# ADNI Data Training Part 1

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## Outline

Today's Presentation Outline

- About ADNI
- How to navigate ADNI website
- How to download data
- How to use visualization tool

## About ADNI

The Alzheimer's Disease Neuroimaging Initiative (ADNI)

- On-going multisite longitudinal study
- Subjects are recruited from 55 sites in the U.S. and Canada
- Five diagnostic categories
  - cognitively normal (CN)
  - significant memory concern (SMC) - newly added group
  - early MCI (EMCI)
  - late MCI (LMCI)
  - mild AD (AD)
- Collect clinical/imaging/genetic/biospecimen/biomarker data
- Validate biomarkers for use in Alzheimer's disease clinical trials.

## About ADNI

The study has 3 phases

- ADNI1: 5 years from October 2004
- ADNIGO: 2 years from September 2009
- ADNI2: 5 years from September 2011
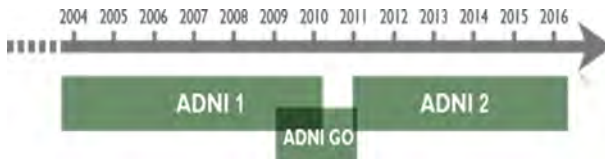
## About ADNI

The study has 3 phases

- New participants were recruited during each phase of the study.
- Participants are followed and reassessed over time to track the pathology of the disease as it progresses.

| | Normal | EMCI | MCI | LMCI | AD | MRI | fMRI | DTI | FDG | AV45 | PIB | Biosamples |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADNI I | 200 | - | 400 | - | 200 | ✓ | | | ✓ | | ✓ | ✓ |
| ADNI GO | ↓ | 200 | ↓ | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| ADNI 2 | 150 | 150 | ↓ | 150 | 200 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |

## Navigate ADNI website

Two important websites for ADNI.

- ADNI-Info website
- LONI (Laboratory of Neuro Imaging, UCLA) website

# ADNI-Info website
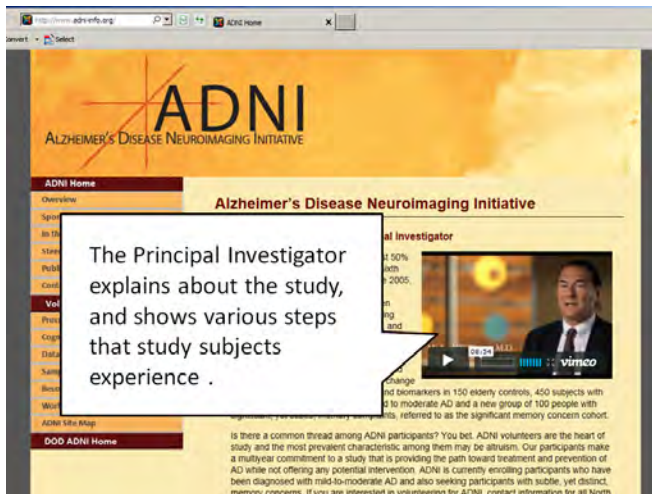
ADNI-info Homepage: www.adni-info.org

# ADNI-Info website

ADNI introduction video (9 minutes).

# ADNI-Info website

ADNI-info website has basic information about ADNI study.
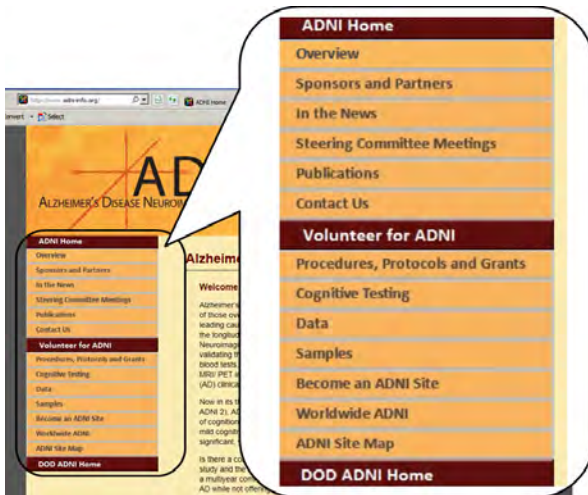
# ADNI-Info website

