

Discovery Data Repository Dashboard User Guide



The Discovery Data Repository Dashboard provides researchers with the ability to discover patient cohort counts from Epic data for preparatory to research purposes. The current version of the dashboard uses data predominately from the Discovery Data Mart, which is a limited data set and provides information such as patients, encounters, procedures, medications, and more. This quick user guide covers the basics of Tableau use and intends to help you start interacting with the dashboard!

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USING AN INTERACTIVE REPORT

The Discovery Data Repository Dashboard comprises two navigation tabs: Filters and Analytics (Figure 1). To switch between Filters and Analytics, click on the specific tab.

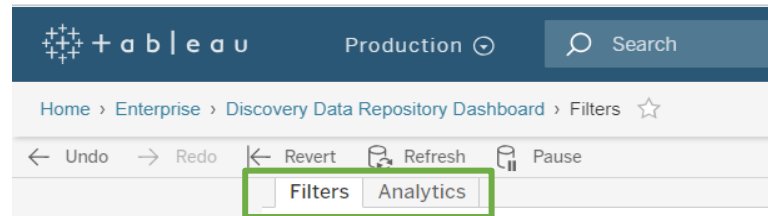


Figure 1. Navigation tabs

FILTERS

This dashboard contains filters, which allow a user to customize the report to fit their specific needs. Once a filter is selected, the Discovery Data Repository Dashboard will update to reflect a user's criteria. Filters will not affect the data source.

Figure 2. Filters tab

To derive a cohort, the following filters can be used:

Diagnoses: An ICD-based diagnosis is given to a patient during an encounter. If multiple conditions are selected within this category, the search will return a separate result set for each condition. It is interpreted as either condition is present and each satisfies the selection criteria. For example, a search for *Stroke, Hypertension* will return different code sets. The numbers would represent the cohort that have either condition or both. The search function is not case-sensitive.

Procedures: Procedures are actions used to diagnose, measure, or treat medical problems. They are performed during a specific patient encounter and are extracted from hospital and professional billing. Similarly, if multiple procedures are selected, values from each code system (CPT or HCPCS) are returned. The numbers would represent the cohort that have either procedure or both performed, e.g., *Botox, Electromyography*. The search function is not case-sensitive.

Medications: Medications are ordered during an encounter. After making your selections, the dashboard returns encounters with medications of the same pharmaceutical class or subclass. The search function is not case-sensitive.

Encounter Date: All encounter dates are rolled back at most 365 days to protect patient health information (PHI). The reference date for all available options is the last refreshed date of the data source. For example, *last 12 months* means retrieving data for the last twelve months from the most recent refresh date. The default date range is set to *last 24 months*. Please note that date shifting gives you an estimated rather than the exact sample size and the decrease in the number of encounters is greater with smaller periods of time. In case you are looking to identify cases that occurred in the *last 12 months*, it will be better to cast a wider net to capture those cases, hence choose *last 24 months*.

Logical Operator: The relationship between the three categories (Diagnoses, Procedures, and Medications) can be logically joined using **AND** or **OR** operators.

- For the **AND operator**, the conditions between all selected categories must be true, e.g., patients where the Diagnosis is *Heart Failure AND* performed Procedure is *Echocardiography AND* Medication is *Beta blockers* becomes the cohort.
- For the **OR operator**, any condition between the selected categories must be true to derive the cohort, e.g., patients with Diagnosis of *Anxiety OR* on medications with Pharmaceutical Class of *AntiAnxiety Agents*.

Dashboard results are defaulted to **AND**.

Diagnosis Source: A diagnosis can come from multiple sources, such as patient's problem list, encounter diagnosis, medical history, hospital or professional billing. Each source provides a different context to the diagnosis.

Notice on the right hand side (Figure 2 highlighted in Red) in **Current Results**, the **Total Encounters** and **Total Patients** change as per the filter selections. Only encounters that had at least one diagnosis given or at least one procedure performed or at least one medication ordered at UCLA Health after the CareConnect go-live are included. In addition, the **Selected Criteria** will appear on the bottom right hand side of the filters tab (Figure 2 highlighted in Green) and enumerates all the filters selected for each category.

