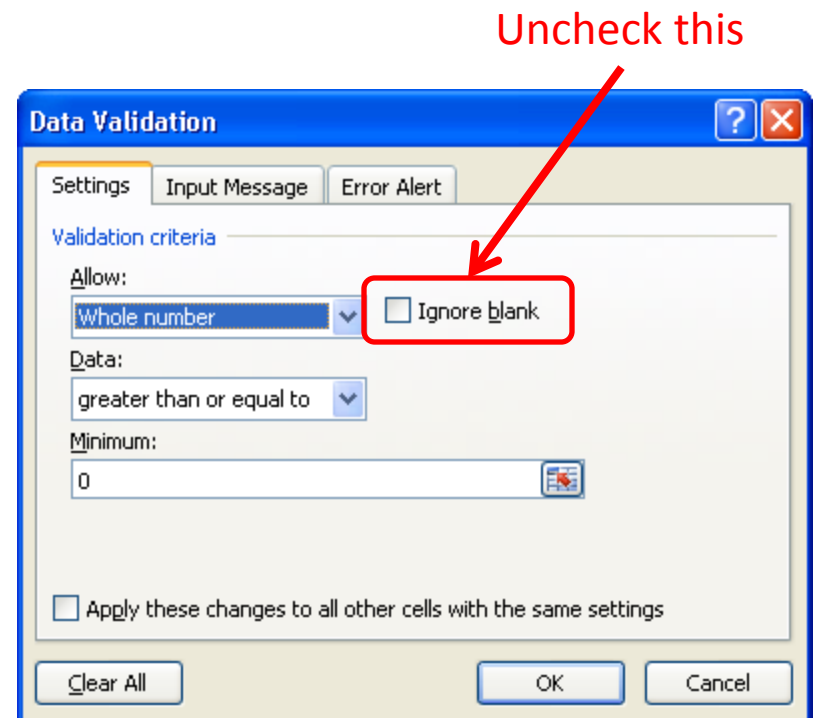
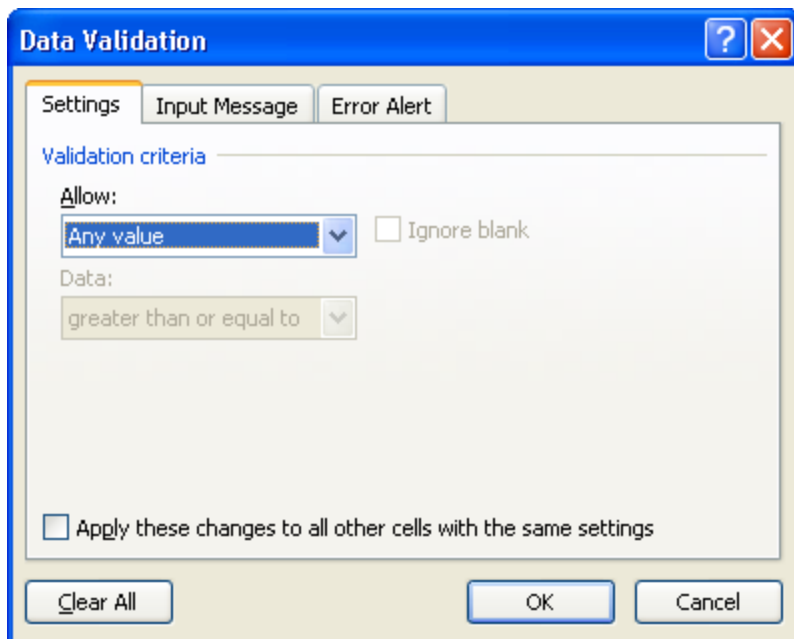
# Garbage In Garbage Out

- Prevent bad data from getting into your system with validation.
  - In Excel 2003 click on the column then open the Data menu and choose Validation...
  - In Excel 2007/2010 click a cell in the dummy record, then click on the Data tab and choose Data Validation



# Custom Validation

- By default you can put anything in any cell.
- Change the IDs to only allow whole numbers starting with 0.



# Validate Everything

**Data Validation** [?] [X]

Settings | Input Message | Error Alert

Validation criteria

Allow: Date [v]  Ignore blank

Data: between [v]

Start date: 01/01/2009 [calendar]

End date: 12/31/2009 [calendar]

Apply these changes to all other cells with the same settings

Clear All OK Cancel

**Data Validation** [?] [X]

Settings | Input Message | Error Alert

Validation criteria

Allow: List [v]  Ignore blank

Data: between [v]  In-cell dropdown

Source: African-American, Asian, Hispanic [calendar]

Apply these changes to all other cells with the same settings

Clear All OK Cancel

	A	B	C	D
1	dude [v]	dateOfInterview [v]	DOB [v]	ethnicity [v]
2	0	12-Dec-09	12-Jan-90	African-American [v]
3				African-American
4				Asian
				Hispanic



# Validation is Auto-filled

- The validation is filled-in down the table as you add new records.

	A	B	C	D	E
1	dude	dateOfInterview	DOB	ethnicity	gender
2	0	12-Dec-09	12-Jan-90	African-American	Unknown
3	1				
4	2				
5	blue				
6					
7					
8					
9					
10					
11					
12					

Microsoft Office Excel

The value you entered is not valid.  
A user has restricted values that can be entered into this cell.

Retry Cancel Help

The triangles indicate a note

	A	B
1	dude	dateOfInterview
2	0	12-Dec-09
3	1	
4	2	
5	3	
6		
7		
8		
9		
10		
11		
12		
13		

Data validation error

Display Type Information

Help on this error

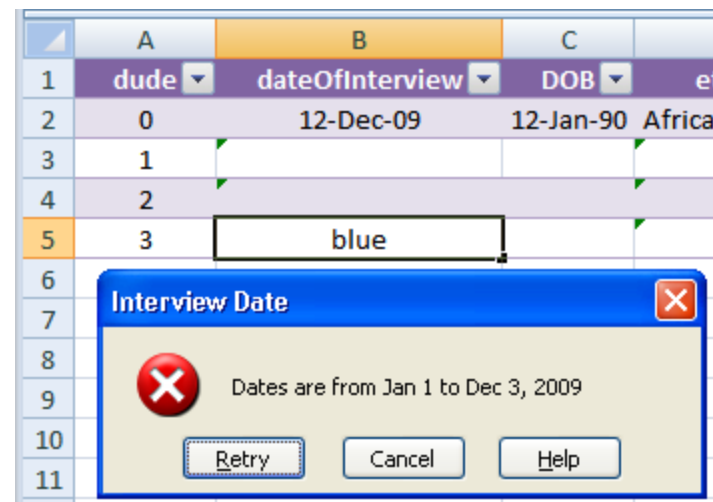
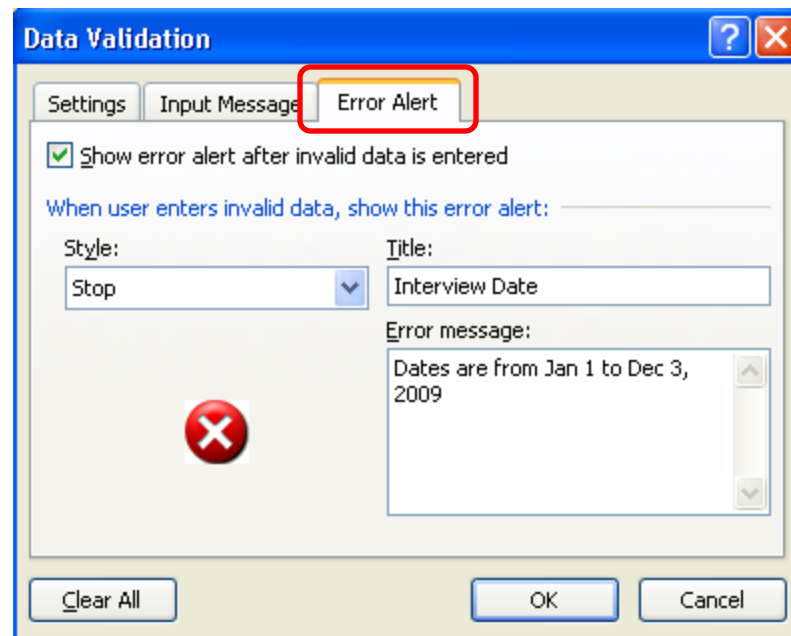
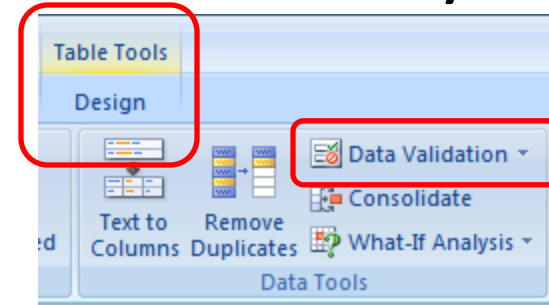
Ignore Error

Edit in Formula Bar

Error Checking Options...

# Custom Errors

- You can change and enhance the message. Click the validated cell(s) you want to modify and click Data validation.



# Known Missing/Bad Values

- If you have numeric fields and the values can conceivably include the values missing, refused to answer, or not applicable, allow that in the validation. Code the missing/bad values with **extremely large or small values** so they will stand out in your analyses.
  - Code year of birth with values like the year 3000
  - Code missing ages as -1000000

Extreme values will be easier to notice if they are accidentally included in an analysis.

# How to Ask Questions

- Do the case report forms lend themselves to easy analysis?
  - Try to get actual values instead of categories.
  - Be sure to **match the validation** on the spreadsheet **to any categories** you must use.
- What will happen to the analysis if a person forgets to answer or refuses to answer?
  - The default behavior is to **drop a person** who is missing any piece of information needed for the analysis.
  - Have codes for **every possible reason** for not having a value.

# A slide from the department of redundancy department

- For critical variables, in environments **when you can contact** the subjects immediately, **redundancy is useful**.
  - Subjects do NOT enjoy filling out their birthday or age three times in an afternoon.
- Always have a **yes and no check** box instead of a single “check here for yes”.
  - Patient had adverse event.

# Writing Formulas in Excel

- All formulas, from simple addition to complex validation begin with an equal sign.
- For arithmetic, type the =, then **click on the cell** you want to use in the formula, add in **math symbols** and **click on the other cells** you want to work with. It will usually use notation like A1 to say you are doing math based on the cell “A1” in the upper left corner. You can then drag around the cell with the formula and it will update the formula.

	A	B	C	D
1	10	11		
2	2	3		
3	2	4		

	A	B	C	D
1	10	11	=A1+B1	
2	2	3		
3	2	4		

	A	B	C	D
1	10	11	21	
2	2	3		
3	2	4		

F4 shifts from relative to absolute reference....

	A	B	C	D
1	10	11	21	
2	2	3	5	
3	2	4	6	
4				

D	E	F	G	H	I
	Hourly Rate		Project	Hours	
	\$125		A	3	=E\$2*H2
			B	2	
			C	12	

	A	B	C	D	E	F	G	H	I
1	reportedAge	DoB	DateOfExam	calcAge					
2	1	1/15/1990	1/1/1992	1		=Table5[[#This Row],[reportedAge]]			
3	39	1/18/1967	2/4/2009	42					

# Formulas with Text

- You can use Excel to write complex phrases. I want to have Excel use cells with numbers to complete the phrase “I will drink # shots of rum on day #”. To concatenate (shove together) phrases, use quoted phrases and the & operator .

Formula bar: HOUR    X ✓ fx    ="I will drink "& A1 &" shots of rum on day "& B1

	A	B	C	D
1	10	1	=\"I will drink \" & A1 & \" shots of rum on day \" & B1	
2	6	2		
3	5	3		
4	6	4		
5	7	5		
6	10	6		
7	0	7		



Book2

	A	B	C
1	10	1	I will drink 10 shots of rum on day 1
2	6	2	
3	5	3	
4	6	4	
5	7	5	
6	10	6	
7	0	7	

Drag the handle down

	A	B	C
1	10	1	I will drink 10 shots of rum on day 1
2	6	2	I will drink 6 shots of rum on day 2
3	5	3	I will drink 5 shots of rum on day 3
4	6	4	I will drink 6 shots of rum on day 4
5	7	5	I will drink 7 shots of rum on day 5
6	10	6	I will drink 10 shots of rum on day 6
7	0	7	I will drink 0 shots of rum on day 7

The text phrases can be anything but get the spaces right.

Note there is no space

No space

Space

Book2

C1    fx    ="I will drink"&A1 &"shots of rum on day" & B1

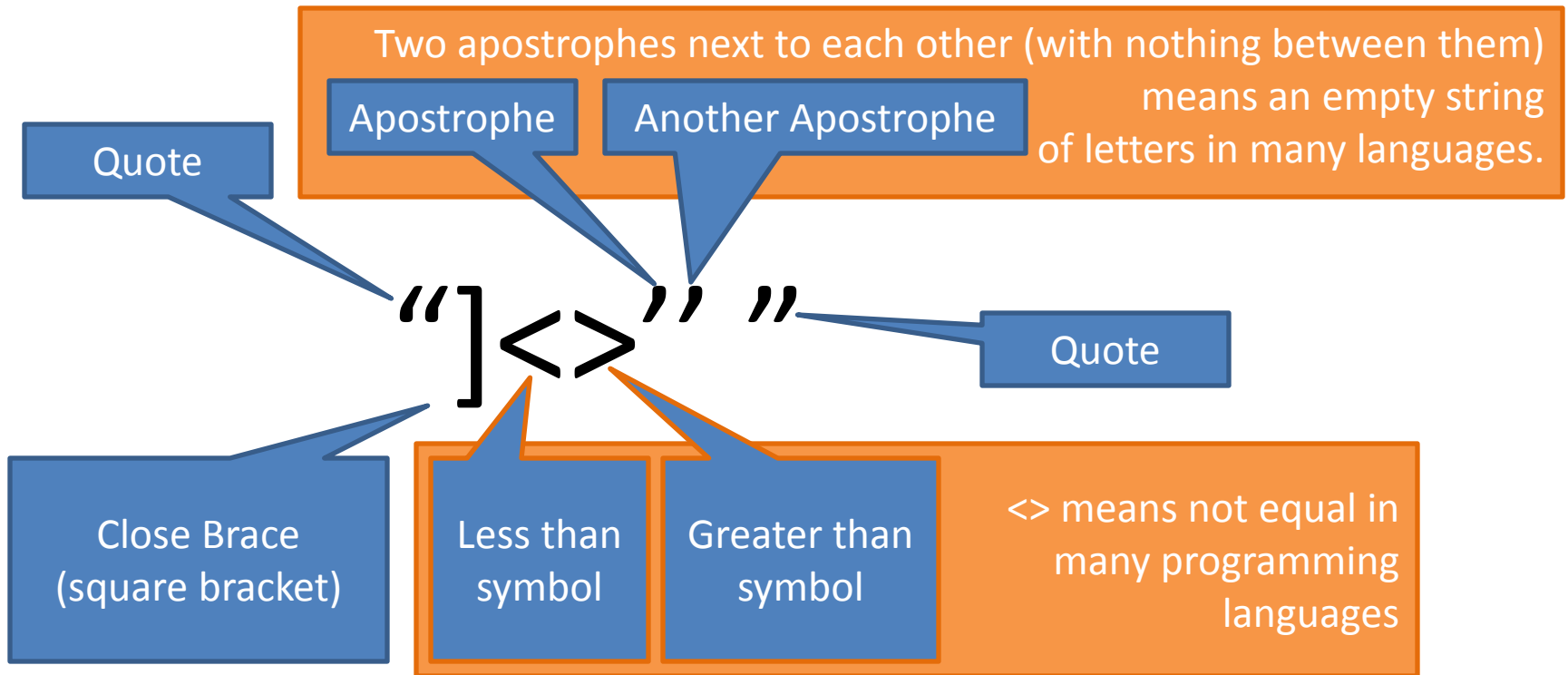
	A	B	C	D	E
1	10	1	I will drink10shots of rum on day 1		
2	6	2	I will drink6shots of rum on day 2		
3	5	3	I will drink5shots of rum on day 3		
4	6	4	I will drink6shots of rum on day 4		
5	7	5	I will drink7shots of rum on day 5		
6	10	6	I will drink10shots of rum on day 6		
7	0	7	I will drink0shots of rum on day 7		

No spaces

Space

# Quoted strings

- The text strings can be anything so long as they do not contain quotes. Apostrophes are ok. So, this is a legal phrase:



# Redundant

- If you decide to ask redundant questions, check the results early and often.
  - Ages: Excel has the hidden function called dateDif that can calculate ages:

=dateDif(firstDate, recentDate, "Y")

	A	B	C
1	reportedAge	DoB	DateOfExam
2	1	1/15/1990	1/1/1992
3	39	1/18/1967	2/4/2009

D2		fx =DATEDIF(B2,C2,"Y")		
	A	B	C	D
1	reportedAge	DoB	DateOfExam	calcAge
2	1	1/15/1990	1/1/1992	1
3	39	1/18/1967	2/4/2009	42

# Discrepancies

- To find discrepancies I add in another column and have Excel insert the number 1 if there is a discrepancy. Otherwise it inserts a 0.
- Once that is done it is easy to find and count the problems.

