BRICS

7

# BRICS USER GUIDE

# Query Tool

# CHAPTER 7 – Query Tool

The **Query Tool** module is closely related to the Data Repository module, which provides a long-term repository for research data. By combining the power of the GUID and the use of a standard vocabulary via CDEs, the *Query Tool* provides a powerful means to filter through volumes of aggregated research data across studies.
The Meta Study module is integrated into the Query Tool, allowing researchers to send data and query to a Meta Study by just clicking on the "Send to Meta Study" button. The Data Repository and Data Dictionary modules as well as the Download Tool (which allows users to download data selected in the Query Tool) are also integrated into the Query Tool.

## 7.1 Objective

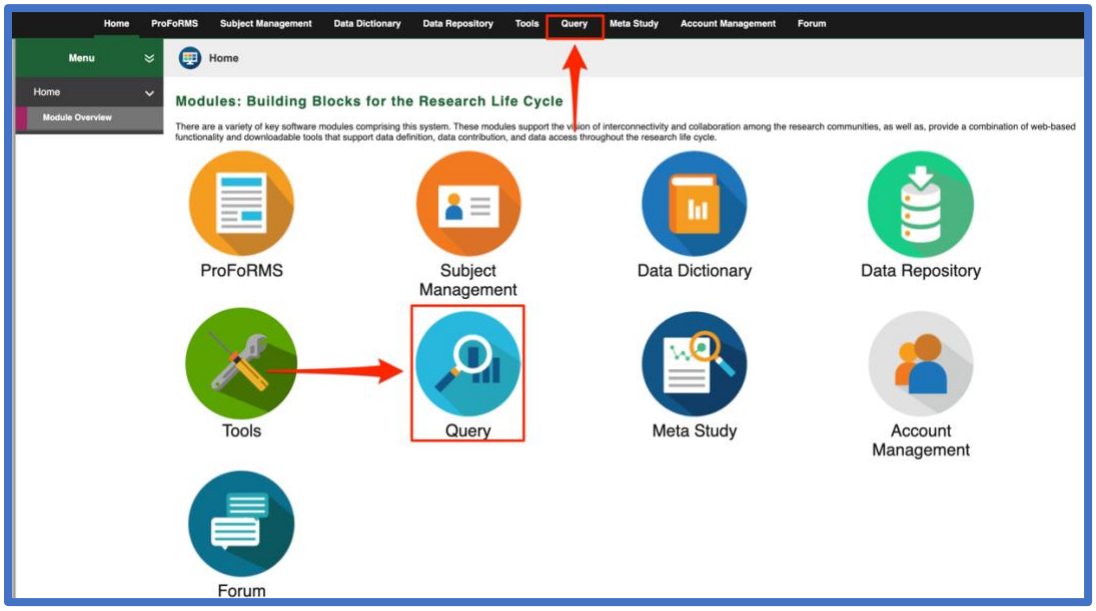
This chapter provides information for users on how to:

- Search for studies and/or forms using filters and free text search.
- Filter data by any data element and/or value (Boolean Search).
- Quickly and efficiently gain an understanding of data that is in the system.
- Download data and save data as a query.

## 7.2 Module Navigation

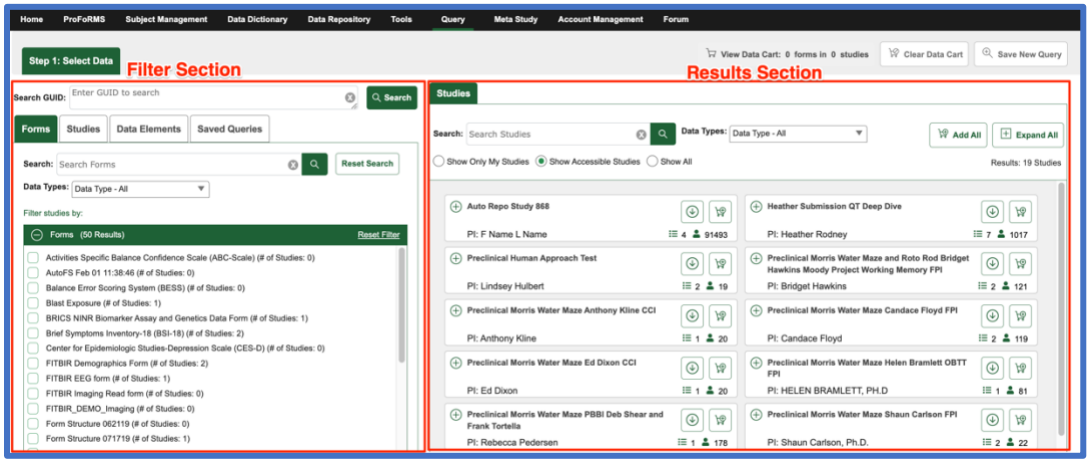
To access the **Query Tool** module, perform the following actions:

1. Log into your BRICS instance and select the Query Tool module from either the top navigation bar or the module icon.



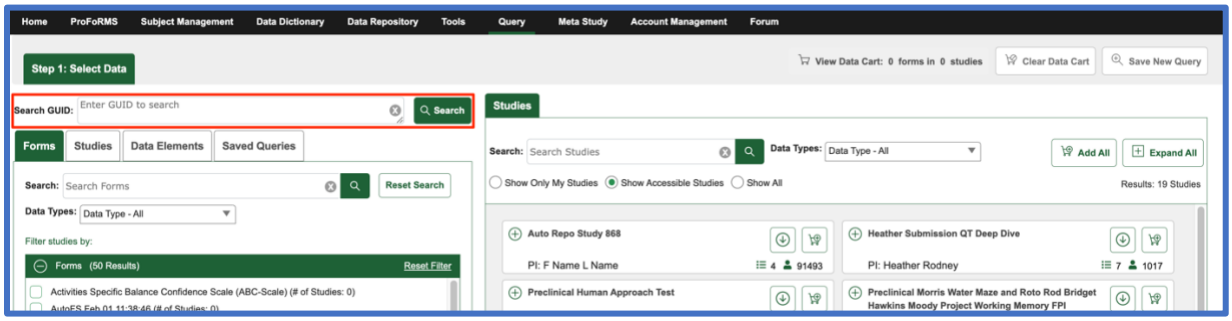

The Query Tool default page will open. This page is broken up into 2 sections. The Filter Section, where you will search and filter for the data you wish to download and the Results Section where the filtered results will be, and you can add the items to your Data Cart. The Data Cart is where the different studies and information you are going to want to download. In a later section we will talk about how to refine the data in your Data Cart.

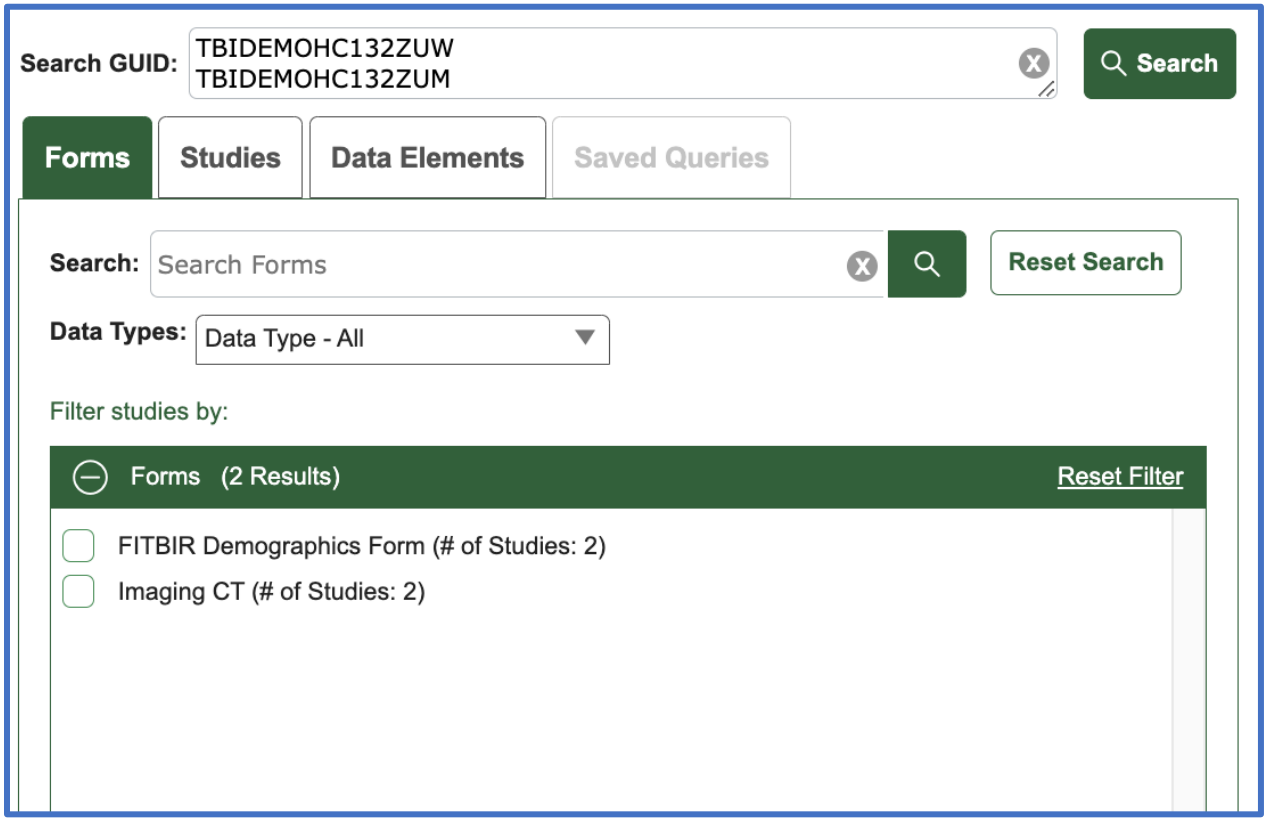
The Meta Study Overview Screen displays the list of Meta Studies available in the data repository that you have permission to view.