Tool Tips:

- To select multiple values, hold down your **CTRL** key while making your selections.
- To select multiple values, you could also use lasso (Click + drag) windows functionality.
- To select a group of options (ex: A00, A01, A02 & A03), hold down your **SHIFT** key when selecting the first option and the last option. Everything in between will populate.
- To remove one selection, click on it again. To remove all your selections at once, use the **Revert** option just above the dashboard on the left-hand side. This reverts the dashboard to its default settings.
- Click on the video icon (Figure 3 highlighted in Yellow) for more information about each category

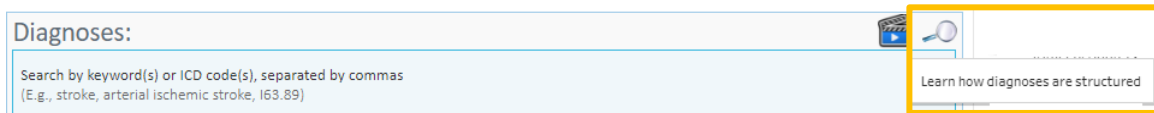


Figure 3. Diagnoses search box showing video icon

- For Diagnoses and Procedure categories, hover over a description to display the tool tip (Figure 4) which has the complete list of descriptions for a specific code. Another option is to use the more readable code Lookup tool which is applicable for the Medication category as well.

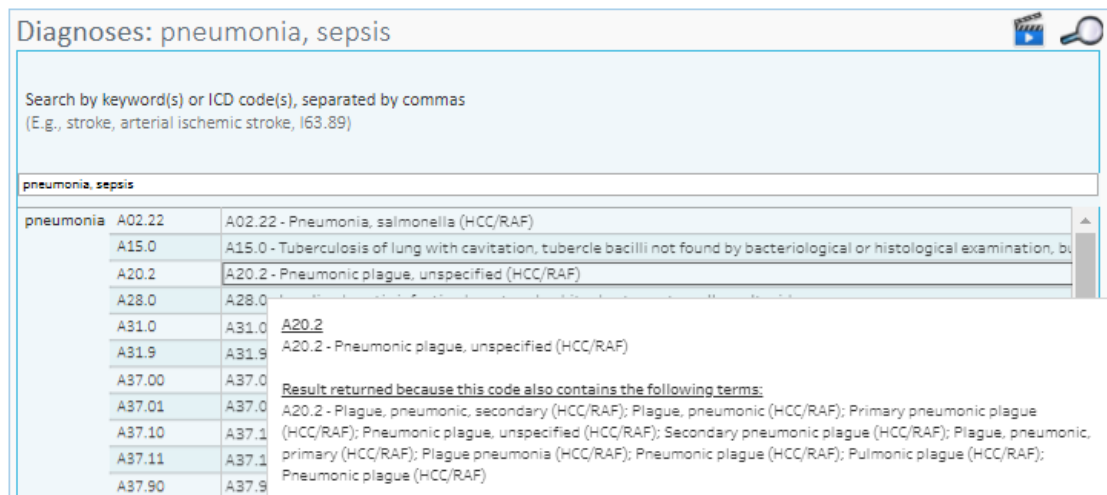


Figure 4. Diagnoses search box showing multiple diagnoses descriptions in the tooltip

CODE LOOK UP TOOL

There may be multiple descriptions associated with a single code or multiple medications associated with a single subclass. For simplicity, only one description is displayed for each code or subclass selected. Potentially, the displayed description does not contain the search term. The code Lookup Dashboard is the ultimate tool for finding a code or category. Click on the magnifying glass icon (Figure 5 highlighted in Yellow) to get a comprehensive list of codes or descriptions. This dashboard operates independently of the Discovery Data Repository Dashboard.

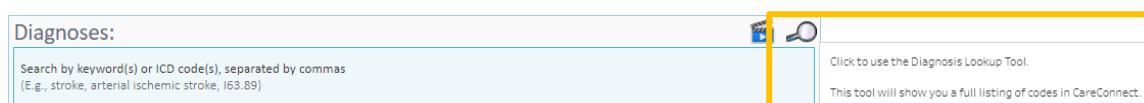


Figure 5. Icon for Lookup tool

To use this dashboard, enter a phrase, keyword or code in the search bar (Figure 6) to find its references. The search function is not case-sensitive. Please click on the radio buttons placed just below the UCLA Logo to search for a Diagnosis, Procedure, or Medication.