=if(logicCheck, valuelfTrue, valuelfFalse)

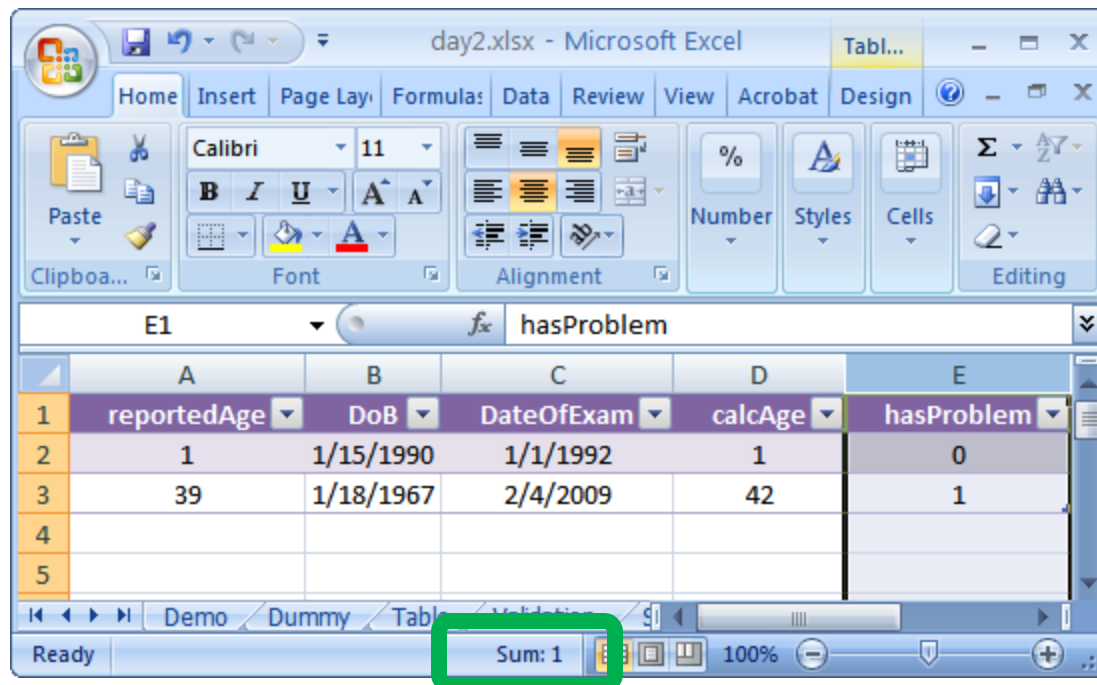
	A	B	C	D	E
1	reportedAge	DoB	DateOfExam	calcAge	hasProblem
2	1	1/15/1990	1/1/1992	1	0
3	39	1/18/1967	2/4/2009	42	1

# Logic Checks

- If you have a column of data holding only yes/no information, it is very convenient to score it as 1 instead of “yes” and 0 instead of “no”.
- Any programmer (or well trained statistician) will thank you for using this convention and it makes your life easier.

# Quick Notification

- Excel can display common summary statistics automatically at the bottom of the window, including the sum of a column to count the number of “yes” responses in a column.



Right click on the status bar and click on which statistics to display for a selected range of cells.

The screenshot shows the Excel interface with the 'Customize Status Bar' context menu open. The menu lists the following items:

- Cell Mode: Ready
- Signatures: Off
- Information Management Policy: Off
- Permissions: Off
- Caps Lock: Off
- Num Lock: Off
- Scroll Lock: Off
- Fixed Decimal: Off
- Overtype Mode
- End Mode
- Macro Recording: Not Recording
- Selection Mode
- Page Number
- Average: 0.5
- Count: 3
- Numerical Count: 2
- Minimum
- Maximum
- Sum: 1
- View Shortcuts
- Zoom: 100%
- Zoom Slider

The background shows the Excel ribbon with the 'Home' tab selected, and a spreadsheet with columns 'reportedAge', 'DoB', and 'DateO'. The status bar at the bottom shows 'Ready' and 'Sum: 1'.

# Yes and No Checklist

- Are all forms numbered? Are all pages numbered? Are forms preprinted with ID numbers? Do the forms look visually distinct?
- Are all types of missing data accounted for in the coding?
  - PLEASE do this.
  - At what age did you first contract a sexually transmitted disease?
- Are blocks of questions set to missing?
  - Plan on having a secret code indicating when values were automatically set to no.
- Are there comment/“free text” fields?
  - Avoid them like something pokey...
- **Have a value for every cell in the spreadsheet.**




**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 **471 active institutional partners** from CTSA, GCRC, RCMI and other institutions in **49 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 **46,500 projects** with over **61,800 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

[View fullscreen map](#)

**Recent research studies citing REDCap:**

Results from a Prospective, International, Epidemiologic Study of Invasive Candidiasis in Children and Neonates. *Pediatr Infect Dis J.* 2012 Sep 13. [Epub ahead of print].

Acute Kidney Injury Following Bariatric Surgery *Obes Surg.* 2012 Sep 13. [Epub ahead of print].

Coinfection with Staphylococcus aureus increases risk of severe coagulopathy in critically ill children with influenza A (H1N1) virus infection *Crit Care Med.* 2012 Sep 11. [Epub ahead of print].

Histopathology and correlates of systemic disease in adult Henoch-Schönlein purpura: A retrospective study of microscopic and clinical findings in 68 patients at Mayo *J Am Acad Dermatol.* 2012 Sep 5. [Epub ahead of print].


Nonalcoholic Steatohepatitis in Bariatric Patients with a Diagnosis of Obstructive Sleep Apnea *Obes Facts* 2012;5:587-596 (DOI: 10.1159/000342677).




Impact of Door-to-Activation Time on Door-to-Balloon Time in Primary Percutaneous Coronary Intervention for ST-Segment Elevation Myocardial Infarctions A Report From the Activate-SF Registry. *Circ Cardiovasc Qual Outcomes.* 2012 Sep 4. [Epub ahead of print].

[View all 129 articles](#)

**CTSA** Clinical & Translational Science Awards

The Clinical and Translational Science Awards (CTSA) is a registered trademark of DHHS.

 Editing existing Study ID "01"

<b>Study ID</b>	01
<b>Date of Diagnosis</b>	2010-07-17 
<b>Location when infected</b> <small>* must provide value</small>	Sudan 
<b>Symptoms</b>	<input checked="" type="checkbox"/> Fever <input checked="" type="checkbox"/> Headache <input checked="" type="checkbox"/> Muscle pain <input type="checkbox"/> Inflammation of pharynx <input type="checkbox"/> Vomiting <input type="checkbox"/> Diarrhea <input checked="" type="checkbox"/> Coagulopathy
<b>Medical History</b>	<input type="checkbox"/> Diabetes <input type="checkbox"/> Heart disease <input type="checkbox"/> Cancer <input type="checkbox"/> AIDS <input type="checkbox"/> Other
<b>Current medication</b>	<input type="text"/>
<b>Previous treatment</b>	<input checked="" type="checkbox"/> Intravenous fluids <input type="checkbox"/> Blood transfusion <input checked="" type="checkbox"/> Convalescent plasma transfusion <input checked="" type="checkbox"/> Other
<b>Body Type</b>	Normal 
<b>Eats nachos regularly</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No
	<a href="#">reset value</a>
<b>Received ebola vaccine</b> <small>* must provide value</small>	<input type="radio"/> Yes <input checked="" type="radio"/> No
	<a href="#">reset value</a>
<b>Complete Blood Count (CBC)</b>	
<b>White Blood Cells</b>	15.4 K/uL
	3.21

# REDCap Instead of Excel

- REDCap (Research Electronic Data Capture) is a very user friendly web based data collection and storage program.
- **REDCap** databases let people with a SUNet ID enter data.
- **REDCap surveys** lets your patients fill out surveys via the web.
- You can either annotate your case report forms and then use that information to set up a REDCap database or you can do the annotation directly inside of REDCap.

# Open Sesame

- If you are working off campus you first need to open the door through the Stanford Medical School firewall. Take a look here:

<https://medwiki.stanford.edu/display/cieveryone/REDCap+FAQ>

- The easy solution is to secure your session first:

<https://susl.stanford.edu/redcap/,DanaInfo=redcap.stanford.edu,SSL+index.php>



## Stanford University SSL VPN

SUNet ID

Password

Please sign in to begin your secure session.

Patient demographic information:

Last name: \_\_\_\_\_ First name: \_\_\_\_\_ Middle initial: \_\_\_\_\_

DOB: \_\_\_\_\_ Age: \_\_\_\_\_

Country of birth: \_\_\_\_\_

This is an extra variable.

Race:  White  Black  Asian/Pacific Islander  East/South Asian  Other \_\_\_\_\_

Ethnicity:  Hispanic  Non-hispanic

Reason for seeking care: What was the most important symptom that prompted you to first seek medical care for your cancer (what symptom did you have that led to the initial evaluation by a doctor)?

- No symptoms – cancer found unexpectedly during a radiological test (CT, MRI, X-ray, ultrasound)
- No symptoms – cancer found unexpectedly during a sigmoidoscopy / colonoscopy
- Abdominal / belly pain
- Back pain
- Blood in stool
- Bone pain
- Chest pain
- Constipation
- Cough
- Diarrhea
- Difficulty swallowing (solid foods only)
- Difficulty swallowing (solids and liquids)
- Enlarged lymph nodes
- Excessive tiredness
- Fever / night sweats
- Flushing
- Jaundice / skin or eyes yellow
- Loss of appetite
- Shortness of breath
- Shoulder pain
- Vomiting blood
- Weight loss
- Other (Please specify: \_\_\_\_\_)

This is an extra variable.

This is 3 variables.

At approximately what date did this symptom become apparent to you? \_\_\_\_/\_\_\_\_/\_\_\_\_

PHI

These are not mutually exclusive. So you need many yes and no variables.

These are mutually exclusive so only one variable.

Other demographics and medical information

## Gastrointestinal Oncology Patient Questionnaire

Patient demographic information:

 Last name: last First name: first Middle initial: middle

 DOB: dob Age: age

 Country of birth: country

 Race:  White  Black  Asian/Pacific Islander  East/South Asian  Other \_\_\_\_\_  
*racewhite raceblack raceasian raceeast raceother racedetail*

 Ethnicity:  Hispanic  Non-hispanic ishispanic

 Reason for seeking care: What was the most important symptom that prompted you to **first** seek medical care for your cancer (what symptom did you have that led to the initial evaluation by a doctor)?

- No symptoms – cancer found unexpectedly during a radiological test (CT, MRI, X-ray, ultrasound)
- No symptoms – cancer found unexpectedly during a sigmoidoscopy / colonoscopy
- Abdominal / belly pain
- Back pain
- Blood in stool
- Bone pain
- Chest pain
- Constipation
- Cough
- reason*  Diarrhea
- Difficulty swallowing (solid foods only)
- Difficulty swallowing (solids and liquids)
- Enlarged lymph nodes
- Excessive tiredness
- Fever / night sweats
- Flushing
- Jaundice / skin or eyes yellow
- Loss of appetite
- Shortness of breath
- Shoulder pain
- Vomiting blood
- Weight loss
- Other (Please specify: reasonother)

 At approximately what date did this symptom become apparent to you?            /            /           
*Symptomyear  
 Symptommonth  
 Symptomday*

# Case Report Forms

- Where we are going... Ebola:

*Ebola Clinical Trial*  
Page 1 of 1

## Demographics

Study ID \_\_\_\_\_

---

---

### Demographics Information

First Name \_\_\_\_\_

Last Name \_\_\_\_\_

Date of Birth \_\_\_\_\_

Gender  Female  
 Male

Street, City, State, ZIP \_\_\_\_\_

Phone number \_\_\_\_\_

---

---

### Form Status

Complete?  Incomplete  
 Unverified  
 Complete

# Baseline Assessment

Study ID \_\_\_\_\_

Date of Diagnosis \_\_\_\_\_

Location when infected

- Zaire
- Sudan
- Cote d'Ivoire
- Congo
- Uganda
- Other African country
- Other - outside Africa

Symptoms

- Fever
- Headache
- Muscle pain
- Inflammation of pharynx
- Vomitting
- Diarrhea
- Coagulopathy

Medical History

- Diabetes
- Heart disease
- Cancer
- AIDS
- Other

Other significant medical history \_\_\_\_\_

Current medication \_\_\_\_\_

Second medication \_\_\_\_\_

Third medication \_\_\_\_\_

Forth medication \_\_\_\_\_

Fifth medicaiton \_\_\_\_\_

Sixth medication \_\_\_\_\_

Seventh medication \_\_\_\_\_

Eighth medication \_\_\_\_\_

Ninth medication \_\_\_\_\_

Tenth medication \_\_\_\_\_

Previous treatment

- Intravenous fluids
- Blood transfusion
- Convalescent plasma transfusion
- Other

Body Type

- Underweight
- Normal
- Overweight
- Obese

Eats nachos regularly

- Yes
- No

Received ebola vaccine

- Yes
- No

If yes, when? \_\_\_\_\_

---

---

## Complete Blood Count (CBC)

White Blood Cells \_\_\_\_\_  
(K/uL)

Red Blood Cells \_\_\_\_\_  
(MIL/uL)

Hemoglobin \_\_\_\_\_  
(g/dL)

---

---

## Coagulation

Platelet Count \_\_\_\_\_  
(K/uL)

Prothrombin time \_\_\_\_\_  
(s)

---

---

## Form Status

Complete?

- Incomplete
- Unverified
- Complete



## Outcome

Study ID

\_\_\_\_\_

Treatment

- A
- B
- C

Final status

- Cured
- Not Cured as of 7/26/10
- Dead from ebola
- Dead of other cause
- Censored/lost contact

Date of event

\_\_\_\_\_

Date of last contact

\_\_\_\_\_


---

---





### Form Status








Complete?





















- Incomplete
- Unverified
- Complete

 **REDCap Training Resources****Just Getting Started?**

In 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
<b>REDCap Overview</b>	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
<b>Building Your Data Collection Forms</b>	<b>The Online Designer</b> 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
	<b>The Data Dictionary</b> Use this offline method, called the 'Data Dictionary', which is a specifically formatted Microsoft Excel file within which you may construct your project fields and afterward upload the file into REDCap to commit the changes to your project. If you wish to view an example of how your Data Dictionary may be formatted, you may download the <a href="#">Data Dictionary demonstration file</a> .	 14 minutes
<b>The Scheduling Module</b>	If you elect to utilize the Scheduling module in your REDCap project, you may then generate schedules based upon pre-defined events/time-points, after which the scheduled events get added to your project calendar. Scheduling may be done in conjunction with proper data collection, or scheduling may be performed on its own.	 6 minutes

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
Pain Self Assessment	6	12		
TS Stability	0	58		
TS Stability Long	1	58		
Pain Self Assessment	0	9		
Pain Self 2	3	12		
TS Stuff	0	7		
Night Float	34	166		
Fistula Project	1	16		
Obstetric Fistula	0	119		
Pain Showing Off	3	11		



Look here

The projects listed below are public and are accessible by anyone. No authentication (i.e. username/password) is required to access them directly.

#### Public Projects

Example Database

Example Database (Longitudinal)

Example Survey

# Starting with a Description

Home

My Projects

[+ Create New Project](#)

[🗑️ Training Resources](#)

[🔗 Help & FAQ](#)

## Create a new REDCap Project

You may begin the creation of a new REDCap project on your own by completing the form below and clicking the Create Project button at the bottom.

Project title:

Title to be displayed on project webpage

Purpose of this project:

*(How will it be used?)*

Design your project:

### STEP 1: Choose the type of project you want to build [Tell me more](#)

- Single Survey
- Data Entry Forms (e.g. traditional database)
- Single Survey + Data Entry Forms (e.g. pre-screening survey with follow-up data capture)

### STEP 2: Choose collection format for data entry forms [Tell me more](#)

- Classic** (each form available for use once for each subject/record)
- Longitudinal / repeating forms** (each form available for use one or more times for each subject/record)
  - Enable the scheduling module? [Tell me more](#)

Create Project

Cancel

Subjects fill it out

Your team fills it out

Typically recruitment  
then follow-up

Project status: Development

Icons show design progress

Where you just were and general settings.

**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  or

Most of your design time will be spent here.

**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 links: [Download PDF of all data collection instruments](#) OR [Download the current Data Dictionary](#)

Go to  or

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

**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  or

When you think it is ready to use move to production.

**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

**Share your instruments with others via the REDCap Shared Library**

When in production, you may share single data collection instruments from this project with other REDCap users around the world. This is done by uploading your instruments to the REDCap Shared Library. Select the instrument below that you wish to share. Before allowing you to share your instrument, you will be asked to fill out some basic information. (NOTICE: Copyrighted material may not be shared unless you are the owner.) [What is the REDCap Shared Library?](#)

You cannot share instruments to the REDCap Shared Library right now because you are currently in Draft Mode.

Share your blank collection forms with the world.

**Modify your data collection instruments in Draft Mode**

Once in production, you may still modify or add fields to the project, if you desire. 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.

Go to  or

Tweaks after the system is in production.



Not started

I'm done!

## 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 links: [Download PDF of all data collection instruments](#) OR [Download the current Data Dictionary](#)

Go to  or


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

 [VIDEO: How to use this page](#)

The Online Designer will allow you to make project modifications to fields and data collection instruments very easily using only your web browser. Below you have the options to select an existing form to edit, to delete a form, to create a new form, and to reorder your forms as they are displayed. NOTE: While in development status, all field changes will take effect immediately in real time.





**Data Collection Instruments**

Add new instrument:  new instrument from scratch

a new instrument from the REDCap Shared Library 

Instrument name	Fields	Actions
Demographics	7	<input type="button" value="Rename"/> <input type="button" value="Delete"/>

Add Field Here

    Variable: study\_id





**Study ID**

Add Field Here


**Demographics Information**

Add Field Here

    Variable: first\_name

**First Name**

Add Field Here

    Variable: last\_name

**Last Name**

Add Field Here

    Variable: dob

**Date of Birth**

  Today Y-M-D

Add Field Here

    Variable: sex

**Gender**

 ▼




Add Field Here

    Variable: address

**Street, City, State, ZIP**

Expand

Add Field Here

    Variable: phone\_number

**Phone number**

Add Field Here

◀ Project Setup

📄 Online Designer

📁 Upload Data Dictionary

🎥 [VIDEO: How to use this page](#)





This page allows you to build and customize your data collection instruments one field at a time. You may add new fields or edit existing ones. New fields may be added by clicking the **Add Field Here** buttons. You can begin editing an existing field by clicking on the **Edit** icon. If you decide that you do not want to keep a field, you can simply delete it by clicking on the **Delete** icon. To reorder the fields, simply **drag and drop** a field to a different position within the form below. NOTE: While in development status, all field changes will take effect immediately in real time.

