MyResearch 101

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Academic Research System (ARS) Services

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

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

• **Clinical Data Research Consulting Services**
  – The extraction of data from the UCSF Medical Center APeX EMR
  – The extraction of data from the SFGH Lifetime Clinical Record
New Academic Research Systems Recharge Policy

- Consulting Services
  - Effective October 1, 2014, ARS will provide up to eight (8) hours of consulting services per Fiscal Year (FY) without charge. Any additional service hours will be provided at the rate of $106/hour.

Continued on next slide . . .
Academic Research System (ARS) Services

New Academic Research Systems Recharge Policy

- **Data Storage**
  - Effective November 1, 2014, ARS will provide principal investigators (PIs) with up to 10 gigabytes of data storage without charge. Data storage over 10 gigabytes will be provided at $0.24 per gigabyte ($0.10 for data storage and $0.14 for HIPPA-compliant backups).
Academic Research System (ARS) Services

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• **Clinical Data Research Consulting Services**
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MyResearch Objectives

What we will cover today:

• MyResearch – Why was MyResearch created?

• Cloud Computing

• MyResearch Overview

• Starting a MyResearch Session
MyResearch Objectives – Cont’d

What we will cover today:

• MyResearch Tools and Applications

• MyTransfer Tool

• SharePoint

• Cohort Selection Tool
MyResearch Objectives – Cont’d

What we will cover today:

- UC ReX Data Explorer Tool
- Research Data Browser
- Setting Folder Permissions
Why was MyResearch created?

• Conceived and developed here at UCSF after repeated thefts of research computers and laptops not properly encrypted, and frequently containing patient and other sensitive data and information.

• Developed to serve as a powerful, yet convenient, collaborative, and affordable tool to facilitate the research process for UCSF investigators, their research teams and non-UCSF collaborators.
What is Cloud Computing?

Cloud Computing is the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than using a local server or personal computer (PC).
How MyResearch Uses Cloud Computing

- **MyResearch contains:**
  - **File Management Tool** = A HIPAA compliant Virtual Desktop
  - **MyTransfer Tool** = Upload or transfer your files from your personal desktop to MyResearch
  - **SharePoint** = A Microsoft web application for web content/document management

MyResearch.ucsf.edu
(The Cloud)

Your Virtual Desktop
(The Cloud within the cloud)

MyTransfer Tool

Your Local Computer
What is MyResearch?

- MyResearch is a complete virtual desktop
- Applications such as MS Office Suite 2010, SAS, STATA, SPSS, and other research tools are included, with frequent updates
- The Computer folders are used to create/move folders and files within the MyResearch environment (formally the File Management Tool)
- Web-based MS SharePoint enables collaboration
What is MyResearch?

• The MyTransfer Tool enables local data files to be uploaded to MyResearch; there is no need to store any sensitive data on your local desk- or laptop anymore

• MyResearch is available to PC, Mac and Linux users, can be accessed remotely with a Campus username and password and used on hand-held devices such as tablets and iPhones

• **MyResearch is free of charge**
Starting a MyResearch Session

Install the VMWare View Client:
Visit this link [https://myresearch.ucsf.edu](https://myresearch.ucsf.edu)
Click the MyResearch Installation Guide link for detailed instructions.

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Be sure you are not running any of these applications:

- Skype
- ConnectX
- VPN Software
- ReadyTalk or GoToMeeting
- Any other software that might allow outside resources or other users to view your desktop
If you are signing in with a SOM or Medical Center Log on. . .

Be sure to uncheck the Log in as current user option on the VMware Horizon View Client screen.
Your **Virtual desktop**.

The Tools Portal (the window on the left) is usually open and maximized when you first sign in. If not, open the Tools Portal by clicking on the IE icon on the bottom tool bar. To find existing, uploaded data, click the Windows Explorer icon, then click Computer, your shared data is in the appropriate shared drive.
Upload Documents using the MyTransfer Tool

1. Access this address [https://mytransfer.ucsf.edu/](https://mytransfer.ucsf.edu/)

2. Enter your campus username and password, click the Log in button.
3. Locate and open the appropriate folder on your PI’s shared drive and then open any appropriate subsequent folder, if necessary.