Link to the ADNI Procedure Manuals.
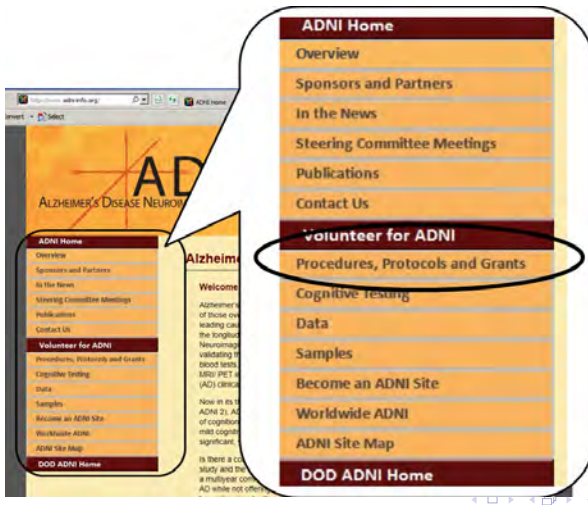
# ADNI-Info website

Procedure manuals are located here.

# ADNI-Info website

Steering Committee Meeting page has slides from previous presentations.
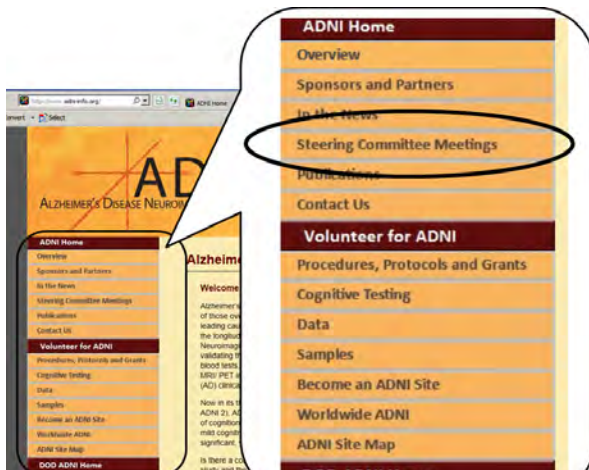
# ADNI-Info website

Presentation slides are available to view/download.
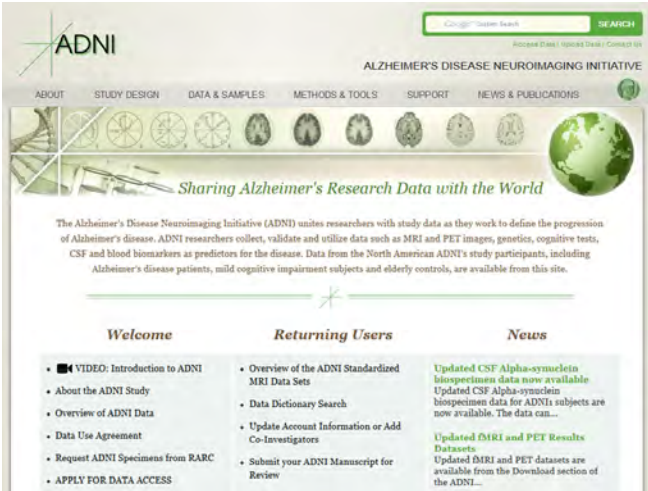
## LONI website: Home Page

ADNI Data Page: adni.loni.ucla.edu

# LONI website: Home Page

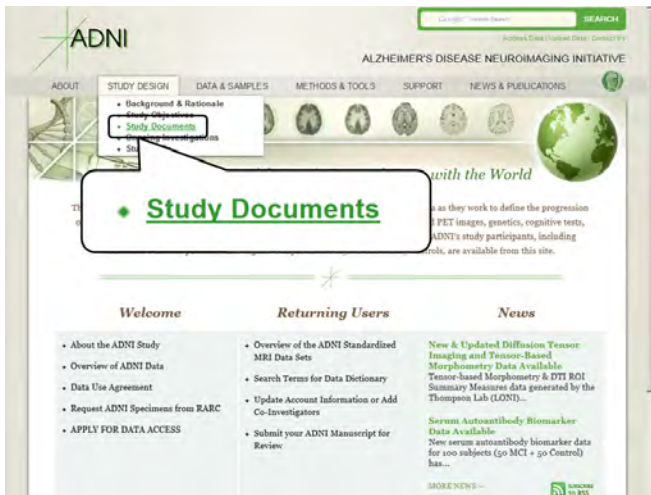New video from LONI.

## LONI website: Home Page

A brief introduction to ADNI data.

## LONI website: Home Page

You can learn more about ADNI.

## LONI website: Home Page

You can view some study documents under **STUDY DESIGN**

# LONI website: Study Documents

Complete Study Schedule can be downloaded.