◀ Return to list of Data Collection Instruments

Current instrument: **Demographics**

Preview instrument

Add Field Here

    Variable: study\_id


**Study ID**

Add Field Here

Do not put anything  
before Study ID



### Edit Field ✕

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will automatically be appended to the form on this page. For an overview of the different field types available, you may view the  [Field Types video \(5 min\)](#).

Field Type:

**Field Label**

**Variable Name** (utilized during data export)  
  
ONLY letters, numbers, and underscores


**Validation?** (optional)

**Required?\***  No  Yes  
\* Prompt if field is blank

**Identifier?**  No  Yes  
Does the field contain identifying information (e.g. name, SSN, address)?

**Custom Alignment**   
Align the position of the field on the page

**Field Note** (optional)   
Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

This is Protected Health Information. So mark it.

Remember that *dates are PHI*. This causes headaches for statisticians who want HIPAA clean data.



# Adding a Custom Collection Form

◀ Project Setup

📄 Online Designer


📁 Upload Data Dictionary

🎥 [VIDEO: How to use this page](#)

This page allows you to build and customize your data collection instruments one field at a time. You may add new fields or edit existing ones. New fields may be added by clicking the **Add Field Here** buttons. You can begin editing an existing field by clicking on the  **Edit** icon. If you decide that you do not want to keep a field, you can simply delete it by clicking on the  **Delete** icon. To reorder the fields, simply **drag and drop** a field to a different position within the form below. NOTE: While in development status, all field changes will take effect immediately in real time.

◀ Return to list of Data Collection Instruments

**Data Collection Instruments**

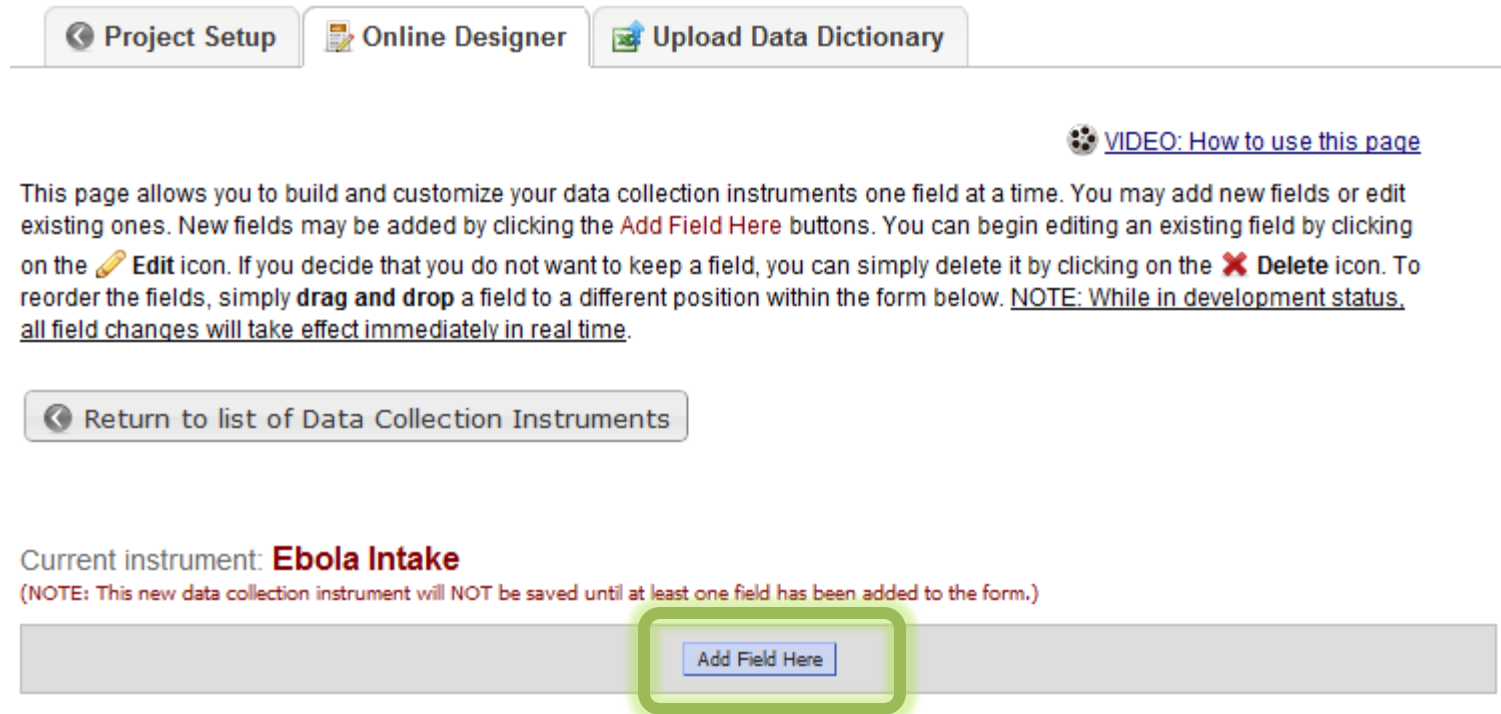
Add new instrument:  new instrument from scratch  
 a new instrument from the REDCap Shared Library 

Instrument name	Fields	Actions
Demographics	7	<input type="button" value="Rename"/> <input type="button" value="Delete"/>

New instrument name:


# Starting from a Blank Form


- Just add a question/field....



The screenshot shows a navigation bar with three buttons: 'Project Setup', 'Online Designer' (which is the active page), and 'Upload Data Dictionary'. Below the navigation bar, there is a video icon and a link labeled 'VIDEO: How to use this page'. The main text explains that the page allows building and customizing data collection instruments one field at a time, with instructions on adding, editing, and deleting fields. A 'Return to list of Data Collection Instruments' button is located below the text. At the bottom, the current instrument is identified as 'Ebola Intake', and a note states that the instrument will not be saved until at least one field is added. A large grey rectangular area contains a blue 'Add Field Here' button, which is highlighted with a green rounded rectangle.

◀ Project Setup   Online Designer   Upload Data Dictionary

 [VIDEO: How to use this page](#)

This page allows you to build and customize your data collection instruments one field at a time. You may add new fields or edit existing ones. New fields may be added by clicking the **Add Field Here** buttons. You can begin editing an existing field by clicking on the  **Edit** icon. If you decide that you do not want to keep a field, you can simply delete it by clicking on the **✖ Delete** icon. To reorder the fields, simply **drag and drop** a field to a different position within the form below. NOTE: While in development status, all field changes will take effect immediately in real time.


◀ Return to list of Data Collection Instruments

Current instrument: **Ebola Intake**  
(NOTE: This new data collection instrument will NOT be saved until at least one field has been added to the form.)

Add Field Here

## Add New Field



You may add a new database field to this data entry form by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will automatically be appended to the form on this page. For an overview of the different field types available, you may view the  [Field Types video \(5 min\)](#).

### Select a Type of Field

---- Choose Field Type ----




Field Type:

- Select a Type of Field ----
- Text Box (Short Text)**
- Notes Box (Paragraph Text)
- Calculated Field
- Multiple Choice - Radio Buttons (Only One Answer)
- Multiple Choice - Drop-down List (Only One Answer)
- Checkboxes (Check All That Apply)
- Yes - No
- True - False
- Slider / Visual Analog Scale
- File Upload (for users to upload files)
- Descriptive Text (with optional Image/File Attachment)
- Begin New Section (Section Header with Descriptive Text)

## Add New Field



You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will automatically be appended to the form on this page. For an overview of the different field types available, you may view the  [Field Types video \(5 min\)](#).

Field Type:

### Field Label

Date of Diagnosis

### Variable Name (utilized during data export)

ONLY letters, numbers, and underscores

### Validation? (optional)

---- None ----

Date (M-D-Y)

Date (Y-M-D)

Datetime (M-D-Y H:M)

Datetime (Y-M-D H:M)

Datetime w/ seconds (M-D-Y H:M:S)

Datetime w/ seconds (Y-M-D H:M:S)

Email


Integer

Number

Phone (U.S.)

Time (H:M)

Zipcode (U.S.)

Looking for branching logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

Use a short easy to type name.

It is important to set this correctly before you start to collect data. Changing it in mid study can break things badly when you export.


Save

Cancel



## Add New Field



You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will automatically be appended to the form on this page. For an overview of the different field types available, you may view the  [Field Types video \(5 min\)](#).

Field Type:

### Field Label

Date of Diagnosis

### Variable Name (utilized during data export)

ONLY letters, numbers, and underscores

### Validation? (optional)

Minimum:

Maximum:

Required?\*  No  Yes

\* Prompt if field is blank

Identifier?  No  Yes


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

Custom Alignment

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.





Save

Cancel

Moments after you push Save you will remember this is PHI...


Click to edit

[Add Field Here](#)

    Variable: diagnosis\_date

**Date of Diagnosis**

\* must provide value

 Today Y-M-D

[Add Field Here](#)

### Edit Field ✕

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will automatically be appended to the form on this page. For an overview of the different field types available, you may view the [Field Types video \(5 min\)](#).

Field Type:

**Field Label**

Date of Diagnosis

**Variable Name** (utilized during data export)

ONLY letters, numbers, and underscores

**Validation?** (optional)

**Minimum:**

**Maximum:**

**Required?\***  No  Yes

\* Prompt if field is blank

**Identifier?**  No  Yes


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

**Custom Alignment**

Align the position of the field on the page

**Field Note** (optional)

Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

Set to Yes or leave as No and date shift all values.

# Pick One

Field Type: **Multiple Choice - Radio Buttons (Only One Answer)**

---- Select a Type of Field ----  
Text Box (Short Text)  
Notes Box (Paragraph Text)  
Calculated Field  
**Multiple Choice - Radio Buttons (Only One Answer)**  
Multiple Choice - Drop-down List (Only One Answer)  
Checkboxes (Check All That Apply)  
Yes - No  
True - False  
Slider / Visual Analog Scale  
File Upload (for users to upload files)  
Descriptive Text (with optional Image/File Attachment)  
Begin New Section (Section Header with Descriptive Text)

Field Type: **Multiple Choice - Drop-down List (Only One Answer)**

**Field Label**  
Location where infected

**Choices (one choice per line)**  
Zaire  
Sudan  
Cote d'Ivoire  
Congo  
Uganda  
Other African country  
Other - outside Africa

[How do I manually code the choices?](#)


**Variable Name** (utilized during data export)  
location\_inf  
ONLY letters, numbers, and underscores

**Required?\***  No  Yes  
\* Prompt if field is blank





**Identifier?**  No  Yes  
Does the field contain identifying information (e.g. name, SSN, address)?

**Custom Alignment** Right / Vertical (RV)  
Align the position of the field on the page

**Field Note** (optional)  
Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.



    Variable: location\_inf

**Location where infected**

\* must provide value

Click to double check the question.

Field Type:

**Field Label**

Location where infected

**Variable Name** (utilized during data export)

ONLY letters, numbers, and underscores

**Required?\***  No  Yes

\* Prompt if field is blank

**Identifier?**  No  Yes


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

**Custom Alignment**

Align the position of the field on the page

**Field Note** (optional)

Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

[How do I manually code the choices?](#)

When you return notice that secret code numbers were created. What does it mean if location\_inf = 5

# Pick Many

Select a Type of Field

---- Choose Field Type ----

---- Choose Field Type ----

- Text Box
- Notes / Essay Box
- Calculated Field
- Multiple Choice (Only One Answer) - Radio Buttons
- Multiple Choice (Only One Answer) - Drop-down List
- Multiple Choice (Multiple Answers) - Checkboxes
- File Upload
- Begin New Section (Section Header with Descriptive Text)

Field Type: Checkboxes (Check All That Apply)

Field Label

Symptoms

Choices (one choice per line)

- Fever
- Headache
- Muscle pain
- Inflammation of pharynx
- Vomiting
- Diarrhea
- Coagulopathy

Variable Name (utilized during data export)

symptoms

ONLY letters, numbers, and underscores

Required?\*  No  Yes [Disabled]

\* Prompt if field is blank

Identifier?  No  Yes


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

Custom Alignment Right / Vertical (RV)

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

[How do I manually code the choices?](#)

# Multiple Choice coding

Field Type:

Field Label

Choices (one choice per line)  
1, Fever  
2, Headache  
3, Muscle pain  
4, Inflammation of pharynx  
5, Vomiting  
6, Diarrhea  
7, Coagulopathy


Variable Name (utilized during data export)  
  
ONLY letters, numbers, and underscores

Required?\*  No  Yes [Disabled]  
\* Prompt if field is blank

Identifier?  No  Yes  
Does the field contain identifying information (e.g. name, SSN, address)?

Custom Alignment   
Align the position of the field on the page

Field Note (optional)   
Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

[How do I manually code the choices?](#)

When you return notice that secret code numbers were created. What does it mean if symptom #5 = 1 ?

# Branching Logic

## Add New Field ✕

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will automatically be appended to the form on this page. For an overview of the different field types available, you may view the [Field Types video \(5 min\)](#).

Field Type:

**Field Label**

Medical History

**Choices (one choice per line)**

Diabetes  
Heart disease  
Cancer  
AIDS  
Other

**Variable Name** (utilized during data export)

history

ONLY letters, numbers, and underscores

**Required?\***  No  Yes [Disabled]  
\* Prompt if field is blank


**Identifier?**  No  Yes  
Does the field contain identifying information (e.g. name, SSN, address)?

**Custom Alignment**

Align the position of the field on the page

**Field Note** (optional)

Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

I want to have another question appear to hold the text answer for the other diseases in the medical history. Try to cover all possibilities in the checkboxes but allow exceptions.

# The Follow-up Question

Field Type:

Field Label

Variable Name (utilized during data export)  
  
ONLY letters, numbers, and underscores

Validation? (optional)





Required?\*  No  Yes  
\* Prompt if field is blank

Identifier?  No  Yes  
Does the field contain identifying information (e.g. name, SSN, address)?

Custom Alignment   
Align the position of the field on the page

Field Note (optional)   
Small reminder text displayed underneath field



    Variable: other\_history

**Other significant medical history**

Branching Logic may be employed when fields/questions need to be hidden under certain conditions. If branching logic is defined, the field will only be visible if the conditions provided are true (i.e. show the field only if...). You may specify those conditions in the text box below for the Advanced Branching Logic Syntax or by choosing the Drag-N-Drop Logic Builder method, which allows you to build your logic in a much easier fashion by simply dragging over the options you want. You may switch back and forth between each method if you wish, but please be aware that since the advanced logic allows for greater complexity, it may not be able to be switched over to the Drag-N-Drop method if it becomes too complex.

Choose method below for the following field: **other\_history** - *Other significant medical history*

**Advanced Branching Logic Syntax**

[\(How do I use the advanced syntax?\)](#)

Show the field ONLY if...

[history(5)] = '1'

The equation  $[history(5)] = "1"$  goes with the follow-up question. The history question needs to have choice 5 selected for this question to appear.

— OR —

**Drag-N-Drop Logic Builder**

Displaying field choices for the following data collection instrument:

Ebola Intake

Field choices from other fields

(drag a choice below to box on right)

- symptoms = Coagulopathy (7)
- history = Diabetes (1)
- history = Heart disease (2)
- history = Cancer (3)
- history = AIDS (4)
- history = Other (5)
- ebola\_intake\_complete = Incomplete (0)
- ebola\_intake\_complete = Unverified (1)
- ebola\_intake\_complete = Complete (2)

Show the field ONLY if...

ALL below are true

ANY below are true

history = Other (5) X

Drag and Drop

[Clear logic](#)


Save

Cancel



## Add New Field



You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will automatically be appended to the form on this page. For an overview of the different field types available, you may view the  [Field Types video \(5 min\)](#).

Field Type:

### Field Label

White Blood Cells

### Variable Name (utilized during data export)

wbc

ONLY letters, numbers, and underscores

### Validation? (optional)

Number

Minimum:

Maximum:

Required?\*  No  Yes

\* Prompt if field is blank

Identifier?  No  Yes


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

Custom Alignment

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

Save

Cancel

    Variable: wbc

White Blood Cells

K/uL

## Edit Field

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will automatically be appended to the form on this page. For an overview of the different field types available, you may view the [Field Types video \(5 min\)](#).

Field Type:

### Field Label

What is your medical record number?

Variable Name (utilized during data export)

ONLY letters, numbers, and underscores

Validation? (optional)

Minimum:

Maximum:

Required?\*  No  Yes

\* Prompt if field is blank

Identifier?  No  Yes


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

Custom Alignment

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Looking for Branching Logic? Try clicking the  icon for this field after clicking the Save or Cancel button below.

Save

Cancel

Only valid MRNs allowed

This is PHI

Field notes are typically labels printed below the response box (like units for a lab value) but you can include HTML code.

The code below adds a hyperlink so people can look-up their MRN:  
<a href="https://myhealth.stanfordmedicine.org" TARGET="\_blank">  
Click here to look-up your MRN under Patient Information </a>



What is your medical record number?

\* must provide value

[Click here to look-up your MRN under Patient Information](#)

Please respond to each item by marking one answer per question.

In the past 7 days...

How much did pain interfere with your enjoyment of life?...

\* must provide value

- 1 Not at all
- 2 A little bit
- 3 Somewhat
- 4 Quite a bit
- 5 Very much

[reset value](#)



*my* HEALTH ANYTIME ACCESS TO YOUR HEALTH INFORMATION

Thanks for using MyHealth.  
You have been logged out.

**Returning User**

**MyHealth at Stanford ID**

[Forgot MyHealth ID?](#)

**Password**

[Forgot Password?](#)

**Sign In**

**Now you can check your health records and appointments privately online at your own convenience.**

MyHealth is an internet tool that allows patients to securely access their health information and contact their Stanford clinic.

