Population Explorer User Guide

version 2.1

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CRISP

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1 Introduction and Overview

Population Explorer is a module of the HIE Portal that enables near-real time encounter, logic-based, and preventive services notifications from CSS, as well as functionality to filter, view details, track notification status, and export notifications of interest. This document serves as a general user guide to assist in navigating Population Explorer and using its functionality to full effect.

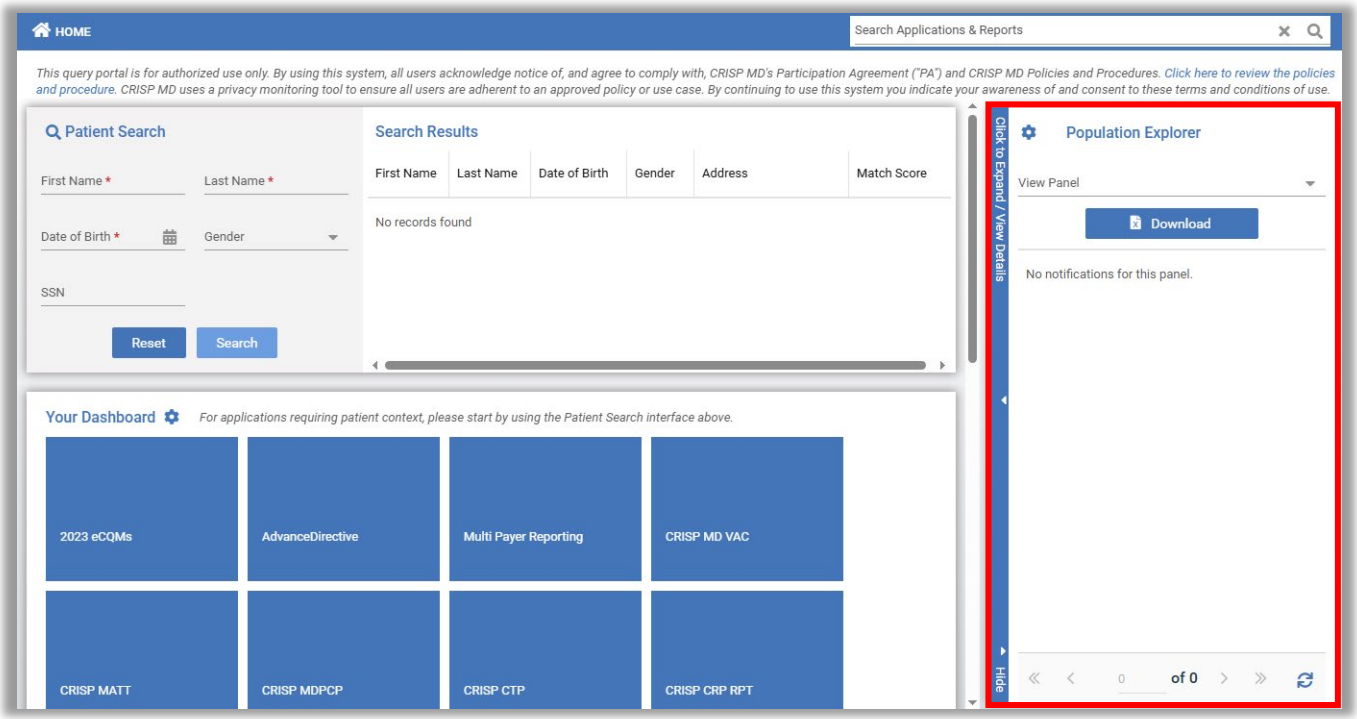
1.1 Accessing the Population Explorer

Access to the Population Explorer module is granted by your HIE Admin from the CSS Salesforce HIE Admin Tool. Once you have been granted access, it will natively appear in the HIE Portal Landing page as a new widget on the right-hand side of the screen. If you do not have access to Population Explorer and believe that you should, please contact your organization's HIE Admin.

Once you have access to Population Explorer itself, access to patient notifications is managed via your Panel Subscriptions. For more information on creating and managing panels, contact your account manager.

2 Population Explorer – Functionality

After logging into the HIE Portal once Population Explorer access has been granted, you will see a new widget pane appear on the right-hand side of the screen, as shown below.



2.1 Panel Selection & Notification Display

To select what notifications you would like to currently display, use the drop-down menu at the top of the pane with the label 'View Panel.' All of your currently assigned panels, along with any advanced filters you have created (see section 2.10 below) or any global filters that have been created for all users will be available here. Advanced filters are indicated by a list icon to the left of the display name, while global filters are indicated by a small globe.

The Population Explorer panel populates with encounter, preventive services, and logic-based notifications for that panel and its associated patients. Encounters are shaded white, logic-based notifications are shaded yellow, and preventive services are shaded green for easy visual identification. Note that encounter data includes near-real time EMS data as well as traditional consolidated ADT messages; due to a differing data source, different data elements may be available for such notifications. See Section 3 for more information on logic-based and preventive services notifications.

Notification updates are fetched every twenty minutes but are not loaded to the interface automatically to avoid disrupting user workflows. A notification icon will appear in the upper right corner of the Population Explorer after a notification sync, informing you that new notifications may be available. Simply click the icon to load any new notifications. Twenty-five notifications are loaded at a time; to see additional notifications, simply scroll down and additional notifications will load twenty-five at a time.

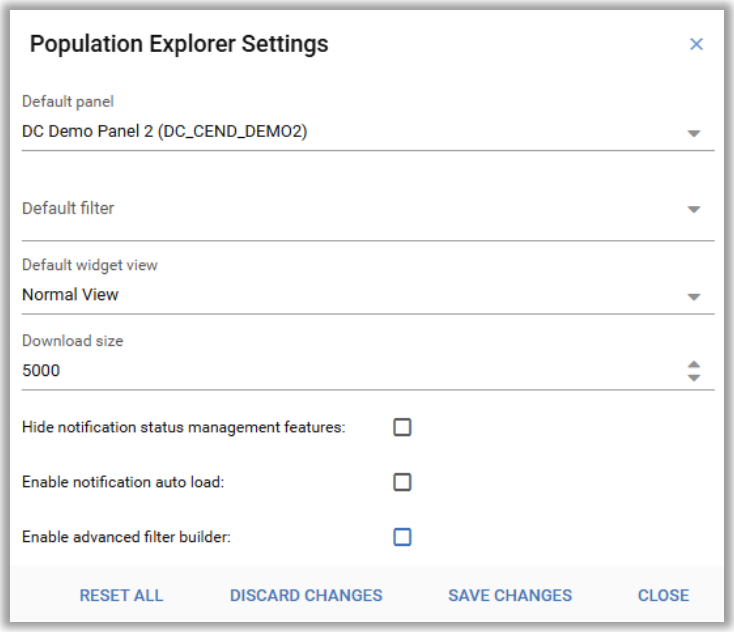
Panels and new patient identifiers are likewise updated from CSS central data systems every twenty minutes; however, it may take up to a few hours from initial submission for new entries to appear in the interface, as processing and registering these for use takes some time.

If no notifications are available for the currently selected panel, a message with "No data to display" will appear until a notification is received.

To download the currently displayed list of notifications, click the 'Download' button immediately beneath the panel selection dropdown menu.

2.2 Population Explorer Settings

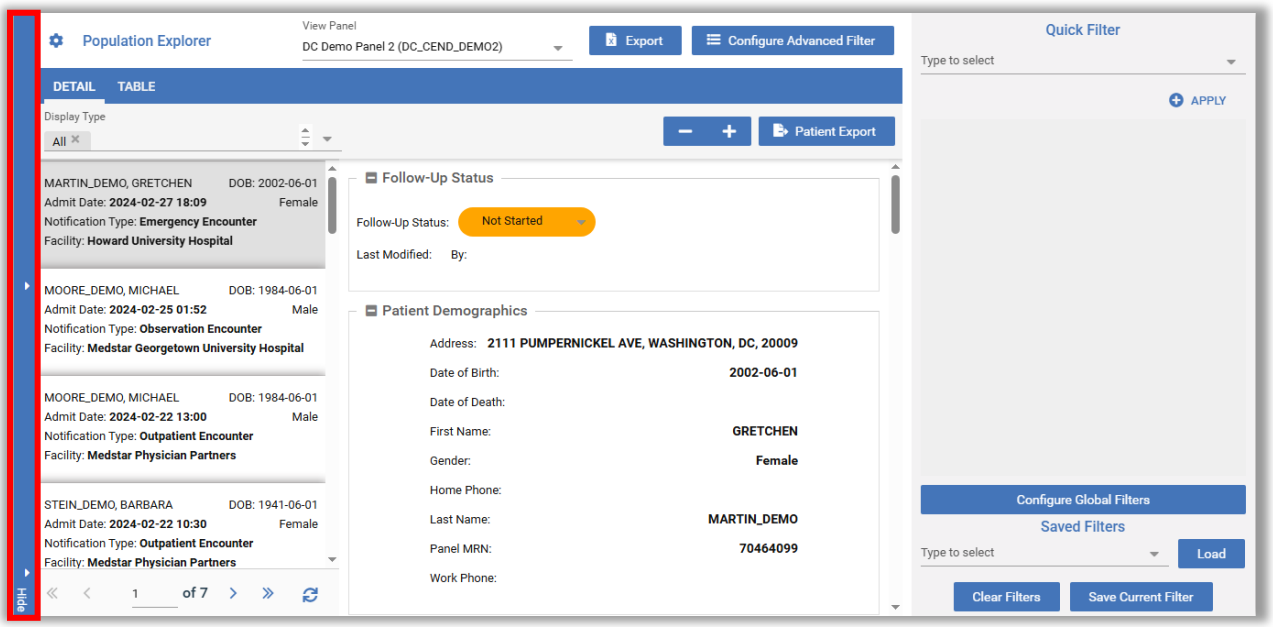
Clicking the gear icon in the upper left corner of the Population Explorer pane will bring up the user preference settings for the module. This allows you to set your preferred defaults, including the default view on load for the Population Explorer, default panel to select on opening, default filter to select on opening, and default number of records included in downloaded extracts. You can also set whether you would like to hide notification status management and enable advanced filters here. Notification auto-load is currently disabled and cannot be turned on.