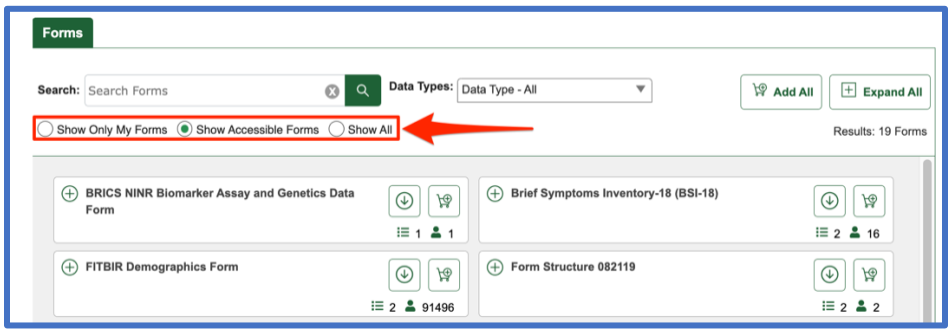
Search by GUID(s): If you are looking for only studies/forms/ or data elements that specific GUID(s) are associated with you can use the Search GUID field under the Filter Section. Enter the GUID(s) you wish to search for, if multiple then separated by a new line, then click the Search button to get your results.

**Note:** If you use GUID search it will automatically create a filter when you move into Step 2: Refine Data and select the form(s) in your data cart. The GUID filter will appear in the Filter Data containing the GUID(s) you searched for. Note that the filter will not be applied to your data until you click Run Query.

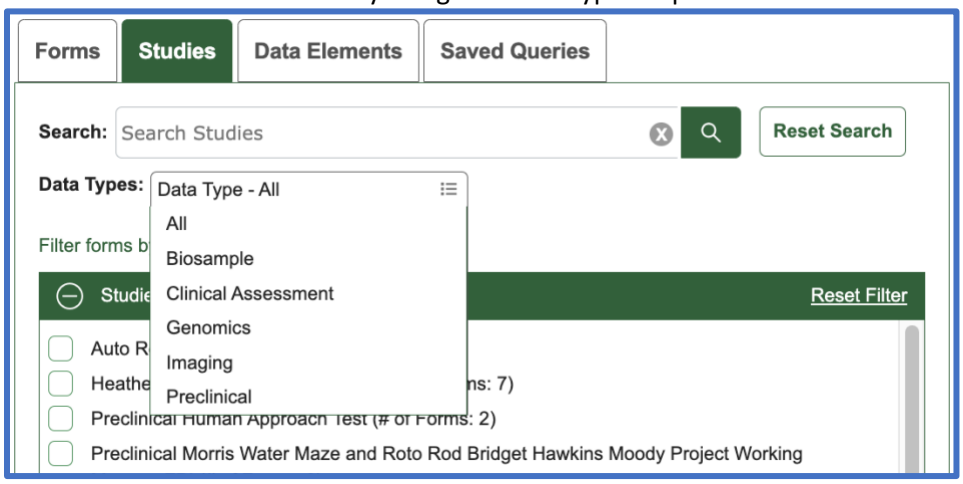


Data can be accessed only from studies the user has permission to access, however, users will still see studies they do not have access to. They will have a grayed-out circle to the right of the study.
By default, Query Tool will only show the studies this user has access too. Click Show All or Show Only My Forms to filter the data how you wish

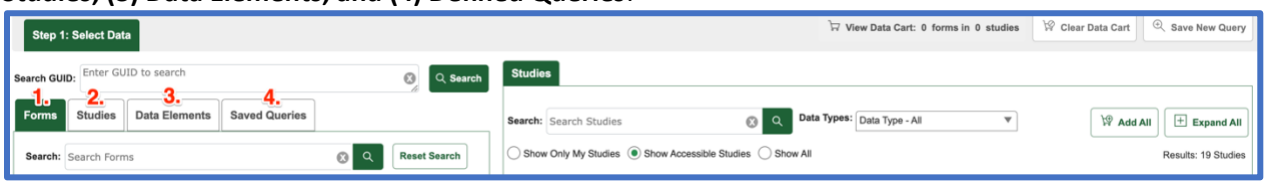



You can also filter the results by using the Data Type drop down in the Results Section



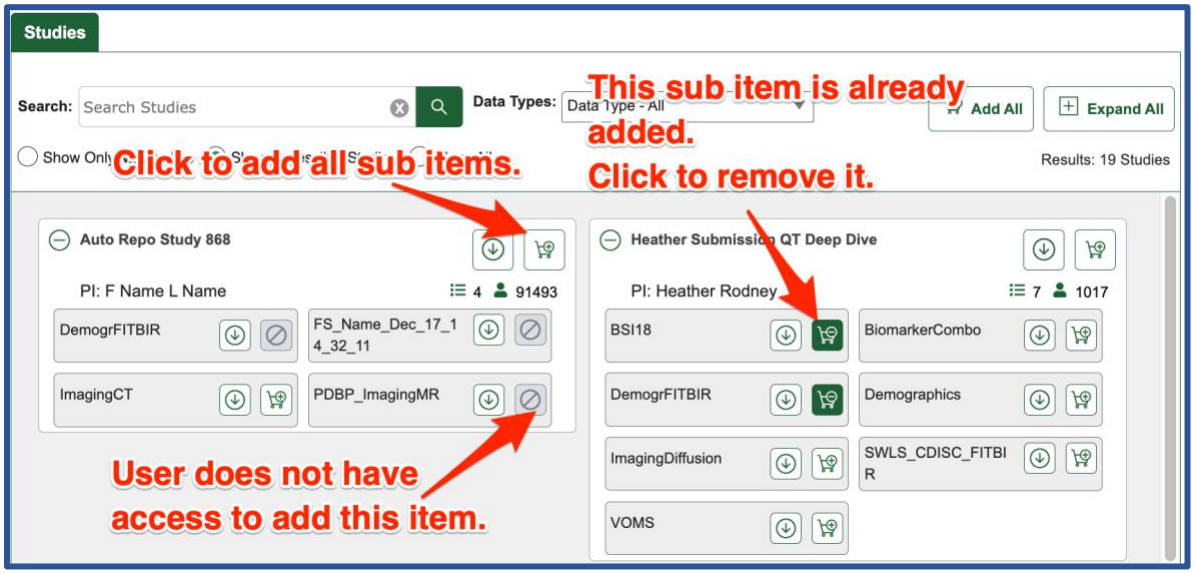

## 7.3 Filter Data

There are four methods to filter data within the Query Tool. The four methods include **(1)Forms, (2) Studies, (3) Data Elements, and (4) Defined Queries**.




You will use the 4 methods mentioned above to find the data you wish to query. When you find data you wish to add then click the cart icon with the + on it to add it to your data cart.

1. Clicking the parent of a cart icon will add all sub items to the data cart.
2. Clicking the sub item will add only the sub item.
3. Clicking the Add All Cart Icon at the top right will add everything currently in the results (right side of screen) section.

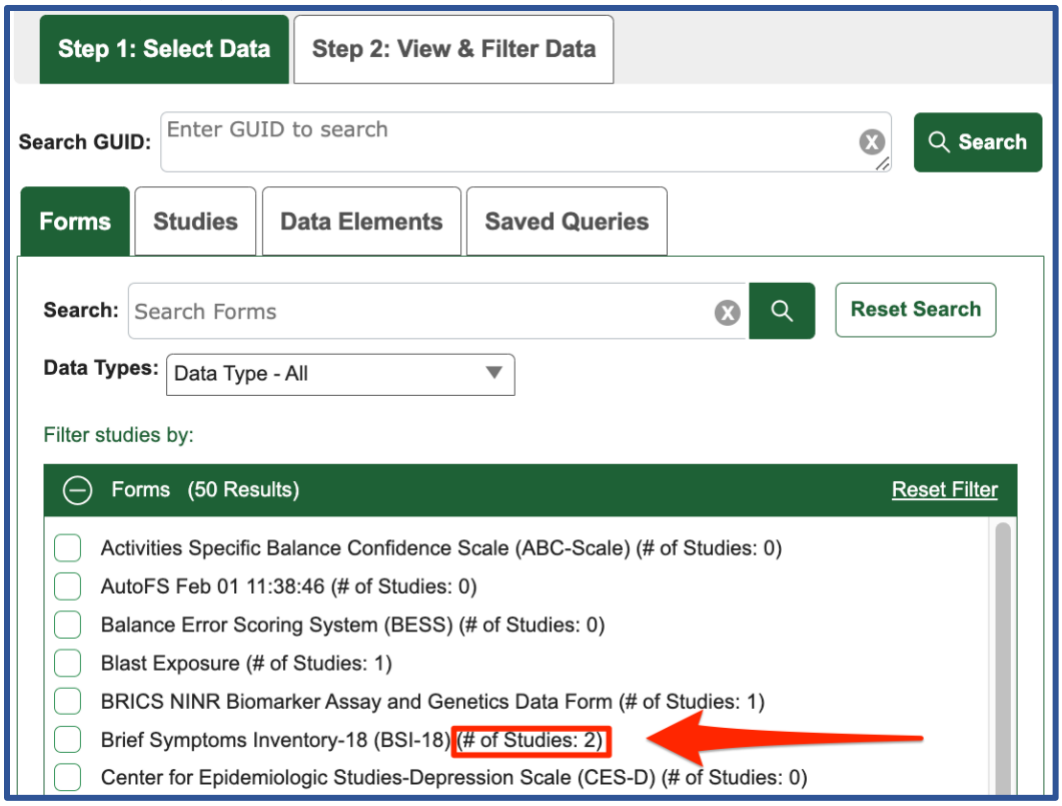



After adding an item to your data cart, the cart icon will have change to be filled with a solid color and have a "-" symbol on it. To remove an item from the data cart simply click the cart icon again.