**With MyHealth Patients Can:**

- Access key elements of their health information such as active health issues, health history, medications and allergies
- View past and upcoming clinic appointment information



[Project Setup](#)

[Online Designer](#)

[Upload Data Dictionary](#)



# Controlling Access

- My Projects
- Project Home
- Project Setup

Project status: **Development**

### Data Collection

- Demographics
- Ebola Intake

### Applications

- Calendar
- Data Export Tool
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- User Rights
- Graphical Data View & Stats
- Report Builder

### Help & Information

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

If you are experiencing problems, please contact your [REDCap administrator](#).

[Project Home](#) [Project Setup](#) [Other Functionality](#)

Project status: Development

**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.

[I'm done!](#) Go to [Modify project settings](#) or [Make customizations](#)

**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 links: [Download PDF of all data collection instruments](#) OR [Download the current Data Dictionary](#)

[I'm done!](#) Go to [Online Designer](#) or [Upload Data Dictionary](#)

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

**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.

[I'm done!](#) Go to [User Rights](#) or [Data Access Groups](#)

Enter SUNet IDs

Allow users to see only some subjects

← Project Setup












👤 User Rights

👥 Data Access Groups

You may set the rights for the user below by checking the boxes next to the application tools to which you wish to grant them access. You may also grant them or deny them access to individual data collection instruments, if so desired. To save your selections, click the Save Changes button at the bottom of the page.

✎ Editing existing User "balise"

#### Basic User Rights

-  Calendar
-  Data Export Tool  No Access  
 De-Identified  
 Full Data Set
-  Data Import Tool
-  Data Comparison Tool
-  Logging
-  File Repository
-  User Rights
-  Data Access Groups
-  Graphical Data View & Stats
-  Reports & Report Builder
-  Project Design and Setup

#### Data Entry Rights

	None	Read	Edit
Demographics	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Ebola Intake	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

# Ways To Add and Find Patient Data

- My Projects
- Project Home
- Project Setup

Project status: **Development**

### Data Collection

- Demographics
- Ebola Intake

### Applications

- Calendar
- Data Export Tool
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- User Rights
- Graphical Data View & Stats
- Report Builder

### Help & Information

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

If you are experiencing problems, please contact your [REDCap administrator](#).

Typically you will do entry one patient at a time online.

Download PDF of

You may view a record/response by selecting it from one of the drop-down lists below. The records are separated into a drop-down list according to their status for this particular data collection instrument. To create a new record/response, type a new value in the text box below and hit Tab or Enter. To quickly find a record without using the drop-downs, the text box will auto-populate with existing record names as you begin to type in it, allowing you to select it.

<b>Total records: 0</b>	
<b>Incomplete Records (0)</b>	<input type="text" value="-- select record --"/>
<b>Complete Records (0)</b>	<input type="text" value="-- select record --"/>
<b>Enter a new or existing Study ID</b>	<input type="text"/>

[Show Unverified Records above](#)

### Data Search

<b>Choose a field to search</b> (excludes multiple choice fields)	<input type="text" value="-- select search field --"/>
<b>Search query</b> Begin typing to search the project data, then click an item in the list to navigate to that record.	<input type="text"/>


⊕ Adding new Study ID 1

**Study ID** 1

**Demographics Information**

**First Name** (H)

**Last Name** (H)

**Date of Birth** (H)    Y-M-D

**Gender** (H)  ▼

**Street, City, State, ZIP** (H)


Expand




**Phone number** (H)

**Form Status**

**Complete?** (H)  ▼

Enter stuff then push a button.

 Editing existing Study ID 1

<b>Study ID</b>	1
<b>Date of Diagnosis</b> <small>* must provide value</small>	(H) 2012-07-17  Today Y-M-D
<b>Location where infected</b> <small>* must provide value</small>	(H) Sudan 
<b>Symptoms</b>	<input checked="" type="checkbox"/> Fever <input checked="" type="checkbox"/> Headache <input checked="" type="checkbox"/> Muscle pain (H) <input type="checkbox"/> Inflammation of pharynx <input type="checkbox"/> Vomiting <input type="checkbox"/> Diarrhea <input checked="" type="checkbox"/> Coagulopathy
<b>Medical History</b>	(H) <input type="checkbox"/> Diabetes <input type="checkbox"/> Heart disease <input type="checkbox"/> Cancer <input type="checkbox"/> AIDS <input checked="" type="checkbox"/> Other
<b>Other significant medical history</b>	(H) <input type="text" value="Teeth itch"/>
<b>White Blood Cells</b>	(H) <input type="text" value="15.4"/> K/uL
<b>Form Status</b>	
<b>Complete?</b>	(H) <input type="text" value="Incomplete"/> 
<input type="button" value="Save Record"/> <input type="button" value="Save and Continue"/>  <input type="button" value="-- Cancel --"/>	

What does it mean if nothing is checked? Add in a none category.

# You can also bulk load data.

**Applications**

- Calendar
- Data Export Tool
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- User Rights
- Graphical Data View & Stats
- Report Builder


**Help & Information**

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

If you are experiencing problems, please contact your [REDCap administrator](#).

## Instructions:

- 1.) Click the link below to download your data import template as a CSV (comma delimited) file. Save it locally to your computer and then open it to begin filling it with the data you wish to import.

 [Download your Data Import Template](#) (with records in rows)

OR

 [Download your Data Import Template](#) (with records in columns)

For each column of the Data Import Template file that you downloaded, place the data for each record that you wish to import. After your data has been added, save the file.

Do not change the Variables/Field Names in the file or an error may occur.


At the time of upload, you must make sure that the numerical value (rather than text) is entered so that it can be processed.

Save the file before importing the file. Doing this reduces the upload

- 3.) Click the 'Browse' or 'Choose File' button below to select the file on your computer, and upload it by clicking the 'Upload File' button.

- 4.) Once your file has been uploaded, the data will NOT be immediately imported but will be displayed and checked for errors to ensure that all the data is in correct format before it is finally imported into the project.

**Record format:** The file to be uploaded has its records stored as separate

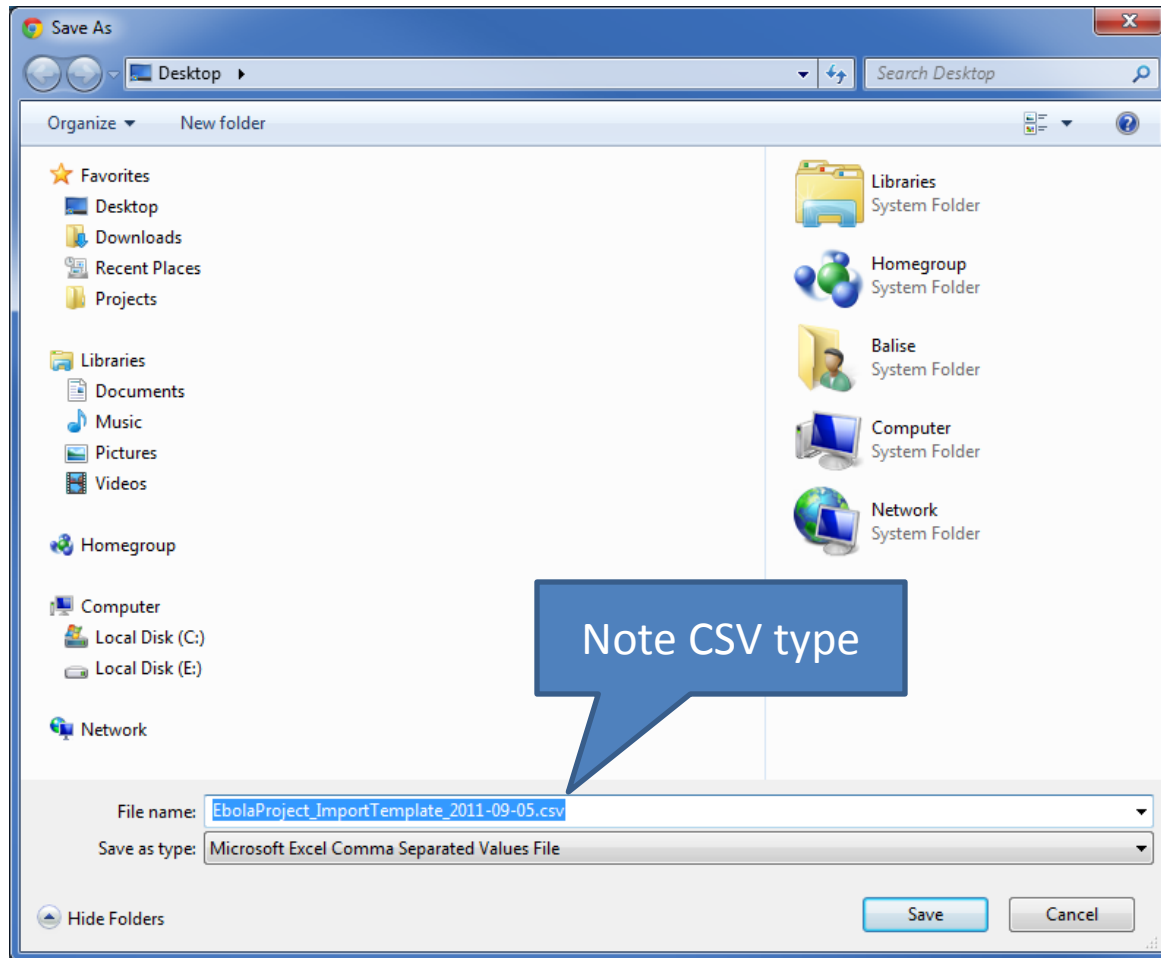
 **Upload your CSV file:**

No file chosen

Import multiple records at a time

# How to Bulk Load Data

- First export an Excel file that will hold your data.





Turn the data into a table.

EbolaProject\_ImportT

File Home Insert Page Layout Formulas Data Review View SAS

PivotTable Table Picture Clip Art Shapes SmartArt Screenshot Column Line Pie Bar Area Scatter Other Charts Line Column Win/Loss Slicer Hyperli

Tables Illustrations Charts Sparklines Filter Links

A1 study\_id

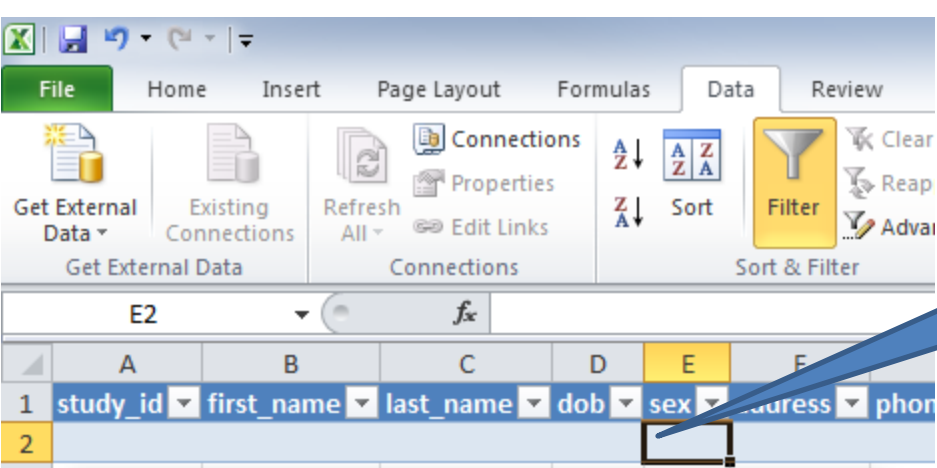
	A	B	C	D	E	F	G	H	I	J	K	
1	study_id	first_name	last_name	dob	sex	address	phone_number	demographics_complete	diagnosis_date	location_inf	symptoms__1	sy
2												
3												
4												

Fill in multiple records here

You can just fill in the blanks but I strongly suggest you use the Excel validation voodoo I showed earlier.

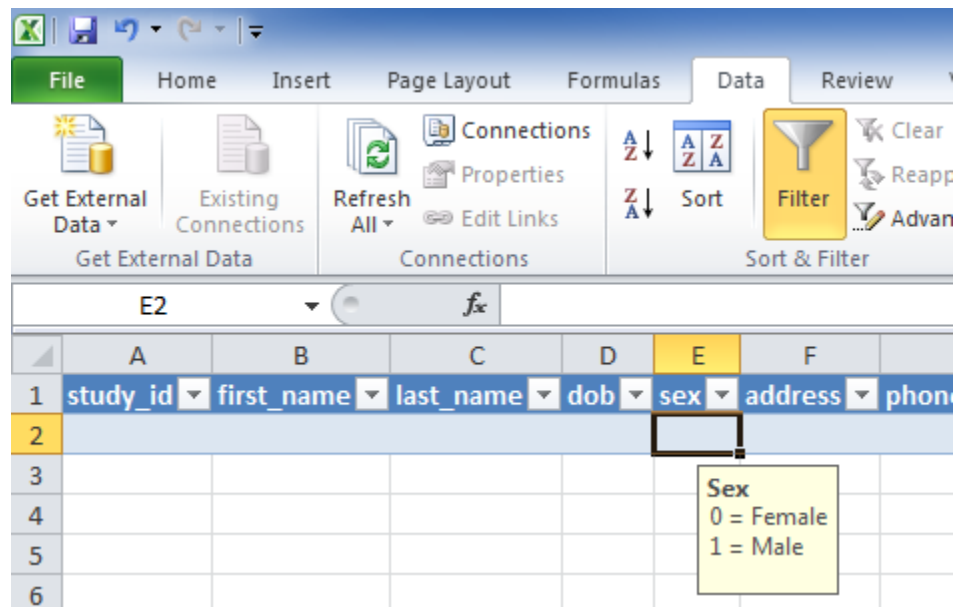
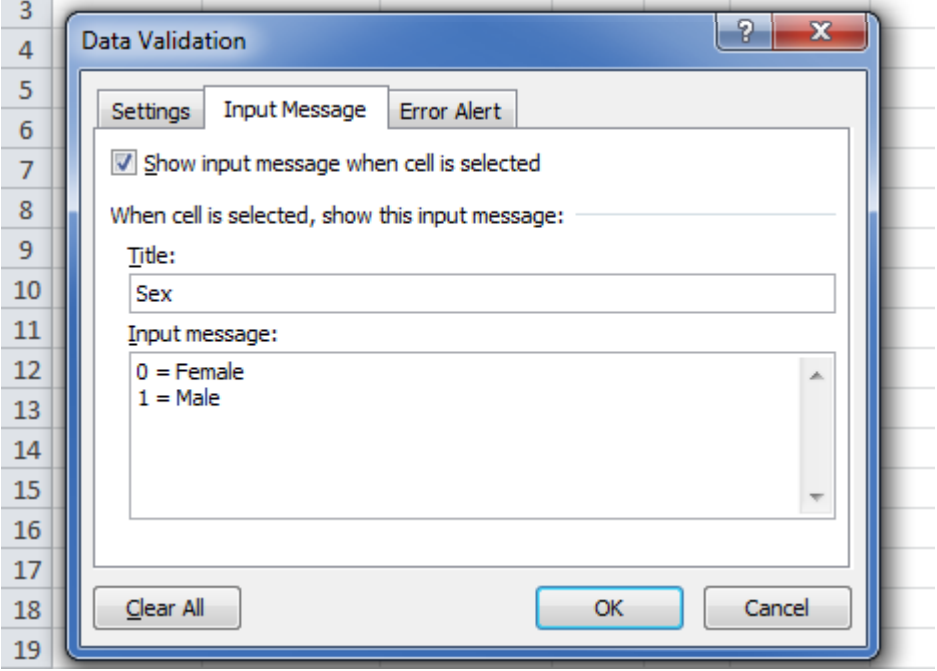
Note: for all of the "dropdown" or "radio" fields in the database, you must make sure that the numerical value (rather than the text value) is entered in those cells, or else it cannot be processed.

For "checkbox" fields, enter "0" for unchecked and "1" for checked



Select cell in the body of the table and use validation.

Choices (one choice per line)  
0, Female  
1, Male



Record format: The file to be uploaded has its records stored as separate

Upload your CSV file:

No file chosen

**Errors were detected in the file that was uploaded.**

There is 1 warning (shown in orange) in this dataset. Please review the warnings below before importing the data.

#### ERROR DISPLAY TABLE

Study ID	Field Name	Value	Error Message
2	wbc	-1	wbc is less than the field minimum (0).

#### Instructions for Data Review

The data you uploaded from the file is displayed in the Data Display Table below. Please inspect it carefully to ensure that it is all correct. After reviewing it, click the 'Import Data' button at the bottom of this page to import this data into the project.

#### KEY for Data Display Table below

Black text = New Data

Gray text = Existing data (will not change)

(Red text) = Data that will be overwritten

Red box = error

Orange box = warning

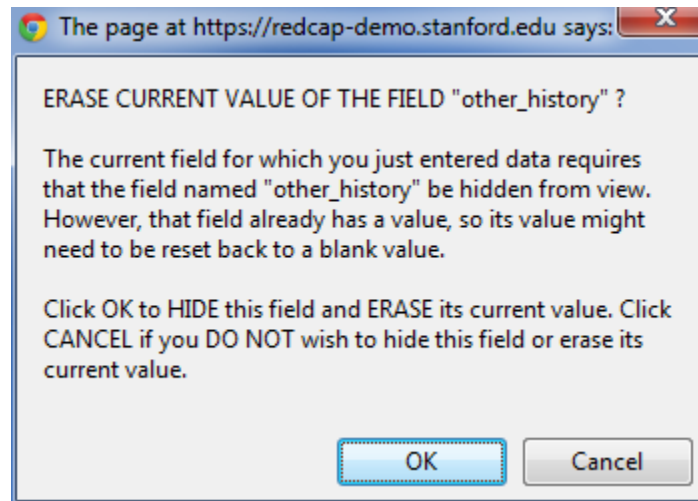
#### DATA DISPLAY TABLE

study_id	first_name	last_name	dob	sex	address	phone_number	demographic
2 (new record)	Raymond	Balise	2011-06-24	1	1313 Mockingbird	(650) 666-1212	0

Do you wish to import the new data (displayed above) into the project?  
(Click the button below to import the data.)

