# DataDirect 2.0 User Guide

DataDirect is an application that allows users to create queries using data submitted to MPOG for quality improvement (QI) and research purposes. It contains multiple filters that can help easily identify a cohort of patients and access data following appropriate approvals. Researchers can use DataDirect to identify patient, case, and institution counts for the cohort they are interested in studying. Quality Champions can generate a list of patients to audit outcomes or processes of case. As an example, the Quality Champion for the site may be interested in identifying patients who received reversal for neuromuscular blockade and compare that to institution reintubation rates to identify if any correlation exists.

Gaining DataDirect Access

DataDirect contains a limited dataset. Protected Health Information is excluded except for dates of service. However, because DataDirect may contain information regarding hospital level quality indicators (i.e. hospital mortality), approval from the appropriate hospital department (i.e. Quality or Health Information Management) is required. To gain access to DataDirect, an authorization form must be completed and sent to the MPOG coordinating center. This form can be found on our website https://mpog.org/downloads
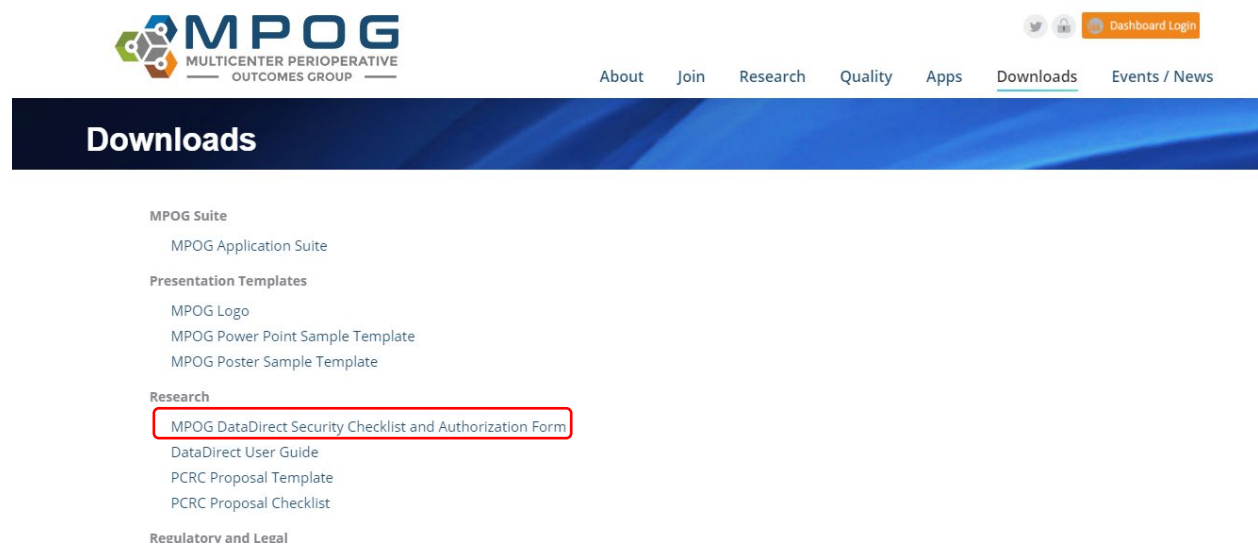
Please scan and email the completed form to mpog-admin@med.umich.edu. You will be contacted once login permissions have been updated. Access expires every six months. Users must renew to maintain access.

Generating a Query

When creating a query, there are three modes you can choose from.

- **Cohort Only** generates a *count* to rapidly determine feasibility of a research or QI project. There is no ability to download data, and no additional approval (e.g. Institutional Review Board) is required for access.
- **Quality Report** generates a cohort count, data query, and case list for a specific site. Although DataDirect will display final case counts, institutions will remain anonymized.
- **Single Center Research** allows for cohort identification and data access from your site only.
- **Multi-Center Research** allows for cohort identification and data access from multiple sites and requires approval from the Perioperative Clinical Research Committee (PCRC). Steps for PCRC review are found here: https://mpog.org/pcrc/

The following guide outlines the filters available and steps needed to create a query.