## 7.3.1 Filter Data Forms

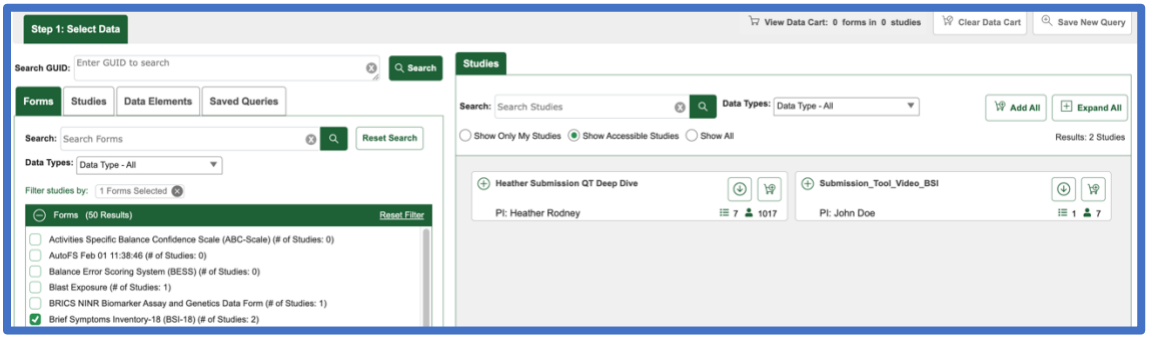
Within the Forms Tab, there is a list of form structures (left side of page) and on the result page (right side of the page) are the studies.

1. Within the list of form structures provided, click on the box next to each form structure you wish to filter on.
   **Note:** Next to the name of the form structure is a number that indicates the number of studies that have data submitted. For example, for the form structure titled "Brief Symptoms Inventory-18 (BSI-18)," there are 2 studies that have data submitted to that form.

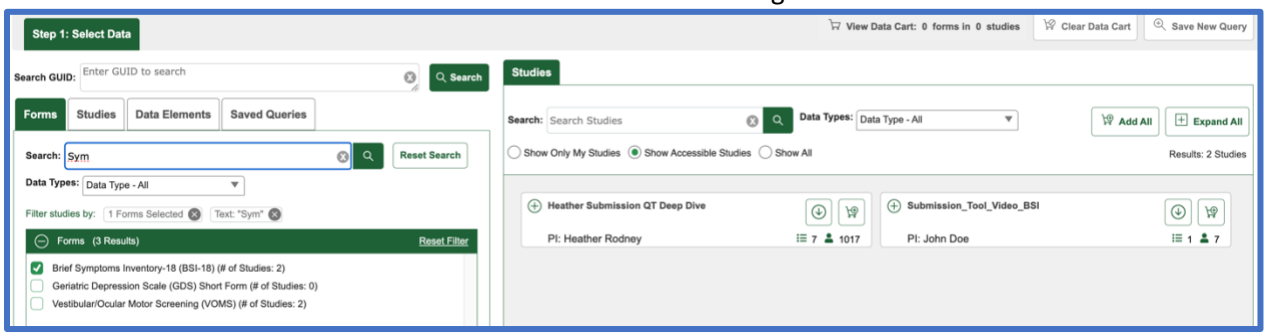



2. The other option is to type in the title or short name of the form structure in the **Search Forms** box then click on **Search.** This will narrow down the number of forms that are visible, but you will still need to click on the box for the form or forms that you desire to filter on.
3. The results box (right side of screen) will provide the studies that have data submitted against the form structure.

View of results when the user clicks on Form Structure from the list:



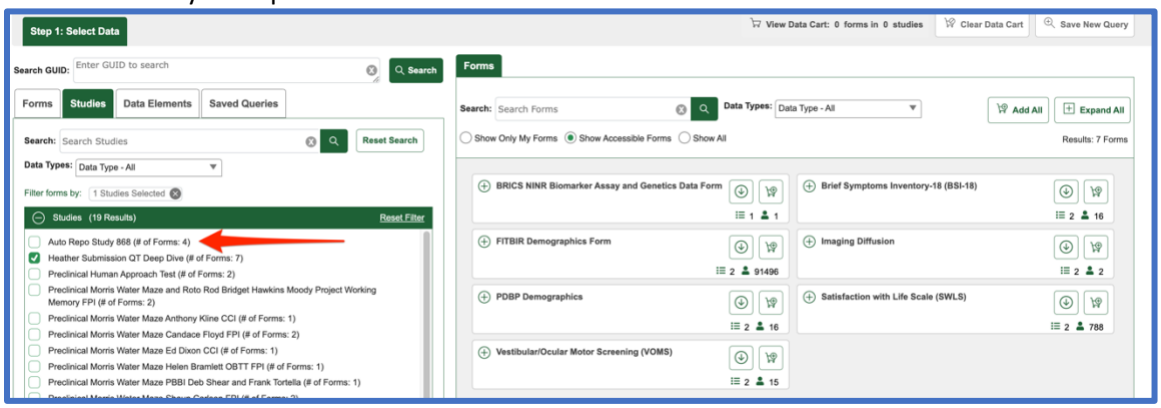

View of results when the user searches for a Form Structure using the short name:



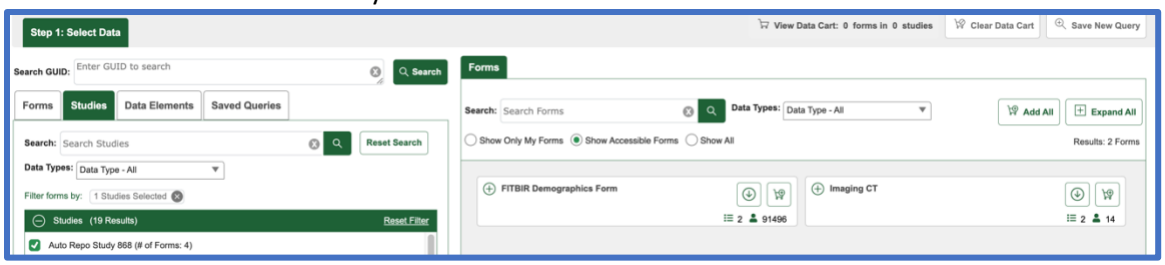
## 7.3.2 Filter Data Studies

With the Studies Tab, there is the list of all the studies that have data submitted to the Repository, and the results view provides the form structures for the study.

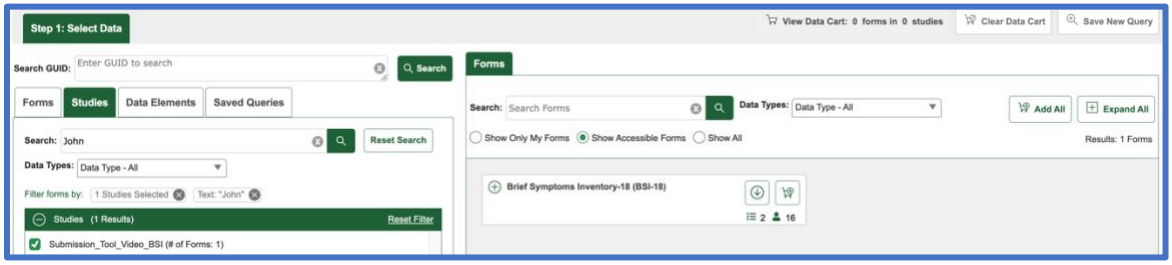
1. Within the list of studies provided, click on the box next to the study title or search for the study by typing the Study Name or the Principal Investigator's Name into the Search Studies box and click Search.
    a. The number at the end of the study title indicates the number of form structures that have data submitted. For example, the "Auto Repo Study 868" study has 4 form structures with data.
    b. Users will be able to see the form structures for each study, but not access the data unless they have permission to.




Click the checkbox for the Study Title to view the form structures.