It recognizes bad data but not bad logic. It notices the -1 on the WBC but I can put in an other medical condition without checking other checkbox in the medical history.

It does notice the logical problem when I browse the data.



Diabetes  
Heart disease  
Cancer  
AIDS  
Other

**Medical History**

**Other significant medical history** Nacho addition

**White Blood Cells** -1  
K/uL

It let me keep the bad data when I did the import.


It let me keep the bad data after I approved it with the checkbox above...

Demographics  
Ebola Intake

Applications

- Calendar
- Data Export Tool
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- User Rights
- Graphical Data View & Stats
- Report Builder




 **Simple Data Export (one-click)**

To perform a quick data dump of your entire data set, simply click the button below. When done, it will provide you with various format options for downloading your data.

Export all data now

— OR —

 **Advanced Data Export**

This option provides a variety of choices for customizing what data gets exported. You may select individual fields one at a time or entire data collection instruments to export. You may also utilize the data de-identification options (if your user privileges permit) that allow you to limit the amount of sensitive information that you are exporting, if you wish.

Display advanced options



# Data Export

Every field in the project

Form: **Demographics**

Form: **Ebola Intake**

Note: identifiers are in red.

I need dob and of DX for the analysis but they can be used to identify people!

Technically dates are protected health information.

Rather than blocking the export you can “jitter” the date. If the dates (days to events) are needed, make your data HIPAA safer for statisticians.

Form: <b>Demographics</b>	
Study ID ( <i>study_id</i> )	<input type="checkbox"/>
<b>Demographics Information</b>	
<b>First Name</b> ( <i>first_name</i> )	<input type="checkbox"/>
<b>Last Name</b> ( <i>last_name</i> )	<input type="checkbox"/>
<b>Date of Birth</b> ( <i>dob</i> )	<input type="checkbox"/>
<b>Gender</b> ( <i>sex</i> )	<input type="checkbox"/>
<b>Street, City, State, ZIP</b> ( <i>address</i> )	<input type="checkbox"/>
<b>Phone number</b> ( <i>phone_number</i> )	<input type="checkbox"/>
<b>Form Status</b>	
<b>Complete?</b> ( <i>demographics_complete</i> )	<input type="checkbox"/>
Form: <b>Ebola Intake</b>	
<b>Date of Diagnosis</b> ( <i>diagnosis_date</i> )	<input type="checkbox"/>
<b>Location where infected</b> ( <i>location_inf</i> )	<input type="checkbox"/>
<b>Symptoms</b> ( <i>symptoms</i> )	<input type="checkbox"/>
<b>Medical History</b> ( <i>history</i> )	<input type="checkbox"/>
<b>Other significant medical history</b> ( <i>other_history</i> )	<input type="checkbox"/>
<b>White Blood Cells</b> ( <i>wbc</i> )	<input type="checkbox"/>
<b>Form Status</b>	
<b>Complete?</b> ( <i>ebola_intake_complete</i> )	<input type="checkbox"/>
<b>De-Identification Options</b> ( <i>optional</i> )	
The options below allow you to limit the amount of sensitive information that you are exporting out of the project. Check all that apply.	
<b>Known Identifiers:</b>	
<input type="checkbox"/> Remove all known Identifier fields ( <i>tagged in Data Dictionary</i> )	
<input type="checkbox"/> Hash the Study ID ( <i>converts record name to an unrecognizable value</i> )	
<b>Free-form text:</b>	
<input type="checkbox"/> Remove unvalidated Text fields ( <i>i.e. Text fields other than dates, numbers, etc.</i> )	
<input type="checkbox"/> Remove Notes/Essay box fields	
<b>Date and datetime fields:</b>	
<input type="checkbox"/> Remove all date and datetime fields	
<input type="checkbox"/> Shift all dates by value between 0 and 364 days ( <i>shifted amount determined by algorithm for each record</i> )	
<a href="#">What is date shifting?</a>	
<a href="#">Deselect all options</a>	

# No PHI Please!

- The penalties for divulging data are tremendous (if your machine is stolen or hacked). Your statistician will probably ask to have dates shifted and all identifiers removed.

## Citation Notice ✕

Please cite Stanford Center for Clinical Informatics grant support (**Stanford CTSA award number UL1 RR025744 from NIH/NCRR**) in publications relating to this project.

Please also cite the REDCap project when publishing manuscripts (citation information and template methods language are [available here](#)).















### NOTICE:

All dates within your data have been **DATE SHIFTED to an unknown value between 0 and 364 days**. Although all dates were shifted by the same amount within each individual record to maintain internal consistency, the shifting amount is different for each record.

Okay

✓ Data export was successful!

Your files have been created and automatically saved within the File Repository section of this database. You may click the icons below to retrieve the files necessary for importing data into your preferred data viewing or analysis package. After clicking the icon(s) on the right, choose SAVE and specify the desired location on your computer when prompted in order to download each file to your computer. Remember that the files may contain confidential information and should thus be protected.

		Syntax & Data
	<b>Microsoft Excel</b> <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>	 <input type="checkbox"/> Send file?
	<b>SPSS Statistical Analysis Software</b> 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 <i>Additional Instructions</i> .) 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. <a href="#">Additional instructions</a>	   <input type="checkbox"/> Send files?
	<b>SAS Statistical Software</b> 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.	  <input type="checkbox"/> Send files?
	<b>R Statistical Software</b> Instructions: Use command read.csv("file-name") to read in data file.	  <input type="checkbox"/> Send files?
	<b>STATA Analysis and Statistical Software</b> 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.	  <input type="checkbox"/> Send files?

Click and save both files in the same folder (to make things easier later).

The SAS file includes code on how to read in data. The CSV is the data file.

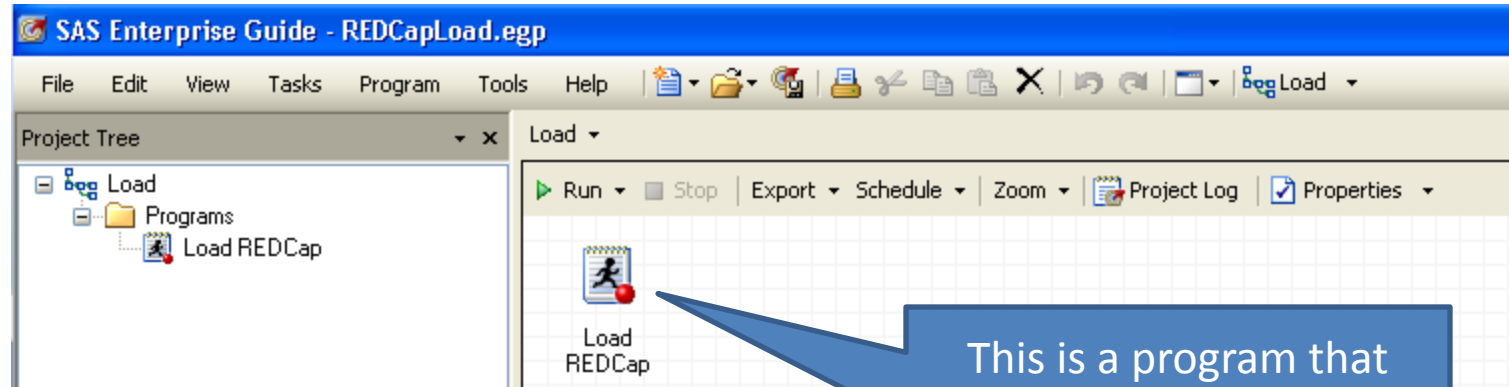


# Setting-up SAS and SAS/EG

- Download my REDCap loading EG project from here:

[www.stanford.edu/class/hrp223/2012/REDCapLoad20120925.egp](http://www.stanford.edu/class/hrp223/2012/REDCapLoad20120925.egp)

# Tweak the EG Project



This is a program that loads the data exported by REDCap. Double click this.

# Edit my Project Shell

Enter today's date in yyyyMMdd format. The output will go into a folder with this name.

This is the path to where you saved the files. Note no final \

```
Load REDCap ▾
Program Log
Save Run Stop Select Server Export Send To Create Pr
dm output 'clear';
dm log 'clear';

* folder date for output file location;
%let version = 20100729;

* project Path;
%let path = C:\Projects\SPCTRM\Talks\REDCapSAS;

x "cd &path";

* For large datasets open the file below and remove the proc print at the end of the code;
* If this is one of many data sets remove the proc delete at the beginning of the code;

%include "&path.\EXPORT_EBOLA_CLINICAL_TRIAL_BALISE_2010-07-29-11-55-47.SAS";

ods noproctitle;
option noxwait nodate pageno = 1;

x "mkdir &path.\&version.";
x "del /Q &path.\&version.\*.*";
x "cd &path.\&version.";
```

This is the name of the file you exported.

Click Run and say Yes it can replace old results

Load REDCap ▾

Program Log

Save ▾ Run ▾ Stop Select Server | Export ▾ Send To ▾ Create ▾ | Properties

```
dm output 'clear';  
dm log 'clear';  
  
* folder date for output file location;  
%let version = 20100729;  
  
* project Path;
```

### SAS Enterprise Guide



Do you want to replace the results from the previous run?

Choosing "No" will save the changes to a new task, named "Load REDCap1".

Yes

No

Cancel

You see the results automatically. Double click the "Load" flowchart.

SAS Enterprise Guide - REDCap Load.egp

File Edit View Taskbar Program Tools Help

Project Tree

- Load
- Programs
  - Load REDCap

Server List

- Servers
- Private OLAP Servers

Load REDCap

Program Log Output Data Results

Refresh Export Send To Create Publish Properties

### The CONTENTS Procedure

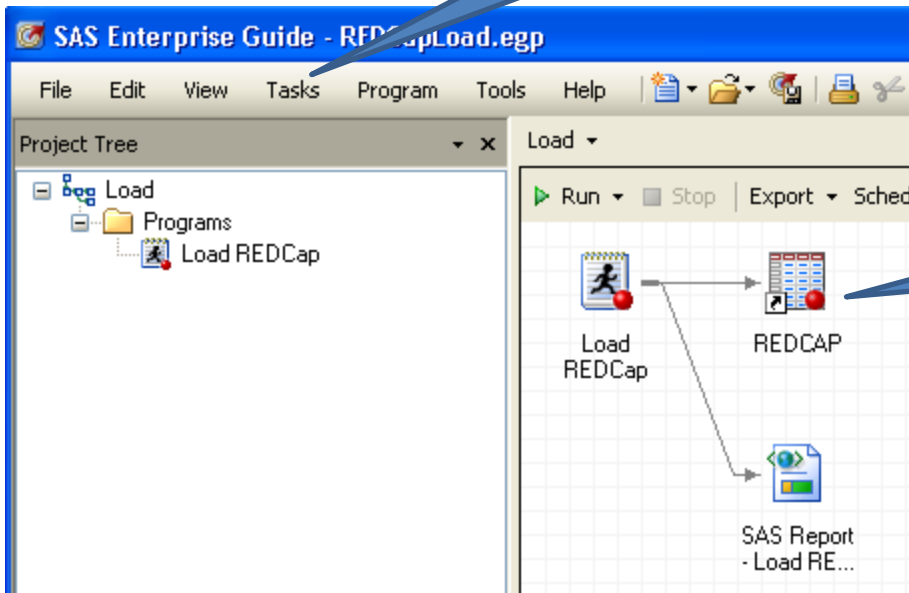
<b>Data Set Name</b>	WORK.REDCAP	<b>Observations</b>	6
<b>Member Type</b>	DATA	<b>Variables</b>	52
<b>Engine</b>	V9	<b>Indexes</b>	0
<b>Created</b>	Thursday, July 29, 2010 04:14:33 PM	<b>Observation Length</b>	8288
<b>Last Modified</b>	Thursday, July 29, 2010 04:14:33 PM	<b>Deleted Observations</b>	0
<b>Protection</b>		<b>Compressed</b>	NO
<b>Data Set Type</b>		<b>Sorted</b>	NO
<b>Label</b>			
<b>Data Representation</b>	WINDOWS_32		
<b>Encoding</b>	wlatin1 Western (Windows)		

### Engine/Host Dependent Information

<b>Data Set Page Size</b>	12288
<b>Number of Data Set Pages</b>	7
<b>First Data Page</b>	2
<b>Max Obs per Page</b>	1
<b>Obs in First Data Page</b>	1
<b>Number of Data Set Repairs</b>	0
<b>Filename</b>	C:\Documents and Settings\balise.WIN\Local Settings\Temp\SEG8284\SAS Temporary Files\_TD6464\Prc2\redcap.sas7bdat
<b>Release Created</b>	10 0000M3

Ready No connection

Browse the tasks menu.  
You will see analyses and graphics.

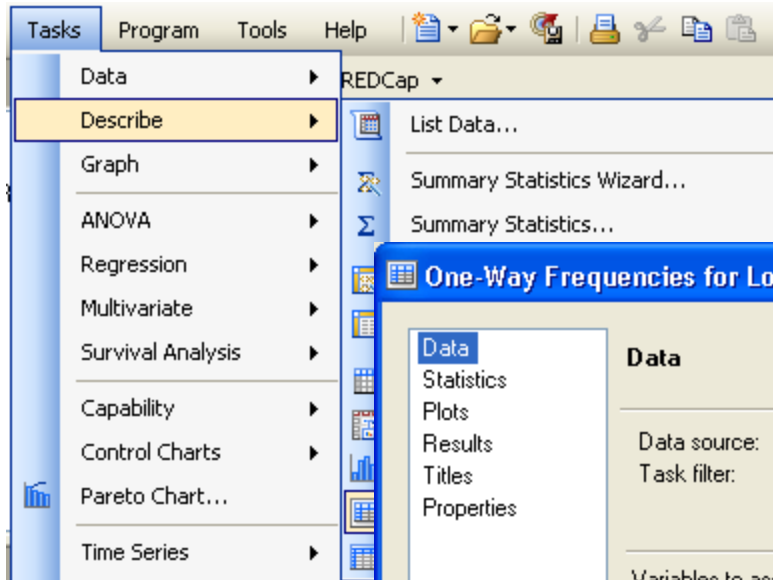


Double click the dataset icon to see the data.

The screenshot shows the SAS Enterprise Guide interface with the 'Load REDCap' task selected. The title bar reads 'SAS Enterprise Guide - REDCapLoad.egp'. The menu bar includes File, Edit, View, Tasks, Program, Tools, and Help. The Project Tree on the left shows the 'Load REDCap' task. The main workspace displays the 'Load REDCap' task icon with a red exclamation mark. Below the task icon, there are tabs for 'Program', 'Log', 'Output Data', and 'Results'. The 'Results' tab is active, showing a table of data. The table has columns for 'study\_id', 'first\_name', 'last\_name', 'dob', 'sex', 'address', and 'phone\_number'. The data is as follows:

	study_id	first_name	last_name	dob	sex	address	phone_number	de
1	01	Kellie	Ottoboni	12/07/1992	Female			
2	02	Scott	Mescudi	01/03/1984	Male			
3	3	Angus	Young	03/31/1955	Male			
4	4	Ozzy	Osbourne	12/03/1948	Male			
5	5	Sharon	Osbourne					
6	6	Courtney	Love	07/09/1964	Female			

The status bar at the bottom left shows 'Ready' and the status bar at the bottom right shows 'No connection'.



### One-Way Frequencies for Local:WORK.REDCAP

**Data**

Data source: Local:WORK.REDCAP  
Task filter: None

**Variables to assign:**

Name
study_id
first_name
last_name
dob
sex
address
phone_number
demographics_complete
diagnosis_date
location_inf
symptoms__1
symptoms__2
symptoms__3

**Task roles:**

- Analysis variables
- sex
- Frequency count (Limit: 1)
- Group analysis by

Buttons: Preview code, Run, Save, Cancel, Help

**Drag and drop sex to be the analysis variable.**

Choose what Statistics you want.

One-Way Frequencies for Local:WORK.REDCAP

Data  
Statistics  
Plots  
Results  
Titles  
Properties

### Statistics

**Frequency table options**

Include:

- Frequencies and percentages with cumulatives
- Frequencies and cumulative frequencies
- Frequencies and percentages
- Frequencies only

**Binomial proportions**

- Asymptotic test
- Exact p-values

Test proportion:

Confidence level:

**Exact computations**

Computational time may be excessive for certain data.

- Limit computation time
- Seconds:
- Use Monte Carlo estimation

**Missing values**

- Show frequencies
- Include in calculations

**Chi-square goodness of fit**

- Asymptotic test
- Exact p-values

Select the statistics to include in the one-way frequency table.

Preview code

Run Save Cancel Help

Push Run when you are set.