# LONI website: Study Documents

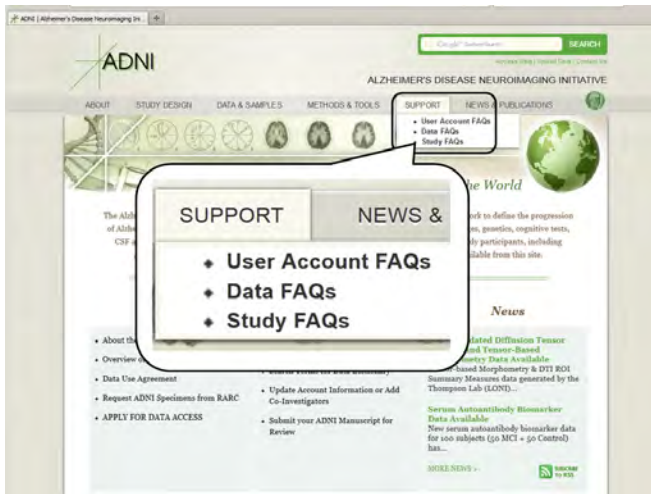**Complete Study Schedule** tells you which tests are done at each visit.
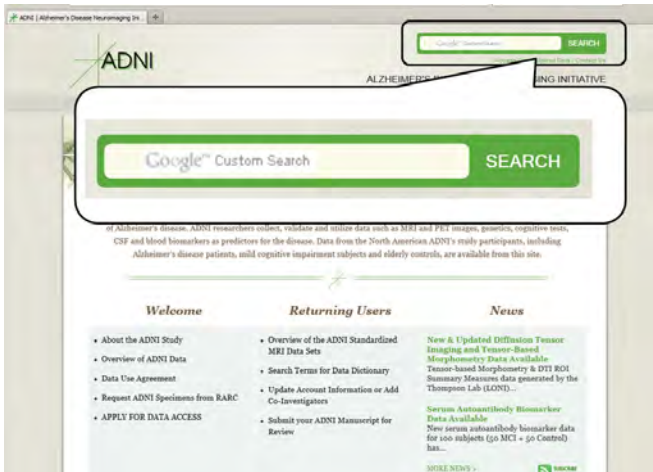
## LONI website: Home Page

Please check News regularly or subscribe to RSS.
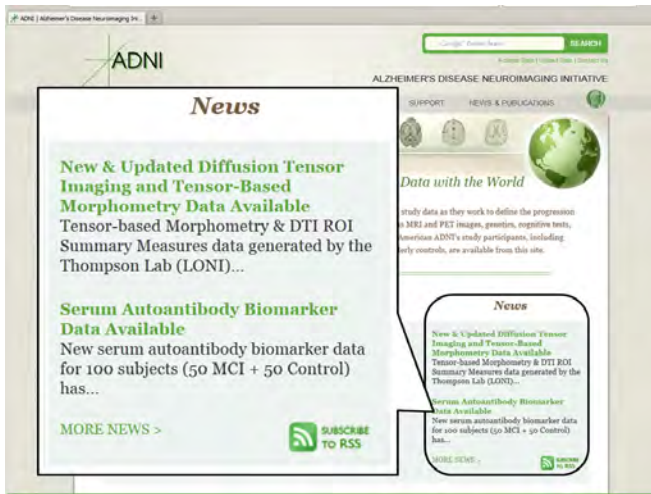
## LONI website: Home Page

Frequently asked questions are found under **SUPPORT**.

# LONI website: Home Page

You can also use the Google Site Search to find information on LONI website.

# LONI website: Ask the Experts

**Ask the Experts** page will be available soon. (tentatively April 8th)

## LONI website: Ask the Experts

Q&A from **Ask the Experts** will be posted on the **Experts Knowledge Base**, and will be searchable by users.

# LONI: Home Page

You can learn more about data from here.

## Download Data

How to download data from LONI

## LONI: Access Data

Go to **Access Data** page from **DATA & SAMPLES**.

## LONI: Access Data

Or click **APPLY FOR DATA ACCESS**.

## LONI: Access Data

Apply for Access to Data as shown below.
(**aibl** is the Australian study.)

## LONI: Access Data

Apply for Access to Data.

- Read and Agree **ADNI Data Use Agreement**.
- Complete **ADNI Data Access Application** (name, e-mail address, institution, proposed analysis, etc.)
- All applications are reviewed by the **Data Publication and Sharing Committee** within one week of submission.

# LONI: Access Data

After you receive password, enter your e-mail and password to go to Data Download page.

## LONI: Download Data

You can view DOWNLOAD instruction slide from here.

## LONI: Download Data

Click DOWNLOAD to go to **Download Study Data** page.