4. Drag the appropriate items into the folder on the MyTransfer screen and let go. MyTransfer uploads the items.

Access the MyResearch landing page and click on the MyTransfer Quick Reference Guide link for more detailed instructions.
Collaborating with SharePoint

In your Tools Portal window, click the SharePoint icon
Network Drives and SharePoint

MyResearch Site – Network Drive
Principal Investigator (PI)

Study 1

SharePoint Site 1

User 1

User 2

Study 2

SharePoint Site 2

User 2

User 3

Read/Write
No Specialized Permissions

Read/Write
No Specialized Permissions
To locate an existing SharePoint files, click on your project tab, then click Data, select your file from the list.
To upload files to SharePoint, click on Add document at the bottom of the screen. Click the Browse... button, then choose your file from your shared drive(s).
Cohort Selection Tool (CST)

Click the Cohort Selection Tool (CST) icon on the Tools Portal
Cohort Selection Tool – Cont’d

• The Cohort Selection Tool enables researchers to query the Integrated Data Repository (IDR)

• The IDR contains queries patient populations across the UCSF Medical Center hospital and UCSF School of Dentistry dental patient data sets in a single query

• By utilizing this tool to explore the patient populations contained in these data sources, researchers can test hypotheses and identify potential cohorts
A. Find your search criteria  B. Drag and drop your search criteria into the Query Tool  C. Query Status (results)  D. Previous Queries
Cohort Selection Tool – Cont’d

Constraining Query Conditions for the same Encounter

1. Locate your search criteria in the Navigate Terms section.
2. Drag and drop your search criteria in to the Group columns in the Query Tool section.
3. Click the drop-down menu for Temporal Constraints and select “Selected groups occur in the same financial encounter” option.
Constraining Query Conditions for the same Encounter – Cont’d

The CST displays a drop-down menu at the top of all the Group columns.

4. Select “Occurs in Same Encounter” from the drop-down menu.
Constraining Query Conditions for the same Encounter – Cont’d

To relax a constraint for a group(s), click the drop-down menu for that group and select Treat Independently.

5. Click the Run Query tab to run your query.
Constraining Query Conditions to occur in Chronological Sequence

1. With blank Query Tool fields, click the drop-down menu for Temporal Constraints and select “Define Sequence of Events” option.
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

The CST displays a list of options which are defined on the next slide:

- Population in which event occur
- Event 1
- Event 2
- Define order of events
Cohort Selection Tool – Cont’d

Constraining Query Conditions to occur in Chronological Sequence – Cont’d

<table>
<thead>
<tr>
<th>Option</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population in which events occur</td>
<td>This is the condition that should be true for all patients considered for the sequence of events. This can be a full query condition with multiple groups. If you do not fill this in, that means that all people are the population that you are considering.</td>
</tr>
<tr>
<td>Event 1</td>
<td>This is the first event required in the sequence of events. This can be a full query composed of more than one group.</td>
</tr>
<tr>
<td>Event 2</td>
<td>It takes at least two events to define a sequence. This is the second event, which can also be a full query with multiple groups. <strong>NOTE:</strong> If you need more than 2 events, can click the button [New Event] to add as many additional events as needed.</td>
</tr>
<tr>
<td>Define order of events</td>
<td>After setting Event 1 and Event 2, select Define order of events. A dialog box displays that allows you to define the chronological sequencing of your events in the query. After completing this dialog, click [Run Query].</td>
</tr>
</tbody>
</table>
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

2. To complete the example query, select Event 1 and drag Diabetes Mellitus in the Group 1 column.
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

3. Select Event 2 from the drop-down menu (it currently displays Event 1) and drag Antibiotics and Antiinfectives to the Group 1 column, which is now labeled “Anchoring Observation”.
4. Select Define order of events from the drop-down menu.
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

The “Add Temporal Relationship” button at the bottom of the screen. This feature is used to add as many temporal relationships on as many events as are needed.
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

5. For this example, the By check box is selected and 2 is entered in the # field.
6. Click the Run Query button.
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

The CST displays a Run Query window with an auto-populated query name. You can leave the default name as is or delete it and enter a unique query name.