2.3 Expanded View

To expand the Population Explorer widget and access additional functionality, click the blue expansion bar on the left-hand side of the pane. Clicking the expansion bar again will collapse, then hide the pane entirely. Clicking again will restore the pane to its default view.

The Expanded View shows the current notification list, Detail View, and Quick Filter interfaces all in one location, as shown below. Each of these is described in greater detail in the sections that follow. You can also toggle between viewing encounters, logic-based notifications, preventive services, or any combination thereof, using the 'Display Type' selector in the upper left-hand corner of the window. As mentioned previously, see Section 3 for more information on logic-based notifications.

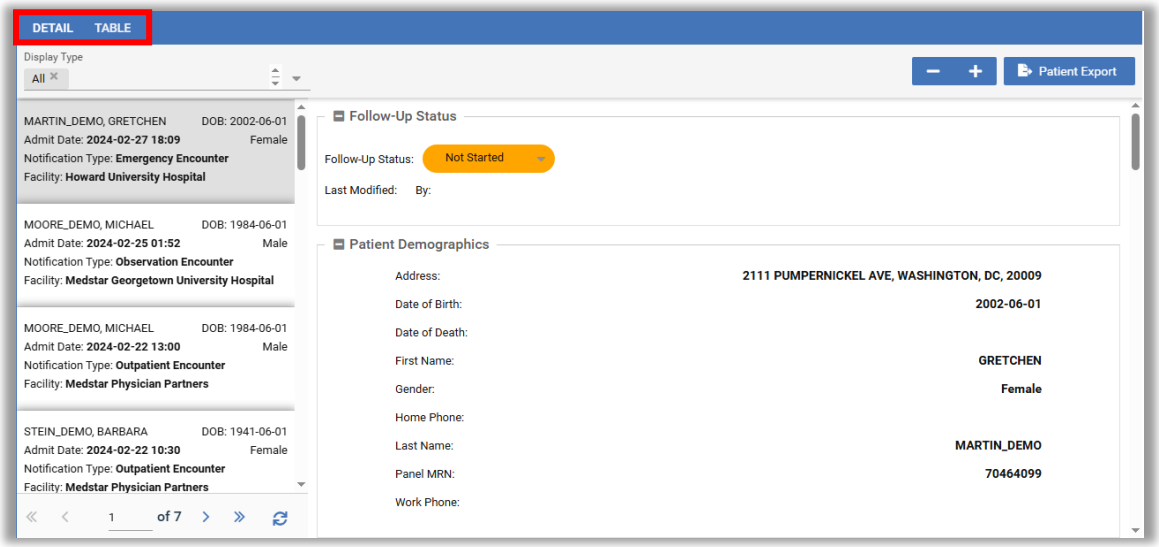


2.4 Detail View

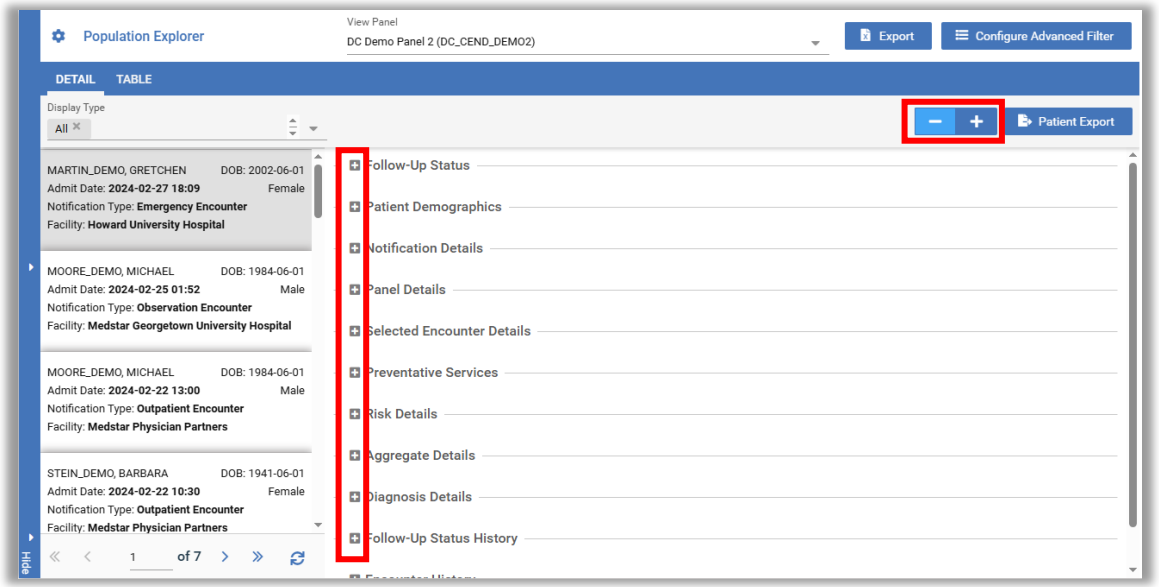
To view the details for a notification, click on the notification you want to review. This will bring up a Notification Detail View that contains additional information on the notification, as shown below. The information available in Detail View will depend on the notification type (encounter, logic-based, or preventive services) and elements available in the underlying data source. Sections that do not apply to the selected notification will be auto collapsed.

Along with the encounter details for the selected notification, the Detail View will contain all other notifications for the selected patient, loading history for the past 6 months by default. Clicking on any one of these past notifications will switch to the Detail View for that notification.

If you scroll down in the Detail View window, you will also see an expanded list of all diagnosis codes associated with that event, if available.



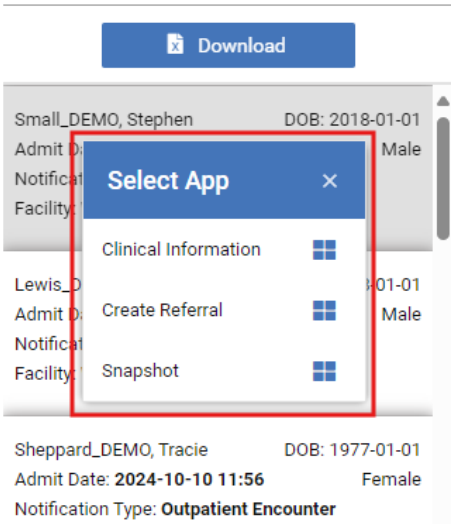
You can expand or collapse all sections of the Detail View panel using the plus and minus buttons at the top of the screen, respectively, or collapse individual sections using the icons at each section header, as shown below.



To export the current Detail View, click on the Patient Export button to export it in your preferred format. Additional information on the export functionality is available in Section 2.9 below.

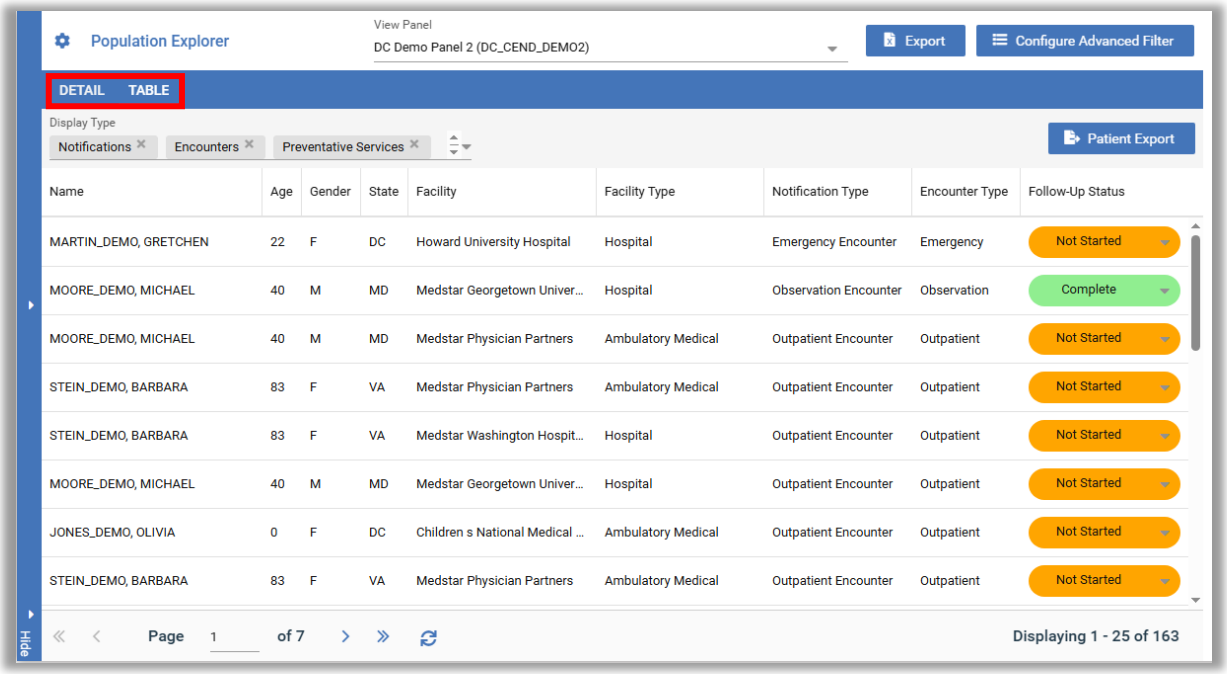
2.5 Launch with Context

To launch another CSS application with context for the patient from a notification, right-click on the notification anywhere it appears - in the collapsed widget, left hand list in the Detail View, or a row in the Table View described below - and select the desired application, as shown below.