Step 1: Define your Project
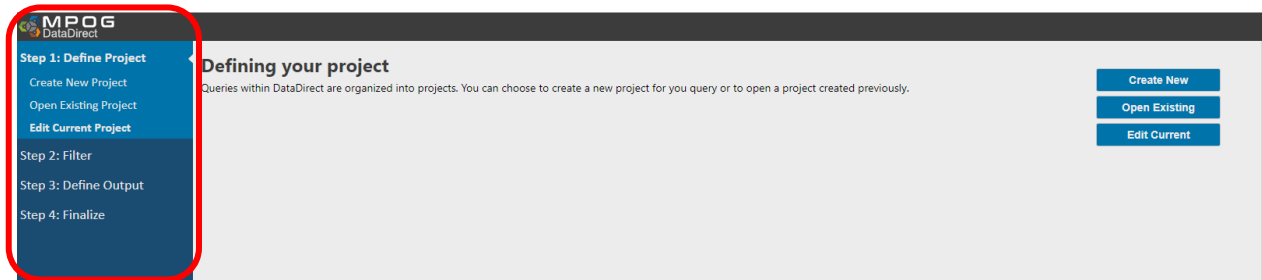
Choose from **New, Existing,** or **Edit Current.**

Creating a New Query

Enter a name, description (optional), and reason for your query.

Step 2: Filtering Cases

Next, begin defining criteria for your query. Choose from the filters listed in the left panel. The **Next** button advances users through the list of filters as they are added.
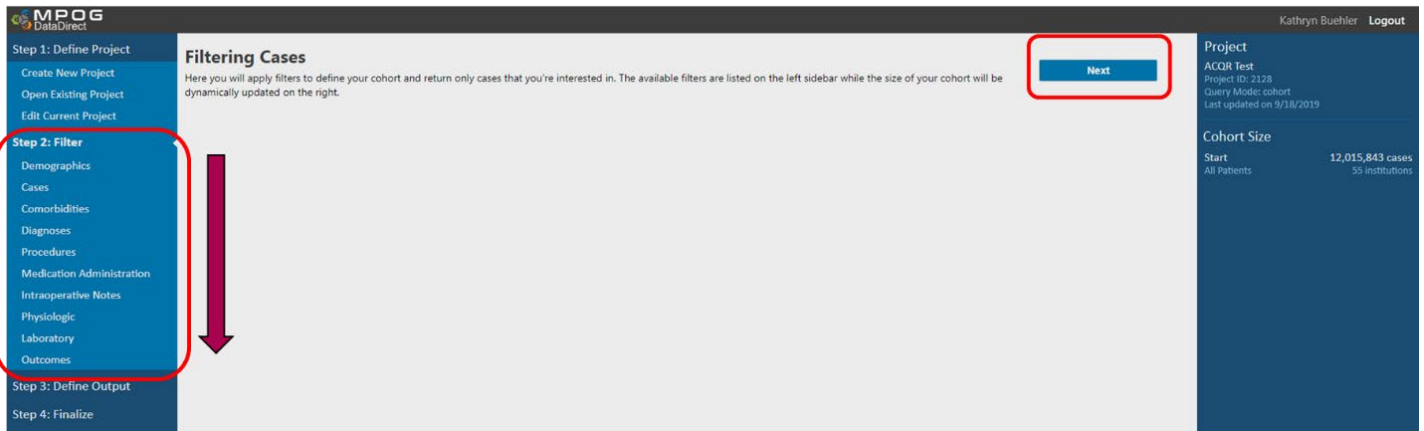
Cohort Results:

As DataDirect retrieves data to match the selected criteria, the right panel of the screen will display final counts. This will refresh as filters are added. *Note: your query is also saved to your individual profile in DataDirect.*

Results include:

1) Initial patient, case, and institution counts
2) Saved query criteria
3) Sequential counts of patient data matching each successive query criteria.