The Run Query window displays options which are defined on the next slide.
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

<table>
<thead>
<tr>
<th>Option</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Set</td>
<td>This option does not function.</td>
</tr>
<tr>
<td>Encounter Set</td>
<td>This option does not function.</td>
</tr>
<tr>
<td>Number of Patients</td>
<td>This option is checked by default and it provides you with the patient count for the query in the Query Status box. The value displayed is + or – 3, which means that is accurate to within plus or minus three patients. This is to prevent you from identifying the existence of a single patient and protect patient privacy.</td>
</tr>
<tr>
<td>Gender patient breakdown</td>
<td>This option displays patient count results by gender.</td>
</tr>
<tr>
<td>Vital Status patient breakdown</td>
<td>This option displays patient count results by vital status values.</td>
</tr>
</tbody>
</table>
Cohort Selection Tool – Cont’d

Constraining Query Conditions to occur in Chronological Sequence – Cont’d

7. After you have selected the appropriate query result type(s), click the OK button to run your query.

![Run Query dialog box]
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

After clicking the OK button on the Run Query dialog box, your query begins to run.

If you want to stop your query before it completes, click the Cancel Query button at the bottom of the query tool window.
Constraining Query Conditions to occur in Chronological Sequence – Cont’d

The query runs and the results are displayed in the Query Status box.
The UC ReX Data Explorer enables researchers to search 12 million de-identified patient records from the 5 UC medical centers with one query.

Contains complete National Institutes of Health (NIH) targeted Enrollment Tables by providing counts of eligible patients by gender, race and ethnicity.

Increases cohort identification for the study of rare disease, expanded your study from a single to a multi-site proposal and helps you obtain coordinated data provisioning support through UC ReX.
Click on the UC ReX Data Explorer icon on your Tools Portal
UC ReX Data Explorer Tool – Cont’d
UC ReX Data Explorer Tool – Cont’d
UC ReX Data Explorer Tool – Cont’d

A. Find your search criteria  
B. Drag and drop your search criteria into the Query Tool
C. Query Status (results)  
D. Previous Queries
Click on the Research Data Browser icon on your Tools Portal
The Research Data Browser can also be accessed on your UCSF MyAccess page.
Research Data Browser – Overview

• The Research Data Browser allows you to view Epic Patient Data through the Cogito Data Warehouse

• It includes a de-identified view so you can see patient data prior to CHR approval

• You are able to search, view results, and export to Excel patient demographics, encounters, diagnosis, medications, labs, and procedures

• The dashboard has an Exploration area that allows you to design custom searches and display the results in a number of visualizations

• Offered by ARS at UCSF, contact its-arssupport@ucsf.edu for help
In order to access the Research Data Browser, you need to submit a request through the ARF – Account Request Form system and complete an Account Request Form (ARF).

The link to the ARF system is http://arf.ucsfmedicalcenter.org
Completing the ARF:

1. Complete the first page of the ARF, click the Next button.
2. Select “Other Applications”.
3. Locate and check the “Qlikview” check box. A new sub-screen displays.
4. Select “Research”.

After you submit your request, your manager needs to approve the request.

Once the request has been approved, a ServiceNow ticket is generated and routed to the appropriate person for fulfillment of your request.

The Account Request Form is a requirement to activate the link.
Production Environment Overview

• Typically the data is two days behind production and includes data from APeX starting 06/01/2012

• If there is a problem in production, data may lag for longer than two days behind production

The Data as of: box displays the date of the data you are viewing
The goal is to accelerate the clinical scientific discovery process for UCSF investigators by enabling:

- Accelerated hypothesis generation to a wider audience authorized to use de-identified data
- Rapid Query – all data in main memory
- Visual Profiling of selected patients
- Export to Excel or Flat File
Limitations of the Research Data Browser

- Only data from encounters after June 1, 2012 are included (APeX go-live date)

- Data is typically two days old – see the **Data as of:** field

- Procedures and Med Orders are limited to orders manually entered in APeX by a provider

  (ORDER_METRICS):
  - No child orders
  - No orders created by an interface
  - No pending orders
  - No historical orders
  - No cabinet overrides
Limitations of the RDB – Cont’d

• Data has been de-identified per HIPPA guidelines

• Patient and Encounter identifiers have been scrambled

• Dates have a random offset of up to a year in the past and each patient has the same offset for all dates

• Ages over 90 are shown as 90
When you access the Research Data Browser, the Select View is the first page displayed. There are two separate views of the same data: Patient View and Encounter View.

**Patient View** – looks across all encounters for a specific patient. For example: Find all patients who ever had this lab and medication ordered.

**Encounter View** – looks at a specific encounter. For example: Find a specific encounter during which this lab was performed and this medication was ordered.

**Data as of:** – displays the production date. Most times this field is two days behind production.
Patient View / Encounter View – What are the differences?

You will most likely want to use the Patient View when using the Research Data Browser. The main difference between the two views is how each one treats queries.