If you are unsure of the full name, searching for part of the name will work as well, e.g., *hydrocod* will bring up hydrocodone. All matching results are displayed, provided the number of encounters does not exceed what was entered into **Results to Show**. Currently, the dashboard is defaulted to display at most 500 records. However, if you would like to expand the number of displayed search results, enter another number into the **Results to Show** box.

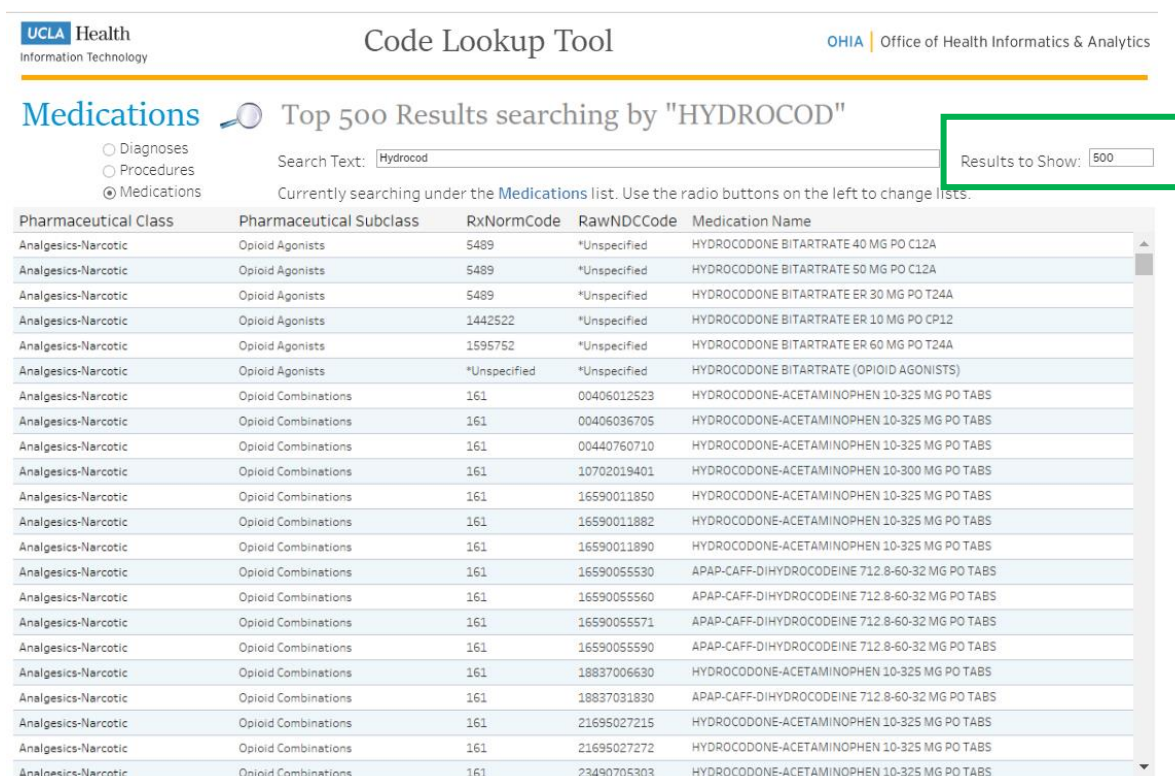


Figure 6. Code Lookup tool

ANALYTICS

Only aggregated, approximate results are provided so this can be used in the preparatory to research phase. For example, you might determine whether there are enough patients to justify a particular study. If you need to study a cohort in more detail, you can request a custom data extract. This requires UCLA Health approval for your research project, of course, and we can help guide you through the process. The Analytics tab provides an at-a-glance look at the number of unique encounters and patients who meet the selected criteria filters.