Adding Filters

Demographics

Demographics are *patient-level* characteristics available from the administrative registry systems, *not* case-level information.

Select the checkboxes beside the characteristics to *include* them in your query. De-select items you do not wish to include. For example, to find only Female patients, de-select Male and Unknown under Gender. You can select all institutions or only your own institution in cohort mode.

Click **Add** to add these criteria to your query:

The selected criteria will now appear in the box to the right.

Contact: support@mpog.zendesk.com

Filter Navigation

As filters are created and updated, *Filter Navigation* buttons can be used in the top right corner of DataDirect. As you build your query, check the right panel to verify that your criteria have been added. At any time, you may enable/disable, edit or remove an individual filter from your query.

First, click the header of the filter you would like to change.
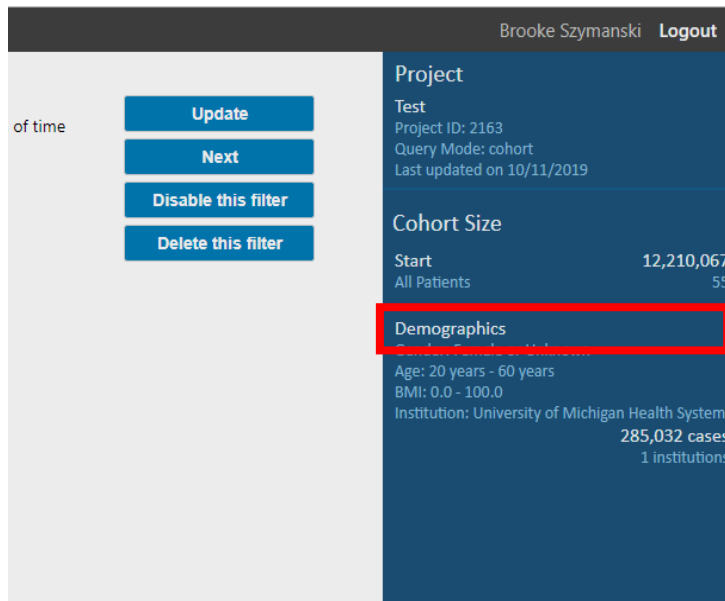
Then, use the Filter Navigation buttons in the upper right-hand corner to make modifications.
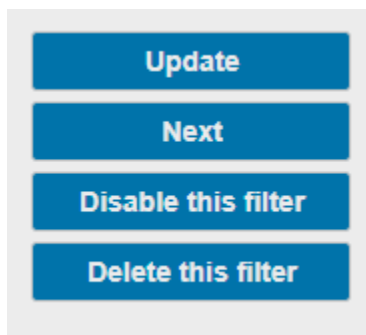
Update: When making changes to an existing filter, use **Update** to update filters on the right

Next: Will move the user to the next step. In the above example, **Next** will take you to the next filter down the list on the right.

Disable this filter: Will disable the filter from the query. It will not be deleted but allows the user to view the difference in results when applying the filter vs. disabling the filter.

Delete this filter: Will delete the filter entirely.

Cases

To continue building your query, select an additional filter category, for example, **Cases**.

- Choosing **Next** on the above screen will advance the user to the Cases filter.
- Check boxes you wish to select within each field.
- Click **Add** to apply the filter and **Next** to advance to the next filter (e.g. Comorbidities).

Review the updated result panel on the right side of the screen each time you click **Add** to note the additional criteria have been *saved* to your query.

Comorbidities

Check the boxes from the dropdown menu of comorbidities you want to include in your query. Select if you would like to keep only cases with those comorbidities or remove cases with the selected comorbidities.