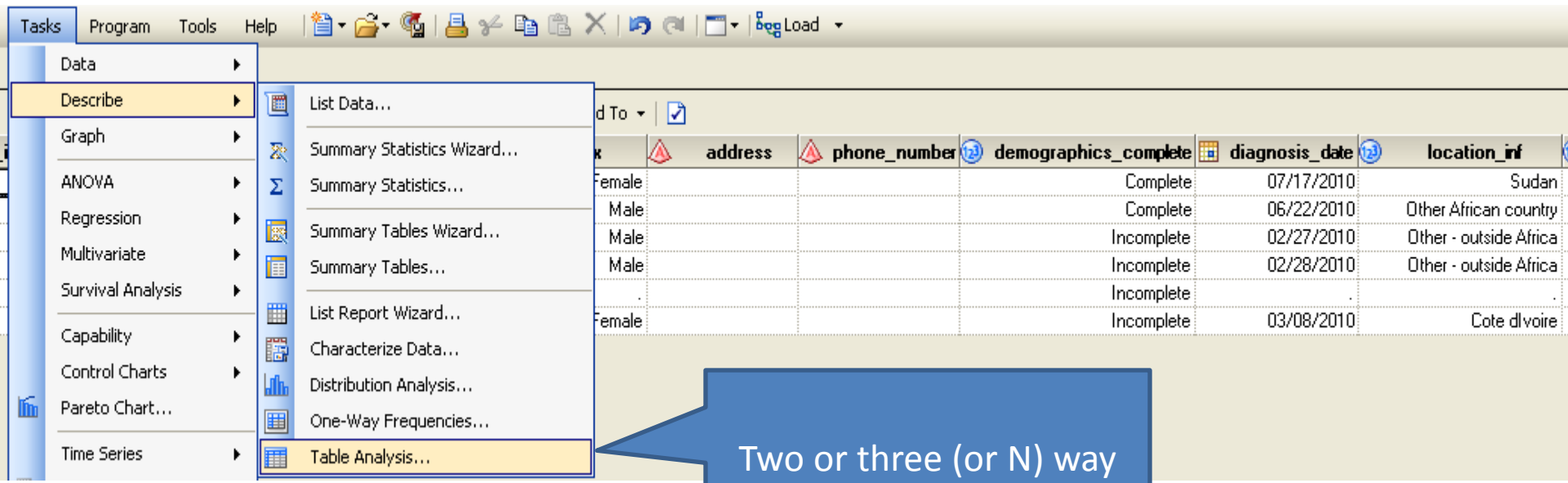


This is a "one way" table.  
What if you want to see  
two dimensions?

### One-Way Frequencies Results The FREQ Procedure

Gender				
sex	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Female	2	40.00	2	40.00
Male	3	60.00	5	100.00

Frequency Missing = 1



Two or three (or N) way  
tables are here.

- Data
- Tables
- Cell Statistics
- Table Statistics
  - Association
  - Agreement
  - Ordered Differences
  - Trend Test
  - Computation Options
- Results
  - Cell Stat Results
  - Table Stat Results
- Titles
- Properties

**Data**

Data source: Local:WORK.REDCAP Edit...

Task filter: None

- Variables to assign:
- | Name                  |
|-----------------------|
| study_id              |
| first_name            |
| last_name             |
| dob                   |
| sex                   |
| address               |
| phone_number          |
| demographics_complete |
| diagnosis_date        |
| location_inf          |
| symptoms__1           |
| symptoms__2           |
| symptoms__3           |
| symptoms__4           |
| symptoms__5           |

- Task roles:
- Frequency count (Limit: 1)
  - Group analysis by
  - Table variables
    - location\_inf
    - sex

Select a role to view the context help for that role.

Preview code

To learn the SAS programming language push this and watch the changes as you tweak things.

```

PROC SQL;
    CREATE VIEW WORK.SORTTempTableSorted AS
        SELECT T.location_inf, T.sex
        FROM WORK.REDCAP as T
;
QUIT;
TITLE;
TITLE1 "Table Analysis";
TITLE2 "Results";
FOOTNOTE;
FOOTNOTE1 "Generated by the SAS System (&SYSUSER)";
PROC FREQ DATA = WORK.SORTTempTableSorted
    ORDER=INTERNAL
;
/* -----
End of task code.
----- */
RUN; QUIT;

```

You must define at least one variable

**Table Analysis for Local:WORK.REDCAP**

**Data**  
**Tables**  
 Cell Statistics  
 Table Statistics  
 Association  
 Agreement  
 Ordered Differences  
 Trend Test  
 Computation Options  
 Results  
 Cell Stat Results  
 Table Stat Results  
 Titles  
 Properties

**Tables**

Variables permitted in table:  
 location\_inf  
 sex

Preview:  
 <drag variables here>

Tables to be generated:  
 <select to begin defining a new table>

Delete

The selection pane enables you to choose different sets of options for

Preview code

You must define at least one table on the Tables page.

The screenshot shows the SAS Table Analysis interface. On the left is a navigation menu with 'Tables' selected. The main area is divided into 'Variables permitted in table' (containing 'location\_inf' and 'sex'), a 'Preview' window (containing a table structure), and 'Tables to be generated' (with a selection prompt). A blue double-headed arrow labeled 'Drag and drop' spans from the variable list to the preview window. Below the 'Tables to be generated' section is a 'Delete' button and a descriptive text box. At the bottom left is a 'Preview code' button. A status bar at the bottom states 'You must define at least one table on the Tables page.'

```

PROC FREQ DATA = WORK.SORTTempTableSorted
  ORDER=INTERNAL
  ;
  TABLES location_inf * sex /
    NOROW
    NOPERCENT
    NOCUM
    SCORES=TABLE
    ALPHA=0.05;
/* -----
End of task code.
----- */
RUN; QUIT;

```

# Details and Stats

- Data
- Tables
- Cell Statistics
- Table Statistics
  - Association
  - Agreement
  - Ordered Differences
  - Trend Test
  - Computation Options
- Results
  - Cell Stat Results
  - Table Stat Results
- Titles
- Properties

## Cell Statistics

### Available statistics

- Cumulative column percentages
- Row percentages
- Column percentages
- Cell frequencies
- Cell percentages
- Missing value frequencies
- Cell contribution to Pearson chi-square
- Cell frequency deviation from expected
- Expected cell frequency
- Percentage of total frequency

- Data
- Tables
- Cell Statistics
- Table Statistics
  - Association
  - Agreement
  - Ordered Differences
  - Trend Test
  - Computation Options
- Results
  - Cell Stat Results
  - Table Stat Results
- Titles
- Properties

## Table Statistics > Association

### Tests of association

- Chi-square tests  
(Including Pearson, likelihood ratio and Mantel-Haenszel chi-square tests and Fisher's exact test for 2x2 tables)
- Exact p-values
- Fisher's exact test for  $r \times c$  tables

### Measures of association

- Measures  
(Including relative risk and odds ratio for 2 x 2 tables)
- Exact p-values and confidence bounds odds ratio
- Test that the measure equals zero
- Risk differences for 2 x 2 tables
- Relative risk for 2 x 2 tables

### Cochran-Mantel-Haenszel statistics

- CMH statistics
- Score type: Table

Use the Computation Options page to:

- Set a time limit on the computation of exact p-values
- Select the score type for CMH statistics

Table of location_inf by sex				
		Gender		Total
		Female	Male	
Location when infected				
Sudan	Frequency	1	0	1
	Col Pct	50.00	0.00	
Cote dlvoire	Frequency	1	0	1
	Col Pct	50.00	0.00	
Other African country	Frequency	0	1	1
	Col Pct	0.00	33.33	
Other - outside Africa	Frequency	0	2	2
	Col Pct	0.00	66.67	
Total	Frequency	2	3	5
Frequency Missing = 1				

This is categorical... what about continuous scale variables like hemoglobin or platelet counts?

The screenshot shows the Minitab software interface. The 'Describe' menu is open, listing various statistical analysis options. A blue callout box points to the 'Summary Statistics...' option, stating 'Simple descriptive statistics are here.' In the background, a data table is visible with columns for 'hemoglobin' and 'platelet' counts. Another blue callout box points to the 'Distribution Analysis...' option, stating 'Complete descriptive statistics are here.'

	hemoglobin	platelet
3.21	14.6	273
2.99	12.9	386
4.36	15.4	179
2.6	14.1	280
3.78	11.8	160

Simple descriptive statistics are here.

Complete descriptive statistics are here.

Σ Summary Statistics for Local:WORK.REDCAP

**Data**

Data source: Local:WORK.REDCAP  
 Task filter: None

Variables to assign:

Name
study_id
dob
sex
demographics_comple

Task roles:

- Analysis variables
- wbc
- Classification variables
- Frequency count (Limit: 1)
- Relative weight (Limit: 1)
- Copy variables

Σ Summary Statistics for Local:WORK.REDCAP

**Statistics > Basic**

Basic statistics

- Mean
- Standard deviation
- Standard error
- Variance
- Minimum
- Maximum
- Mode
- Range
- Sum
- Sum of weights
- Number of observations
- Number of missing values

Σ Summary Statistics for Local:WORK.REDCAP

**Statistics > Percentiles**

Percentile statistics

- 1st
- 5th
- 10th
- Lower quartile
- Median
- Upper quartile
- 90th
- 95th
- 99th

**Statistics > Additional**

Additional statistics

- Confidence limits of the mean
- t statistic and Prob > |t|
- Coefficient of variation
- Corrected sum of squares
- Uncorrected sum of squares

**Plots**

Generated plots

- Histogram
- Box and whisker

```
PROC MEANS DATA=WORK.SORTTempTableSorted
```

```
FW=12
```

```
PRINTALLTYPES
```

```
CHARTYPE|
```

```
VARDEF=DF
```

```
MEAN
```

```
STD
```

```
MIN
```

```
MAX
```

```
N ;
```

```
VAR wbc;
```

```
RUN;
```

```
ODS GRAPHICS ON;
```

```
TITLE;
```

```
/*-----
```

```
* Use PROC UNIVARIATE to generate the histograms.
```

```
*/
```

```
TITLE;
```

```
TITLE1 "Summary Statistics";
```

```
TITLE2 "Histograms";
```

```
PROC UNIVARIATE DATA=WORK.SORTTempTableSorted NOPRINT ;
```

```
VAR wbc;
```

```
HISTOGRAM ;
```

```
RUN; QUIT;
```

```
TITLE;
```

```
TITLE1 "Summary Statistics";
```

```
TITLE2 "Box and Whisker Plots";
```

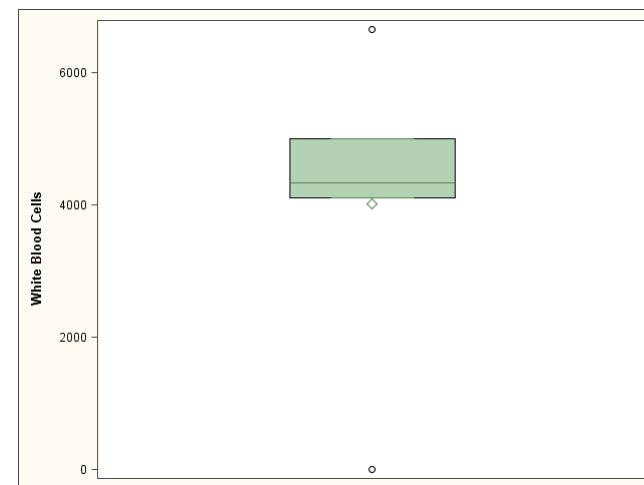
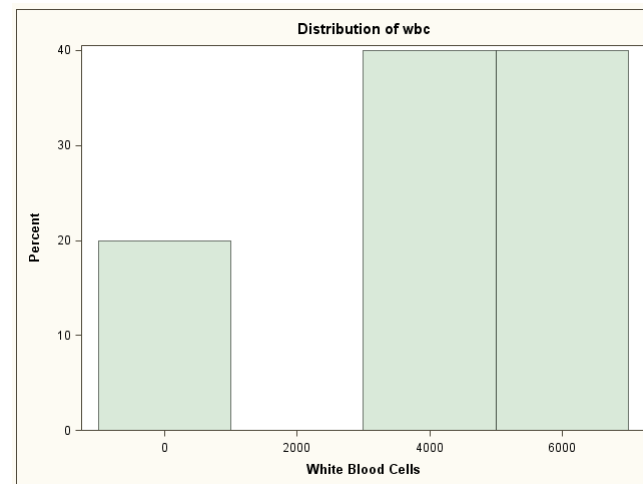
```
PROC SGPLOT DATA=WORK.SORTTempTableSorted ;
```


```
VBOX wbc;
```

```
RUN;QUIT;
```



```
ODS GRAPHICS OFF;
```

Analysis Variable : wbc White Blood Cells				
Mean	Std Dev	Minimum	Maximum	N
4021.00	2459.10	1.0000000	6660.00	5





-  List Data...




---

-  Summary Statistics Wizard...
-  Summary Statistics...

---

-  Summary Tables Wizard...
-  Summary Tables...

---

-  List Report Wizard...
-  Characterize Data...
-  Distribution Analysis...

**Distribution Analysis for Local:WORK.REDCAP**

**Data**

Distributions

- Summary
- Normal
- Lognormal
- Exponential
- Weibull
- Beta
- Gamma
- Kemel

Plots

- Appearance
- Inset

Tables





- Titles

**Data**







Data source: Local:WORK.REDCAP  
Task filter: None

---

Variables to assign:

Name
 symptoms__4
 symptoms__5
 symptoms__6
 symptoms__7

Task roles:

-  Analysis variables
-  wbc
-  Group analysis by
-  Frequency count (Limit: 1)
-  Relative weight (Limit: 1)
-  Classification variables (Lin

**Distribution Analysis for Local:WORK.REDCAP**

**Data**

Distributions

- Summary
- Normal
- Lognormal
- Exponential
- Weibull
- Beta
- Gamma
- Kemel

Plots





- Appearance
- Inset

Tables

- Titles
- Properties

**Plots > Appearance**

Note: Insets are valid on histogram, proba and quantile-quantile plots only.

Histogram Plot

Probability Plot

Quantiles plot

Box plot

**Distribution Analysis for Local:WORK.REDCAP**

**Data**

Distributions

- Summary
- Normal
- Lognormal
- Exponential
- Weibull
- Beta
- Gamma
- Kemel

Plots

- Appearance
- Inset

Tables

- Titles
- Properties

**Plots > Inset**

Include inset

Inset statistics

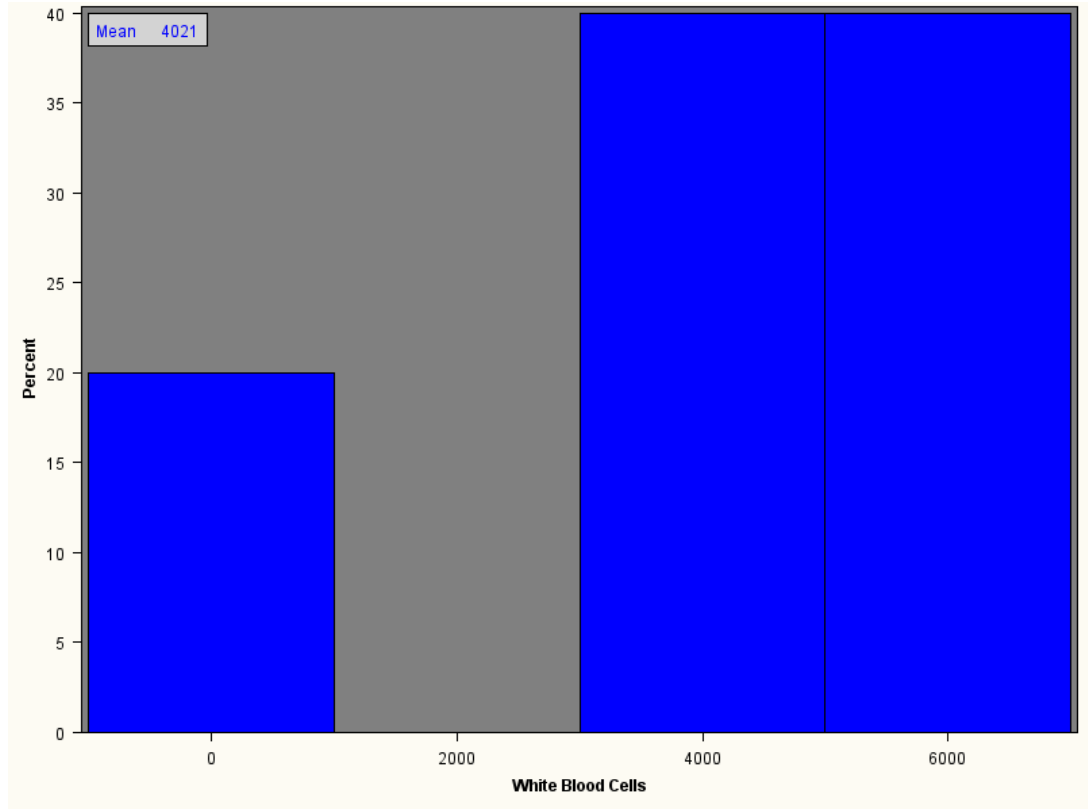
- Sample size
- Sum of the weights
- Sample mean
- Sum of the observations
- Standard deviation
- Variance
- Skewness
- Kurtosis
- Largest value
- Smallest value
- Number of observations



Basic Statistical Measures			
Location		Variability	
Mean	4021.000	Std Deviation	2459
Median	4333.000	Variance	6047152
Mode	.	Range	6659
		Interquartile Range	889.00000

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	4021	967.62944	7074
Std Deviation	2459	1473	7066
Variance	6047152	2170689	49933277

Tests for Location: $\mu_0=0$				
Test		Statistic	p Value	
Student's t	t	3.656315	Pr >  t	0.0217
Sign	M	2.5	Pr >=  M	0.0625
Signed Rank	S	7.5	Pr >=  S	0.0625





# Transposing Data

- REDCap wants to store responses to a series of questions as different columns of data and many analyses will want the data in a single column. You can use SAS to transpose it.

# Setup a Related Series of Questions

- A weakness in REDCap is how it stores data for questions like “list all drugs you are currently taking”, or “list all your adverse events”.

<b>Study ID</b>	3
<b>Date of Diagnosis</b>	2010-02-27 
<b>Location when infected</b> <small>* must provide value</small>	Other - outside Africa 
<b>Symptoms</b>	<input type="checkbox"/> Fever <input checked="" type="checkbox"/> Headache <input type="checkbox"/> Muscle pain <input checked="" type="checkbox"/> Inflammation of pharynx <input type="checkbox"/> Vomitting <input checked="" type="checkbox"/> Diarrhea <input checked="" type="checkbox"/> Coagulopathy
<b>Medical History</b>	<input type="checkbox"/> Diabetes <input type="checkbox"/> Heart disease <input type="checkbox"/> Cancer <input type="checkbox"/> AIDS <input checked="" type="checkbox"/> Other
<b>Other significant medical history</b>	<div style="border: 1px solid gray; padding: 5px;">Smoker</div> <div style="text-align: right;"><small>↓ Expand</small></div>
<b>Current medications</b>	<div style="border: 1px solid gray; padding: 5px;">Tylenol twice a day, <u>Benadryl</u> , medical Marijuana</div> <div style="text-align: right;"><small>↓ Expand</small></div>

This will be a nightmare to parse into individual drug names

# Use Structured Data

- Replace the free text box with a series of questions and use validation to show the next blank if it is needed.

