MPOG Suite Training Manual

For questions or comments, please contact:

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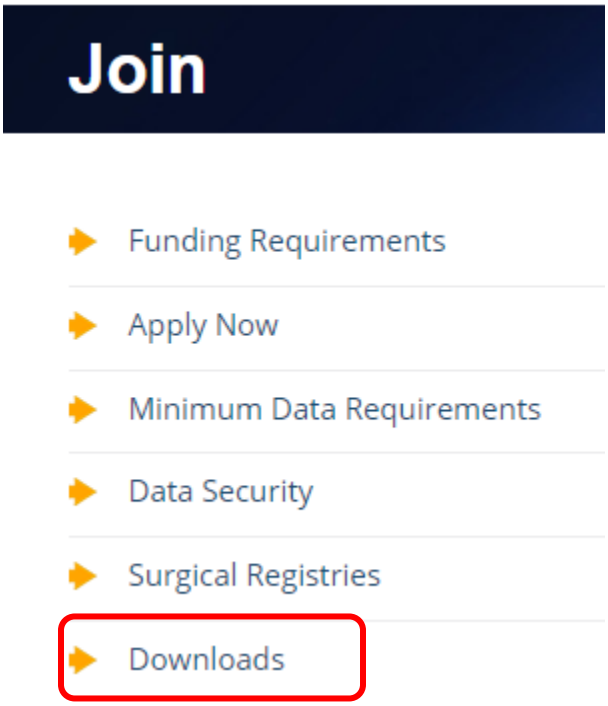
Chapter 1: Downloading and Accessing the MPOG Application Suite

1. Obtain administrative rights from site's IT department. You will need this level of access to download the MPOG application to your workstation.

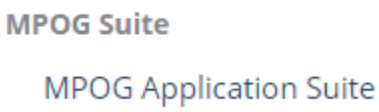
2. Go to the MPOG website https://mpog.org/

3. Click 'Join' at the upper right side of the page.

4. Then click 'Downloads.'

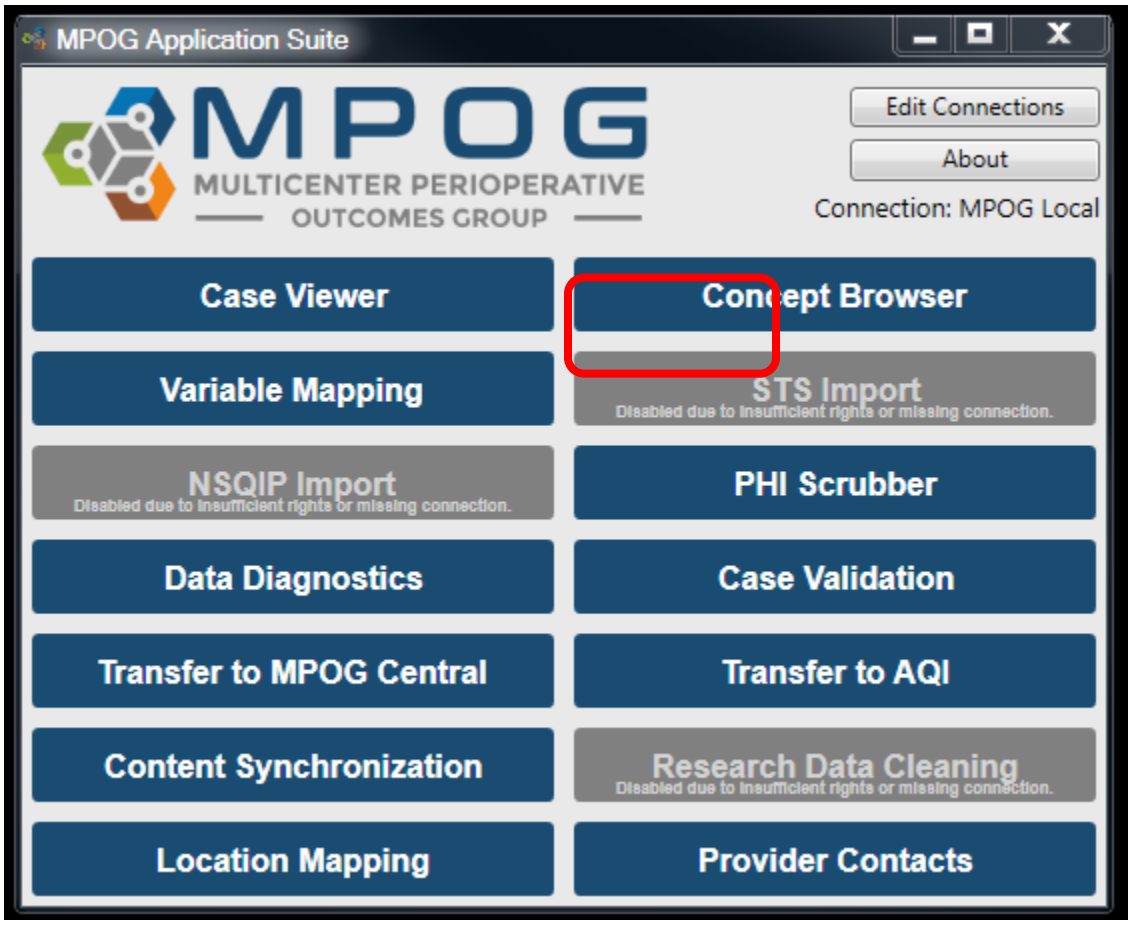


5. Click on: "Download the MPOG Application Suite."



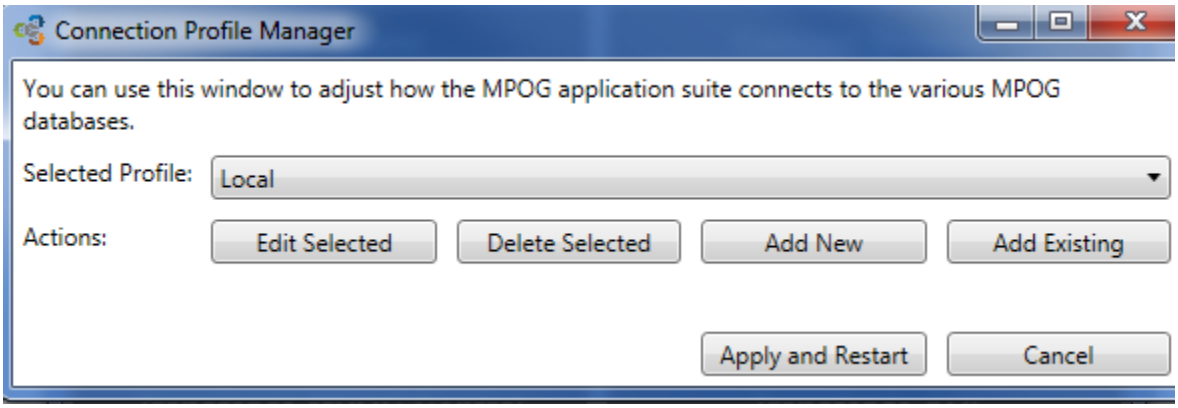
6. Follow steps to download the suite to your computer.