Diagnoses

Begin typing the desired diagnosis name (or associated ICD-9 and ICD-10 codes) into the Diagnosis Code field. ICD-10 codes were required as of October 1, 2015, therefore historical data may only include ICD-9 codes. If you are interested in capturing diagnosis data for a case that occurred before this date, please choose both ICD-9 and ICD-10 codes. Select the codes you desire, then click "**Add Selected".**

As you select a diagnosis code, the 'parent' ICD-9 and ICD-10 codes and the associated 'child' ICD-9 and ICD-10 codes will be displayed and automatically **included**. De-select (click the red X) any individual code you wish to remove from the suggested list. "Keep only cases with these diagnoses" is the default selection. To exclude cases based on diagnosis code, choose "remove cases with these diagnoses." Click "**Add**" when finished.
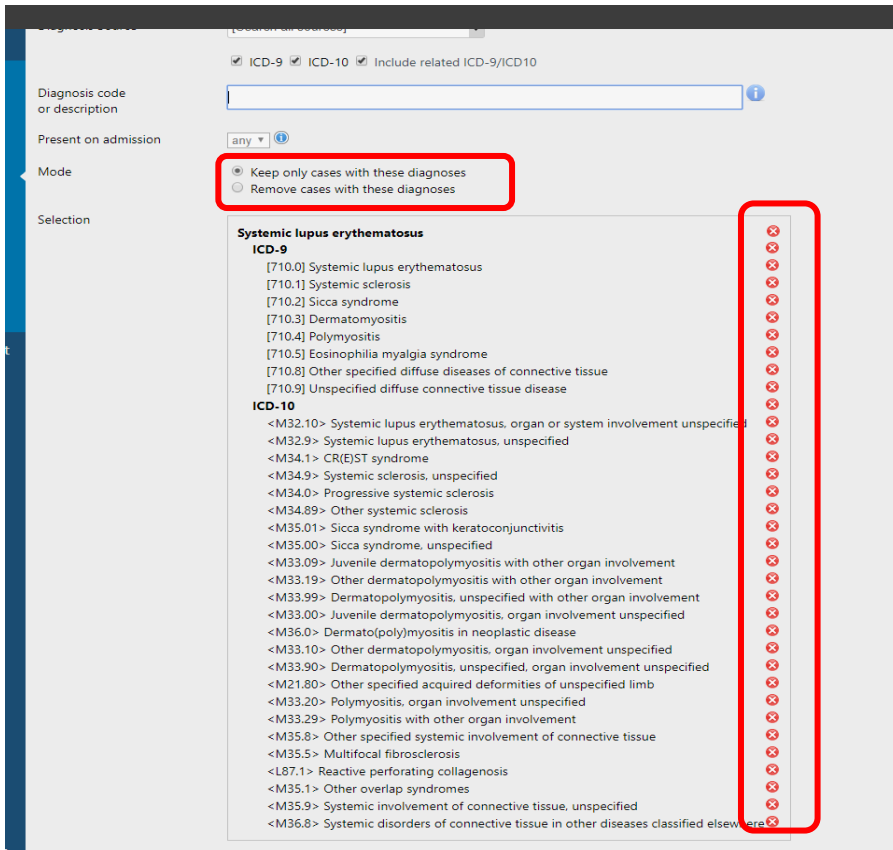
Adding "OR" Logic

You may be interested in patients who have *either* one condition *or* a second condition. For example, if you were interested in patients with Lupus **OR** patients with Diabetes, use "OR" logic. To achieve this, include the Diabetes criteria in the "same criteria box" as the Lupus diagnoses. Open the existing Diagnoses query Lupus. To add an additional diagnosis, enter the second criteria in the search box and click *Enter*.

Select the desired codes again and click **Add Selected.**

As before, remove any "child" ICD-9 and ICD-10 codes that you do not wish to keep (by clicking the red X for each). Click **Update** (both conditions will be listed).