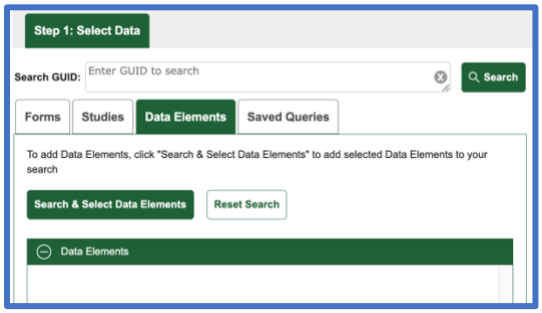

View of the form structures searching by Principal Investigator's Name:



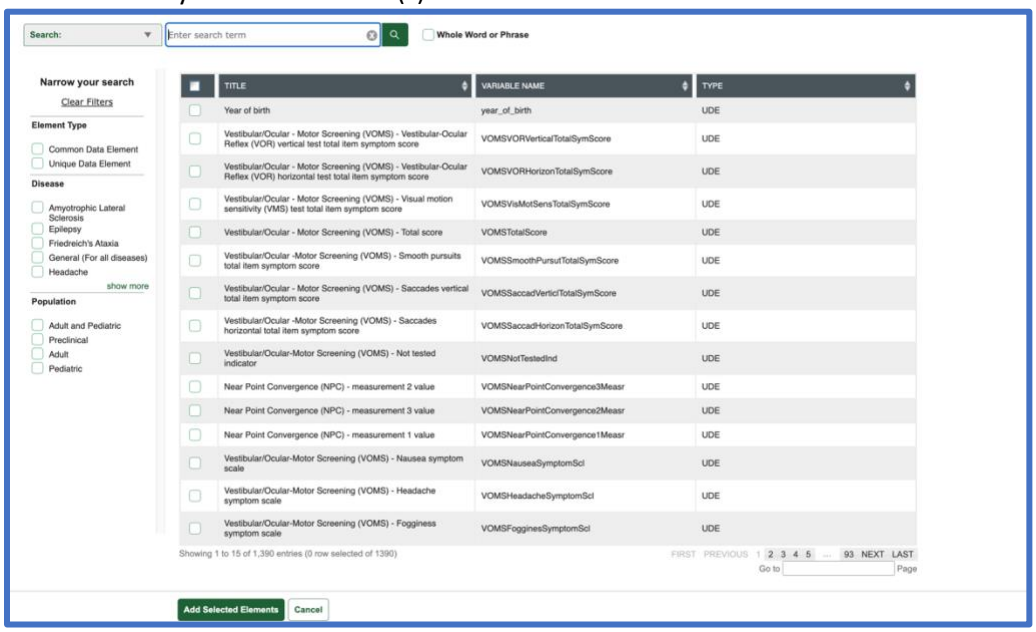
## 7.3.3 Filter Data: Data Elements

Within the Data Elements tab, the results page will provide the form structures that contain a selected data element.

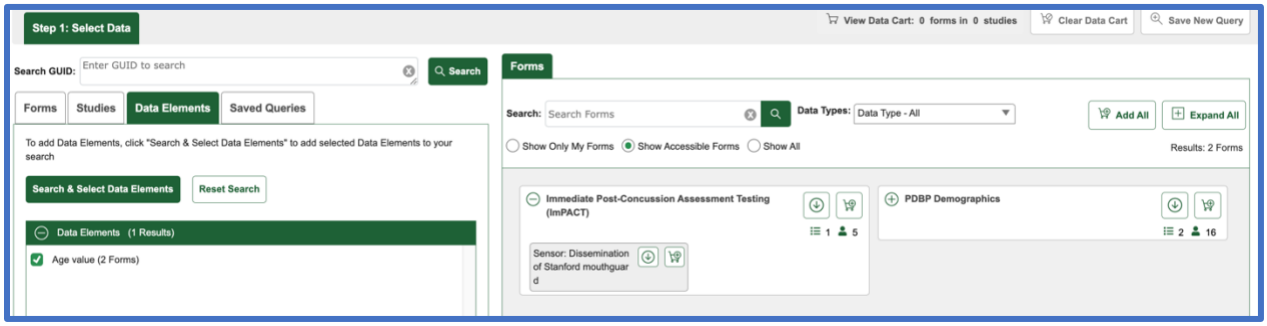
1. Click on the **Search and select Data Elements** button.



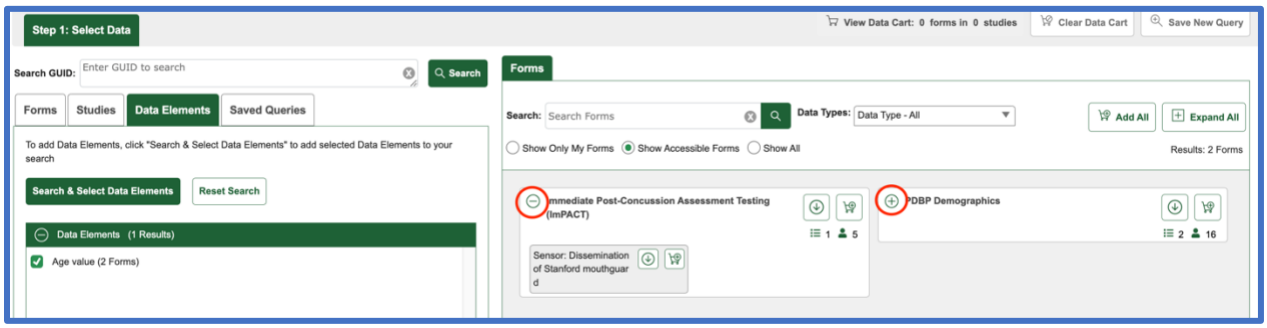

2. A pop-up box will appear, which will contain data elements that are published in the data dictionary. Within the pop-up box, users can use the filters to see the different types of data elements and search for data elements by using the search box.
3. Select your data element(s) and click Add Selected Elements.




4. After adding the data elements, the pop-up box will close and the data elements that were chose will displayed in the Data Elements Column on the left side of the page.
5. Click on the checkbox next to the data element(s), and the result table will provide the associated form structures.



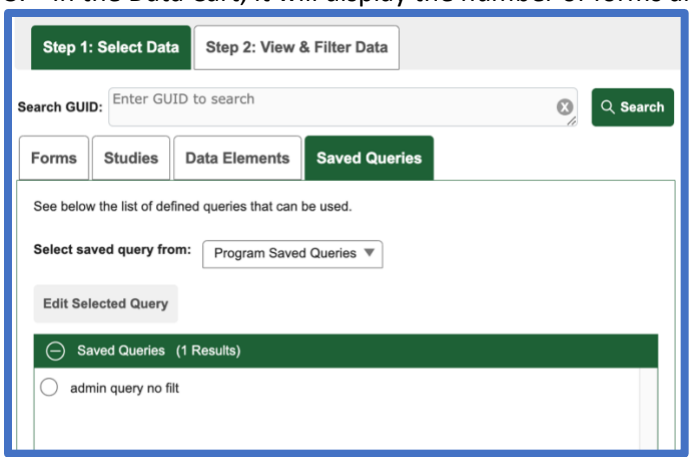

6. If you wish to see the studies that have data for each form structure, you can expand/collapse the form structures in the results table (right column) by clicking the "+" or the "-" at the top left of each item.



## 7.3.4 Filter Data: Saved Queries

Within the Saved Queries tab, the results page will provide data that has been refined by previous, saved users queries. **Note: Only users with permission to the queries can view the filtered data**.

1. Click on the **Selected Saved Query from Dropdown** and click where you'd like to view the saved queries from. You will only be able to view a query that you have permission to access.
2. The results table will provide the studies and the form structures that were used in refining the data.
3. In the Data Cart, it will display the number of forms and studies in the query.

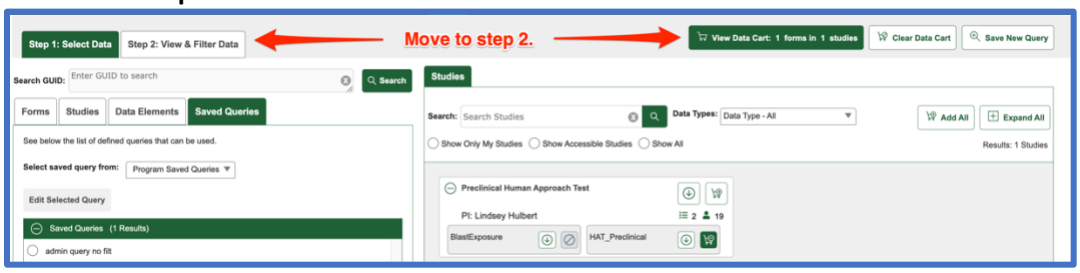


# 7.4 View the Data

After choosing the data (please refer to Section 1: Filter Data to choose data), Step 2: Refine Data will appear, which allows the user to refine their data through the following options:

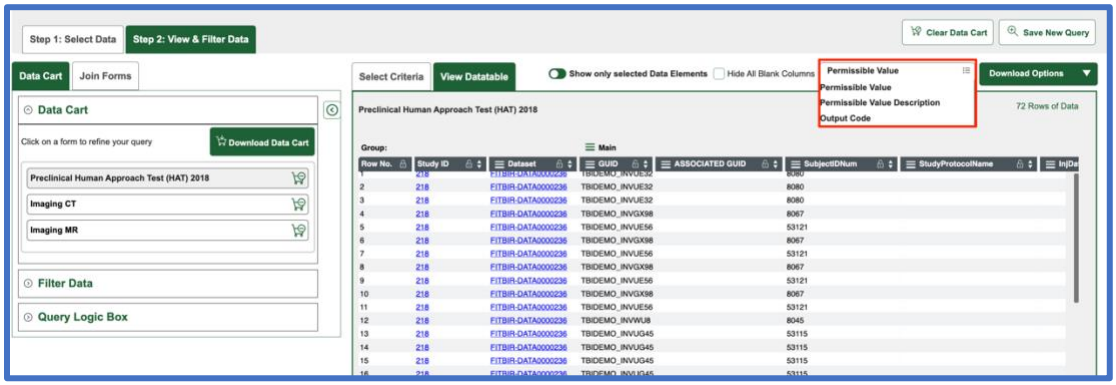
1. Select form structures.
2. Join form structures.
3. Select Criteria for refining the data.
4. View as Data table
5. Perform Boolean Queries
6. Download or send data to Meta Study