7. The MPOG Application Suite should automatically open:

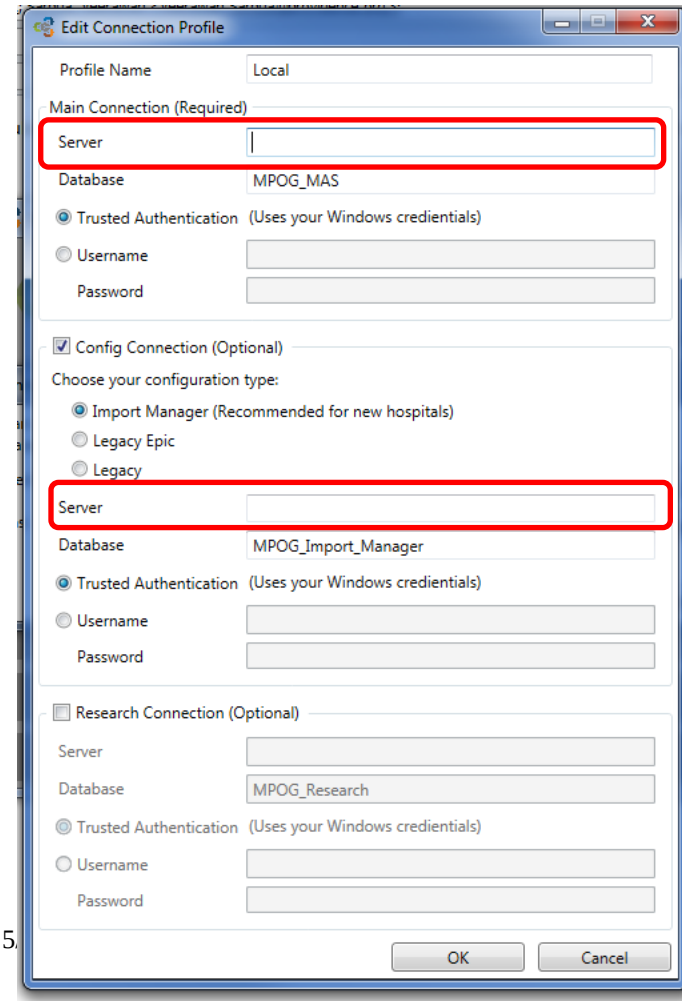


8. In the top right corner, please click: 'Edit Connections'

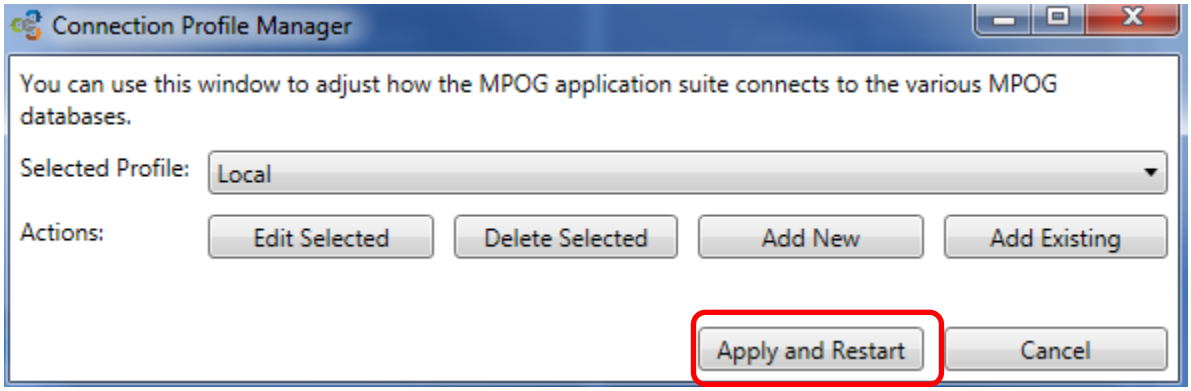
9. Choose the appropriate connection- ‘LOCAL,’ ‘Whichever site you plan to map for…’ Click Edit Selected:



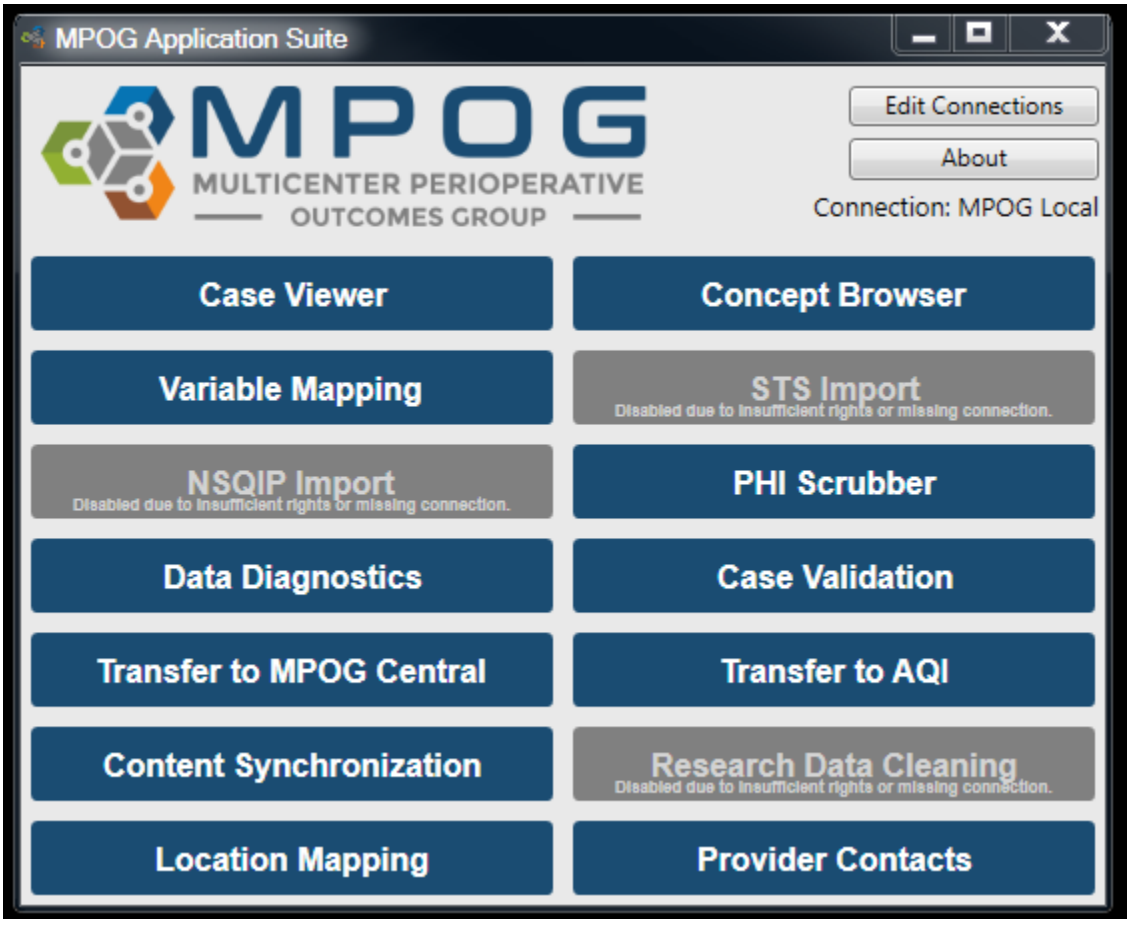
10. Please fill in the server with the appropriate server name in both the top and middle sections of this form. Ask the MPOG technical lead at your site for the server connection. In the Config Connection section, select ‘Import Manager’ and make sure the database name is listed as MPOG_Import_Manager. Click OK.



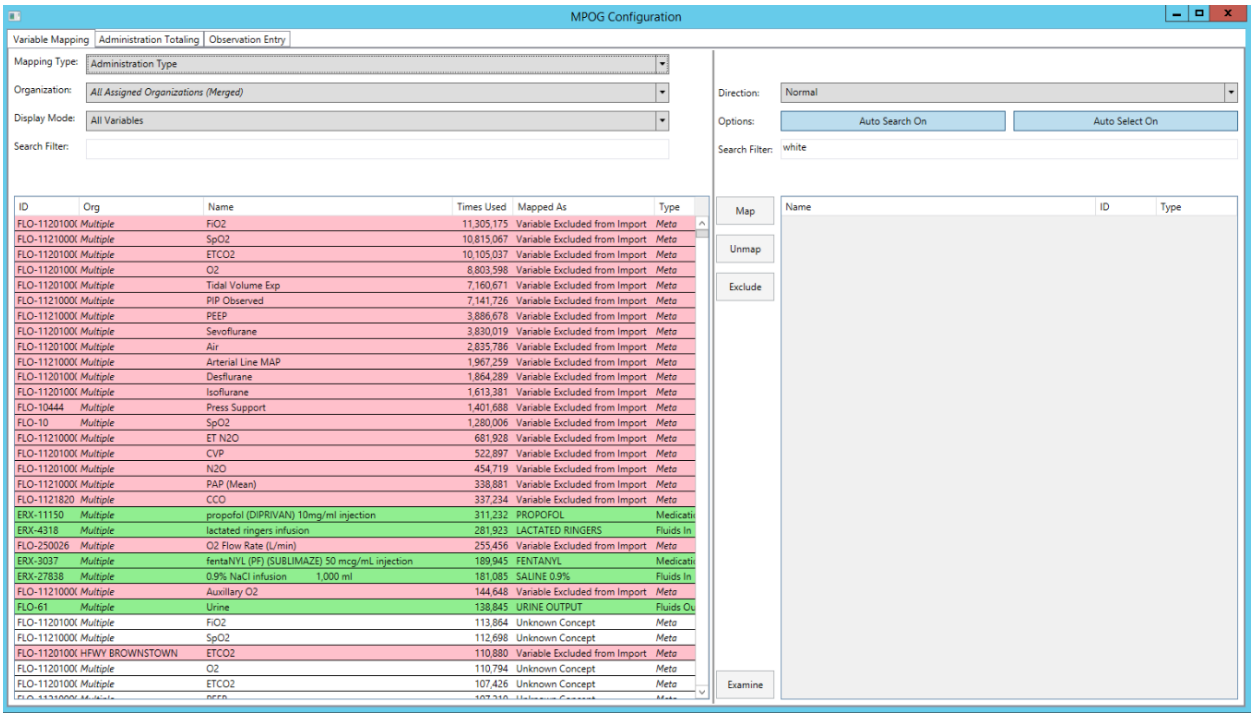
11. The ‘Connection Profile Manager’ form will repopulate as follows.
Click “Apply and Restart.”



12. The MPOG Application should run again and open as follows.



13. Click on ‘Variable Mapping.’ A utility that looks like this should open up:



14. Please contact an MPOG QI Coordinator or MPOG technical support team member if the Application Suite does not download or open as indicated.