## LONI: Download Data

You can download data from the **Download Study Data** page.

## LONI: Download Data

You can download a single data file by clicking an item as below.

## LONI: Download Data

OR You can download a group of data. Click a group as below.

## LONI: Download Data

Then click Download.

## LONI: Download Data

Optional: You can download data from a specific date.

## LONI website: Download Study Data

ADNIMERGE packages are located under **Study Info**
(R, SAS, STATA, and SPSS)

## ADNIMERGE

What is the ADNIMERGE package?

- This contains all ADNI data (except genetic data).
- R, SAS, Stata and SPSS versions are available.
- Mike Donohue from UC San Diego wrote R code to store R dataframes in SAS, Stata, and SPSS.
- It includes 'adnimerge' data which contains commonly used variables (i.e. demographic, clinical exam, MRI and PET variables)
- Labels & formatting have been incorporated in R, SAS, Stata.
- ADNIMERGE packages are updated daily.

## LONI : Download Data

Data dictionary is located under Study Info

## LONI : Search Data

Back to the Home Page, we have **Data Dictionary Search**.

# LONI : Search Data

You can enter a term you want to search.
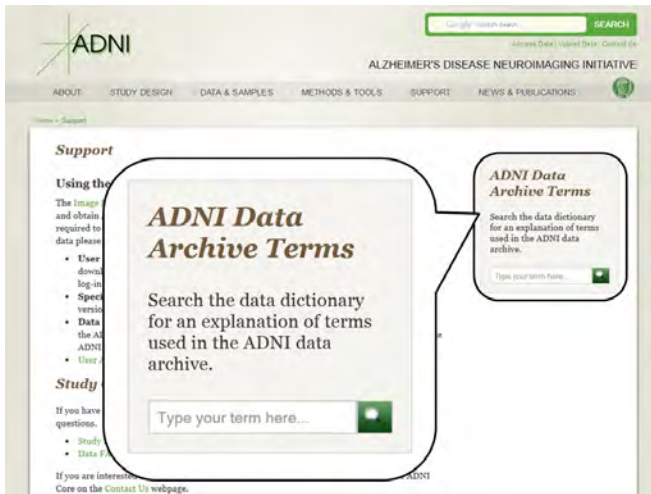
## LONI website: Data Dictionary Search

Search results for the 'USERDATE'.

## ADNIMERGE package

For ADNIMERGE package users: static html document is available.
adni.bitbucket.org
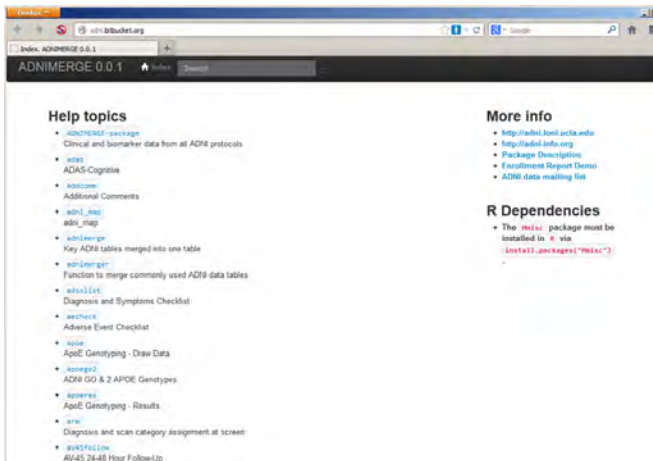
## ADNI MERGE document

We can view data description and variable list.

# ADNI MERGE document

You can use the search box.
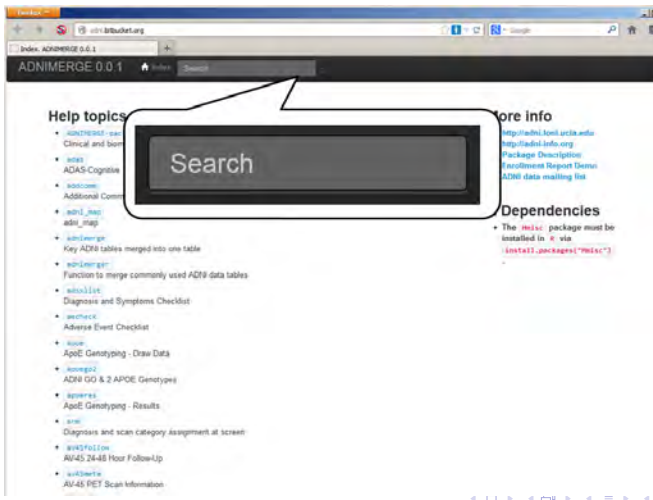
# ADNI MERGE document