As expected, by adding Diabetes to the filters through "OR" logic, the number of cases has increased as compared to the number of cases only including Lupus

Including Lupus

Including Lupus
OR Diabetes

Adding "AND" Logic:

Step 1: Define Project
Step 2: Filter
Demographics
Cases
Comorbidities
Diagnoses
Procedures
Notes
Medications
Physiologic
Labs
Outcomes
Step 3: Choose Output
Step 4: Finalize

In contrast, if you are interested in patients who have BOTH Lupus AND Diabetes diagnoses, use "**AND**" logic. To find these patients, build two separate filters (i.e. one for Lupus, and a separate one for Diabetes). Start with an initial Diagnosis filter including Lupus.

Build an additional Data Source (Diagnosis) by *returning* to the main filter list (see left). Click **Diagnoses**, enter Diabetes into the Diagnosis code field, and click **Add Selected** to create new, separate criteria. Follow the same steps as above to remove any "Child" criteria you would not like to include.

The additional required criteria appear as a separate criteria box in the right hand panel, and the narrowed query results show a far more limited population of patients – only those patients who possess BOTH of the listed diagnosis codes

Each filter will appear as a separate Diagnosis filter on the right hand side (see right).

Project
Test
Project ID: 2163
Query Mode: cohort
Last updated on 10/11/2019

Cohort Size
Start   12,210,067
All Patients   55

Demographics
Gender: Female or Unknown
Age: 20 years - 60 years
BMI: 0.0 - 100.0
Institution: University of Michigan Health System
    285,032 cases
    1 institutions

Cases
Procedure Date: 01/01/2000 - 10/11/2019
Anesthesia time: 1 minute - 1440 minutes
    283,840 cases
    1 institutions

Diagnoses
diagnosis category: Clinical Problem Summary List, Professional Billing, Administrative Discharge Billing
present on admission: any
diagnosis type: none specified
psl status: none specified
keep codes: M32.10 or M32.9 or M34.1 or M34.9 or M34.0 or M34.89 or M35.01 or M35.00 or M33.09 or M33.19 or M33.99 or M33.00 or M36.0 or M33.10 or M33.90 or M21.80 or M33.20 or M33.29 or M35.8 or M35.5 or L87.1 or M35.1 or M35.9 or M36.8 or 710.0 or 710.1 or 710.2 or 710.3 or 710.4 or 710.5 or 710.8 or 710.9
    4,110 cases
    1 institutions

Diagnoses
diagnosis category: Clinical Problem Summary List, Professional Billing, Administrative Discharge Billing
present on admission: any
diagnosis type: none specified
psl status: none specified
keep codes:
    4,110 cases
    1 institutions

Other Filters

Continue to work through the filters on the left hand side and apply as necessary. Continue to build and refine your query using Data Sources on the left-hand panel. Refer to the instructions inside each filter panel to determine the source and details for the information available.

Modifying selected filters

Filtering Cases Summary

Finalize all filters as prompted by the guided step-by-step process. As filters are added, counts for the cohort size will continue to refresh in real-time. Click directly on the filter headers to modify previously selected filters. Move on to Step 3 once filters are selected and cohort size seems plausible.

Step 3: Define Outputs

Outputs are column headers for your downloadable Excel file. They are available on the left side of the screen. Choose the (+) to add an output. Final selection of outputs are listed on the right, some are defaults that can be removed as needed.

Step 4: Review and Finalize

To see anonymized counts by institution, click on the icon to the right of the number to open a list.