**First select Step 2: Refine Data**



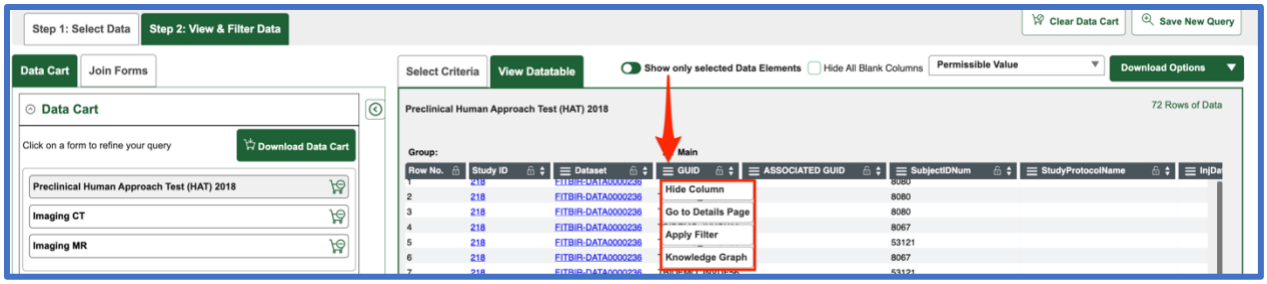

## 7.4.1 View Data from Selected Studies and Form Structures

1. To view the data in the form structure, click on the form structure in the **Data Cart**. The data in the form structure will appear in the **Datatable** on the right hand side of the screen.
2. Within the **Data Cart View**, the user will see the following: (1) name of the title of the form structure, (2) the short name of the form structure, (3) the repeatable group name, and (4) the data elements in the form structure.
3. There are additional capabilities that allow the user to change the view of the data and to explore the data which include the following:
    a. **Change the permissible values** to: (1) Permissible Value, (2) Permissible Value Descriptions, (3) Output Code.
    **Note:** If the data is downloaded, it will appear in the currently selected permissible value format

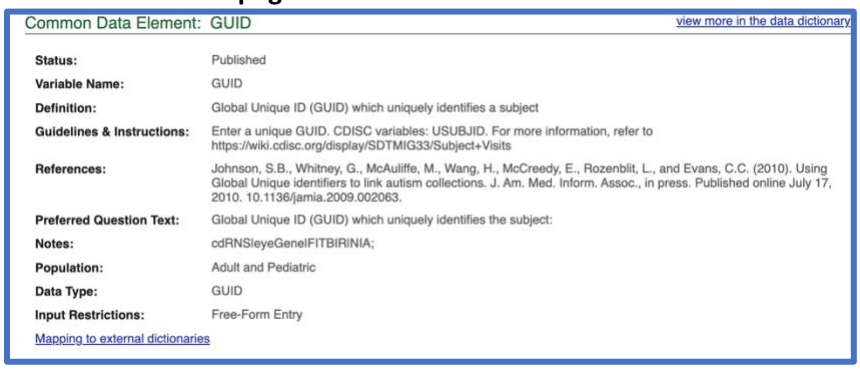


b. View the data element information by clicking on the hamburger menu of the Data Element and click on "**Go to Details Page**". The pop-up box will display the attributes of the data element.

**View of the menu of the GUID Data Element:**



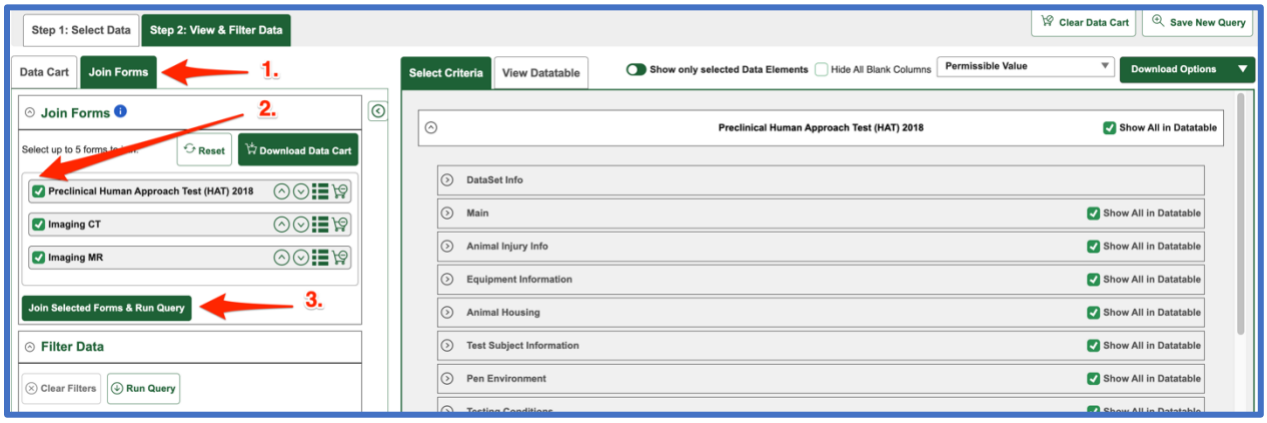

**The details page for the GUID Data Element:**



## 7.4.2 Join Forms

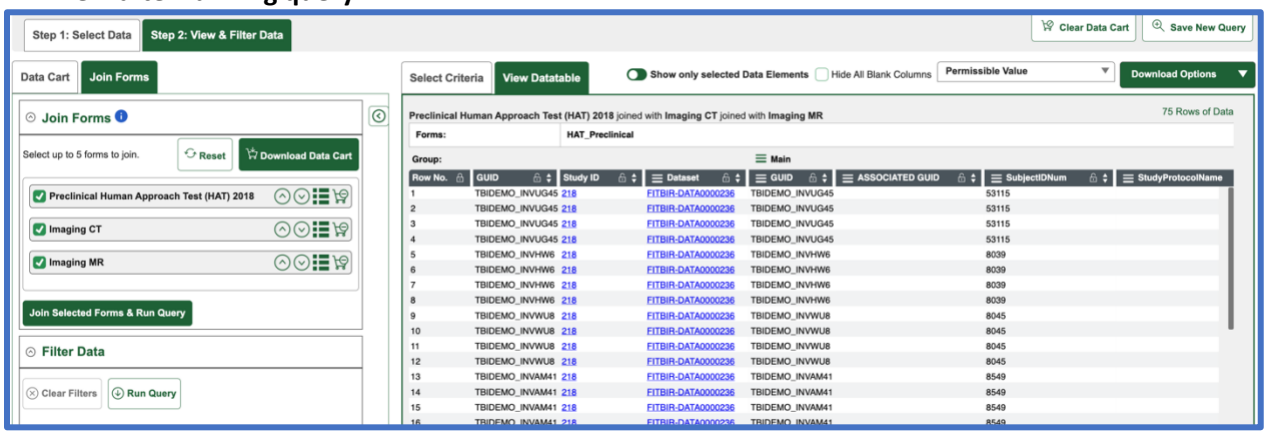
The Query Tool allows the user to conduct a Full Outer Join on the GUID up to 5 forms (within a study and across studies). This allows data associated with the same GUID to be unified across multiple forms.

1. Select **Join Forms** tab**.**
2. Then select the forms you wish to join. The Select Criteria will appear with the form structures and associated data elements to refine the data.



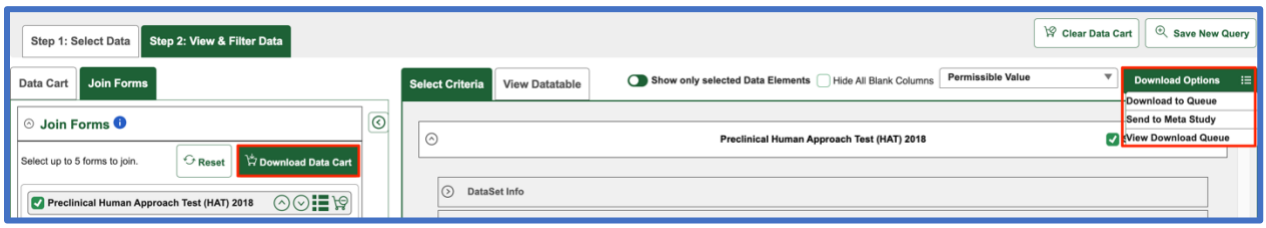

3. Click on Join Selected Forms & Run Query and the data will appear in the Datatable View.

**View after running query:**




**Note:** If the GUID is grayed out, it indicates to the user that the data is not in the current form but is in other forms.