To view a set of patients who had Order A and Diagnosis B:

• **Patient View** – displays all the patients who ever had both Order A and Diagnosis B, regardless of the encounter on which they occurred.

• **Encounter View** – displays all patients where Order A and Diagnosis B occurred on the same encounter. It also displays all the information from that encounter(s).
Sensitive Patient Information

Any data you view in the Research Data Browser is de-identified. **However, you must still treat this data as sensitive patient information.**

**YOU MUST NOT:**

- Attempt to re-identify any information without approval from the CHR
- Share any extracted data with people who are not authorized to use this data

If you have any questions about how to handle the data, please click the Report an Issue link at the top right-hand side of each screen.
Helpful Hints for Mac Users

• Right-click on a PC becomes **Control + click** on a Mac

• To select multiples of anything on a Mac you need to hold down the **Command** key while making your selection

• When using the **Command** key to select multiple items, after you are done selecting the items, press **Enter** to accept the multiple entries. (Using the **Ctrl** key in Windows accepts the multiple items when you release the **Ctrl** key.)
The Research Data Browser contains the same tabs for both the Patient and Encounter views.

The **Search** field and the **Current Selections** options are located in the upper left side of each tab.

The tabs are:
- Encounter or Patient – Identifies your current view
- Demographics
- Encounters
- Diagnoses
- Medications
- Labs
- Procedures
- All Selections
- Exploration
- Export
- ? Info
Add Bookmark

A timesaver for future searches is the **Add Bookmark** icon, the star with the plus sign, on the Research Data Browser toolbar.
Add Bookmark – Cont’d

Make Bookmark apply on top of the current selection – This is useful if you plan to combine a current selection criteria with other search criteria.

Include Layout State – This option saves the tab that is currently active.
Delete Bookmark

The **Delete Bookmark** icon, the star with the minus sign, on the Research Data Browser toolbar allows you to delete previously created bookmarks.
The Question Mark button displays definitions of each variable in a specific list.

*In the example below, the question mark button in the Patients (Latest Values) list displays a definition of each of the fields.*
Research Data Browser
Tabs Overview
Encounter View – Tabs Overview

The following eleven screens display the tabs in the Encounter View of the Research Data Browser.

A brief description of how each tab is used is included.

The Patient View contains the same tabs with the exclusion of the first tab which is labeled Patient instead of Encounter.

An example of the Patient tab follows the Encounter View examples.
Encounter View – Encounter Tab Overview

- Use this tab to get an overall snapshot of your encounters and patients.
- This tab is an overview.
- Most of your examination and selections will come on more specific tabs to drill down on data.
Encounter View – Demographics Tab Overview

- Use this tab to review details about patients.
- This tab provides a breakdown of patient demographics for your selected encounters.
- This tab can be used to get a snapshot of attributes about patients found by your search criteria.
Encounter View – Encounters Tab Overview

- Use this tab to review encounter details.
- This tab displays the types of encounters found by your selections.
- From here you can examine when the encounters occurred, as well as what specialty the encounters fell under.
Encounter View – Diagnoses Tab Overview

- Use this tab to review diagnoses.
- This tab displays the diagnoses associated with your selected encounters.
- From here you can examine common diagnoses as well as ICD9 codes for your selected encounters.
Encounter View – Medications Tab Overview

- Use this tab to review medications.
- This tab displays the medications associated with your selected encounters.
- From here you can review common medications ordered on your selected encounters.
Encounter View – Labs Tab Overview

- Use this tab to review the labs resulted.
- This tab displays the common labs resulted for your selected encounters.
- From here you can review the resulted labs as well as their procedure category.
Use this tab to review the procedures ordered.
This tab displays the common procedures ordered for your selected encounters.
From here you can review the procedures ordered as well as their procedure category.
Use this tab to enter your criteria and selections for your search. This tab is the tab central to making your selections and adding your criteria. Typically you will begin your search on this tab before navigating to other tabs to review the encounters found by your selections.
**Encounter View – Exploration Tab Overview**

- Use this tab to create your own charts and graphs.
- This tab allows you to create your own graphs to analyze data. You can create charts by adding dimensions on the left side.
- You can use the Table tab to export additional fields where you have not yet made selections. To do this, add the additional fields as dimensions.
Encounter View – Export Tab Overview

- Use this tab to extract data to Excel.
- This tab allows you to quickly export the patients found by your selections. In addition to pulling the Encounter ID and Patient ID, this table displays one column for each of the fields in which you have currently made selections.
- If you would like to pull data from a field in which you have not made a selection, use the Exploration tab Table functionality.
Encounter View – ? Info Overview

- Use this tab to get more resources for using the application.
- This tab provides a reference point for what data this application displays and additional resources for using the Research Data Browser.
The Patient View contains the same ten tabs with the exclusion of the first tab which is labeled Patient instead of Encounter.