For example, we can enter **hippocampal volume**.
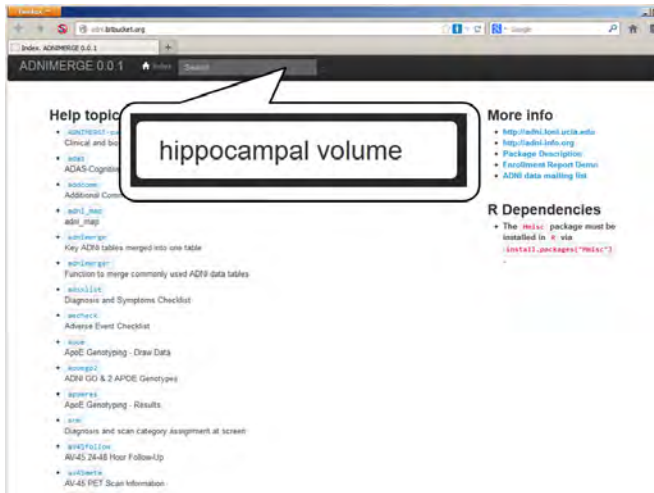
# ADNI MERGE document

This will be the search result.
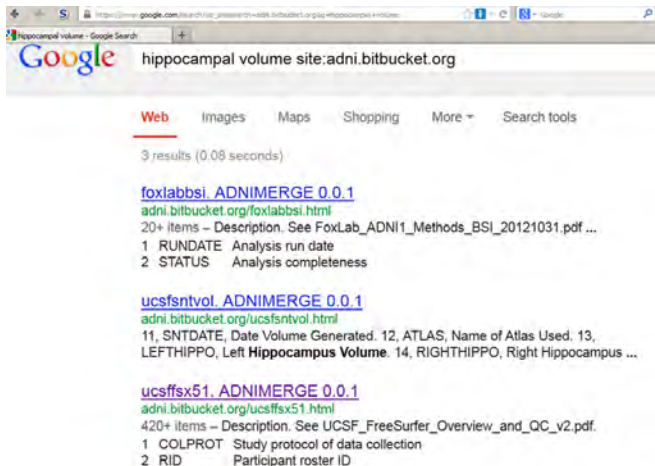
## Visualization Tool

**Visualization Tool** helps you to visualize data easily.

Please note:

- Not all assessments (variables) are available.
- Database is updated in real-time.
- Numbers in the slide will be different from current one.

## Visualization Tool

After you login

# Visualization Tool

Click EXPLORE tab

# Visualization Tool

Visualization Page

## Visualization Tool: Define Populations

First, you need to define populations.

# Visualization Tool: Define Populations

Currently, Population#1 are MMSE of 20≤30 and AD.
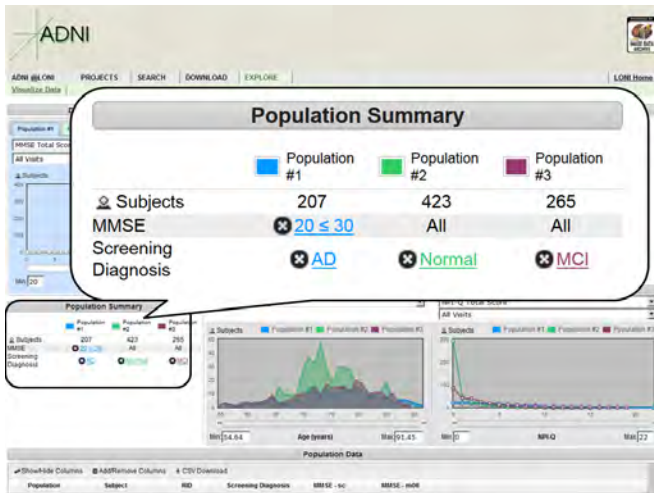
# Visualization Tool: Define Populations

We can remove MMSE restriction by clicking here
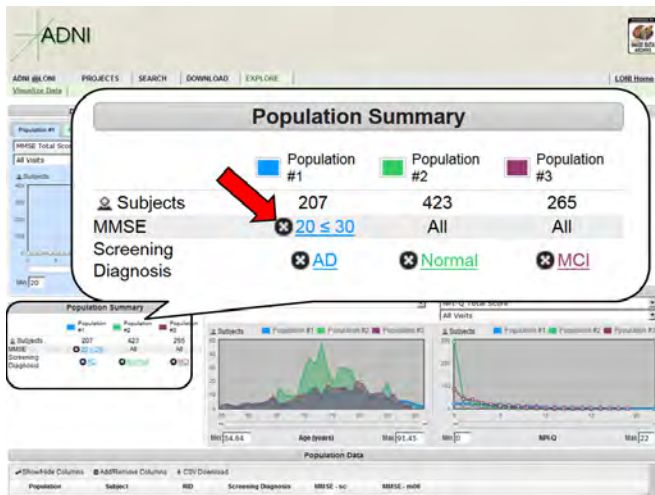
# Visualization Tool: Define Populations