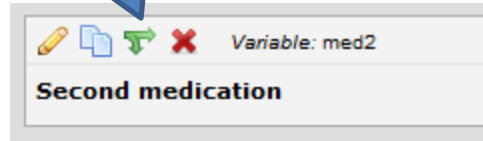
Note the names.

The screenshot shows a form with four structured data fields. Each field is represented by a row with a header, a text input box, and an 'Add Field Here' button. The fields are:

- Other significant medical history** (Variable: other\_history) [Branching logic exists]
- Current medication** (Variable: med1)
- Second medication** (Variable: med2)
- Third medicaiton** (Variable: med3)

A blue callout box on the left points to the field names, with the text 'Note the names.'

Add branching logic to question that may need to appear.



Variable: med2

**Second medication**

### Add/Edit Branching Logic

Branching Logic may be employed when fields/questions need to be hidden under certain conditions. If branching logic is defined, the field will only be visible if the conditions provided are true (i.e. show the field only if...). You may specify those conditions in the text box below for the Advanced Branching Logic Syntax or by choosing the Drag-N-Drop Logic Builder method, which allows you to build your logic in a much easier fashion by simply dragging over the options you want. You may switch back and forth between each method if you wish, but please be aware that since the advanced logic allows for greater complexity, it may not be able to be switched over to the Drag-N-Drop method if it becomes too complex.

Choose method below for the following field: **med2** - *Second medication*

**Advanced Branching Logic Syntax** [\(How do I use the advanced syntax?\)](#)

Show the field ONLY if...

[med1] <> "

[Clear logic](#)

[med1] <> "

That is two single apostrophes ' with no space between them and not a quote.

Question med3 checks for a value of med2

# Duplicating Variables

- If you push the copy button it will duplicate the variable directly below. You can edit the variable label, name and branching logic.

Variable: med1

Current medication

Add Field Here

Variable: med2 [Branching logic exists]

Second medication

Add Field Here


Variable: med3 [Branching logic exists]

Third medication

Clicking will add  
a copy below  
this question.

<b>Medical History</b>	<input type="checkbox"/> Diabetes <input type="checkbox"/> Heart disease <input checked="" type="checkbox"/> Cancer <input type="checkbox"/> AIDS <input type="checkbox"/> Other
<b>Current medication</b>	<input type="text" value="medical marijuana"/>
<b>Second medication</b>	<input type="text" value="non medical marijuana"/>
<b>Third medicaiton</b>	<input type="text" value="religious ganja"/>

You can export a dictionary view of the data fields you are collecting and tweak it in Excel to have MANY questions appear (complete with branching logic).



**Design your data collection instruments**

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

Go to  or

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



	A	B	C	D	E	F	
1	Variable / Field Name	Form Name	Field Units	Section Header	Field Type	Field Label	Choice
2	study_id	demographics			text	Study ID	
3	first_name	demographics		Demographics Information	text	First Name	
4	last_name	demographics			text	Last Name	
5	dob	demographics			text	Date of Birth	
6	sex	demographics			dropdown	Gender	0, Fer
7	address	demographics			notes	Street, City, State, ZIP	
8	phone_number	demographics			text	Phone number	
9	diagnosis_date	baseline_assessment			text	Date of Diagnosis	
10	location_inf	baseline_assessment			dropdown	Location when infected	1, Zair
11	symptoms	baseline_assessment			checkbox	Symptoms	1, Fev
12	history	baseline_assessment			checkbox	Medical History	1, Dia
13	other_history	baseline_assessment			notes	Other significant medical history	
14	med1	baseline_assessment			text	Current medication	
15	med2	baseline_assessment			text	Second medication	
16	med3	baseline_assessment			text	Third medication	
17	prev_treatment	baseline_assessment			checkbox	Previous treatment	1, Intra
18	body_t	baseline_assessment			dropdown	Body Type	1, Unc
19	nachos	baseline_assessment			radio	Eats nachos regularly	1, Yes
20	vaccine	baseline_assessment			radio	Received ebola vaccine	1, Yes
21	date_vaccine	baseline_assessment			text	If yes, when?	
22	wbc			Complete Blood Count (CBC)	text	White Blood Cells	
23	rbc					Cells	
24	hemo						

Lines 14 through 16 will be the template for a set of 10 blanks.  
Notice the details extend to the left off the screen.

Hide columns  
B to D  
F to K.

	A	E	L
1	Variable / Field Name	Field Label	Branching Logic (Show field only if...)
2	study_id	Study ID	
3	first_name	First Name	
4	last_name	Last Name	
5	dob	Date of Birth	
6	sex	Gender	
7	address	Street, City, State, ZIP	
8	phone_number	Phone number	
9	diagnosis_date	Date of Diagnosis	
10	location_inf	Location where infected	
11	symptoms	Symptoms	
12	history	Medical History	
13	other_history	Other significant medical history	[history(5)] = '1'
14	med1	Current medication	
15	med2	Second medication	[med1] <> "
16	med3	Third medicaiton	[med2] <> "
17	wbc	White Blood Cells	

Cut  
Copy  
Paste Options:  
Paste Special...  
Insert  
Delete  
Clear Contents  
Format Cells...  
Column Width...  
Hide

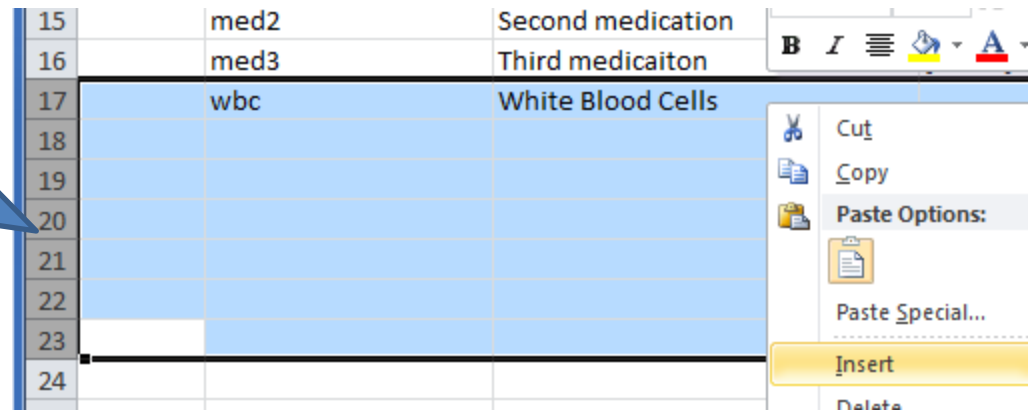
Add in a blank  
column A

	A	B	F	M
1		Variable / Field Name	Field Label	Branching Logic (Show field only if...)
2		study_id	Study ID	
3		first_name	First Name	
4		last_name	Last Name	
5		dob	Date of Birth	
6		sex	Gender	
7		address	Street, City, State, ZIP	
8		phone_number	Phone number	
9		diagnosis_date	Date of Diagnosis	
10		location_inf	Location where infected	
11		symptoms	Symptoms	
12		history	Medical History	
13		other_history	Other significant medical history	[history(5)] = '1'
14		med1	Current medication	
15		med2	Second medication	[med1] <> "
16		med3	Third medicaiton	[med2] <> "
17		wbc	White Blood Cells	

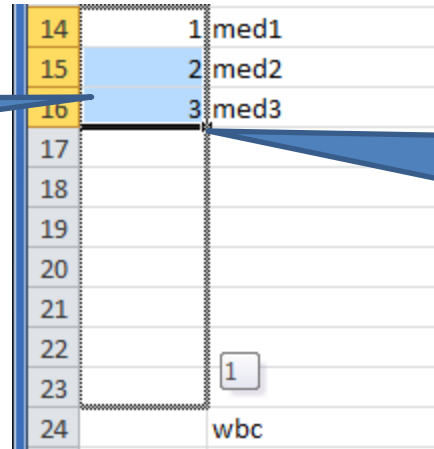
Variable / Fi  
study\_id  
first\_name  
last\_name  
dob  
sex  
address  
phone\_numbe  
diagnosis\_dat  
location\_inf  
symptoms  
history  
other\_history  
med1

Cut  
Copy  
Paste  
Paste Special...  
Insert  
Delete  
Clear Contents  
Format Cells...  
Column Width...  
Hide  
Unhide

Add a bunch of rows after med3.  
Click and drag across the margin row numbers and right click choose Insert.

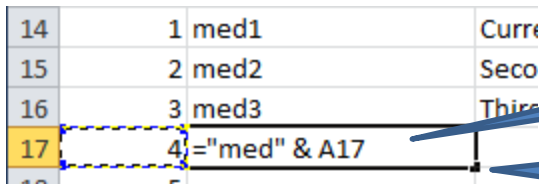


Fill in the start of the numeric series.



Drag the fill handle down to fill in the series.

Type = "med" & click on the number cell



Click and drag the little black box down the column.

1 med1
2 med2
3 med3
4 med4
5 med5
6 med6
7 med7
8 med8
9 med9
10 med10

What happens if I tweak cell B17 to not include the double quotes?

# If you forget quotes...

	A	B	
14	1	med1	Current med
15	2	med2	Second med
16	3	med3	Third medica
17		#NAME?	
18			
19			

Invalid Name Error  
Help on this error

It complains because it does not know what the letters med mean.

Double quoted med is treated as a bunch of text.

	A	B	F	M
14	1	med1	Current medication	
15	2	med2	Second medication	[med1] <> "
16	3	med3	Third medicaiton	[med2] <> "
17	4	med4		
18	5	med5		
19	6	med6		
20	7	med7		
21	8	med8		
22	9	med9		
23	10	med10		

It displays a bunch of text followed by the content of cell A23

Your first attempt may be to type `= [med & A16 & ] <> "`  
Notice the text strings are not double quoted.

	IF			
	A	B	C	
14	1	med1	Current medication	
15	2	med2	Second medication	[med1] <> "
16	3	med3	Third medication	[med2] <> "
17	4	med4		<b>= [med &amp; A16 &amp; ] &lt;&gt; "</b>

	IF			
	A	B	C	D
14	1	med1	Current medication	
15	2	med2	Second medication	[med1] <> "
16	3	med3	Third medication	[med2] <> "
17	4	med4		<b>= [med &amp; A16 &amp; ] &lt;&gt; "</b>
18	5	med5		
19	6	med6		
20	7	med7		
21	8	med8		
22	9	med9		
23	10	med10		

Microsoft Office Excel

The name that you entered is not valid.

Reasons for this can include:

- The name does not begin with a letter or an underscore
- The name contains a space or other invalid characters
- The name conflicts with an Excel built-in name or the name of another object in the workbook.

	A	B	C	D
14	1	med1	Current medication	
15	2	med2	Second medication	[med1] <> "
16	3	med3	Third medication	[med2] <> "
17	4	med4		= "[med" & A16 & "]" <> " "

Type = "[med" & A16 & "]" <> " "

Notice the two apostrophes before the closing quotation mark.

14	1	med1	Current medication	
15	2	med2	Second medication	[med1] <> "
16	3	med3	Third medication	[med2] <> "
17	4	med4		[med3] <> "
18	5	med5		
19	6	med6		
20	7	med7		
21	8	med8		
22	9	med9		
23	10	med10		

Grab the little black box and drag down the formula.

14	1	med1	Current medication	
15	2	med2	Second medication	[med1] <> "
16	3	med3	Third medicaiton	[med2] <> "
17	4	med4	Fourth medication	[med3] <> "
18	5	med5	Fifth medication	[med4] <> "
19	6	med6	Sixth medication	[med5] <> "
20	7	med7	Seventh medication	[med6] <> "
21	8	med8	Eigth medication	[med7] <> "
22	9	med9	Ninth medicaiton	[med8] <> "
23	10	med10	Tenth medicaiton	[med9] <> "

After the formulas are in place, if you have office 2007 Copy the rows and choose Paste Special... and then click on Values.

The screenshot shows the Microsoft Office 2007 interface with the Excel application window titled "EbolaClinicalTrial\_DataDictionary\_2010-07-2". The ribbon is set to "Home". The "Paste" dropdown menu is open, and "Paste Special..." is selected. The "Paste Special" dialog box is open, showing the "Values" option selected under the "Paste" section. The spreadsheet data is as follows:

	G	N
	Other significant medical history	[history(5)] = "1"
	Current medication	
	Second medication	[med1] <> "
	Third medication	[med2] <> "
	Forth medication	[med3] <> "
	Fifth medicaiton	[med4] <> "
	Sixth medication	[med5] <> "
	Seventh medication	[med6] <> "
	Eighth medication	[med7] <> "
	Ninth medication	[med8] <> "
	Tenth medication	[med9] <> "
21	8 med8	
22	9 med9	
23	10 med10	
24	new treatment	Previous treatment

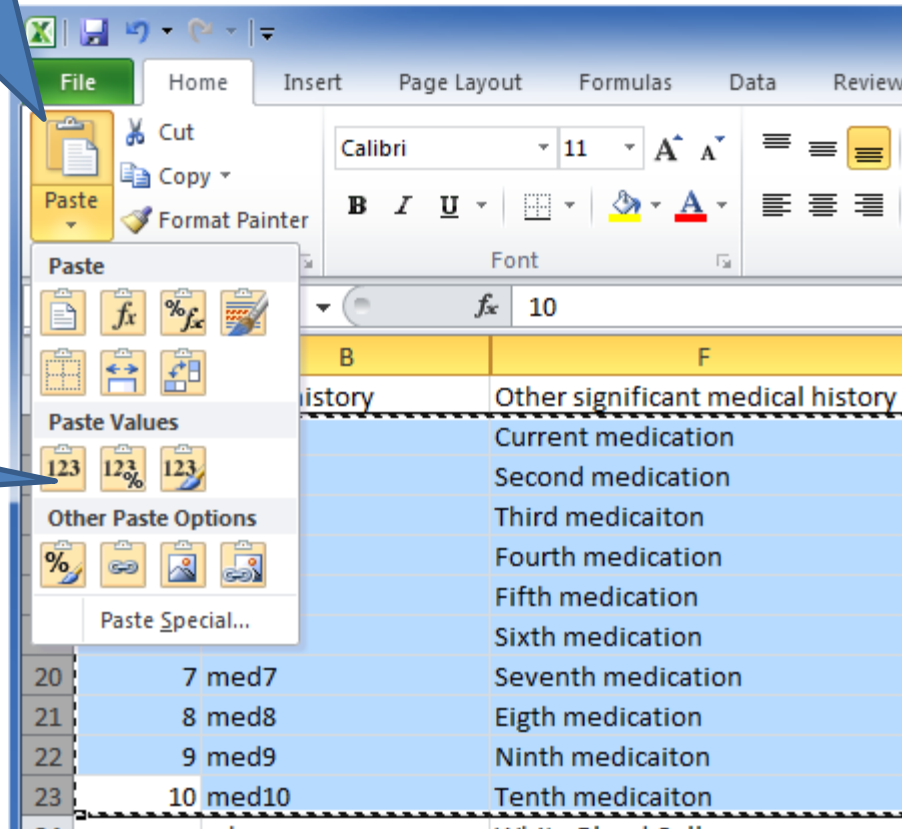
The "Paste Special" dialog box options are:

- Paste:**
  - All
  - Formulas
  - Values
  - Formats
  - Comments
  - Validation
  - All using Source theme
  - All except borders
  - Column widths
  - Formulas and number formats
  - Values and number formats
- Operation:**
  - None
  - Add
  - Subtract
  - Multiply
  - Divide
- Skip blanks
- Transpose

Buttons: Paste Link, OK, Cancel

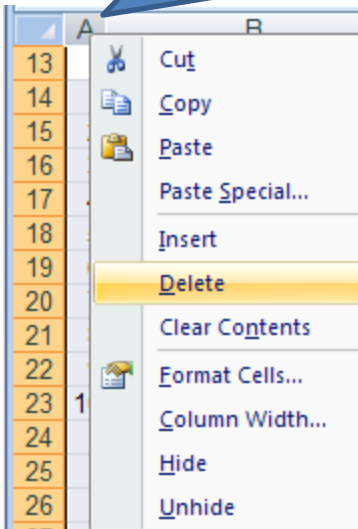
With Office 2010 copy and paste special as values like this:

This one





Delete the first column (which was holding the numbers).


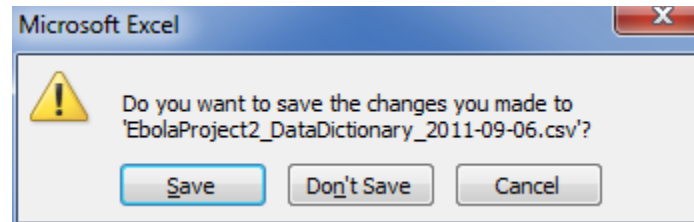
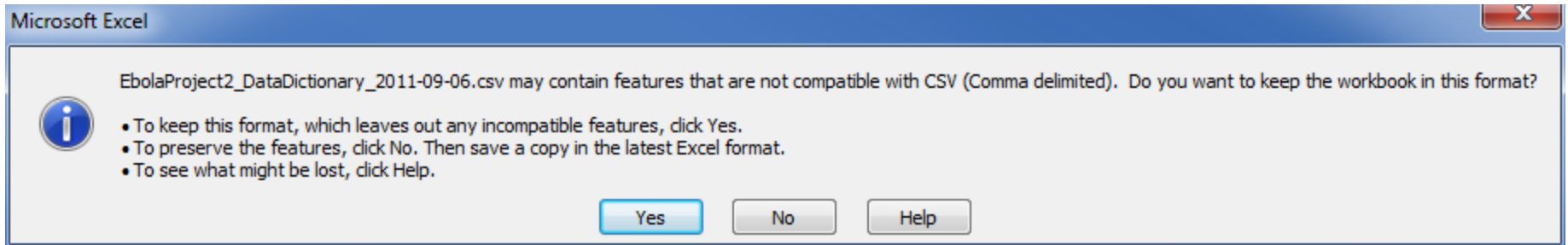


Expand the hidden columns. Using 2 steps:  
 1) Click on the box above the 1 and to the left of A.  
 2) Double click the bars between the A and B column headings.