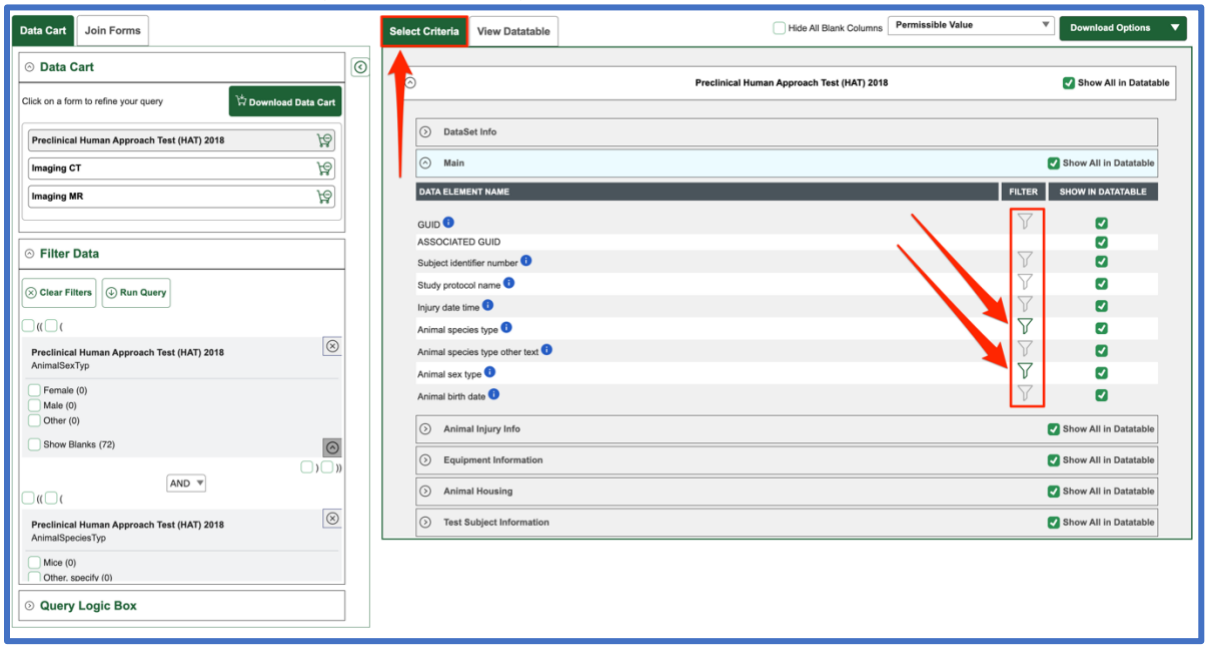
4. After joining the forms, the data can be downloaded by clicking on **Download Options** and **Download to Queue.**
   **Note:** To download the data separately, choose Download Data Cart to Queue.



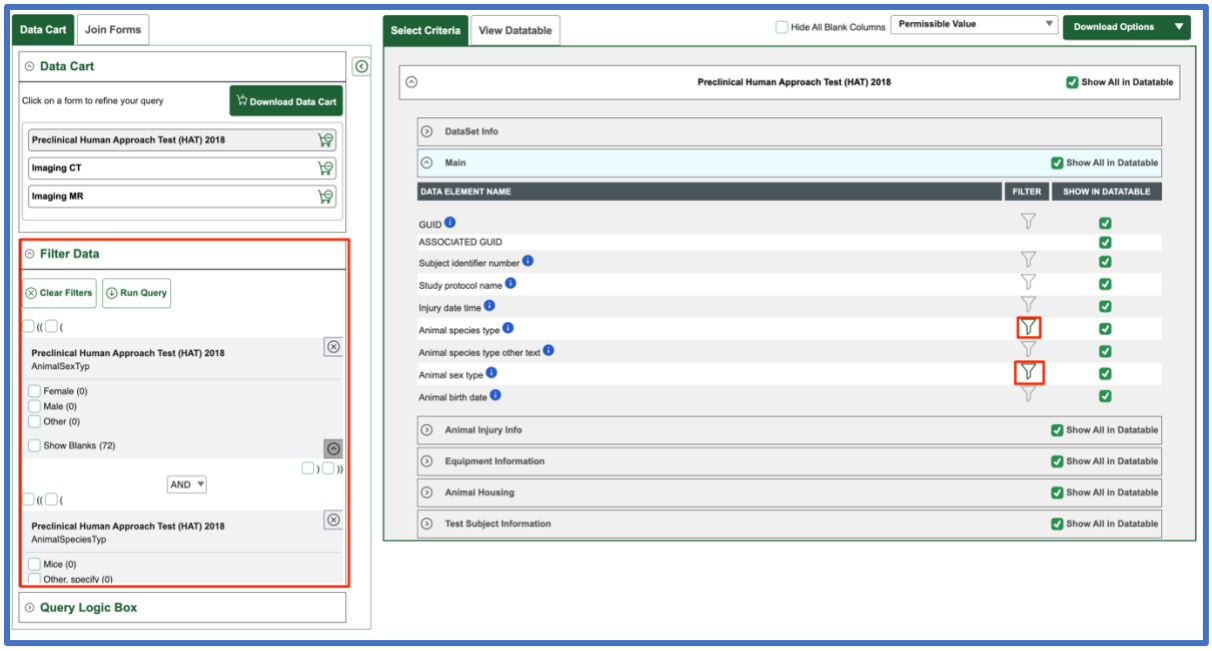
## 7.5 Refine the Data

The Query Tool allows users to refine the data by using both the Select Criteria Section and the Filter Data section. The Query Tool is designed to conduct advanced Boolean searches. The advance Boolean search allows users to use “AND,” “NOT and “OR” to link multiple queries.

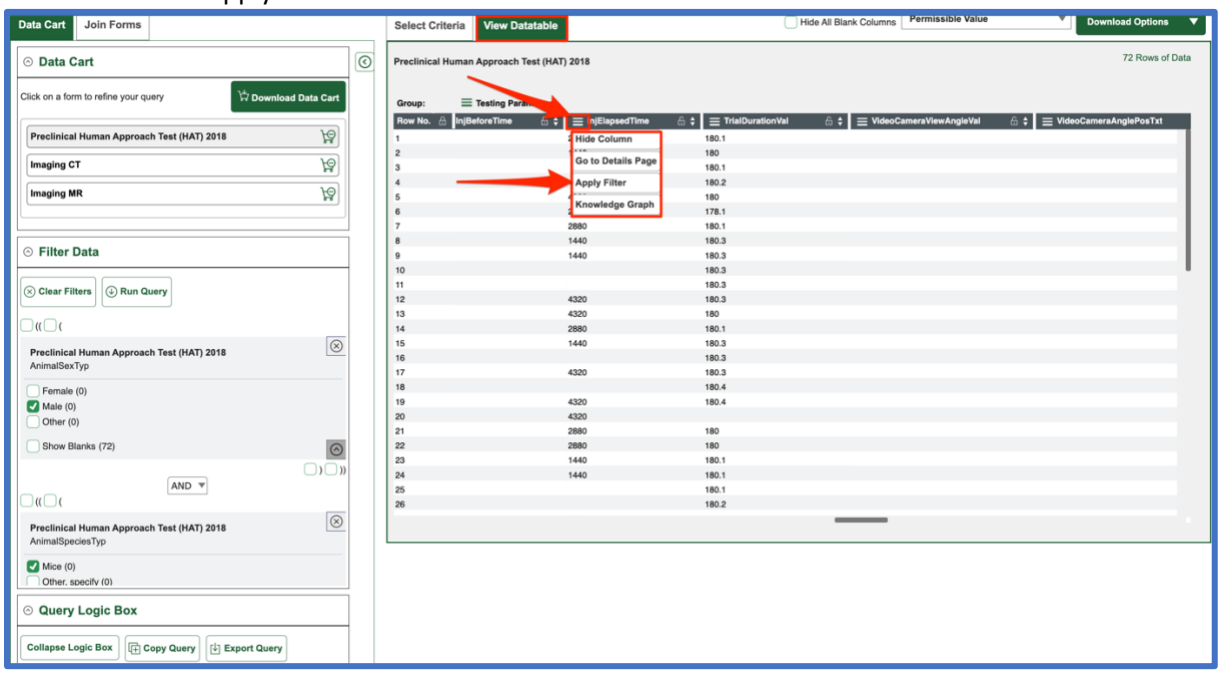
1. To use the refine features of the Query Tool, choose data elements to apply a filter to. This process can be done in the Select Criteria view or the Datatable View.
    a. In the Select Criteria view, select the Filter symbol for the Data Element you wish to be filtered.
    b. You can remove (or re add) elements by clicking the green checkmark (to remove) or click the x (to add it back in)