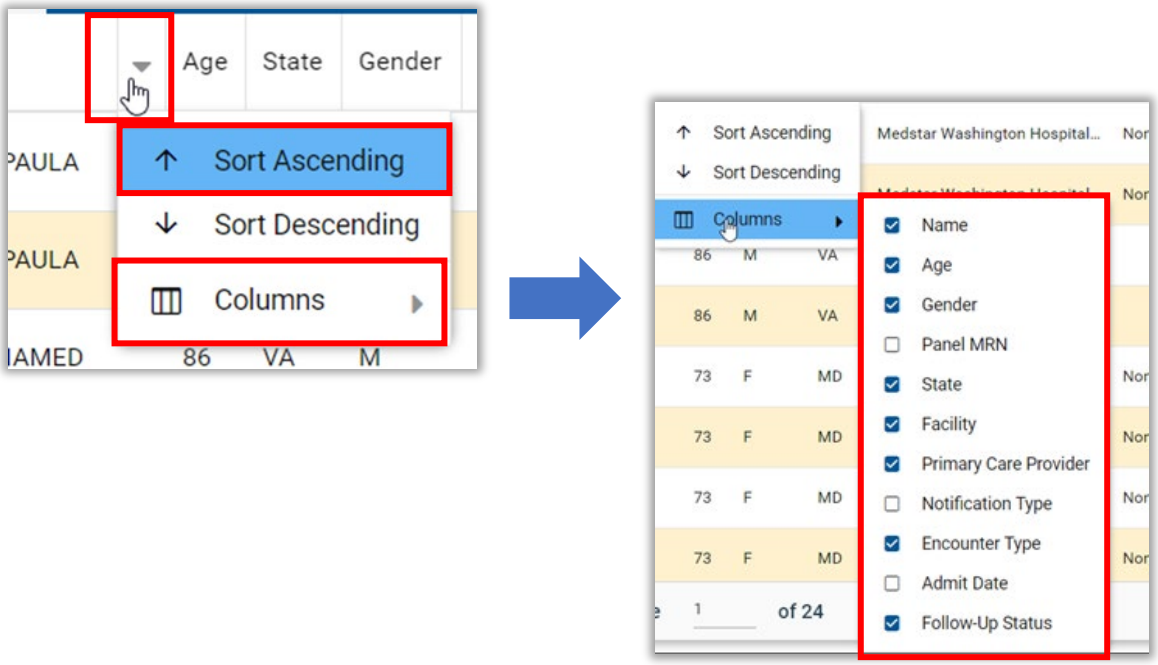


2.6 Table View

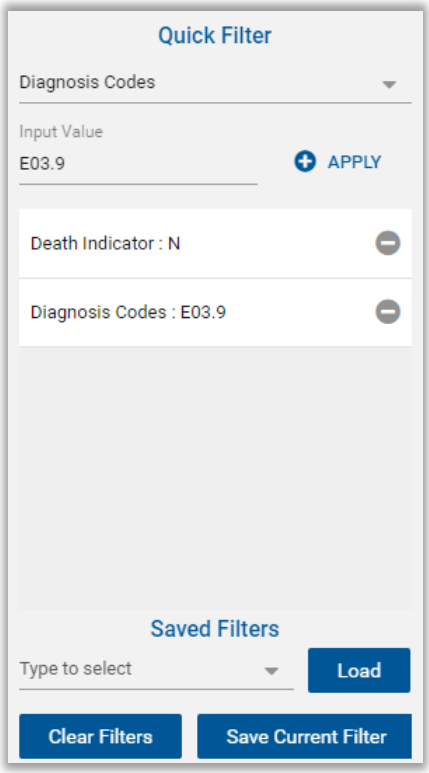
You can switch between Detail View and Table View in the expanded pane using the tabs in the upper left corner of the screen. Switching to Table View presents you with a list of notifications that can be customized and sorted by clicking on the column headers.



Users can also click the panel expander to add or cut certain data criteria and filters, as well as sort the data. Note that currently only data in the current view will be sorted. CSS will be adding additional functionality to sort large result sets in-place in an upcoming update.



2.7 Creating and Managing Quick Filters.



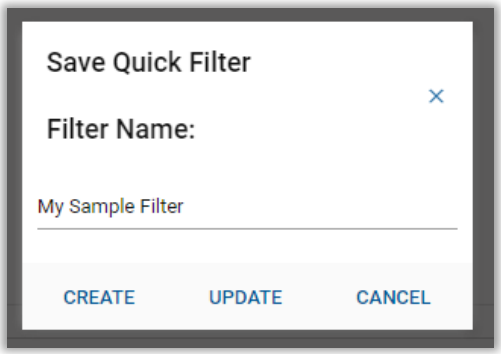
You can create, manage, save, and apply quick filters to the notification list using the 'Quick Filter' bar on the right-hand side of the screen.

To add a new filter, click "type to select" then begin typing the data element you would like to filter on, select the desired filter criteria, and then click the 'Apply' button to apply that filter. Different selection interfaces will appear depending on the selected data element; for example, a date picker will appear allowing you to set desired date ranges for data elements that represent datetimes. If the text for a filter criteria is longer than the visible area, simply hover over it to view the full description.

The current list of notifications will then be automatically filtered according to the created criteria. You can apply as many filters as you like; in the quick filter view, all filters are applied as 'AND' criteria. Appendix A provides a list of all the data elements available for filtering, along with the criteria that can be applied.

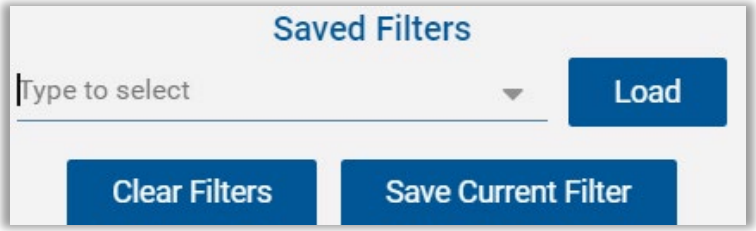
To remove a previously applied filter criteria, navigate to the list of current filters then click the Delete icon next to the filter you would like to remove.

To clear all current filters, click the 'Clear Filters' button in the bottom left corner of the Quick Filter pane. This will remove all current filters but will not change or delete any previously saved filters.



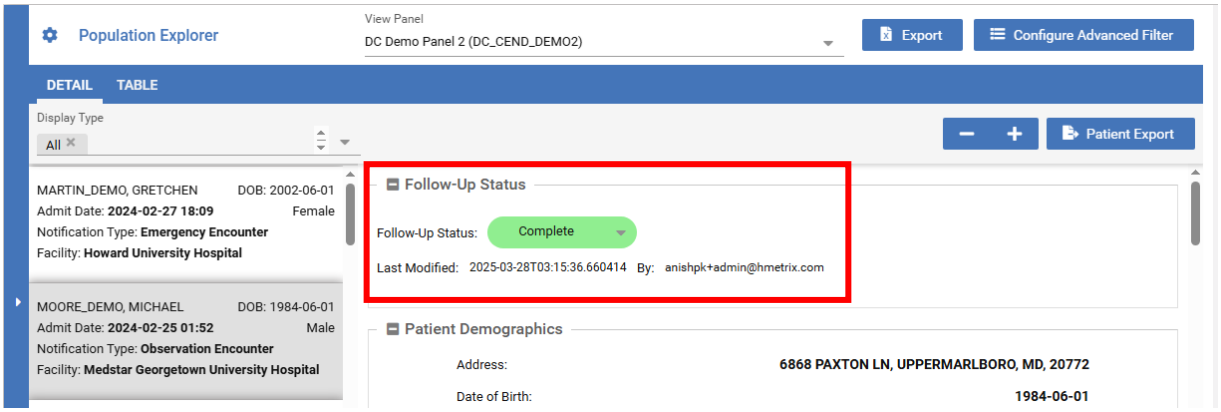
To save the current set of filters so that it can be reused later, click the 'Save Current Filter' button in the bottom right corner of the Quick Filter pane. Once saved, you will be able to access the filter under "Saved Filters". Commonly used filters available to all users are called "Global Filters". Global Filters will also appear in this list underneath your personal filters, with a globe icon next to the name indicating that they are global filters.

To apply a previously saved filter, select it from the 'Saved Filters' dropdown, then click the 'Load' button. The criteria from the save filter will then appear in the 'Current Filters' list. Note that this will override any filters in place at the time the saved filter was applied.