Based on query mode, different options are available:

- **Download Docs:** Output is a "Query Specification", i.e. a document of the query itself (Quality Report Mode, Single Center Research Mode, Multi-Center Research Mode)
- **Download Data**: Output is your institution's data for the query for Quality Report Mode or Single-Center Research Mode (local sites only). *Note: for Multi-Center Research Mode, data*
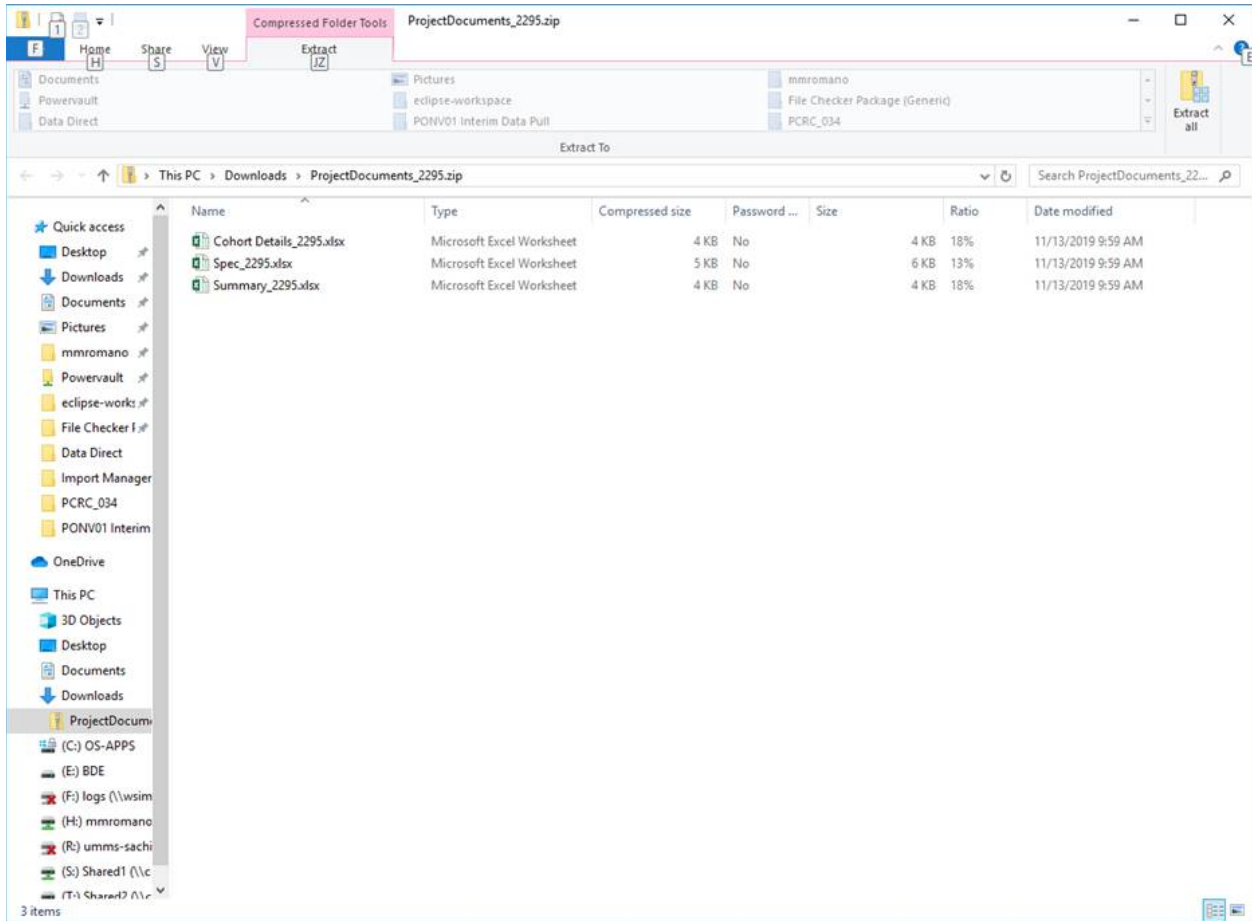
queries are specified by the MPOG Central analyst team, and available to Researchers via a secure data enclave following PCRC approval

- **No download option** (Cohort Only Mode)