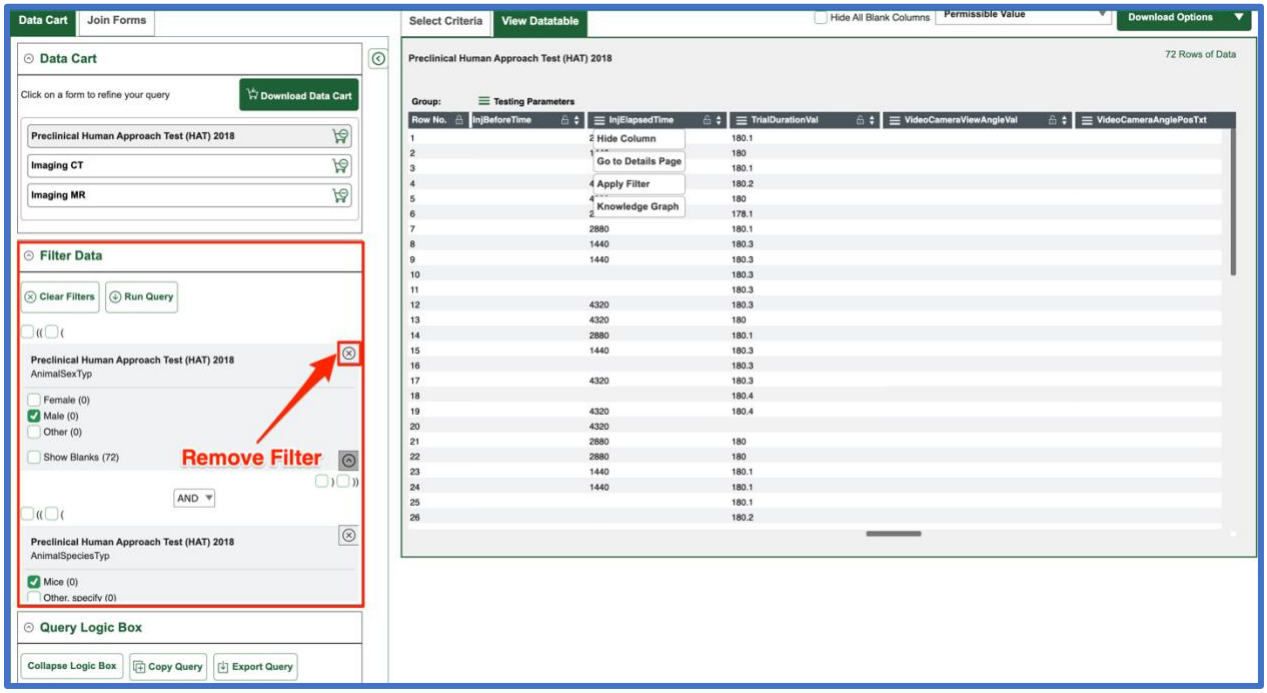

**NOTE:** If you used **the GUID Search in Step 1: Filter Data** then you will see a filter auto added in the **Query Logic Box** for the GUID(s) you had searched for.
**IMPORTANT:** Your data will not be filtered by default. Click **Run Query** to filter your data.




c. In the Datatable View, click on the hamburger menu for a Data Element and click on "Apply Filter."

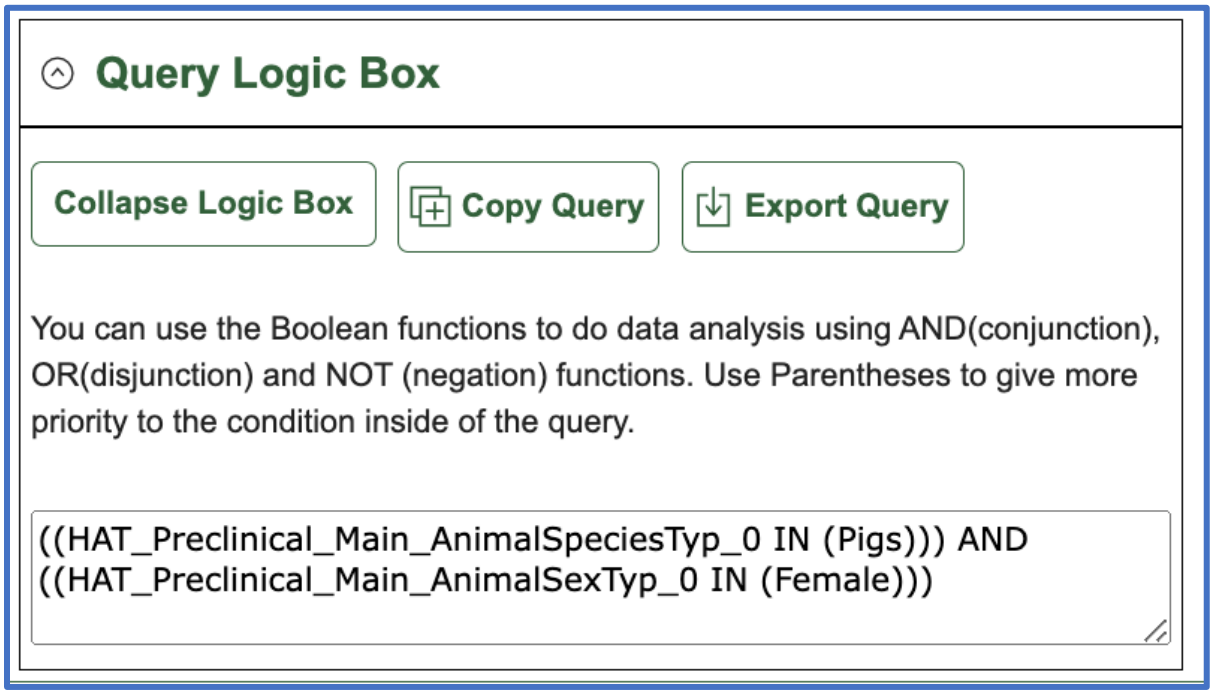


In both cases, the Data Element will appear in the Filter Data on the bottom left:




**Note:** To remove a filter, click the cancel icon (circle with an x in it) at the top right of each filter.

**Users can see a simplified view of their filtered logic by using the Query Logic Box:**



2. Once the Data Elements have been added to the Filter Data, the Boolean capabilities can be applied.
   There are specific Boolean Logic operations that can be applied to each data type:

| Data Type | Requirement Type | Boolean Logic |
|---|---|---|
| Alphanumeric | 1. Single Predefined<br>2. Multi-Defined<br>3. Free Form | OR, NOT, AND |
| Numeric | 1. Single Predefined<br>2. Multi-Defined<br>3. Free Form | OR, NOT, AND<br>**NOTE:** Ranges can only use: OR, NOT |
| Date | Free Form | OR, NOT |
| GUID | Free Form | NOT |
| File | Free Form | OR, NOT, AND |
| Thumbnail | Free Form | OR, NOT, AND |
| Bio-sample | Free Form | OR, NOT, AND |
| Tri-Planar | Free Form | OR, NOT, AND |

### 7.5.1 Inclusive/Exact Search

The Inclusive/Exact Search capability is available for the data types: (1) Alphanumeric, (2) Filename, (3) Thumbnail, (4) Bio-sample, and (5) Tri-planar.

1. By default, the inclusive search is performed for data types with the requirement types of Free Form and Multiple Pre-Defined Select.
2. Use the toggle button to switch between the search type.
3. When Inclusive is chosen, the search results will provide all the GUIDs that include the search term. For example, when using the Data Element RaceUSACat, if the user is looking for individuals who are Asian, the results will show all GUIDs for subjects who are Asian, regardless of whether they are also another race as well.
4. When Exact is chosen, the search results will provide all the GUIDs that have only the search term. For example, when using the Data Element RaceUSACat, if the user is looking for individuals who are Asian, the results will only show GUIDs for subjects who are only identified as Asian and not any other race in addition to that.