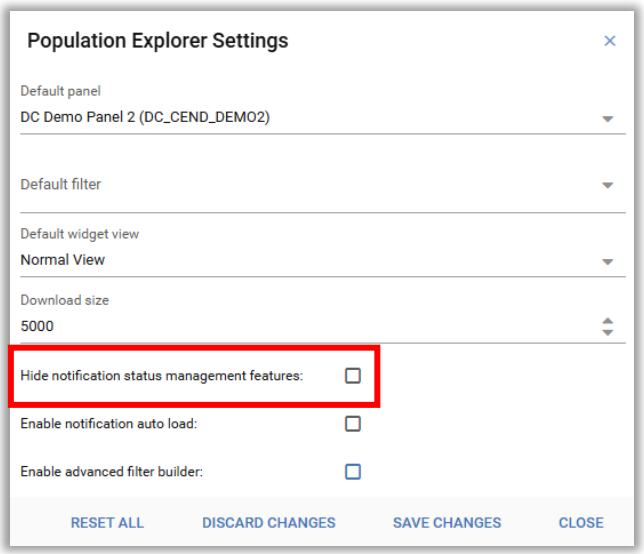


2.8 Managing Notification Status

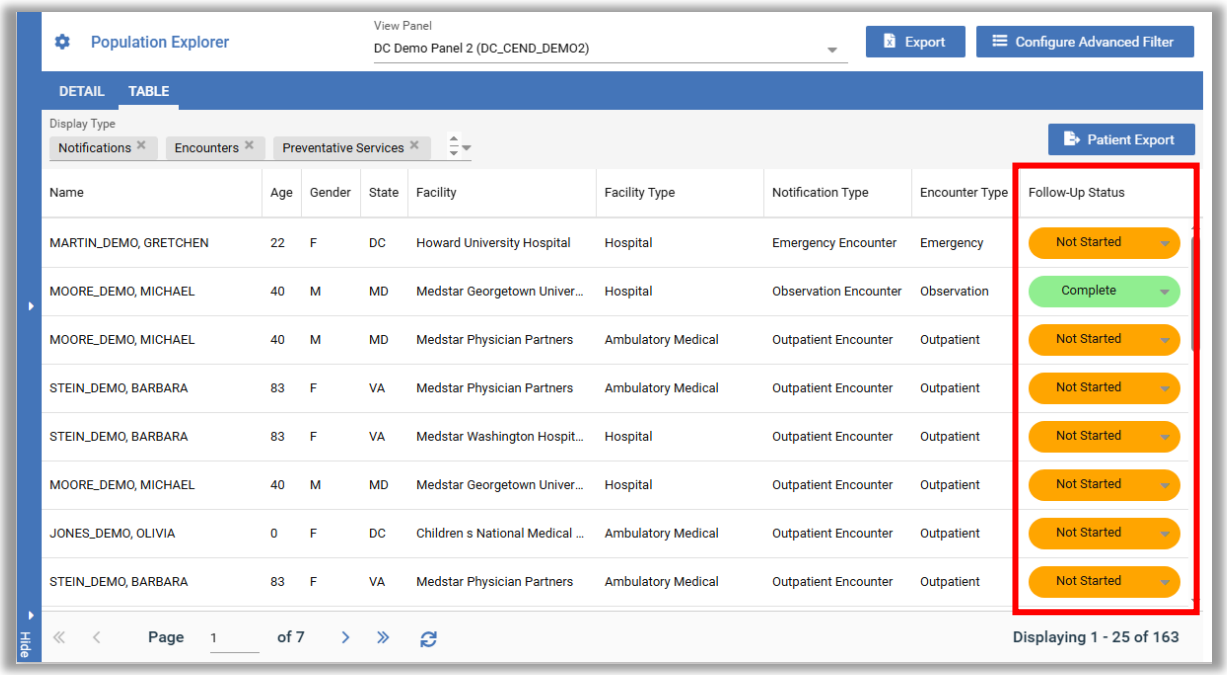
This functionality allows you to track the follow-up status of a notification within the Population Explorer interface.



This functionality is automatically activated in the UI. To opt-out of notification status, simply click the gear icon in the upper left corner of the Population Explorer pane and check the 'Hide Notification Status Management features,' as shown below. Note that this will not change or remove any statuses that have been set; it simply determines whether the functionality displays in the UI so that users who do not need this functionality can hide it to keep their interface clean. By default, this is enabled.



If enabled, a Status drop-down menu will be available for each encounter in both the Detail View (as shown above) and Table view along with Last Edited information. The available status values are 'Not Started', 'In Progress', and 'Complete', and a set status will be shared with all users who have access to the specific panel and notification you are currently viewing.



The last user to make a change to the status will be displayed next to the current status, along with the time of the change. Status values will persist for a given notification until a user changes the value and are for informational purposes only. CSS does not edit or otherwise maintain these statuses – they are entirely user-driven. The status for patients can be included as a data element in exported extracts along with other information, as described in the next section.

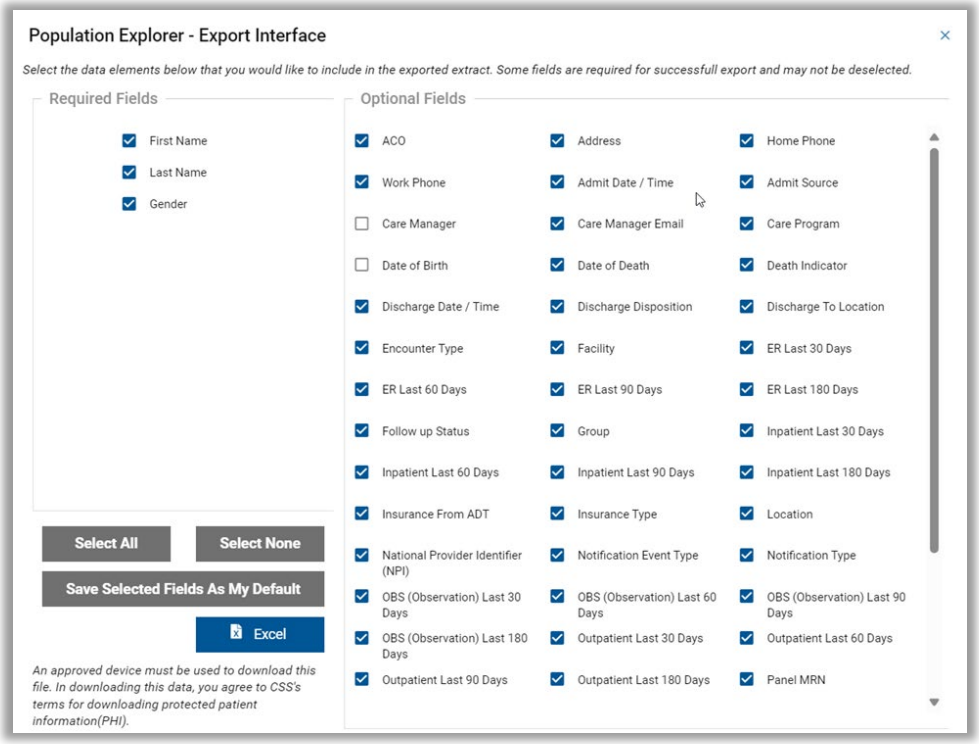
2.9 Exporting Data

Data can be exported from most views of Population Explorer simply by hitting the 'Export' button. This will allow you to create Excel or PDF versions of the data you are currently viewing, as appropriate.

Prior to exporting, you must read and acknowledge the terms for exporting protected health information. All exports must be handled in accordance with HIPAA and appropriate security safeguards for this type of information.

After agreeing, you will be presented with the Export Interface. This interface allows you to select which fields you would like to include in the created extract by selecting from the available fields. 'Select All' and 'Select None' buttons are made available to quickly change the selection status for all fields. Additionally, you can 'Save Selected Fields As My Default' after making your choices so that the selected fields will auto-select for all future exports that you create. You can always modify the included fields and your defaults at the time of subsequent exports as desired.

Some fields are required to generate the extract; these will be displayed on the left-hand side of the interface but cannot be changed.



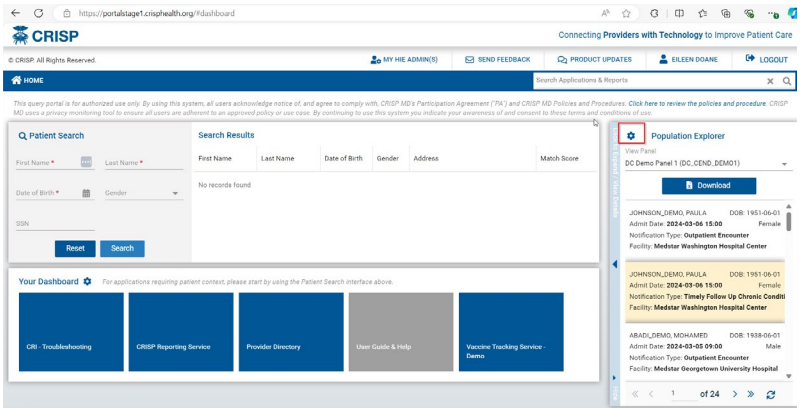
After you are done customizing the data fields for the export, simply select the desired export type, PDF or Excel, the extract will be generated, and you will be allowed to save the file locally according to the settings of the internet browser you are using. Some export options (such as the table view) will only allow export via Excel, given the amount of data to be included.

Note that large export extracts may take some time to generate, and attempting to export too much data (more than 5,000 beneficiaries) may result in a timeout error. If you encounter this issue, further refine your filter criteria to narrow the result set. CSS will be adding functionality to asynchronously export large datasets in an upcoming release.

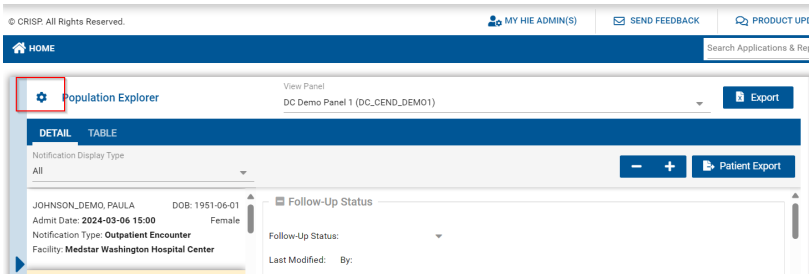
2.10 Advanced Filter Builder

The Advanced Filter Builder (AFB) allows users to flexibly create much more complex criteria definitions for filtering patient populations by combining panels and applying Boolean logic operators to any of the data elements available in Population Explorer. This filter builder is only useful in situations where the Quick Filter functionality does not offer sufficient granularity for targeting a desired set of beneficiaries or events. The Advanced Filter Builder must be enabled before first use.