Fill in the missing form name field type columns.

	A	B	C	D	E	
1	Variable / Field Name	Form Name	Section Header	Field Type	Field Label	Cr
2	study_id	demographics		text	Study ID	
3	first_name	demographics	Demographics Information	text	First Name	
4	last_name	demographics		text	Last Name	
5	dob	demographics		text	Date of Birth	
6	sex	demographics		dropdown	Gender	0,
7	address	demographics		notes	Street, City, State, ZIP	
8	phone_number	demographics		text	Phone number	
9	diagnosis_date	ebola_intake		text	Date of Diagnosis	
10	location_inf	ebola_intake		dropdown	Location where infected	1,
11	symptoms	ebola_intake		checkbox	Symptoms	1,
12	history	ebola_intake		checkbox	Medical History	1,
13	other_history	ebola_intake		notes	Other significant medical history	
14	med1	ebola_intake		text	Current medication	
15	med2	ebola_intake		text	Second medication	
16	med3	ebola_intake		text	Third medicaiton	
17	med4	ebola_intake		text	Fourth medication	
18	med5	ebola_intake		text	Fifth medication	
19	med6	ebola_intake		text	Sixth medication	
20	med7	ebola_intake		text	Seventh medication	
21	med8	ebola_intake		text	Eighth medication	
22	med9	ebola_intake		text	Ninth medicaiton	
23	med10	ebola_intake		text	Tenth medicaiton	
24	wbc	ebola_intake		text	White Blood Cells	

Remember this is a .csv file not really and Excel file so it asks if you want to keep it in csv format. Say yes.



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 links: [Download PDF of all data collection instruments](#) OR [Download the current Data Dictionary](#)

Go to  or

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

Upload the new dictionary.

Upload your Data Dictionary file (CSV file format only)

EbolaProjec... 1-09-06.csv

**Are you ready to commit the changes to the project from the uploaded Data Dictionary?**








(Click the button below to submit the changes.)

<b>Current medication</b>	<input type="text" value="Medical marijuana"/>
<b>Second medication</b>	<input type="text" value="non medical marijuana"/>
<b>Third medicaiton</b>	<input type="text" value="religious ganja"/>
<b>Fourth medication</b>	<input type="text" value="mary jane"/>
<b>Fifth medication</b>	<input type="text"/>
<b>White Blood Cells</b>	<input type="text"/>

K/uL

# Transposing in SAS

- Because some analysis will need transposed data, that is all the meds in a single column with a subject ID in another column, you tweak it easily in EG.

 other_history	 med1	 med2	 med3	 med4	 med5	 med6
	Medical marijuana	non medical mari...	religious ganja	mary jane		
Hearing loss	cisplatin	carboplatin	nitrogen mustard			

REDCAP ▾

Filter and Sort Query Builder Data ▾ Describe ▾ Graph ▾

	study_id	dob
1	1	
2	2	

- Append Table...
- Sort Data...
- Create Format...
- Create Format from Da...
- Transpose...

Transpose for Local:WORK.REDCAP

Data Options Results Properties

**Data**

Data source: Local:WORK.REDCAP  
 Task filter: None Edit...

Variables to assign:

- study\_id
- dob
- sex
- demographics\_comple
- location\_inf
- symptoms\_\_1
- symptoms\_\_2
- symptoms\_\_3
- symptoms\_\_4
- symptoms\_\_5
- symptoms\_\_6
- symptoms\_\_7
- history\_\_1
- history\_\_2
- history\_\_3

Task roles:

- Transpose variables
  - med1
  - med2
  - med3
  - med4
  - med5
  - med6
  - med7
  - med8
  - med9
  - med10
- Copy variables
- New column names (Limit: ...)
- Group analysis by
  - study\_id

study\_id sort order: Ascending

Sort by variables

Each variable that you assign to this role is used to segment the about-to-be-transposed columns into sub-columns that will be transposed separately. Each sub-column, defined by a set of values of the grouping variables, becomes a row of the output data set.

Preview code Run Save Cancel Help

Transpose for Local:WORK.REDCAP

Data  
Options  
Results  
Properties

**Options**

Source column

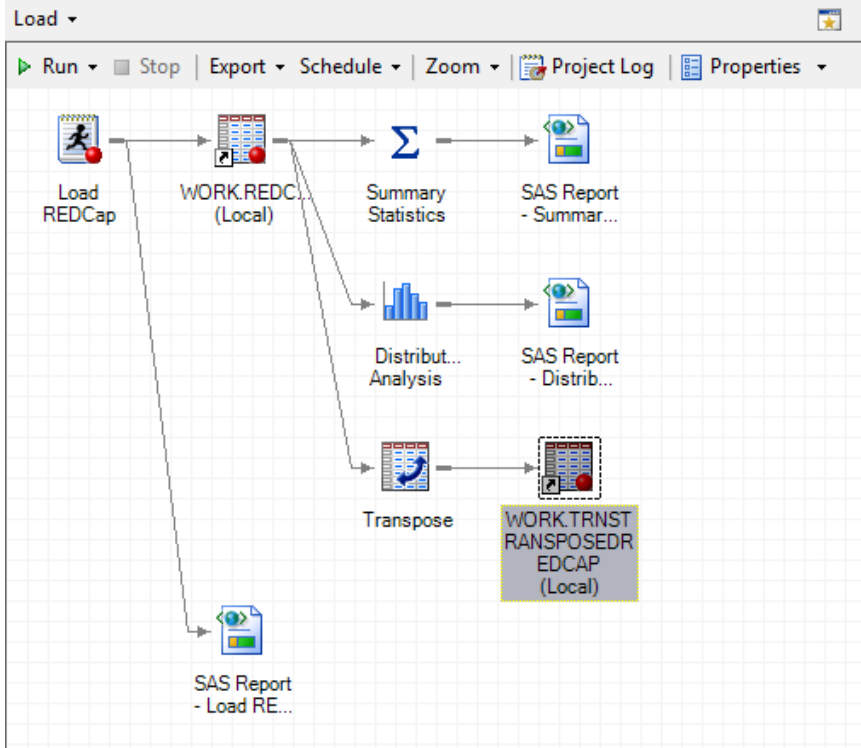
Name: Source

Label: Label

Column name prefix

Use prefix: Drug



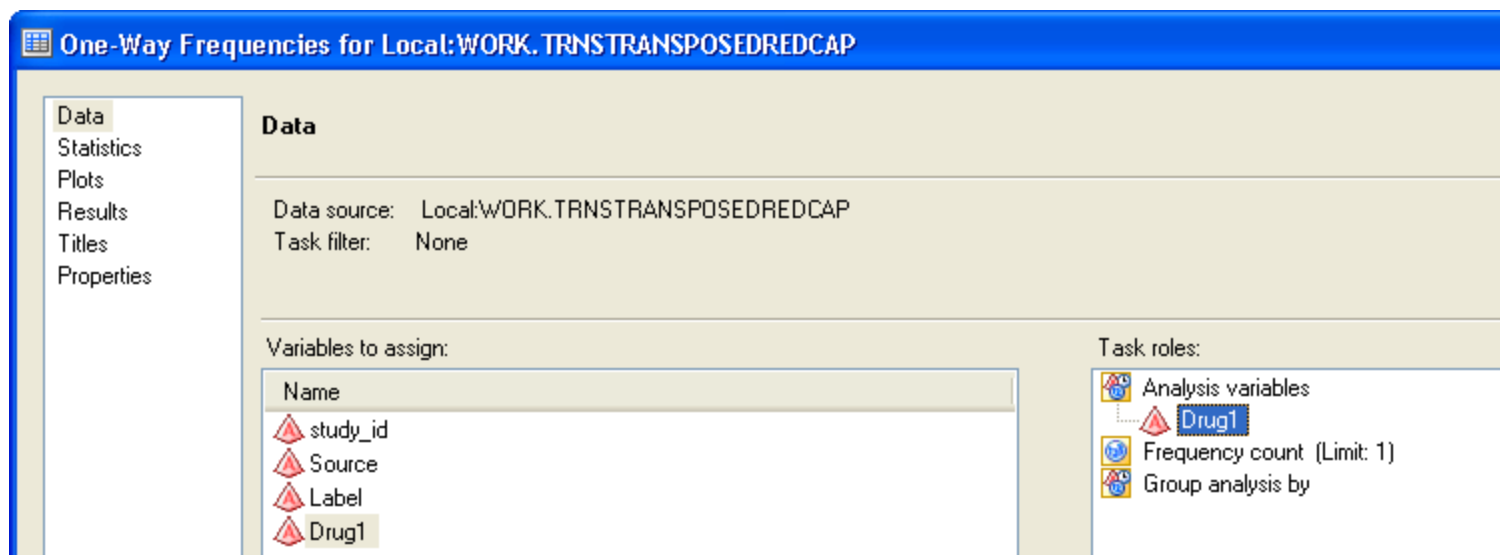
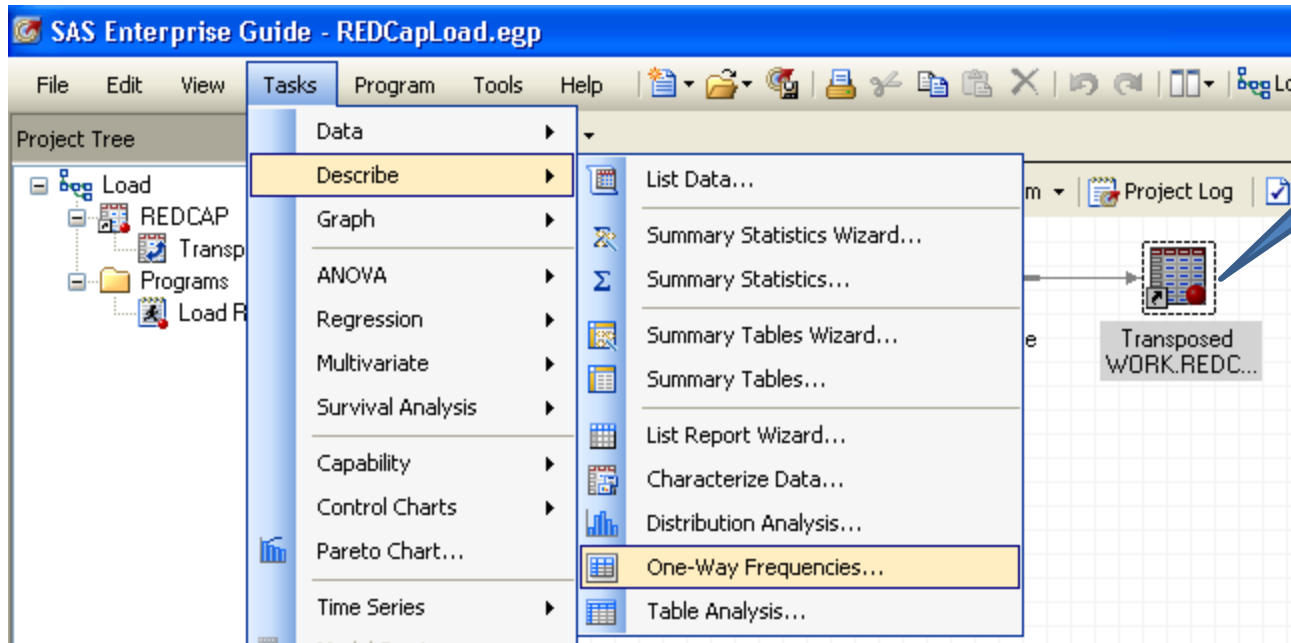


Transpose ▾

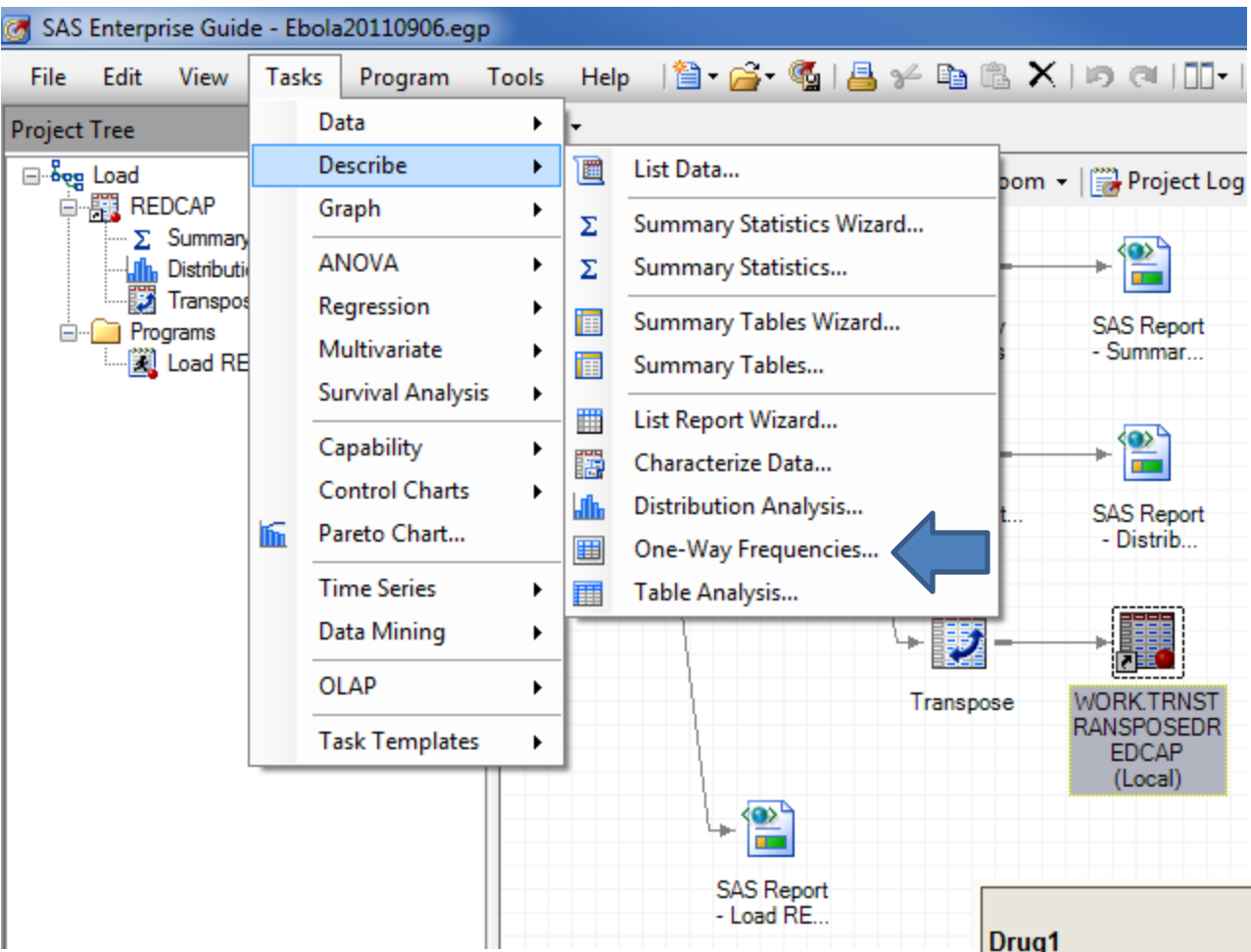
Input Data Code Log Output Data

Modify Task Filter and Sort Query Builder Data ▾ Describe ▾ Graph ▾ Analyze

	study_id	Source	Label	Drug1
1	1	med1	Current medicati...	Medical marijuana
2	1	med2	Second medicati...	non medical marijuana
3	1	med3	Third medicaiton	religious ganja
4	1	med4	Fourth medication	mary jane
5	1	med5	Fifth medication	
6	1	med6	Sixth medication	
7	1	med7	Seventh medicati...	
8	1	med8	Eigth medication	
9	1	med9	Ninth medicaiton	
10	1	med10	Tenth medicaiton	
11	2	med1	Current medicati...	cisplatin
12	2	med2	Second medicati...	carboplatin
13	2	med3	Third medicaiton	nitrogen mustard
14	2	med4	Fourth medication	
15	2	med5	Fifth medication	
16	2	med6	Sixth medication	
17	2	med7	Seventh medicati...	
18	2	med8	Eigth medication	
19	2	med9	Ninth medicaiton	
20	2	med10	Tenth medicaiton	







Drug1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Medical marijuana	1	14.29	1	14.29
carboplatin	1	14.29	2	28.57
cisplatin	1	14.29	3	42.86
mary jane	1	14.29	4	57.14
nitrogen mustard	1	14.29	5	71.43
non medical marijuana	1	14.29	6	85.71
religious ganja	1	14.29	7	100.00

Frequency Missing = 13

# Repeated Measures

- It is easy to set up REDCap to have the same form asked many times.
- You can add the repeated questions to one form (what I typically recommend) or you can recycle the same short forms.
- If you have a project that involves repeat assessments talk to me about the right way to set up the database.

# Data Management Plan (DMP)

- CFR design
- Databases
- Study setup
- CRF workflow
- Entering data
- Cleaning data
- Managing lab data
- AE handling
- Coding report terms
- Creating reports and transferring data
- Closing study procedure