Click **Download Docs**
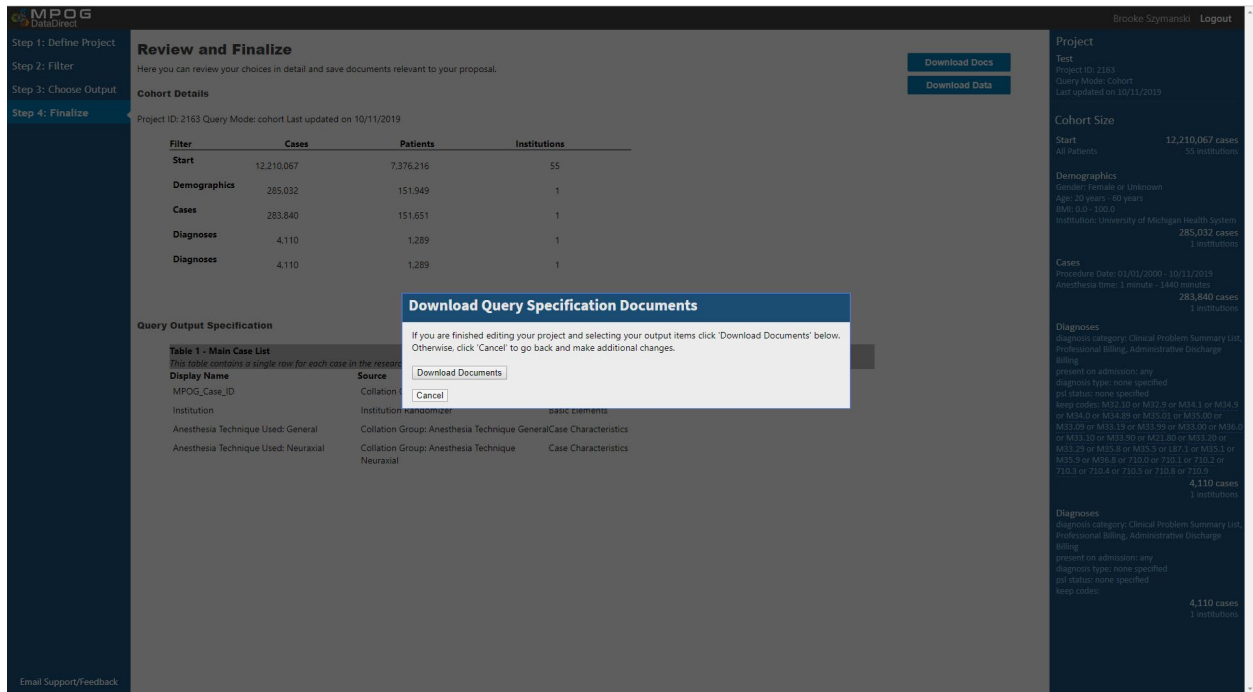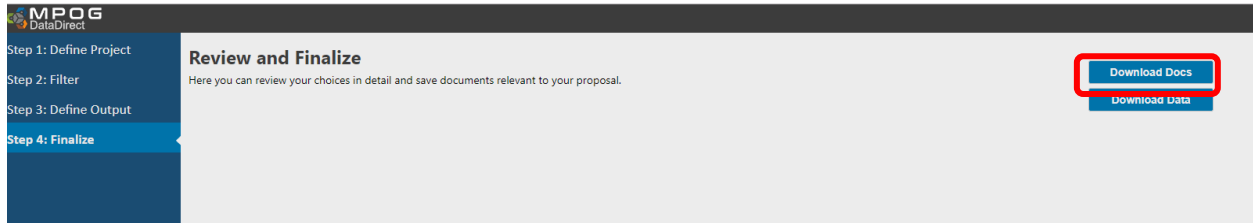
Download Docs will generate/auto download a zip file that contains 3 excel files

Data Query Specification

Upon downloading the "Query Specification" for a particular project, a summary of the data, and characteristics of the data queried, are available in spreadsheet form.

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Data Summary

Example of Excel file generated through DataDirect

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