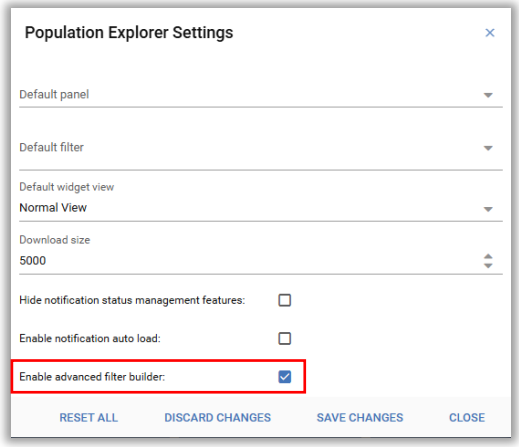
To do this, first navigate to settings menu:



OR in Expanded View

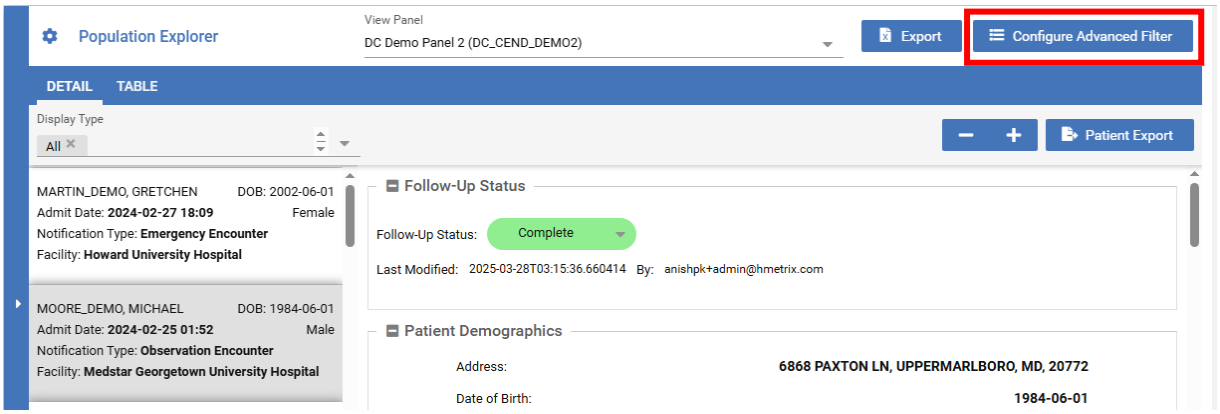


Select “Enable Advanced Filter Builder” and save changes:

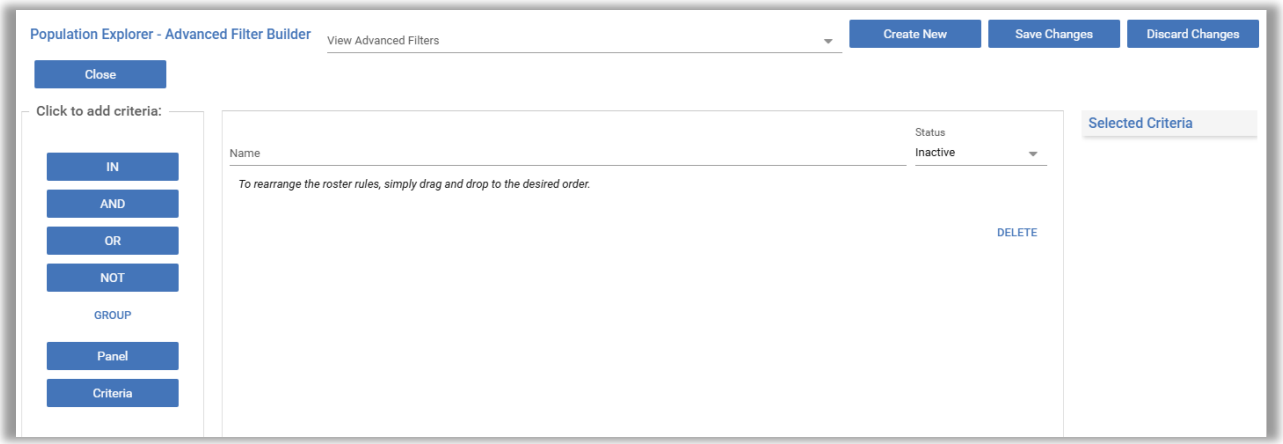


“Configure Advanced Filter” is now an option. You will not need to enable Advanced Filter Builder every time you access Population Explorer. This will now be your new default setting.

Now that you have enabled the Advanced Filter Builder, click the 'Configure Advanced Filters' button in the upper right corner of the Detail View pane to access it.



After opening the Advanced Filter Builder, you will be presented with a new AFB template, as shown below. To edit an existing advanced filter, select from the 'View Advanced Filters' dropdown at the top of the screen. Otherwise, enter the name for your advanced filter and hit 'Save Changes' to create a new advanced filter. You can then add criteria as described below.



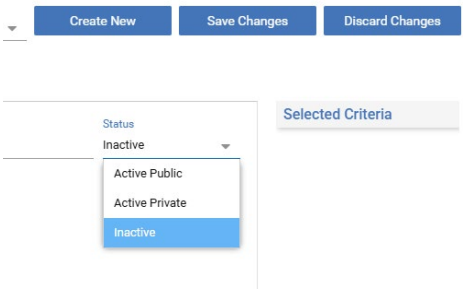
To discard any unsaved changes on the currently selected panel, hit the 'Discard Changes' button. To create a new advanced filter and open a blank AFB template after editing or creating an advanced filter, simply click the 'Create New' button.

You can set the status of an advanced filter using the Status dropdown to the right of the name field. There are 3 status options to set your filter to: Active Public, Active Private, Inactive.

Active Public – Setting the status to 'Active Public' will enable any user with access to all of the included panels to use that advanced filter. It is important you ONLY set a filter to "Active Public" if it should be shared with others. This is useful for sharing common advanced filters with others in your organization, so they do not have to individually re-create them.

Active Private – Setting the status to 'Active Private' will enable the user who created the filter to see it throughout the interface. No other user will be able to see this filter.

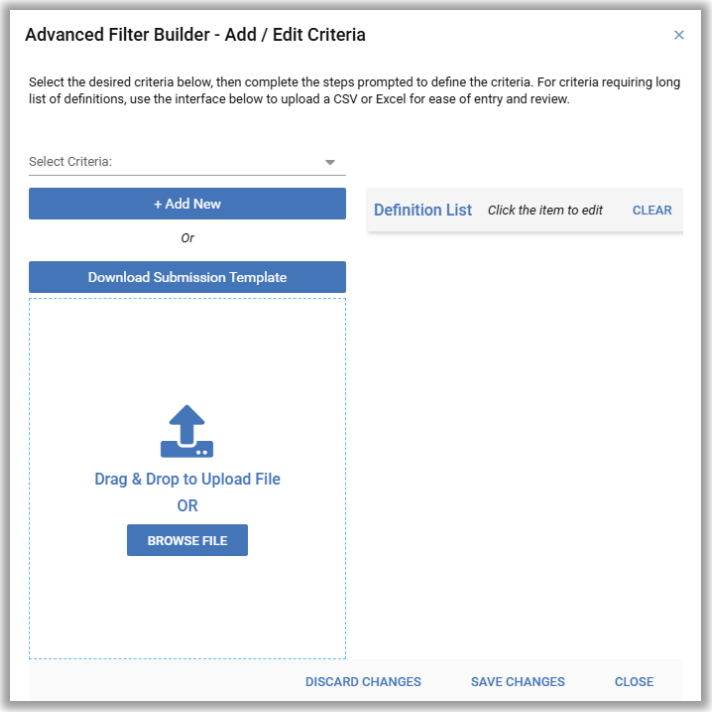
Inactive – Setting the status to 'Inactive' means that you will be able to see your previously saved filter in the Advanced Filter Builder – but NOT throughout the rest of the interface.



The buttons along the left-hand side of the interface allow you to add panels, criteria, and logical operators to the Advanced Filter. Click the 'Panel' button first to add a selection interface that allows you to choose one or more panels as the basis for the advanced filter. Any beneficiaries included on any of the selected panels will be evaluated for inclusion in the advanced filter.

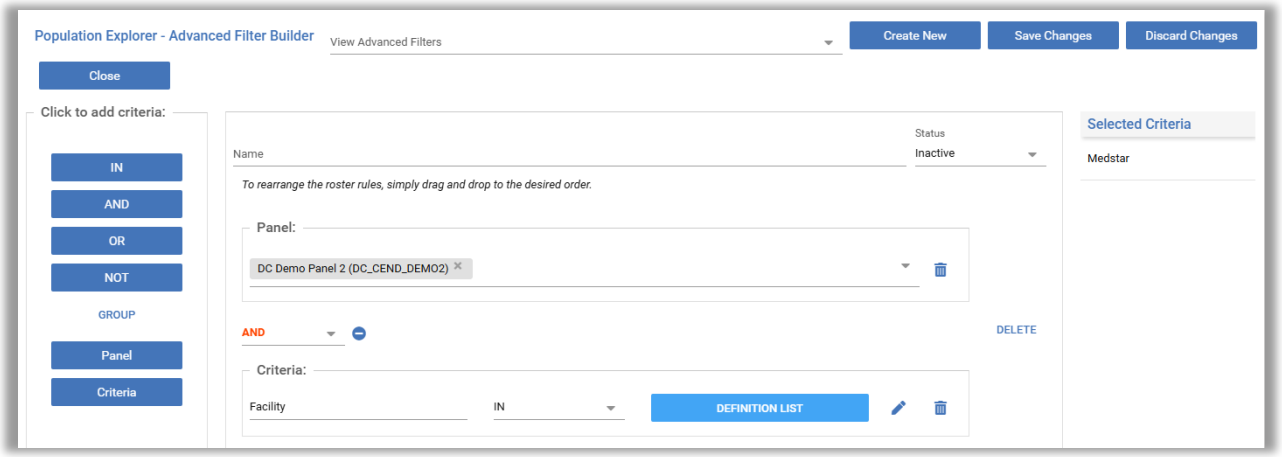
To add a filter criteria, just click the Criteria button. This will bring up an additional interface, shown at right, that allows you to select the data element that will define the criteria, as well as the list of values to be considered. You can manually click on the right-hand side Definition List to add, edit, or remove values, or 'Clear' the list by clicking the corresponding button.

If a data element has a defined set of values, these will pre-populate in the right-hand side of the dialogue box; simply click the trash can icon to remove values which are not wanted. For data elements that include a long criteria list (such as diagnosis codes), you can download a template, populate the values in Excel, and then upload the populated template to generate the criteria list rather than entering them one by one.