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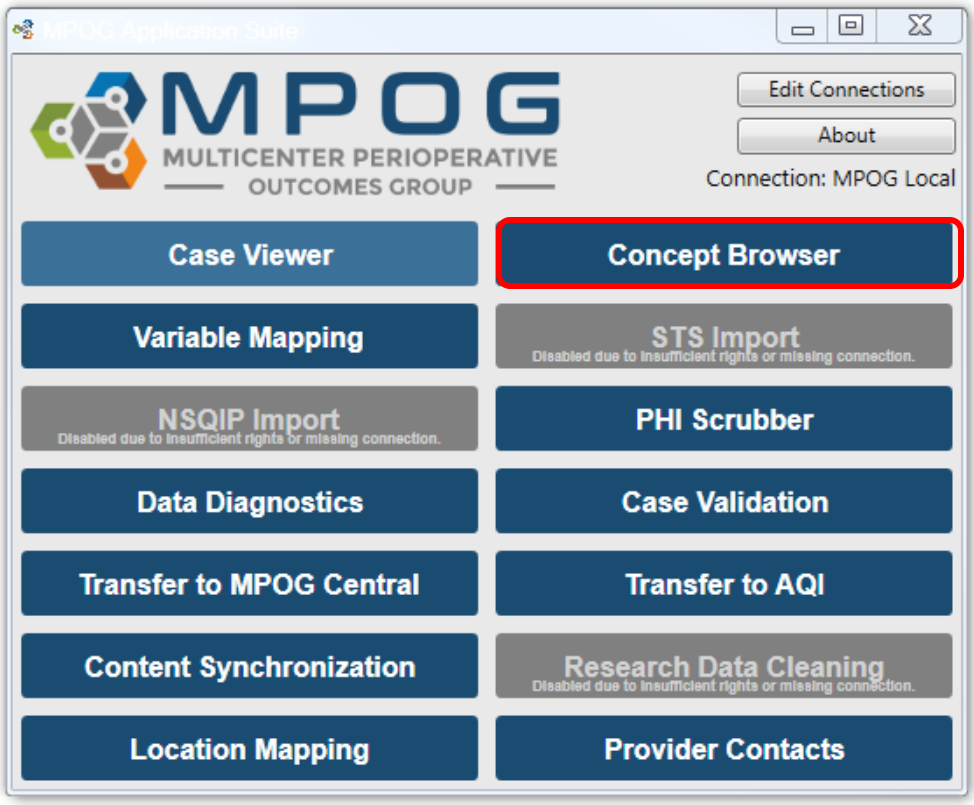
Chapter 2: Concept Browser

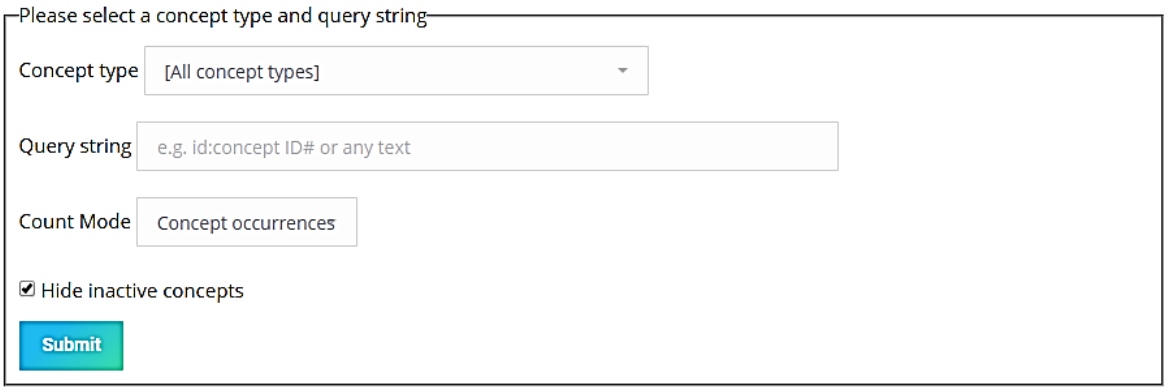
MPOG Concept Browser Overview

The 'Concept Browser' utility allows you to search the dictionary of MPOG concepts to identify an appropriate MPOG concept for mapping purposes. This allows data matching from a source (your institutional AIMS variable) to a target (MPOG Concept ID). For more information on variable mapping, please refer to Chapter 3 of this training manual.

1. Access Concept Browser in the MPOG Suite:



2. The MPOG Application Suite will open to the 'Concept Browser' webpage, where you can select specific search criteria.

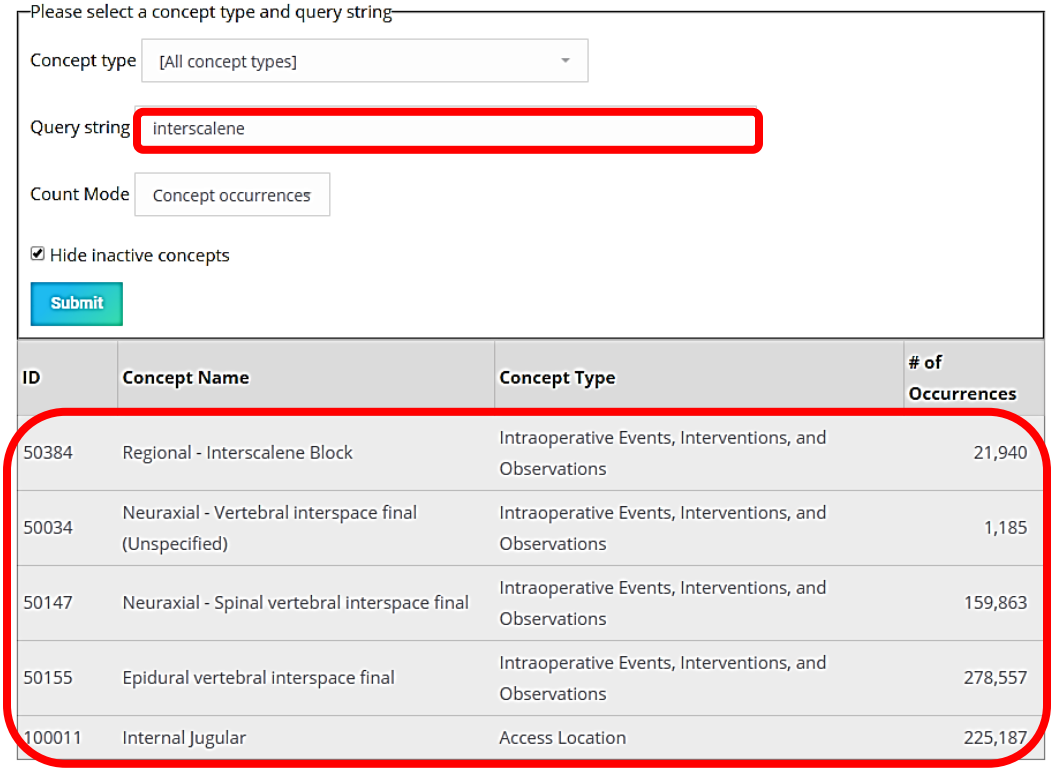


3. To search the dictionary of all MPOG concepts, use the 'Query String' field and maintain default settings in all other fields (i.e. concept type and count mode).

a. Type in the source term (AIMS variable) to find the correlating MPOG Concept (i.e. interscalene, epidural, intubation). Click 'Submit.' A list of potential MPOG Concepts will display.
    i. Each MPOG Concept ID includes:
        1. Concept ID Number: The MPOG Concept ID number associated with each particular concept.
        2. Concept Name: Names associated with the concept (including ICD-9 & ICD-10 Codes)
        3. Concept Type: Indicates the location details associated with the concept (i.e. Access Location, Intraoperative Events, Interventions, and Observations).
        4. Concept Mode: Displays the number of concept occurrences, number of unique patients, or number of unique cases associated with each MPOG Concept ID depending on the count mode selected in the last search field.

4. Based on your source concept (AIMS variable) search criteria, scan the results for the most appropriate MPOG concept for mapping purposes.