- Use this tab to get an overall snapshot of your patients.
- This tab is an overview.
- Most of your examination and selections will come on more specific tabs to drill down on data.
Encounter Tab Example
Using a Graph to Change Search Criteria

1. Click the Skilled Nursing Homes (the green pie piece) on the Top 5 Discharge Disposition graph.

2. The Top 5 Discharge Disposition graph now only displays Skilled Nursing Homes information.

3. Click the Demographics tab to view the current selection, Skilled Nursing Homes.

NOTE: As you select your criteria on one tab, it carries over to all the other tabs.
Encounter View – Overview of Patients

When using the Research Data Browser, you typically select your criteria and then use the subsequent tabs to review the attributes of the encounters that match your criteria.

- Number of Encounters
- Number of Patients
- Date of Data
- No Selections
- Breakdown of All Encounters
1. Click the All Selections tab.
2. Locate the Diagnoses Name box, then find the Diagnosis Name field.
3. Click the box to the right of the Diagnosis Name field and enter “Diabetes”.
4. Press Enter on your keyboard to select all.
All Selections Tab Example
Once you are satisfied with your selection, you can navigate to other tabs.
Demographics Tab Example
Demographics Tab – Encounters with a DX of Diabetes

Select the Demographics Tab

Use the Toggle button to switch between Age and Age Group
Requesting PHI
Requesting PHI

After locating the de-identified information you need, you can request identified data (PHI) through the Clinical Data Request Consultation (CDRC) application in your MyResearch account.
Setting Folder Permissions

1. Access MyResearch.

2. Click the Windows Explorer folder icon.
Setting Folder Permissions – Cont’d

MyResearch displays the Libraries window.

3. Click the triangle to the left of the Computer icon to display your MyResearch shared drives.
4. Locate and open the appropriate shared drive.

5. Right-click on the appropriate folder.

MyResearch opens the Setting Folder Permissions Properties window.

7. Select the Security tab.

8. Click the Advanced button.
The Permissions tab displays.

9. Click the *Change Permissions* button.
The Permissions tab displays the Permission entries for this folder.

10. Uncheck the *Include inheritable permissions from this object’s parent* checkbox.
Setting Folder Permissions – Cont’d

MyResearch displays the Windows Security window.

11. Click the Add button.
MyResearch displays the Permissions window.

12. You can now remove the appropriate current permissions.

Be sure to leave the SGDAdmins(SDE\SGDAdmins) permission.
Group or user names field after all but the SGDAdmins (SDE\SGDAdmins) group have been removed.
The Permissions tab is now ready for you to add the appropriate users.

13. Click the Apply button.

14. Click the OK button.
15. Click the *Change Permissions* button.
16. Click the Add button.
17. You should always add yourself first, then add the appropriate users.

   The correct format is the appropriate domain, forward slash and the person’s user name, NOT their real name. Example: campus\wsteele

18. Click the Check Names button. If the user is found, their name displays.

19. Click the OK button.
20. Selecting the Full Control option allows a person to do just about anything:
   • Read
   • Write
   • Delete

21. Click the OK button.
Setting Folder Permissions – Cont’d

22. Click the Apply button, then click the OK button.
23. Click the OK button.
24. Right-click on the appropriate folder.

25. Select Properties.
Setting Folder Permissions – Cont’d

MyResearch opens the Setting Folder Permissions Properties window.

26. Select the Security tab

27. Click the Edit button.
28. Click the Add button.
29. Add additional users following the same name search format (appropriate domain, forward slash and the person’s user name, *NOT* their real name). If you find multiple names, be sure to select the appropriate name, click the OK button.
In this example, the new user who was added will only have the Permissions selected.

30. Click the Apply button to assign the Permissions.

31. After you have entered all the users you want to add to the folder, click the OK button to save and close the folder.
When you select a folder for which you do not have permission, MyResearch displays this warning message.
Additional Help and Resources

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

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

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

• ITS Help Desk 415-514-4100