You may add as many criteria as needed to define the advanced filter. Use the logical operators above (IN, AND, OR, NOT) between criteria to join them. If a set of criteria needs to be considered together (for example, "A AND (B OR C)"), use the Group operator to create containing parentheses sets. Any criteria or operators can be dragged and dropped vertically in the UI to re-order them after they have been placed, and clicking the trash can icon or Delete button on the right-hand side of the screen will remove the selected element.

A definition list for any criteria can be viewed by simply clicking the 'Definition List' button after it has been created,



and likewise, existing definition lists can be edited by clicking the pencil icon next to the Definition List button.

After you are done creating or editing the advanced filter, simply click the 'Close' button in the upper left corner to return to the Detail View of Population Explorer.

Please see Appendix B for step-by-step example of how to create your own filter in Advanced Filter Builder.

3 Additional Display Types

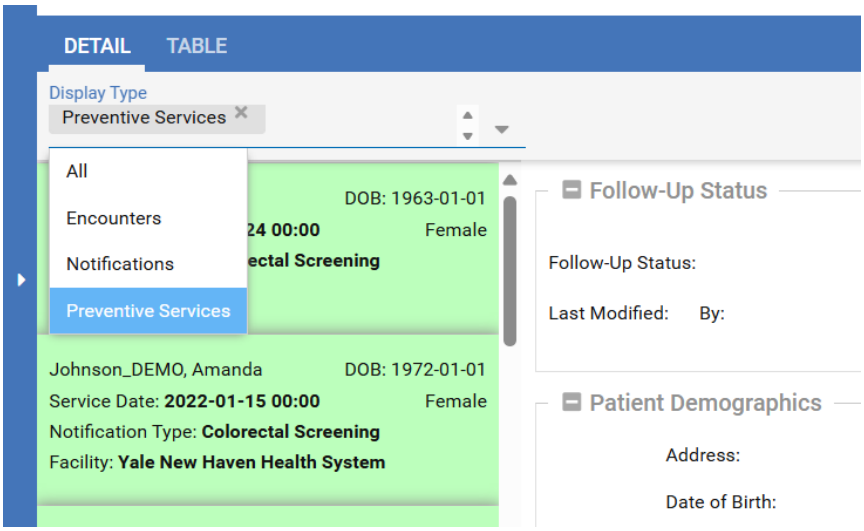
3.1 Notification Display Types

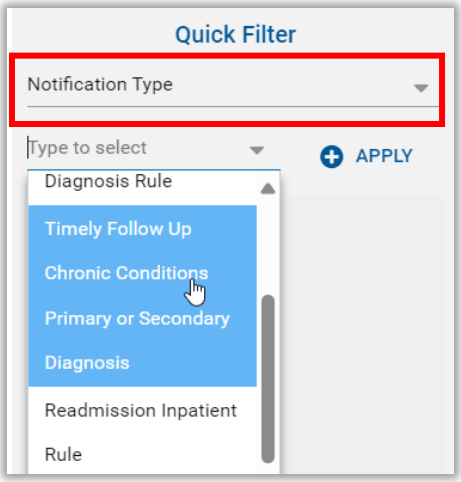
As described earlier, notifications come in three varieties: encounters, logic-based notifications, and preventive services. Encounter and preventive services data are available for all users; logic-based notifications will only be available for display for current subscribers. These can be added as a feature later for affiliates and regions that do not currently have them.

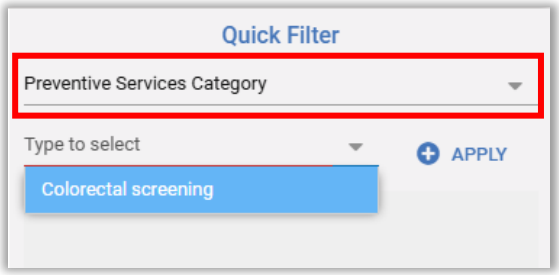
Users can filter the display type by selecting from among the different types using the drop-down in the upper left hand corner of the screen. The notifications can then be further filtered by the logic used to generate the alert by selecting the appropriate filter criteria within the Quick Filter box, selecting Notification Type or Preventive Services Category as appropriate for the search desired, as shown below.

Some data elements may have additional information available when displayed; CSS is continuing to add new functionality over time. For such elements, additional information will display when hovering over that element in Detail View; for example, currently the Preventive Services Data Source field will provide additional tooltip information when hovering over this field. d

Additional technical documentation on the underlying data sources and logic used in creating logic-based and preventive services alerts is available from CSS upon request.


DETAIL
TABLE
Display Type
Preventive Services
All
Encounters
Notifications
Preventive Services
DOB: 1963-01-01
Female
Follow-Up Status
Follow-Up Status:
Last Modified:
By:
Johnson_DEMO, Amanda
DOB: 1972-01-01
Service Date: 2022-01-15 00:00
Female
Notification Type: Colorectal Screening
Facility: Yale New Haven Health System
Patient Demographics
Address:
Date of Birth:

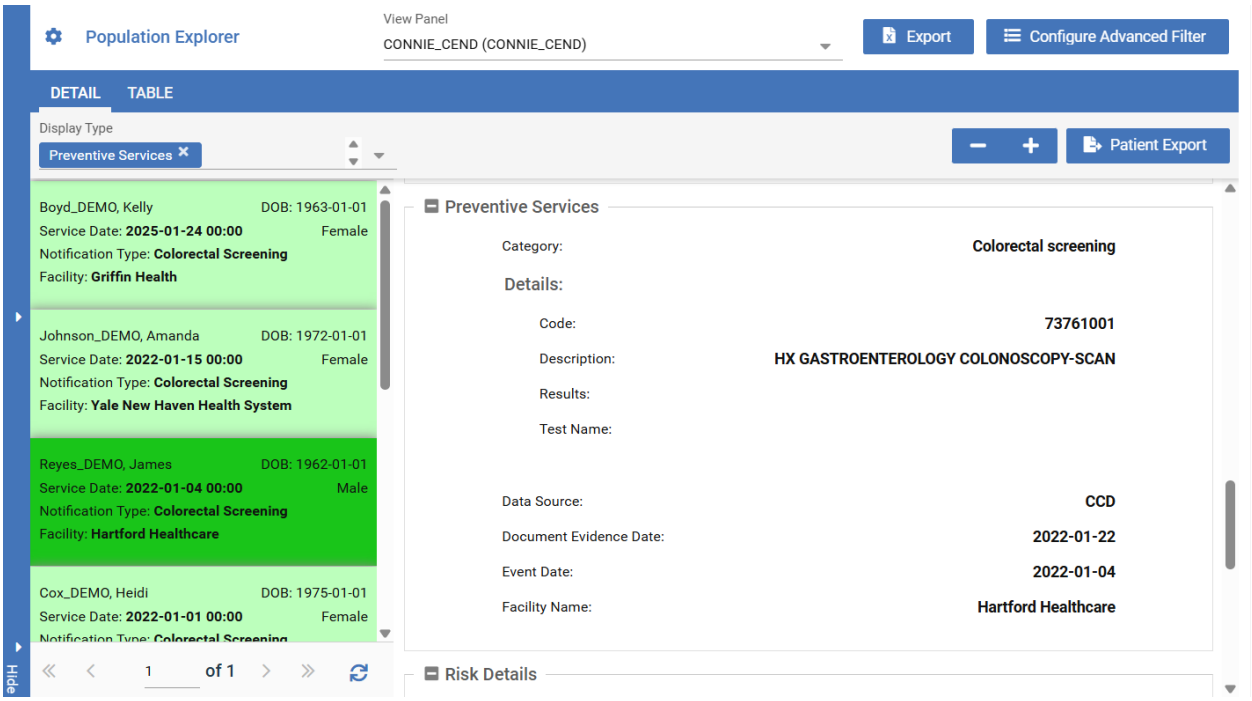

Quick Filter
Notification Type
Type to select
APPLY
Diagnosis Rule
Timely Follow Up
Chronic Conditions
Primary or Secondary
Diagnosis
Readmission Inpatient
Rule


Quick Filter
Preventive Services Category
Type to select
APPLY
Colorectal screening

3.2 Preventive Services Detail Section

The Preventive Services Section provides information about the notification and where a user can find the corresponding source document in the Clinical Information Section of HIE Portal/InContext. For notifications with Data Source of CCD, users should look in the Structured Documents Tab (using the Document Evidence Date). For notifications with Data Source of Diagnostic Reports, users should look in the Health Records Tab (using the Event Date).

Preventive Services Field	Description
Category	Type of preventive service
Code	Procedure/diagnosis code if available
Description	Description associated with code
Results	Indicates whether results are available – currently blank for all records
Test Name	Additional test name available or title associated with diagnostic report
Data Source	Type of data source – CCD, ADT, Diagnostic Reports. Hover over this field for more information about where to find the corresponding document
Document Evidence Date	Date of the corresponding CCD (if applicable)
Event Date	Date of the preventive service
Facility Name	Facility reporting the preventive service



4 Appendix A: Filter Data Elements & Criteria

Below is the list of data elements currently available in the Quick Filter, as well as the criteria that can be applied to each data element type.

4.1 Table 1: Filter Data Elements

Note that data elements will only filter if they are present in the underlying encounter data; not all data elements made available in the Population Explorer are fully populated in the originating data feed.