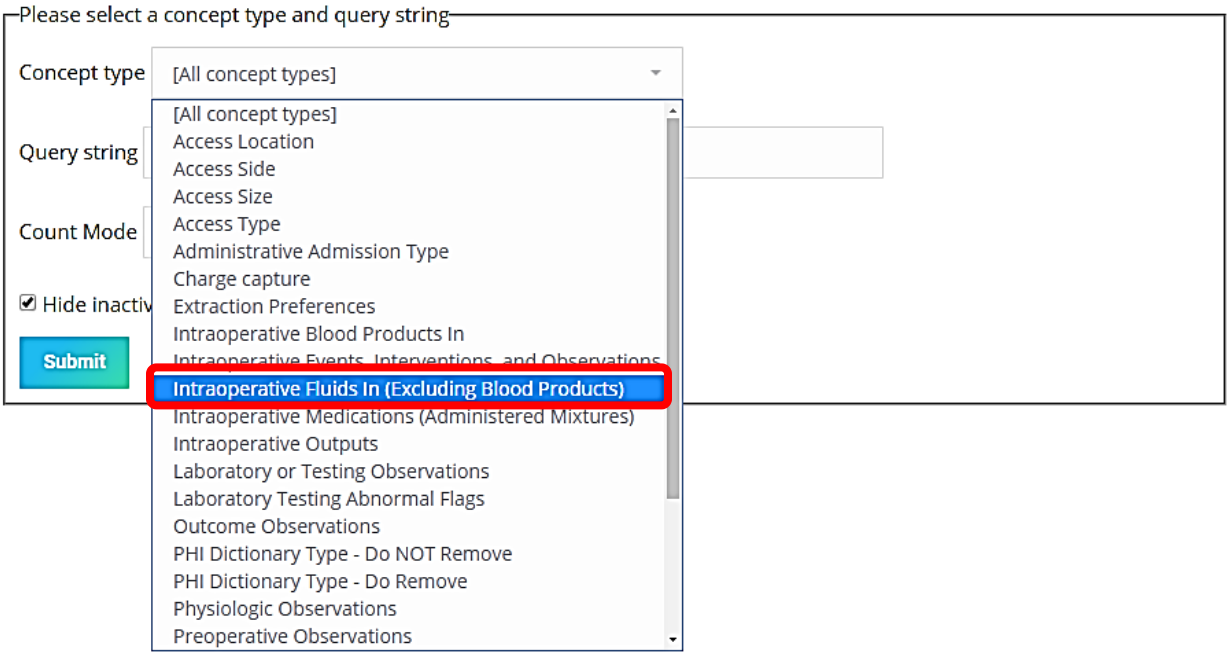
5. You can utilize the ‘Query String’ field to identify a desired MPOG concept: Type the name associated with the MPOG concept you are attempting to identify. For example, you may want to find an MPOG concept ID for an interscalene block. Simply type ‘interscalene’ into the query string field as shown below.



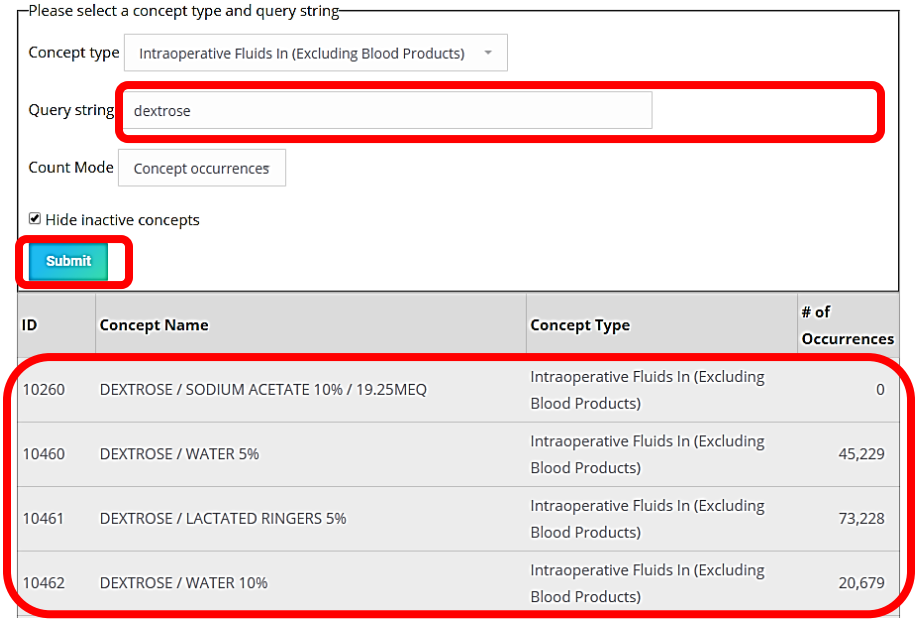
ID	Concept Name	Concept Type	# of Occurrences
50384	Regional - Interscalene Block	Intraoperative Events, Interventions, and Observations	21,940
50034	Neuraxial - Vertebral interspace final (Unspecified)	Intraoperative Events, Interventions, and Observations	1,185
50147	Neuraxial - Spinal vertebral interspace final	Intraoperative Events, Interventions, and Observations	159,863
50155	Epidural vertebral interspace final	Intraoperative Events, Interventions, and Observations	278,557
100011	Internal Jugular	Access Location	225,187

6. You may also use the ‘Concept type’ search field in addition to the ‘Query string’ when searching for a matching MPOG concept. For example, you may want to find an intraoperative fluid such as dextrose or a dextrose mixture. To search all available intraoperative MPOG fluid concepts:

a. Select an MPOG concept type from the dropdown menu. For the example below, ‘Intraoperative Fluids In (Excluding Blood Products)’ was selected.



b. Next, type ‘dextrose’ into the query string and select ‘submit.’
c. A group of intraoperative fluids will display in the menu below.



ID	Concept Name	Concept Type	# of Occurrences
10260	DEXTROSE / SODIUM ACETATE 10% / 19.25MEQ	Intraoperative Fluids In (Excluding Blood Products)	0
10460	DEXTROSE / WATER 5%	Intraoperative Fluids In (Excluding Blood Products)	45,229
10461	DEXTROSE / LACTATED RINGERS 5%	Intraoperative Fluids In (Excluding Blood Products)	73,228
10462	DEXTROSE / WATER 10%	Intraoperative Fluids In (Excluding Blood Products)	20,679

7. Once you have identified an appropriate MPOG Concept to match the AIMS variable, you can utilize the MPOG Concept ID for mapping purposes. Logging into the MPOG website will also allow you to view other institutions that have used the concepts available in Concept Browser. This is helpful for research purposes to know which institutions are using a given concept. To obtain an MPOG website username and password, please contact the Coordinating Center.

Chapter 3: Variable Mapping Utility

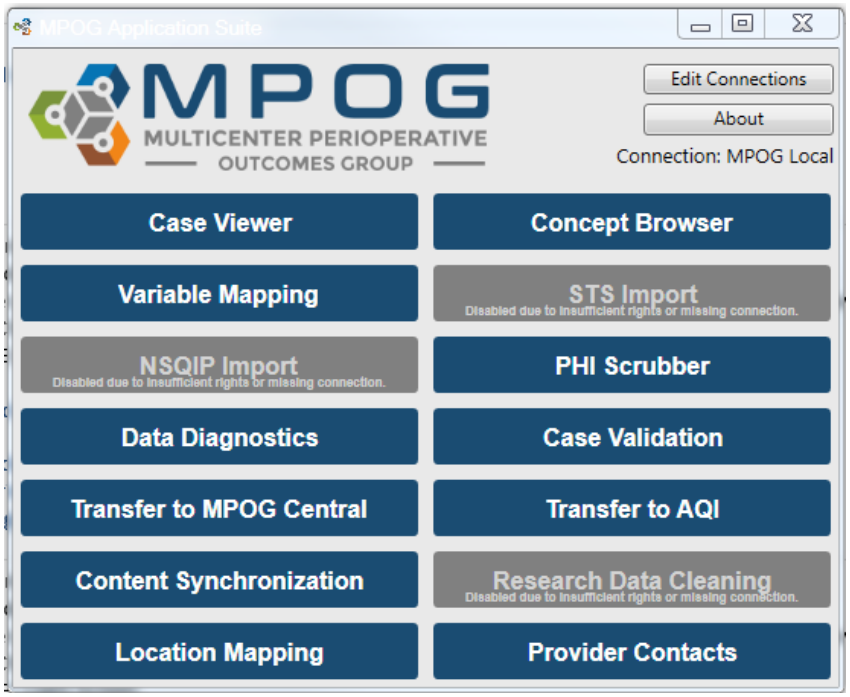
Variable Mapping Overview

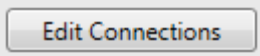
The Variable Mapping utility provides sites the ability to map electronic health record (EHR) variables to standardized MPOG concepts. This process of standardizing terms across multiple EHRs and across multiple sites, allows for common data elements to be used for research or quality improvement purposes. For example, one organization may document 'Handoff Performed in PACU,' another site may document 'PACU Handoff,' and a third site may document 'PACU Handover Complete.' All of these concepts would be mapped to the MPOG Concept: Compliance- PACU/ICU Handoff of Care Performed, Report Given' as these concepts are all indicative of a PACU transfer of care conversation. Once a variable is mapped, source data from the local EHR will always map to the corresponding MPOG concept automatically unless mapping is modified. The MPOG Variable Mapping utility simplifies the mapping process by allowing MPOG clinical reviewers to select data variables (source concepts) and match them to corresponding MPOG concepts.

Important Note: Institutional data needs to be pulled into the MPOG database before mapping can begin. Typically sites begin mapping with a small amount of data (one day to one week) and then load more data after mapping is started. Usually sites will automate the process of applying mappings after one month of data is loaded and mapped in the database. Automatic updates are typically scheduled to occur each night.