Now Population #1 is all AD.
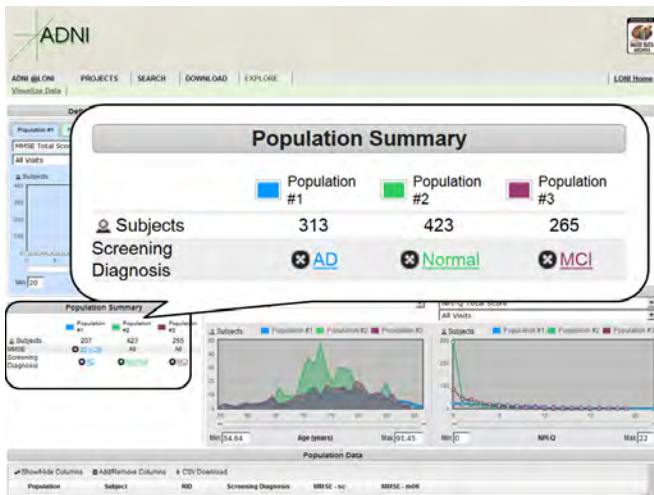
# Visualization Tool: Define Populations

We can add more restrictions from the pull-down menu to define each population.

# Visualization Tool: Define Populations

For Assessment variable, we can restrict by visit time also.
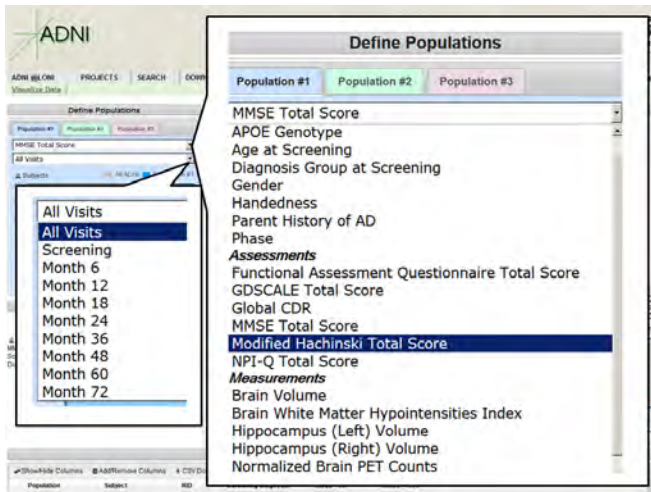
# Visualization Tool: Compare Populations

Second, you need to select variables.
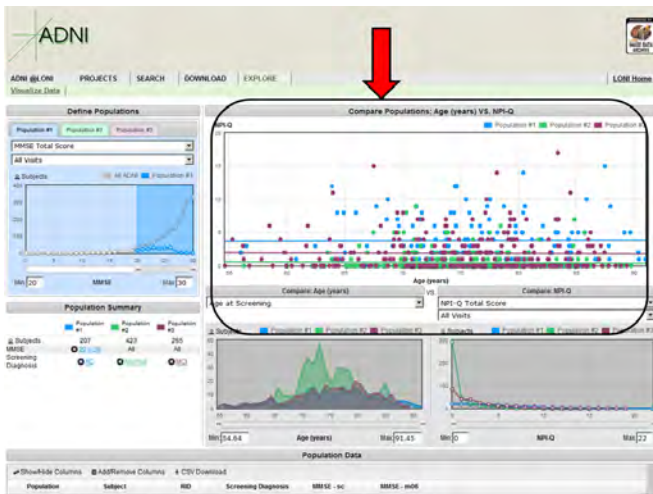
# Visualization Tool: Compare Populations

Currently, Age at Screening and NPI are set.