Exclusion Criteria

The following have been excluded from all data sources:

- Restricted confidential guarantor
- Restricted departments or locations
- Restricted patient preferred name
- Restricted patients and persons of interest
- Test patients and non-human subjects

Inclusion Criteria

- De-identified patient identifier
- Date-shifted event date times
- Restricted private encounters

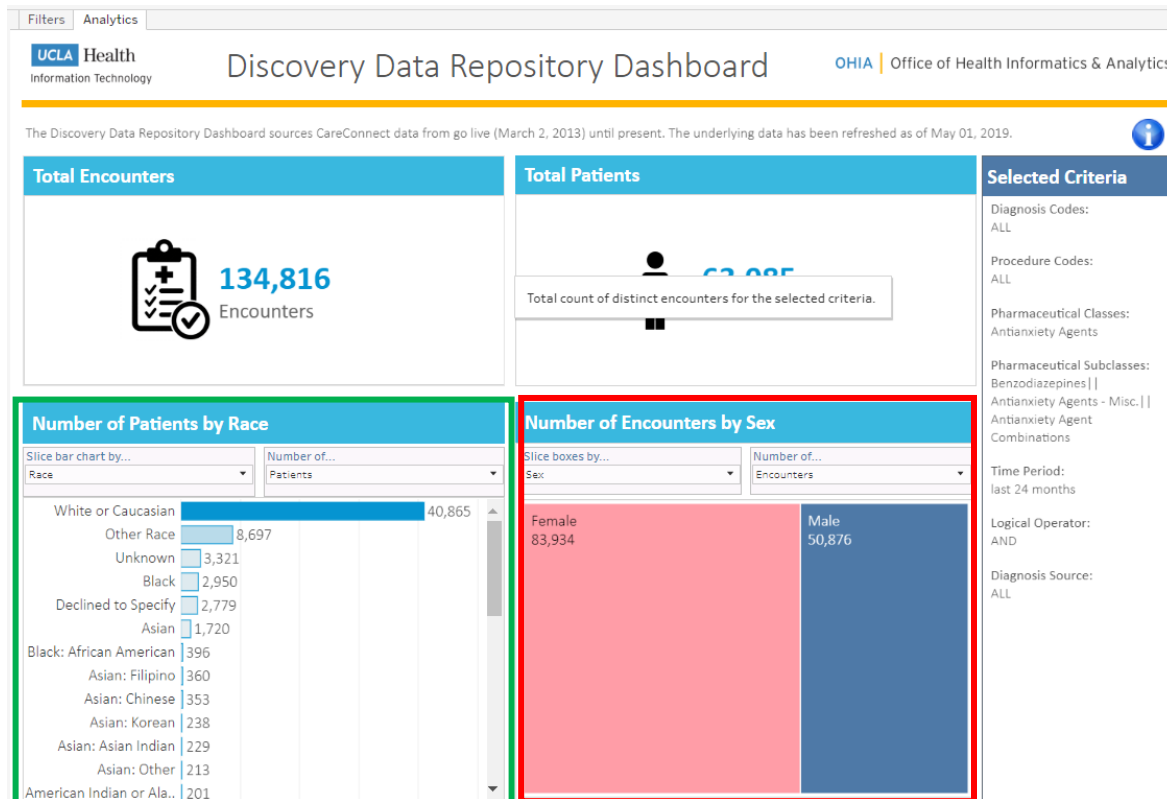


Figure 7. Analytics tab

The bottom two visuals are the Number of Patients/Encounters and can be sliced further by **Encounter type, Department Specialty, Age Group, Length of Stay, Sex, Race, Diagnosis, Procedure, Pharmaceutical Class, or Pharmaceutical Subclass**. The results can be sorted by number of Patients or Encounters. In the visual (highlighted in Green) if you slice it by Race, you can use the second visual (highlighted in Red) to further drill down using other available variables. For example, the first visual on the left is sliced by Race and is filtered to White or Caucasian, the second visual on the right shows the sex distribution of the selected race. Please note that the count of patients or encounters from both visuals will NOT always add up.

OTHER FUNCTIONS

BUTTONS: These buttons appear above an interactive report. See below for what they do, and how you can use them:

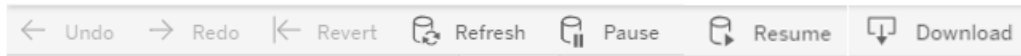


Figure 8. Available functions

DOWNLOAD: This button allows the user to export the report and its data.

- **PDF:** Download the current dashboard or the entire report as a PDF, allowing you to print what you see.
- **Image:** Save an image of the current dashboard (with filters).
- **Data** (restricted): The data feeding the report will open in a new window. This data can then be downloaded as a text file.
- **Crosstab** (restricted): Transfer the data from the dashboard into Excel by selecting a section of the dashboard.