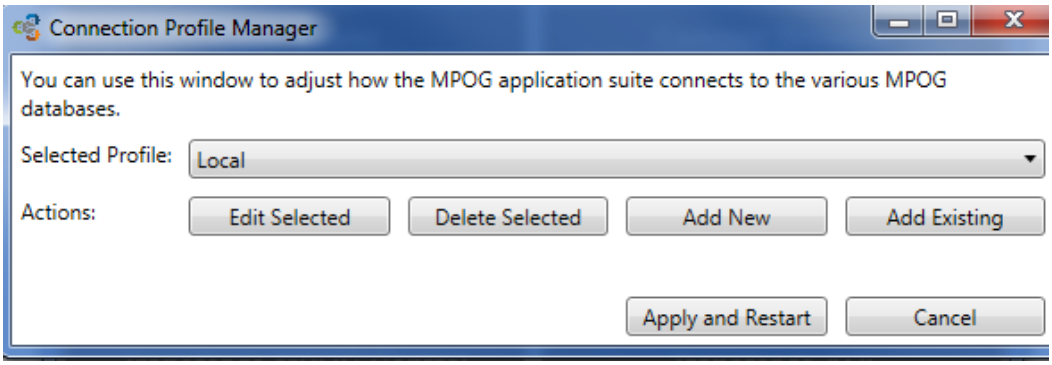
Getting Started

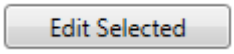
1. Open the MPOG Application Suite.



2. Next, click  in the top right corner of the MPOG Application Suite.

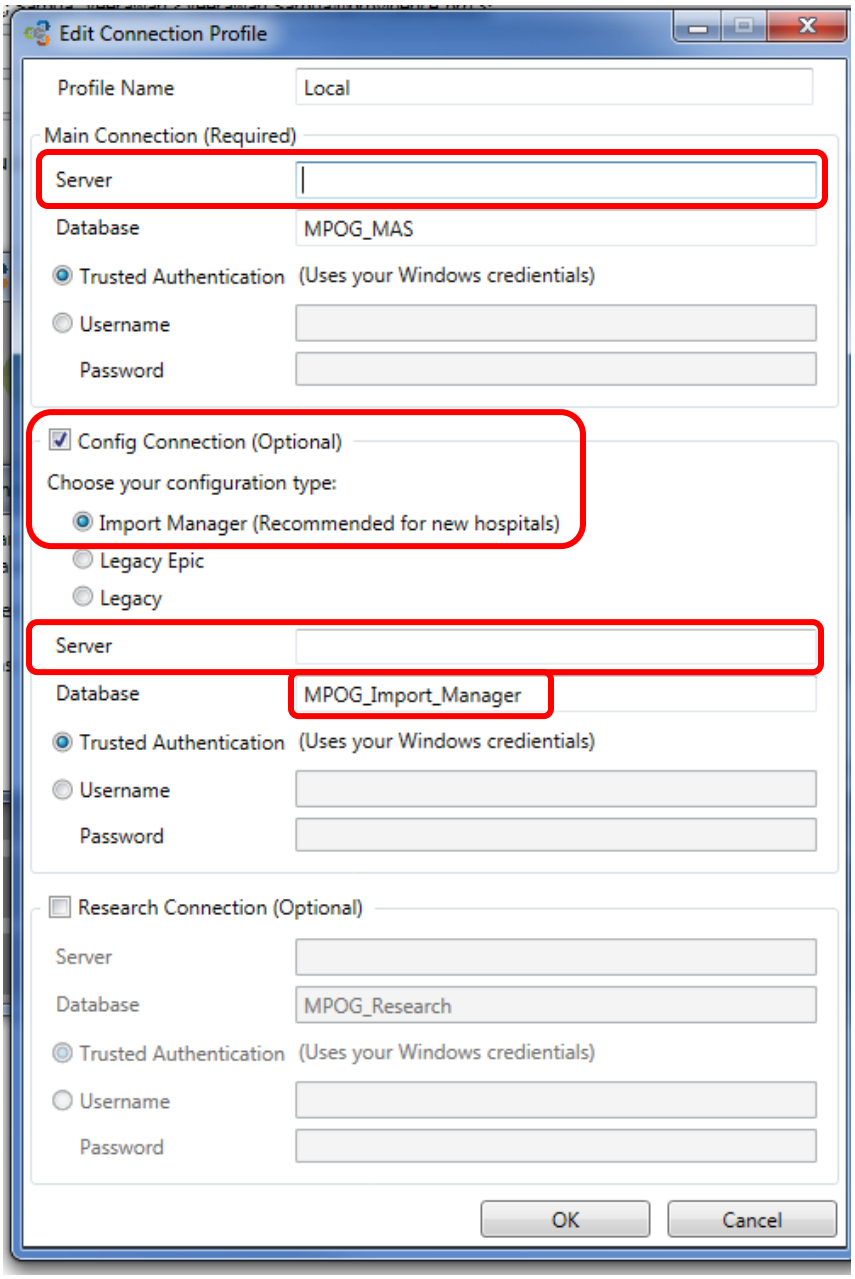
3. Within the Connection Profile Manager, choose the appropriate profile (location) by clicking within the 'Selected Profile' field from the dropdown menu.

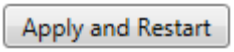


4. Next, Click  .

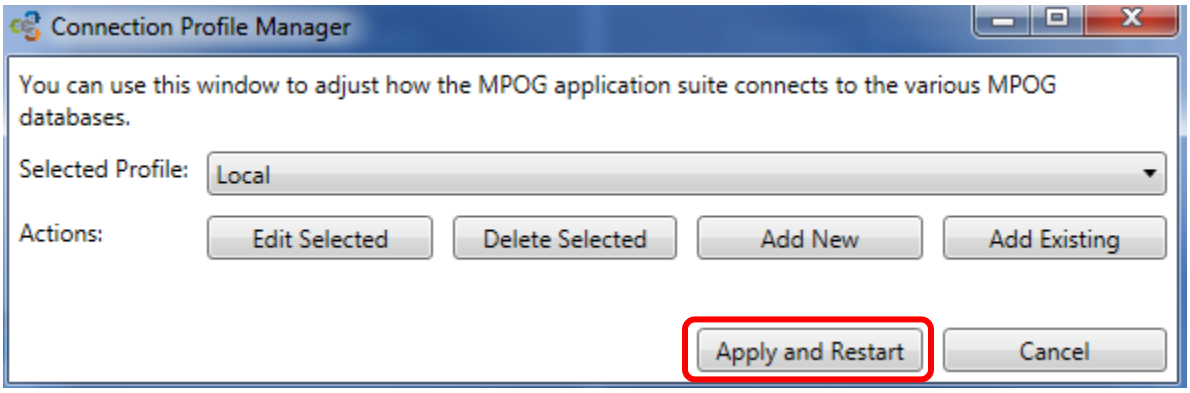
5. From the 'Edit Connection Profile,' select the 'Server' field with the appropriate server name in both the top and the middle sections of this menu. The MPOG technical lead at your site will provide the server connection. In the 'Config Connection (Optional)' section, select the 'Import Manager' radio dial and make sure the database name is displayed as 'MPOG_Import_Manager.