## Visualization Tool: Compare Populations

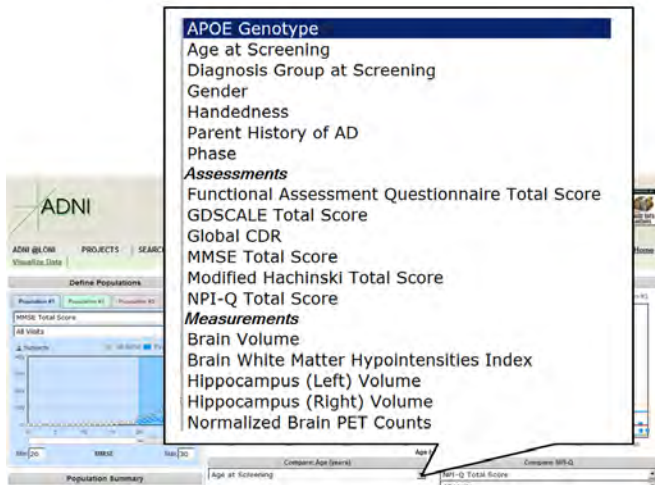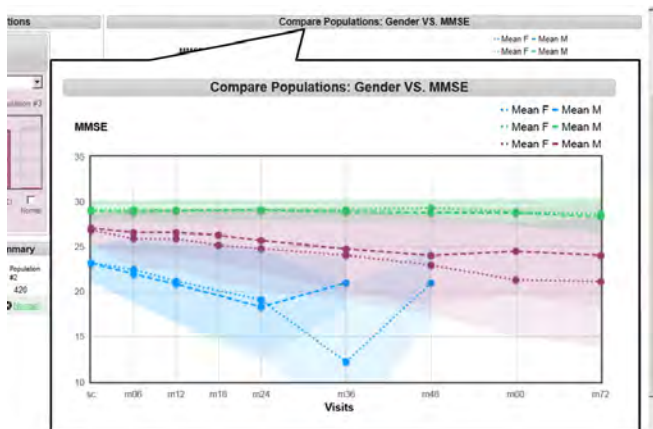We can choose different variables from pull-down menu.

# Visualization Tool: Compare Populations

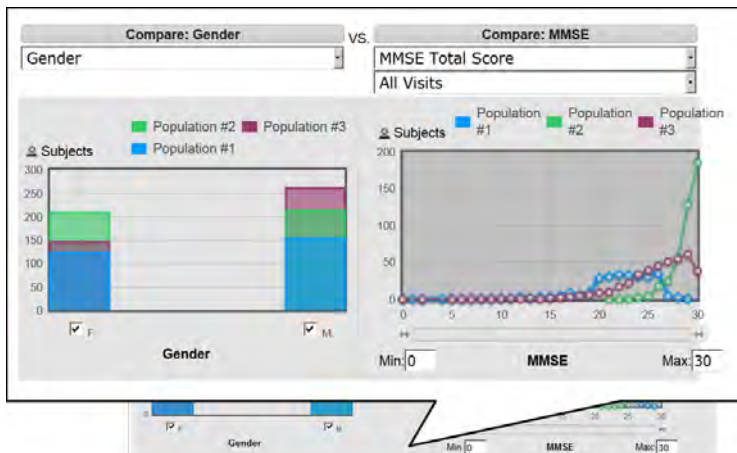In this example, we chose Gender and MMSE.

# Visualization Tool: Graphs

Mean of MMSE: highest is normal(green), lowest is AD(blue)
MMSE score declined by time in MCI(red) and AD(blue)
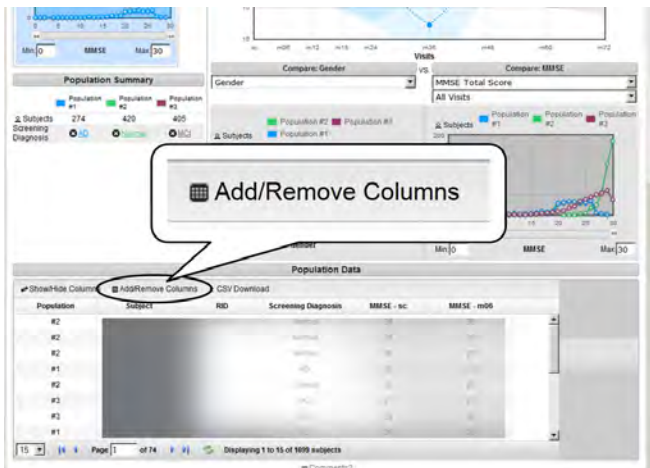
# Visualization Tool: Graphs

Bottom graphs show frequencies by each variable
We have more Male subjects in population#3 and #1

## Visualization Tool: Download Data

We can also download data from here.
You can Add/Remove variables by clicking here.

# Visualization Tool: Download Data

These are the available variables to add.