REVERT: Clears all filters and reverts to the original report.

PAUSE/RESUME: As you interact with a report, you may find the report takes some time to update any changes made with a filter. Use the **Pause** button to pause those changes from occurring as you update the filters. Once you have selected all filters you desire, click the **Resume** button to have the report update.

UNDO: Undo the last action.

REDO: Redo the last action.

REFRESH: Refresh data that may have changed in the data source.

SHARE AND SUBSCRIBE

BUTTONS: These buttons appear above an interactive report. See below for what they do, and how you can use them:



Figure 9. Share and Subscribe

ORIGINAL VIEW: When a particular dashboard is viewed regularly with the same filters, it is sometimes beneficial to create a custom view. Each time the custom view is opened, the dashboard displays the information according to those filters. To create a Custom View, open the dashboard, make changes (filters, sorting, zoom level, etc.) and click Original View. Enter a name for the view or choose **Make it my default** and click save. When the dashboard is opened in the future, click Original View and select the desired view.

SHARE: Create a link that can be shared with a colleague (the colleague must have access to Tableau Server and the workbook).

SUBSCRIBE: Subscribe to a dashboard. Subscriptions email you a snapshot of a dashboard at regular intervals—without requiring you to sign in to Tableau Server or Tableau Online.

Download PDF

Layout:

Portrait

Landscape

Paper Size:

Letter

Scaling:

Automatic

Content:

This Dashboard

Sheets in Dashboard

Sheets in Workbook

Sheets to Download:

Filters

Cancel

Generate

- Click Download and select PDF from the menu. A download PDF window will open.
- Under Layout: Select Portrait or Landscape orientation and a paper size.
- Under Content: Select ***This Dashboard***.
- Under Sheets to Download: Select the specific sheets.
- Click Download button in Download PDF window.
- Download PDF Dialog box will open.
- Click Download button in Download PDF dialog box.
- Click Open on the download pop-up. Print, Distribute, or Save PDF as usual.

Figure 10. Download and Print

GLOSSARY OF TERMS

Here is a list of fields used in the Discovery Data Repository dashboard and the corresponding definition.

FIELD	DESCRIPTION
Age Group	Custom field, which stratifies patients within the specified encounter age range: 0-18; 19-44; 45-64; 65-84; Over 84. Patient age in years is calculated as the difference between the patient's birth date and the encounter date. In Inpatient setting, Encounter Date is the Hospital Admission date. In the Outpatient setting, it is the Encounter Contact Date.
Procedure Code Slicer Values	Displays the Procedure Code (if any) that has been filtered. Selected values are displayed as a comma separated string.
Department Specialty	The medical specialty practiced in this department where the encounter happened.
Diagnosis Code Slicer Values	Displays the Diagnosis Code (if any) that has been filtered. Selected values are displayed as a comma separated string.
Encounter Type	The category value for the encounter type. (Registration; Walk-In; Hospital; Etc.) Refers to the various types of interactions between a patient and healthcare provider(s) or other members of the healthcare team. These indicate some information about specific instances of care for the patient and are based on the category value of the encounter.
Length Of Stay Group	Custom field which stratifies patient's encounters within the specified Length of Stay range: less than 1, 1-5, 6-10, 11-20, 21-30, 31-60, 61-90, greater than 90. It is not applicable for the Ambulatory setting. Length of stay in days is calculated as the difference between the admission date and the discharge date.
Pharmaceutical Class Slicer Values	Displays the Pharmaceutical Class (if any) that has been filtered. Selected values are displayed as a comma separated string.
Pharmaceutical Subclass Slicer Values	Displays the Pharmaceutical Subclass (if any) that has been filtered. Selected values are displayed as a comma separated string.
Total Encounters	Total count of unique encounters for the selected criteria. Only encounters that had at least one diagnosis given or at least one procedure performed or at least one medication ordered at UCLA Health since CareConnect go-live are included.
Total Patients	Total count of unique active patients for the selected criteria. Active patients refer to patients with at least one diagnosis given or at least one procedure performed or at least one medication ordered at UCLA Health since CareConnect go-live.
Diagnosis Code	The specific ICD10 code of a disease condition, injury, or symptom.
Diagnosis Source	Source of diagnosis codes from any of the following: Problem List, Professional Billing Charges, Hospital Admission Diagnosis, Hospital Account Final Diagnosis, Hospital Account External Injury Diagnosis (E-codes), Medical History, and Encounter Diagnosis.
Diagnosis Source: Problem List	Diagnosis codes for a patient's problems.
Diagnosis Source: Professional Billing Diagnosis	Diagnosis codes from each professional billing charge.
Diagnosis Source: Hospital Admissions Diagnosis	Encounter-specific diagnosis codes given at the time of admission. It may be different from the final diagnosis.
Diagnosis Source: Hospital Account Final Diagnosis	Diagnosis codes for the final diagnosis stored in the hospital account.
Diagnosis Source: Hospital Account External Injury Diagnosis	Account specific diagnosis codes (or E-codes) for external injury.