Click OK

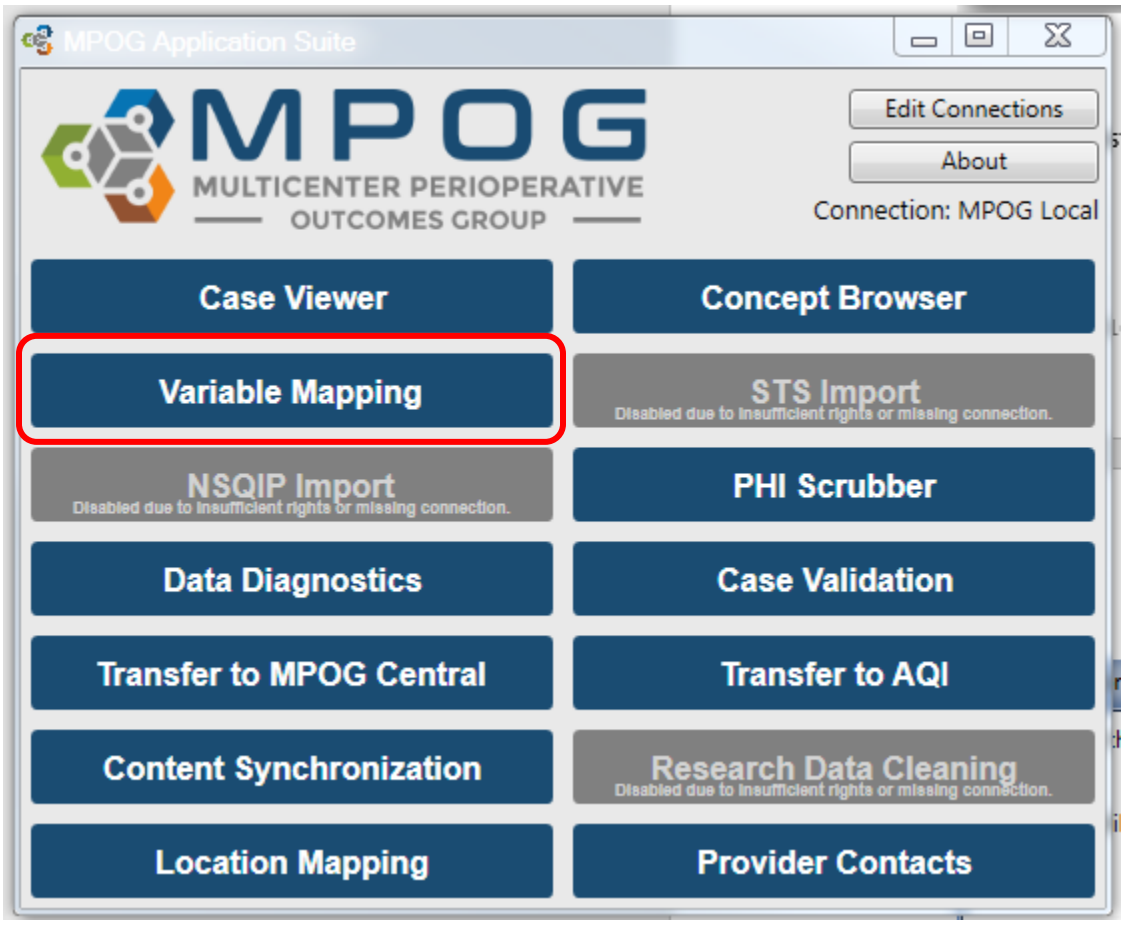


6. Last, click 

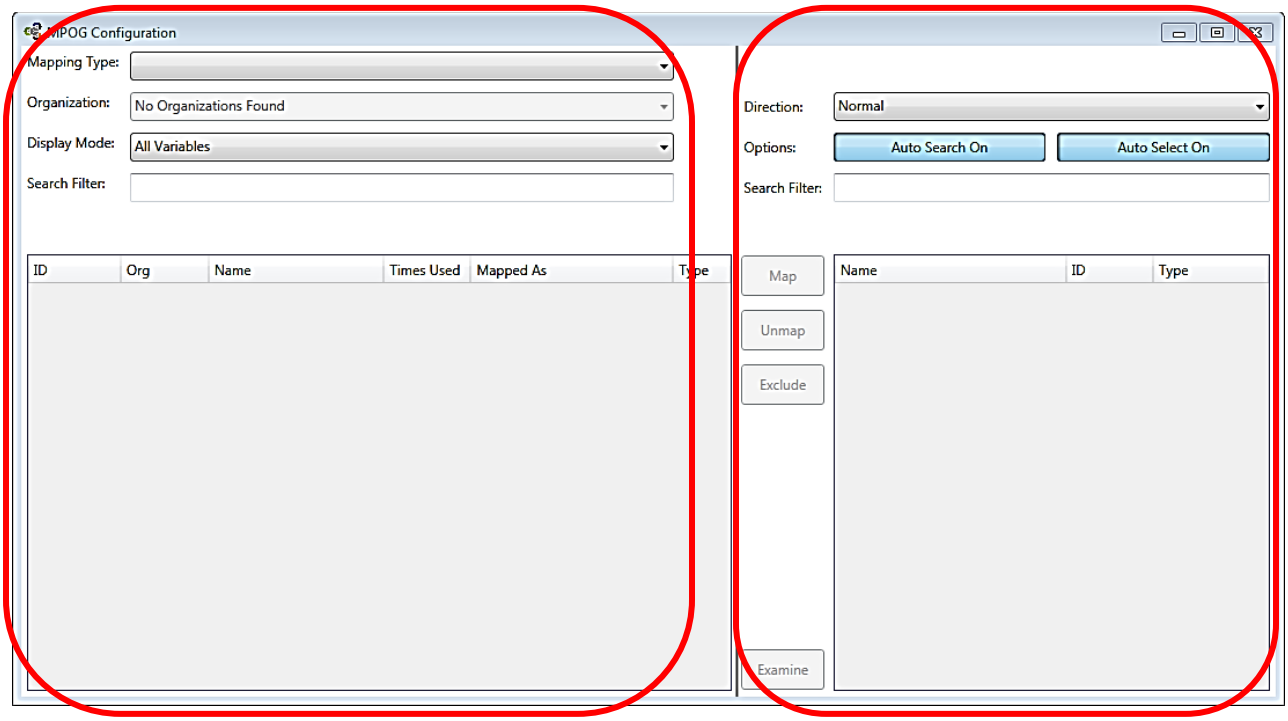
.



7. Click on the 'Variable Mapping' icon in the MPOG Application Suite.

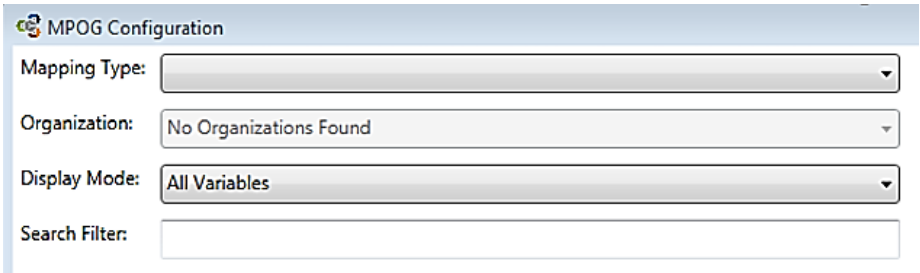


8. The 'Variable Mapping' utility should open and look similar to the image below. The left side of the utility will represent your institution's variables and the right side will reflect MPOG concepts.

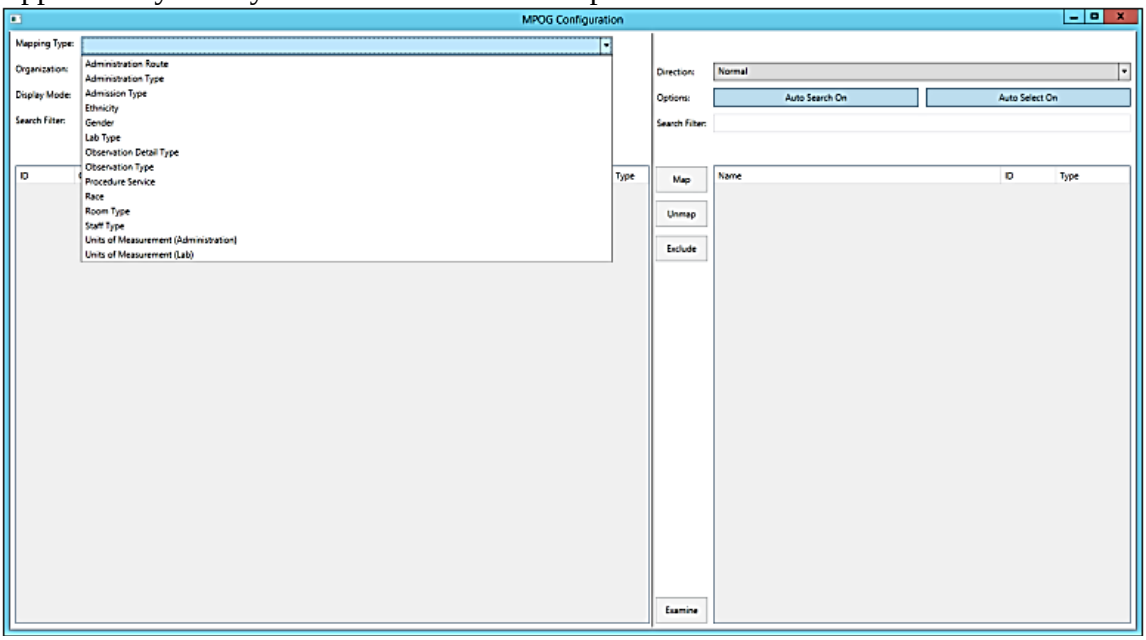


9. You will also notice four fields within the MPOG Configuration that allow you to filter by category. These include Mapping Type, Organization, Display Mode, and Search Filter.