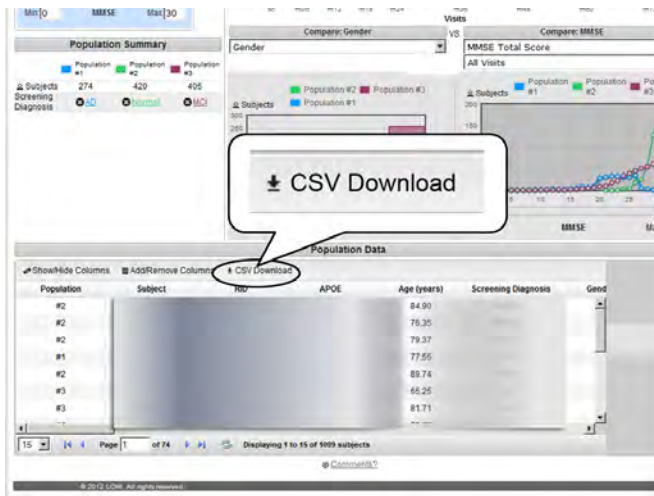## Visualization Tool: Download Data

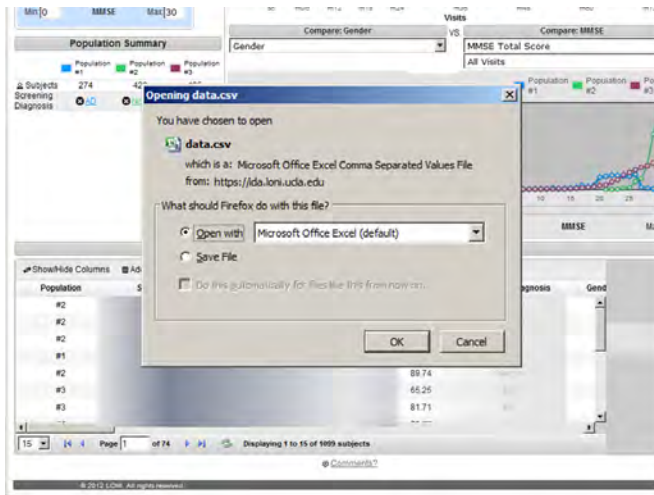After you add desired variables, click **Change Columns**

## Visualization Tool: Download Data

After adding desired variables, we can download csv data file.

# Visualization Tool: Download Data

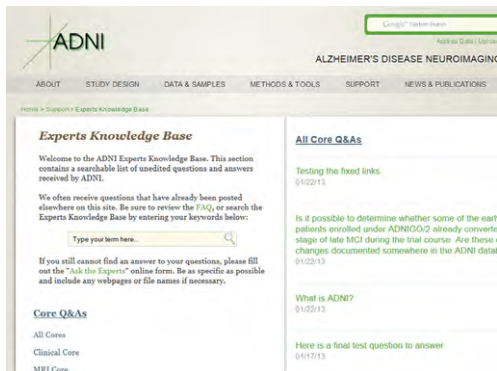This data will have wide format

## Having Question?

If you have questions, please check FAQ section first.
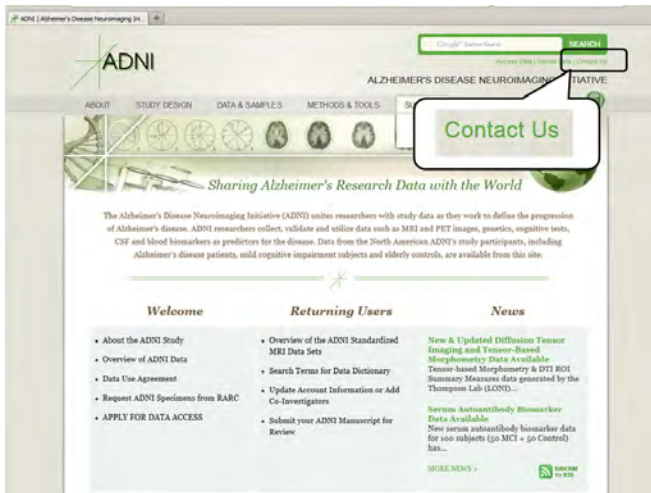


Still no answers?

## Having Question?

Search your question using **Experts Knowledge Base**.
(will be available soon)



Still no answers?

## Having Question?

You can contact us from here.

## Having Question?

Or **Ask the Experts** page (will be available soon)

# Having Question?

Or you may join ADNI Data User Google Group.
https://groups.google.com/d/forum/adni-data

## Q & A

Any questions?

# Thank You

Thank you.