Name	Data Source	Data Type
ACO	Panel	Text
Admit Date/Time	ADT	Date
Admit Source	ADT	Text
Care Manager	Panel	Text
Care Manager Email	Panel	Text
Care Program	Panel	Text
Date of Birth	Panel	Date
Date of Death	ADT	Date
Death Indicator	ADT	Text
Diagnosis Codes	ADT	Alpha-numeric
Diagnosis Descriptions	ADT	Text
Discharge Date/Time	ADT	Date
Discharge Deposition	ADT	Text
Discharge to Location	ADT	Text
Encounter Date	ADT	Date
Encounter Type	Derived field	Picklist
Facility	ADT	Text
ER Last 30 Days	Calculated field - does not include current visit	Numeric
ER Last 60 Days	Calculated field - does not include current visit	Numeric
ER Last 90 Days	Calculated field - does not include current visit	Numeric
ER Last 180 Days	Calculated field - does not include current visit	Numeric
Facility	ADT	Text
Facility Type	Mapped from Facility Source Code	Text
Follow Up Status	User defined field	Picklist
Group	Panel	Text
Inpatient Last 30 Days	Calculated field - does not include current visit	Numeric
Inpatient Last 60 Days	Calculated field - does not include current visit	Numeric
Inpatient Last 90 Days	Calculated field - does not include current visit	Numeric
Inpatient Last 180 Days	Calculated field - does not include current visit	Numeric
Insurance From ADT	ADT	Text
Insurance Type	Panel	Text
Location	Panel	Text
Medical Record Number (MRN)	ADT	Alpha-numeric
National Provider Identifier (NPI)	Panel	Numeric
Notification Type	Predefined Alert Type	Picklist
OBS (Observation) Last 30 Days	Calculated field - does not include current visit	Numeric
OBS (Observation) Last 60 Days	Calculated field - does not include current visit	Numeric
OBS (Observation) Last 90 Days	Calculated field - does not include current visit	Numeric

OBS (Observation) Last 180 Days	Calculated field - does not include current visit	Numeric
Outpatient Last 30 Days	Calculated field - does not include current visit	Numeric
Outpatient Last 60 Days	Calculated field - does not include current visit	Numeric
Outpatient Last 90 Days	Calculated field - does not include current visit	Numeric
Outpatient Last 180 Days	Calculated field - does not include current visit	Numeric
Panel MRN	Panel	Alpha-numeric
Patient Class	ADT	Text
Patient Complaint	ADT	Text
Patient Name	Panel	Text
Practice	Panel	Text
Preventive Services Category	Preventive Services Feed (CCD or Diagnostic Report)	Picklist
Preventive Services Code	Preventive Services Feed (CCD or Diagnostic Report)	Text
Preventive Services Data Source	Preventive Services Feed (CCD or Diagnostic Report)	Text
Preventive Services Description	Preventive Services Feed (CCD or Diagnostic Report)	Text
Preventive Services Document Evidence Date	Preventive Services Feed (CCD or Diagnostic Report)	Date
Preventive Services Event Date	Preventive Services Feed (CCD or Diagnostic Report)	Date
Preventive Services Facility Name	Preventive Services Feed (CCD or Diagnostic Report)	Text
Preventive Services Results	Preventive Services Feed (CCD or Diagnostic Report)	Text
Preventive Services Test Name	Preventive Services Feed (CCD or Diagnostic Report)	Text
Primary Care Provider	Panel	Text
Primary Diagnosis Codes	ADT	Alpha-numeric
Primary Diagnosis Description	ADT	Text
Provider	ADT	Text
Risk Methodology 1	Panel	Text
Risk Methodology 2	Panel	Text
Risk Score 1	Panel	Numeric
Risk Score 2	Panel	Numeric

4.2 Table 2: Data Type Filter Criteria

Data Element Type	Available Criteria
Boolean	Is, Is Not
Date / Time	Before, After, Exact Date, Range
Code	Equals, Does Not Equal, In, Not In
Fixed Value Set	Equals, Does Not Equal, In, Not In
Free Text	Starts With, Ends With, Contains, Does Not Contain, Equals, Does Not Equal

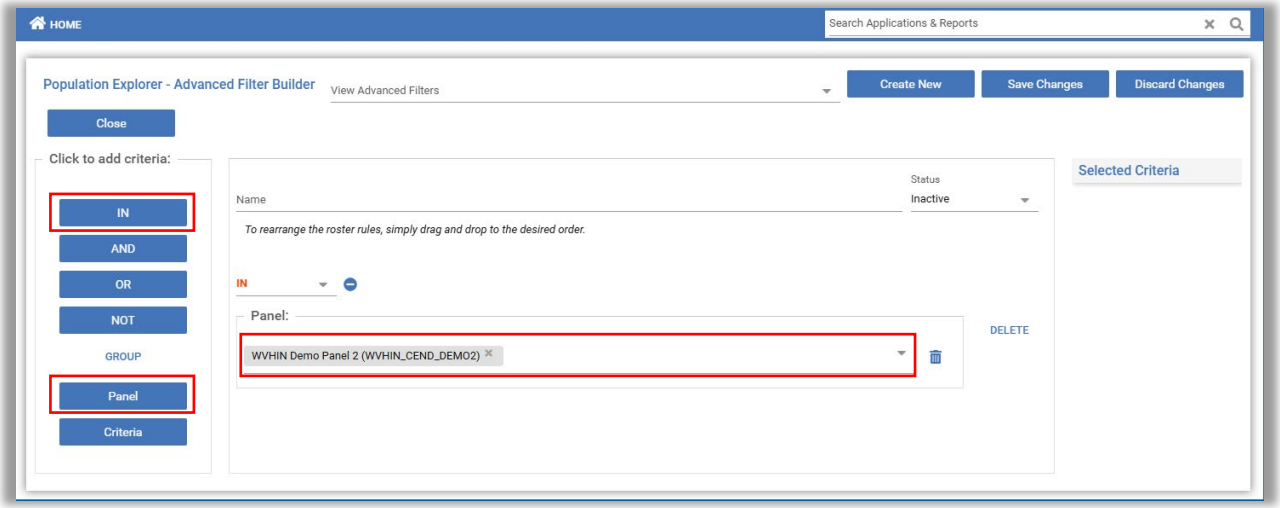
5 Appendix B: Advanced Filter Builder Example

Below is a step-by-step example of how to build a filter in the Advanced Filter Builder. Advanced Filter Builder is to be utilized by a small subset of users whose needs may not be met through the other filter options. You can apply any combination of filters to criteria contained in encounters or notifications and customize what is displayed. This tool can be used to include or exclude lists of criteria (i.e. diagnosis codes) or select multiple values to be evaluated and viewed at one time (i.e. discharges OR admits in the last X number of days).

Step 1: This step is only for users with multiple panels! If you have multiple panels and want the criteria to apply to all of them, then skip to step 2.

Start with panel selection:

1. Click IN on the left-hand menu
2. Click PANEL on the left-hand menu
3. Click the drop-down arrow and select the panel(s) you want as your starting patient population.

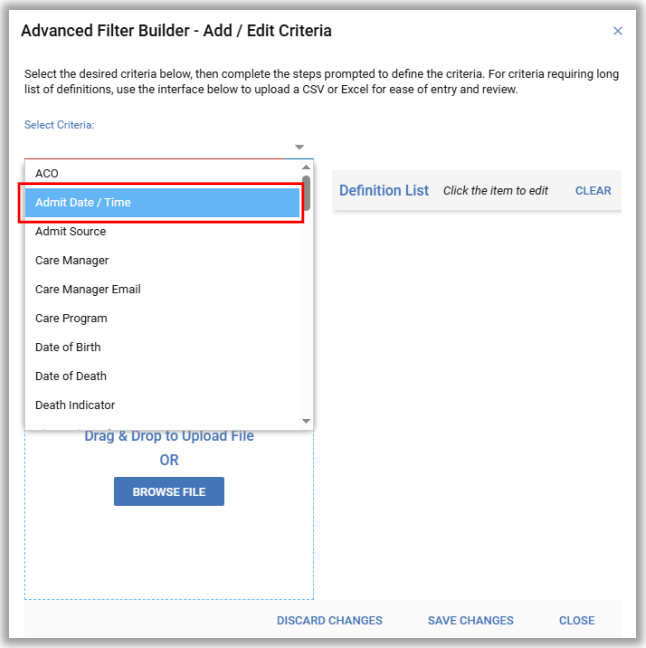


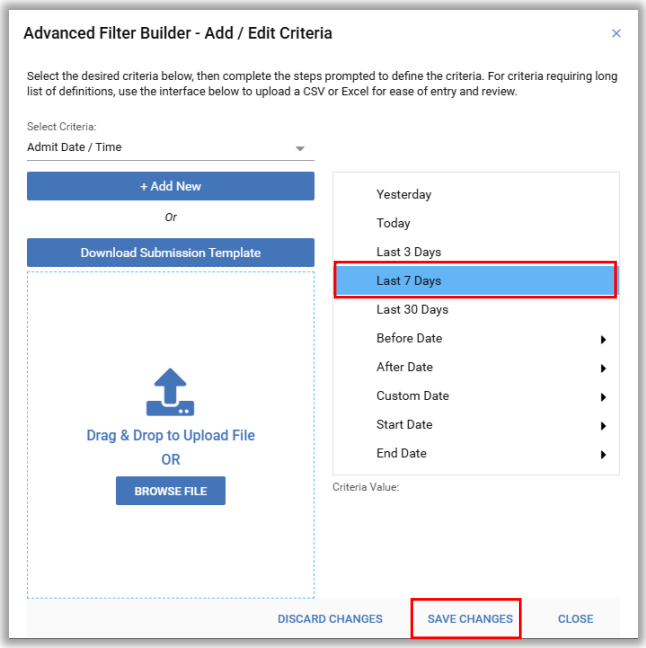
Step 2:

Select any additional filter criteria you would like to place on your patient population. Sample filters are at the end of the guide.