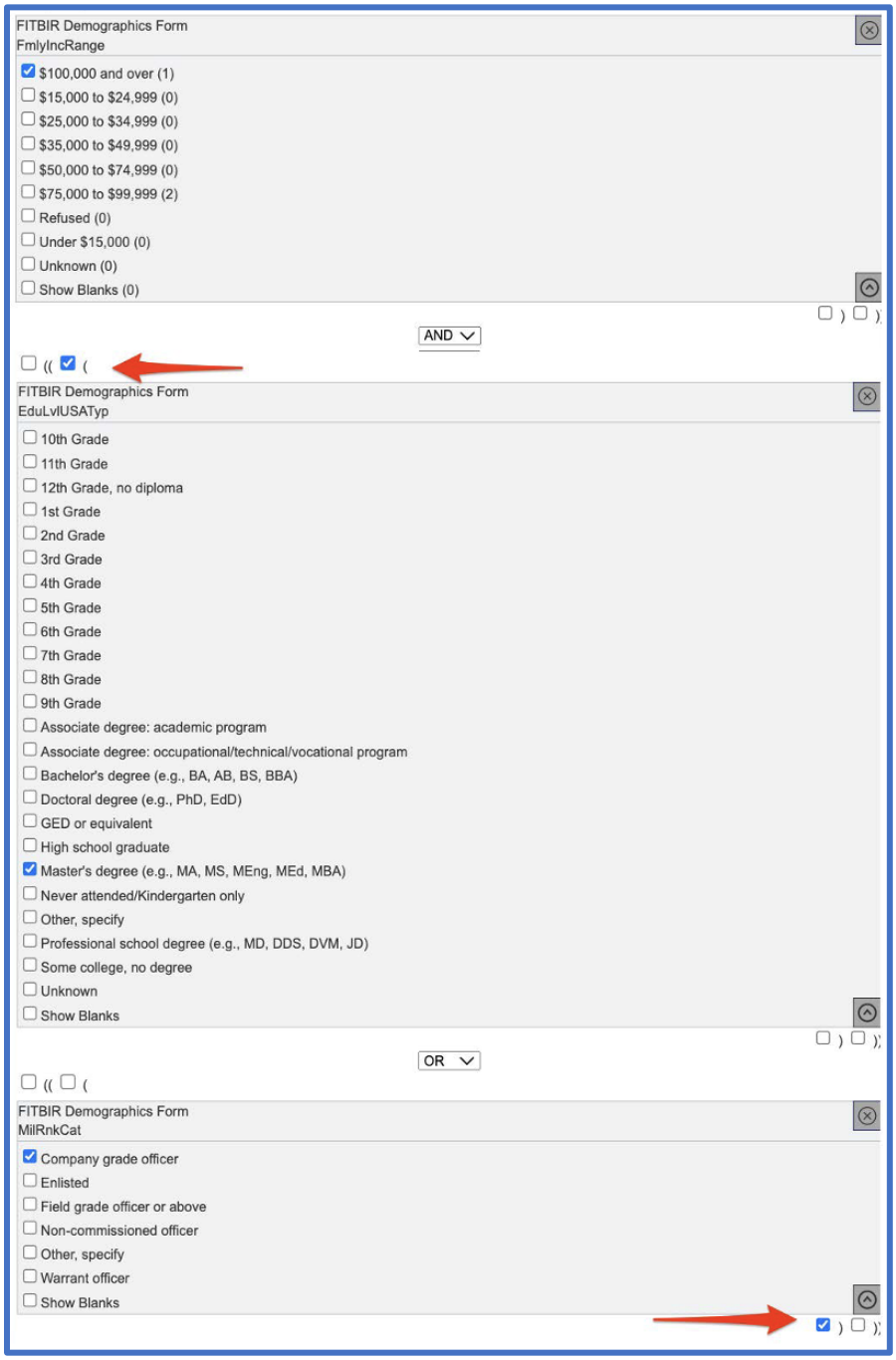
### 7.5.2 MultiRace

The RaceUSACat Data Element has the option to show GUIDs with multiple races.

1. Choose the Data Element RaceUSACat to be filtered.
2. In the Filter Data, scroll down to the “Show multirace Data” box.
3. Click on the “Show multirace Data” box and then Run Query, and all GUIDs with multiple races will appear.

## 7.5.3 Using Parentheses in Filter Data

You can use parentheses to do more complicated queries such as the following example (photos on next page):
We want subjects with a family income range of $100,000+ AND (they have at least a master's degree OR they were a company grade officer.)



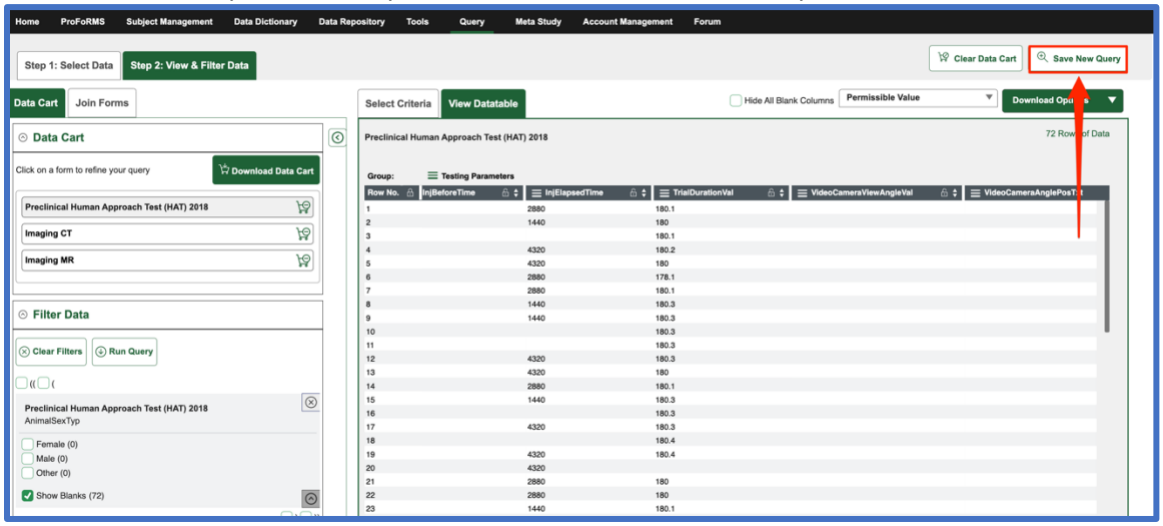
# 7.6 Save Query

This section is to learn how to save a query so it is stored and can later be restored.

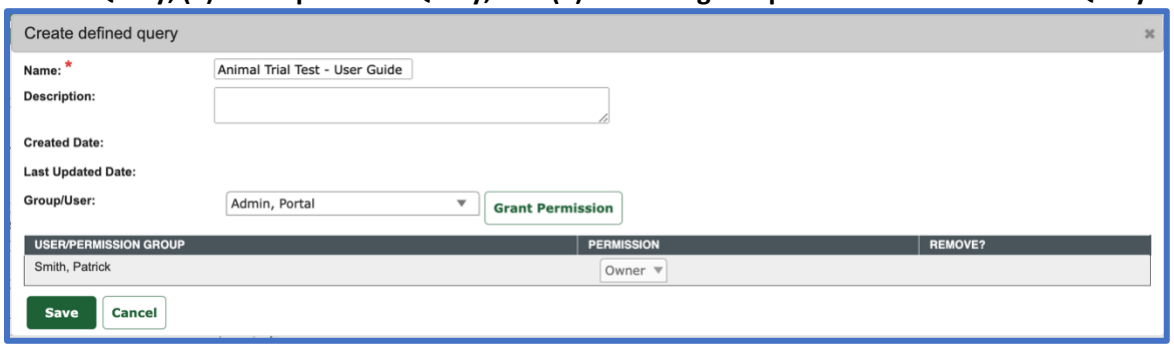
## 7.6.1 Create a Defined Query

After refining the data using the filter capabilities, users can save the query, which can be stored in both Meta Study and Query Tool.

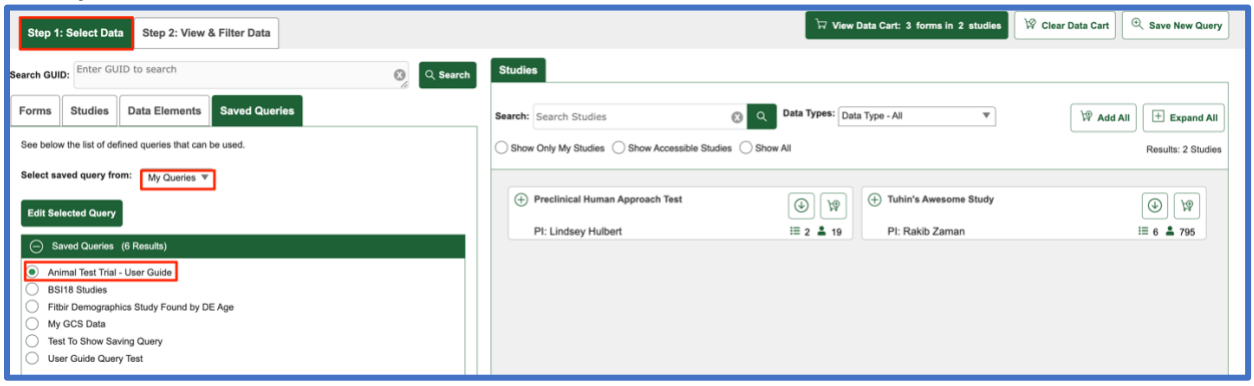
1. To save a Query to the Query Tool, click on the Save New Query button.




2. The Save New Query will provide a pop-up box to provide information for the query: **(1) Name for Query, (2) Description for Query, and (3) Users to grant permission access to the Query.**

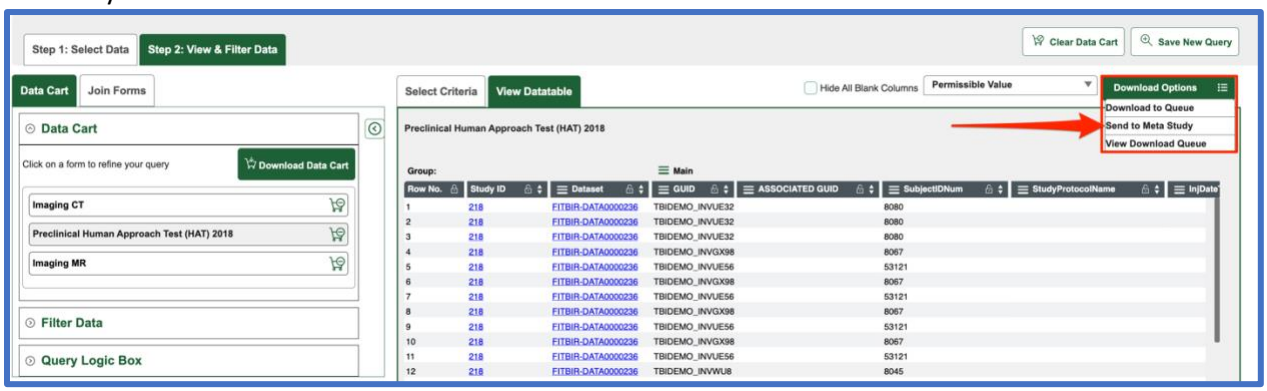


3. Once you have saved a new query, you can find it under **Step 1: Filter Data > Defined Queries > My Queries.**




## 7.6.2 Save Query to Meta Study

1. To save a Query to the Meta Study, hover over Download Options, and click on Send to Meta Study.



2. Once the Send to Meta Study is clicked, a pop-up box will appear to provide information about the Query. Complete the information in the pop-up box then click Save.

**Note: The user should create a Meta Study before saving a Query.**