Diagnosis Source: Encounter Diagnosis	Diagnosis codes given during the encounter. Could include the admission diagnosis.
Diagnosis Source: Medical History	Diagnosis codes for a patient's past and present medical events and problems. Can span multiple encounters. Active status for a given encounter is not given.
Medication Name	The brand name of the medication ordered.
Pharmaceutical Class	The name of the pharmaceutical class that indicates the chemical families the drug ordered belongs to, such as Penicillin.
Pharmaceutical Subclass	The name associated with the first pharmaceutical subclass listed for each medication ordered. E.g., Pharmaceutical Class is Penicillin, Subclass is Amino penicillin
Race	The race of the patient. In case there are multiple races for a patient, this corresponds to the first value documented.
Sex	The patient's sex.
Procedure Code	<p>Code associated with the procedure performed on the patient during the encounter. These are sourced from Hospital billing or Professional billing:</p> <p>Hospital Billing is further categorized into:</p> <ul style="list-style-type: none"> Hospital Transactions refers to claims generated for work performed by hospitals, skilled nursing facilities, and other institutions for outpatient and inpatient services, including the use of equipment and supplies, laboratory services, radiology services and other charges at the line level. Hospital Account refers to claims, summarized at the hospital account level. <p>Professional Billing refers to the bills generated for work performed by physicians, suppliers, and other non-institutional providers for both outpatient and inpatient services.</p> <p>The codes extracted come from two main procedure coding systems: Current Procedural Terminology (CPT) and Healthcare Common Procedure Coding System (HCPCS).</p>
Procedure Name	Name of the procedure performed on the patient during the encounter that is associated to a procedure code.

FAQs: FREQUENTLY ASKED QUESTIONS

Can I “break” a dashboard/alter the data permanently?

No. The interactive report that is published online is intended for community use. No matter how many filters or changes you make, the original report and data will not be affected.

Can I access the data behind the interactive report?

For security and compliance purposes, we are not allowing exporting of data by the user.

Are there any other Tableau-related resources available?

Yes. Tableau has [a great set of online tutorials](#), as well as a [large online community](#).

CONTACT LIST

For questions related to access provisioning or trouble shooting, please open a ticket for OHIA Self-Service Engagement or e-mail SelfServiceAnalytics@mednet.ucla.edu.

For questions related to the dashboard or for custom data extracts, please open a ticket for OHIA Enterprise Analytics.

For feedback related to the dashboard, click on the survey icon available on the filters tab (Figure 11 highlighted in Green).

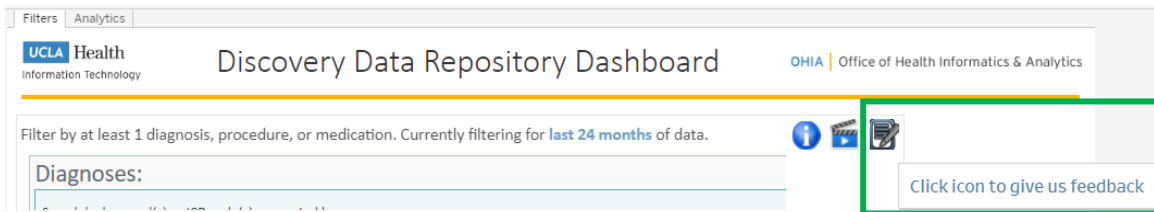


Figure 11. Survey icon