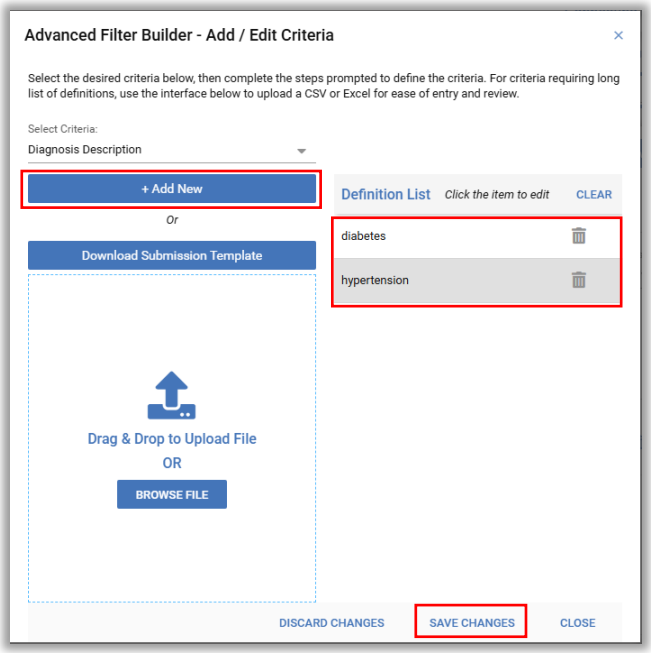
1. Click operator (AND, OR)
2. If you would like to use multiple criteria, use the GROUP button and begin a parenthesis prior to criteria selection.
3. Click CRITERIA on the left-hand menu and select which field you would like to filter on.
4. Click the drop-down arrow under “Select Criteria” and scroll down to the criteria you want to select

Once you select which criteria you want to add, if the selection is a list, you will be presented with a list of choices, as shown on the following page.



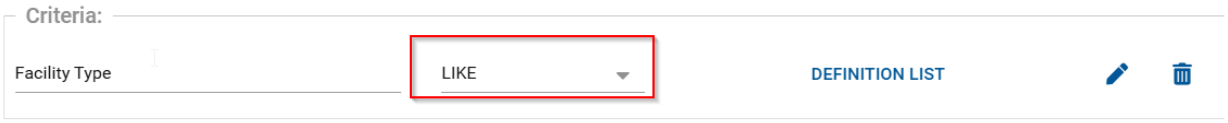


1. Make your selection from the drop-down menu.
2. Click “Add New.”
3. Type your entry (NOT case sensitive).
4. If you want to add additional entries, click “Add New” and type additional entries.
5. Repeat as many times as necessary.
6. If the criteria selection is not a predefined picklist, you will enter the definition list (what you would like to filter on – see screenshot at right).
7. If you have a long list of criteria, you may also Click “Download Submission Template”, enter your multiple criteria (one per row), Save and then use the “Drag and Drop” or “BROWSE FILE” to upload your file. The Definition List will populate with the contents of your file. This feature is especially helpful if you have a list of diagnosis codes.

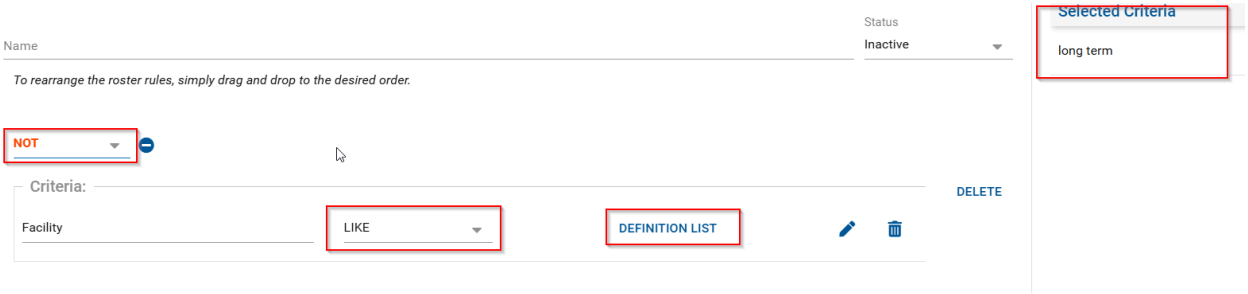


Once you click “SAVE CHANGES”, you will be brought back to the Advanced Filter Builder module.

- The default filter will be “IN” which means you want to look for an exact match on your criteria list.
- If you want to do “Contains” rather than an exact match, change the “IN” to “LIKE”



- To view the definitions, you have specified for your criteria, click “DEFINITION LIST” and the definitions will population on the right-hand side of the screen.

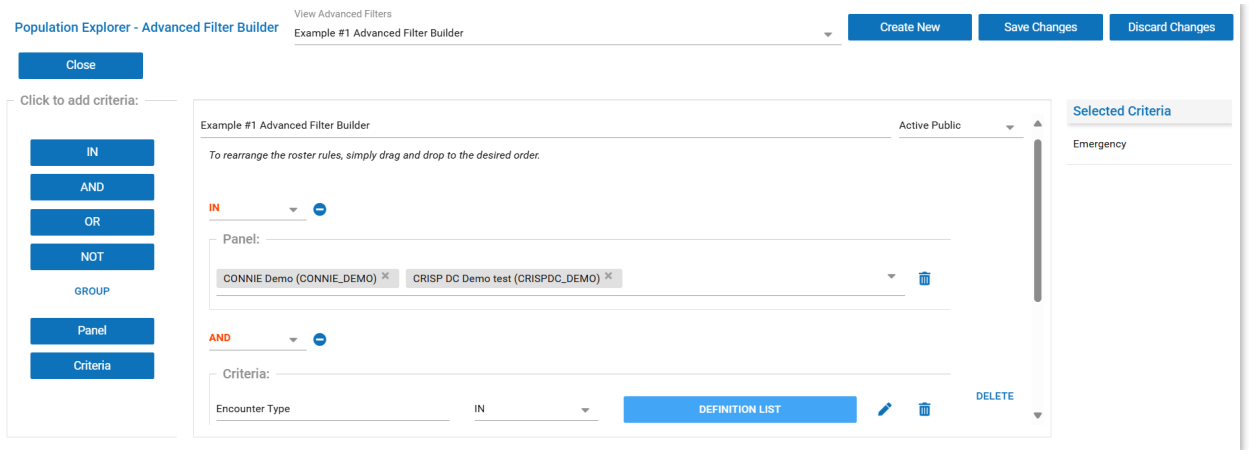


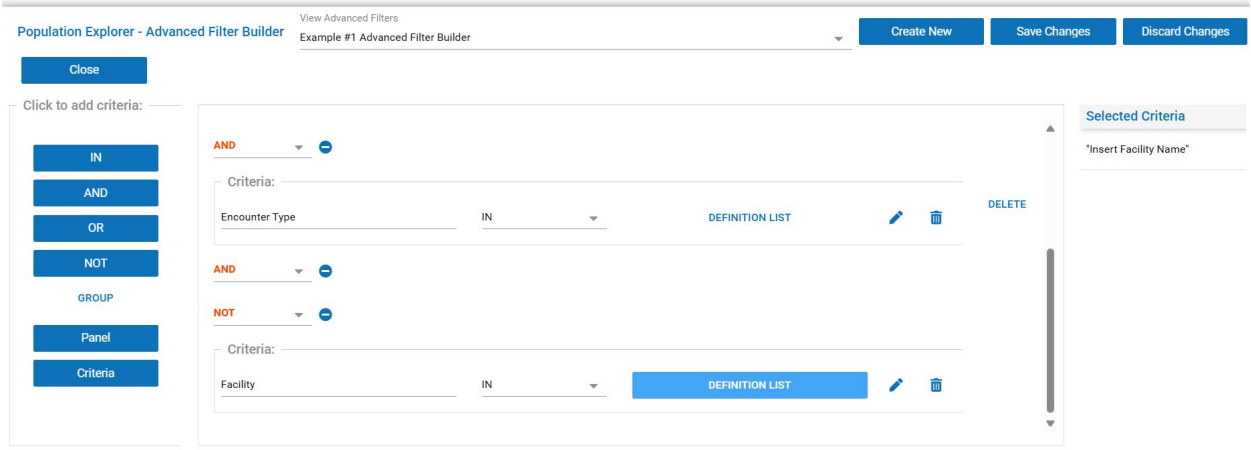
- To Exclude values contained in the definition list, click “NOT” before you select your criteria.
- Criteria and operators can be rearranged by dragging and dropping them into the correct spot.

Below is an example of how you could create a filter that will filter through 2 panels (Connie Demo and CRISPDC Demo) of specified (in the definition list) encounter types and exclude a specified (in the definition list) facility. For example, you could filter to just Inpatient and Emergency Encounter Types, and exclude a single named source facility (you don't want to see the discharges from your own facility, for example).

1. Build the list of multiple panels (IN button, then PANEL button)
2. Build the list of encounter type (AND button, the CRITERIA button, then delete the Encounter Types you do not want) Save Changes
3. Build the excluded facility criteria (AND button, NOT button, then CRITERIA button, then Add New, then type out the Facility Name exactly. Save Changes
4. Save the filter with status "Inactive" - then change the status to "Active Private" so you can complete your testing.

Note: If the status is set to “Active Public”- which will enable any user with access to all of the included panels to use this advanced filter. This is useful for sharing common advanced filters with others in your organization, so they do not have to individually re-create them.


Population Explorer - Advanced Filter Builder
View Advanced Filters
Example #1 Advanced Filter Builder
Create New
Save Changes
Discard Changes
Close
Click to add criteria:
IN
AND
OR
NOT
GROUP
Panel
Criteria
Example #1 Advanced Filter Builder
Active Public
To rearrange the roster rules, simply drag and drop to the desired order.
IN
Panel:
CONNIE Demo (CONNIE_DEMO)
CRISP DC Demo test (CRISPDC_DEMO)
AND
Criteria:
Encounter Type
IN
DEFINITION LIST
DELETE
Selected Criteria
Emergency


Population Explorer - Advanced Filter Builder
View Advanced Filters
Example #1 Advanced Filter Builder
Create New
Save Changes
Discard Changes
Close
Click to add criteria:
IN
AND
OR
NOT
GROUP
Panel
Criteria
AND
Criteria:
Encounter Type
IN
DEFINITION LIST
DELETE
AND
NOT
Criteria:
Facility
IN
DEFINITION LIST
Selected Criteria
"Insert Facility Name"