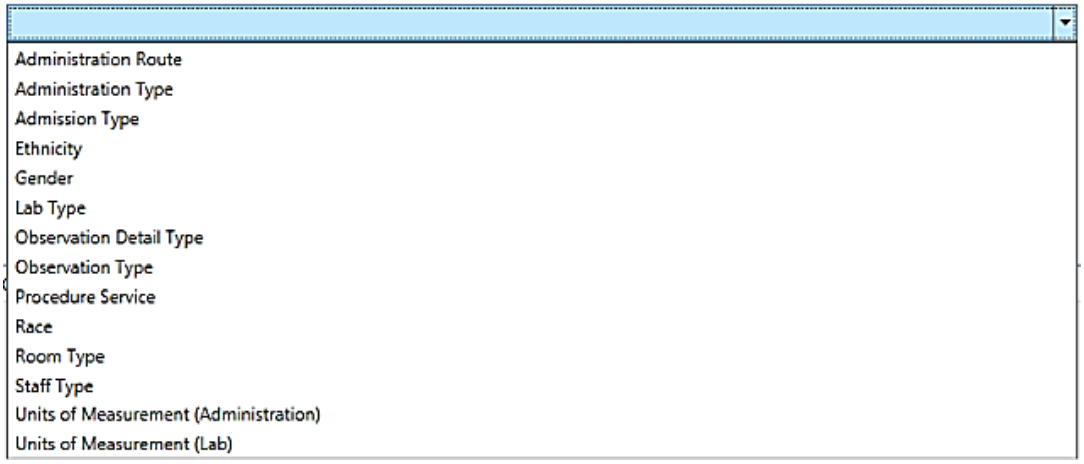
a. **Mapping Type:** This is a general mapping category that can be further filtered to the following subcategories.
b. **Organization:** This field will be populated with your institutional name. There may be additional sites in the dropdown menu for multi-site institutions in which you are assigned (i.e. Henry Ford Detroit, Henry Ford West Bloomfield). This allows you to map separately. For further direction on mapping for multi-site institutions, please contact the MPOG Coordinating Center.
c. **Display Mode:** This feature allows you to filter by 'All Mapped Variables,' 'Unmapped Variables,' or 'Mapped Variables.'
d. **Search Filter:** This function allows you to search for a specific Epic variable.



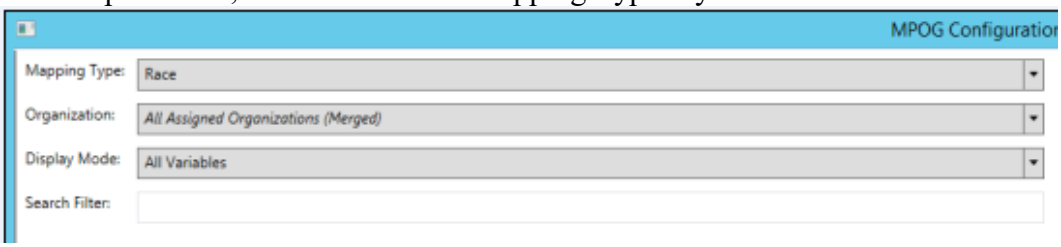
10. To utilize the category filter option, click on the ‘Mapping Type’ field. A dropdown menu will appear and you may select from the various options:



11. Select from the desired category from the ‘Mapping Type’ dropdown menu, as shown below.

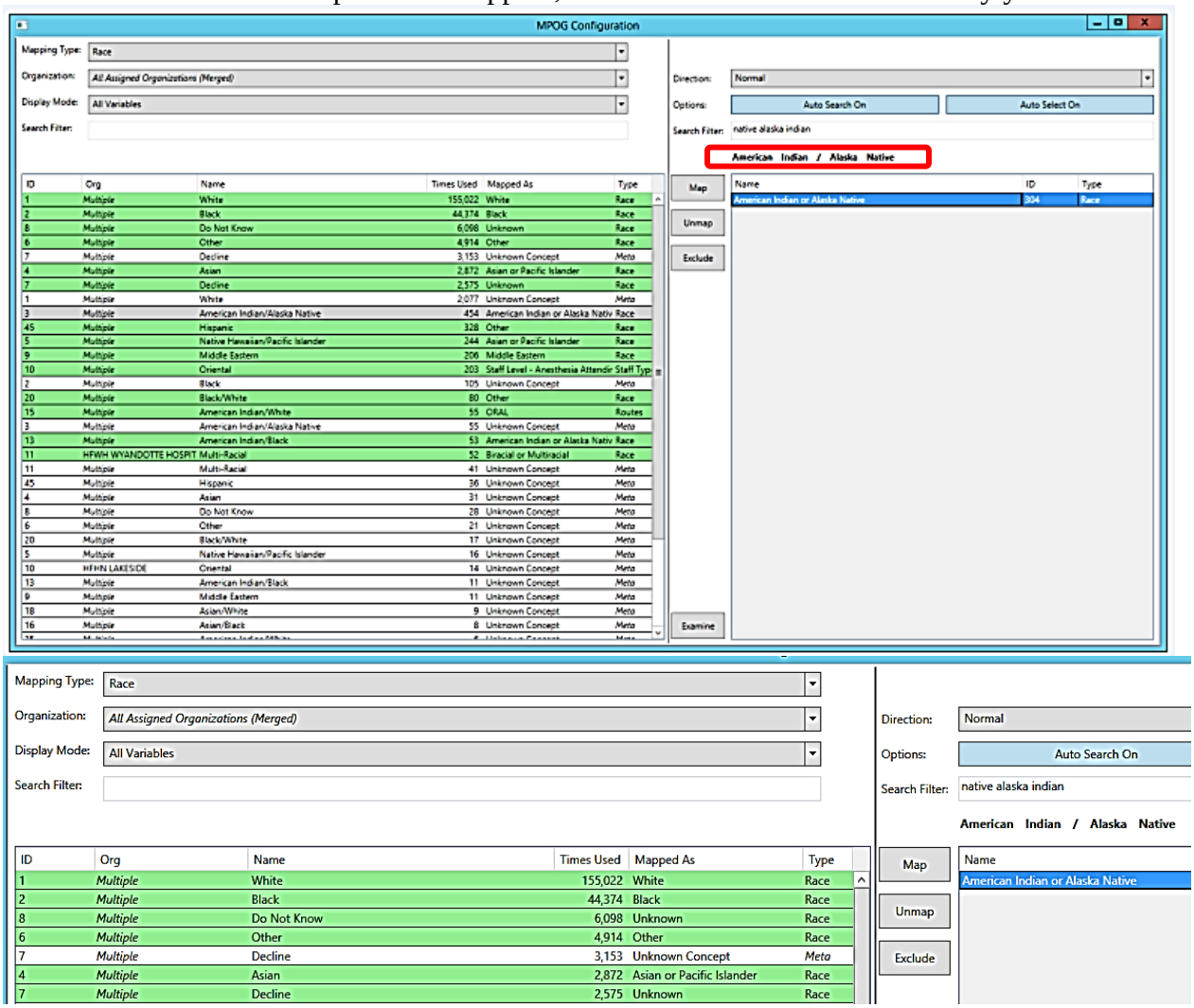


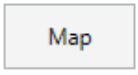
12. In the example below, we have filtered ‘Mapping Type’ by ‘Race.’



13. Once the desired ‘Race’ has been selected from the dropdown menu, you will notice a variety of race related variables populate the window as shown below. You may notice lines of existing variables on the left side of the screen if variables have been populated or mapped by the MPOG Coordinating Center technical team.

14. By clicking within the row, select the desired ‘Race’ variable you wish to map. In this example, we have selected ‘American Indian/Alaska Native.’ Once the row has been selected, it will turn grey and a corresponding MPOG concept will appear in the ‘Description’ field on the right side. The corresponding MPOG concept will be highlighted in blue. If several options appear, you can click on one of the bold terms above the MPOG concept window to narrow the search. If the desired concept does not appear, use the search filter field to modify your search.



15. Click the 

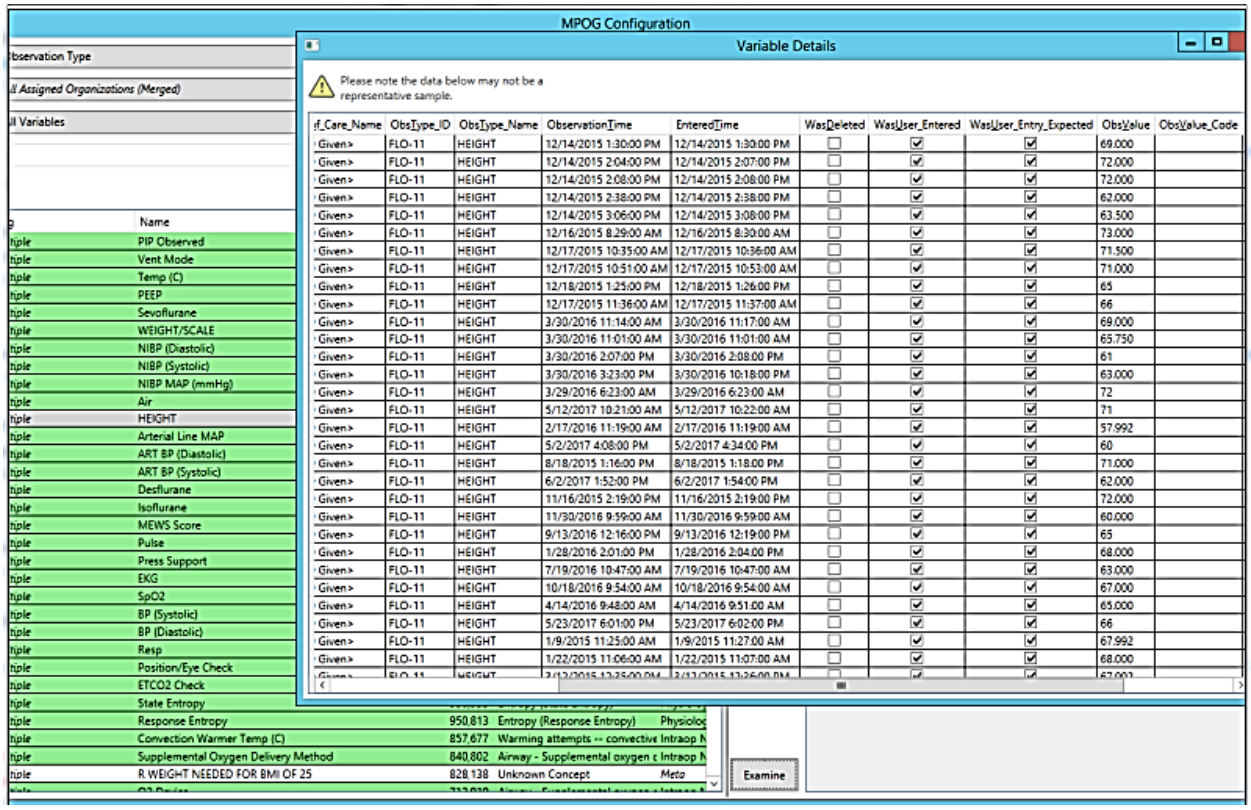
button in the center of the screen. Congratulations! You have successfully mapped!

Additional Functions within Variable Mapping

‘EXAMINE’

1. The ‘Examine’ function allows you to view the Epic variable in greater detail by displaying cases using the concept in your AIMS Dictionary. This is beneficial when you desire additional context related to the variable you wish to map.

2. Highlight the variable row you wish to examine and click Examine.
3. A window will open containing detailed information related to the selected variable.



‘UNMAP’

The ‘Unmap’ feature allows you to unmap incorrectly mapped variables at any time.

Simply select and highlight the variable in the MPOG side, and click Unmap.

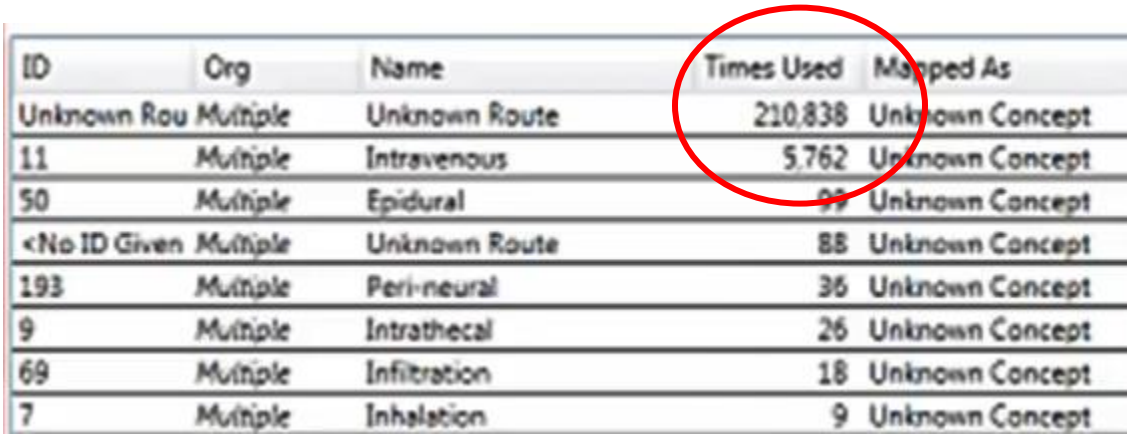
‘EXCLUDE’

The ‘Exclude’ function allows you to exclude selected variables from mapping. The Coordinating Center will advise you on which variables are appropriate for exclusion. Extreme caution must be applied when excluding variables from mapping, especially within the ‘Administration Route’ mapping type, as ALL data associated with ‘route’ will be excluded.

Highlight the variable(s) you wish to exclude from mapping and click Exclude.

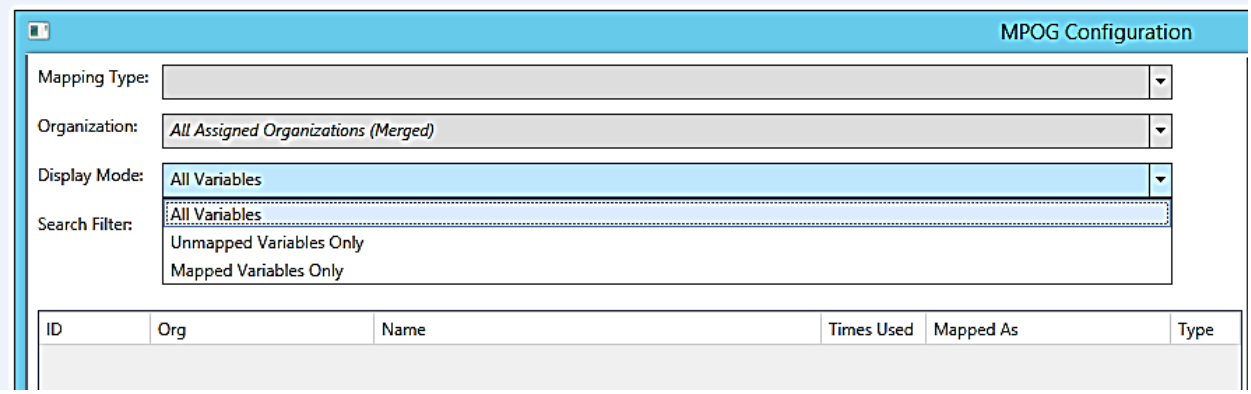
Tips for Mapping Success

1. Focus on mapping variables with high row counts ('Times Used'). Once you have mapped the majority of high row count variables, you can begin to focus your attention to mapping the lower row count variables that may be relevant for anesthesia research or quality purposes.



ID	Org	Name	Times Used	Mapped As
Unknown Rou	Multiple	Unknown Route	210,838	Unknown Concept
11	Multiple	Intravenous	5,762	Unknown Concept
50	Multiple	Epidural	[illegible]	Unknown Concept
<No ID Given	Multiple	Unknown Route	88	Unknown Concept
193	Multiple	Peri-neural	36	Unknown Concept
9	Multiple	Intrathecal	26	Unknown Concept
69	Multiple	Infiltration	18	Unknown Concept
7	Multiple	Inhalation	9	Unknown Concept

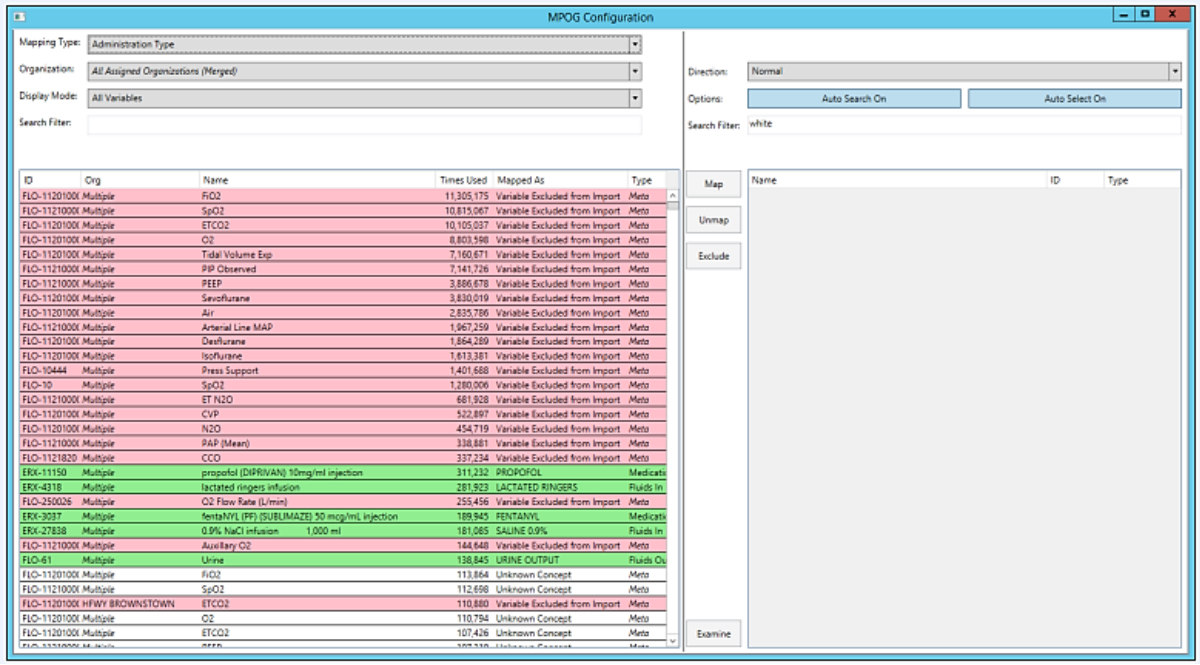
2. You may also filter by 'Display Mode' to visualize 'All Variables,' 'Unmapped Variables Only,' or 'Mapped Variables' to focus mapping efforts. By selecting from the dropdown menu, only the variables within the selected category will appear.



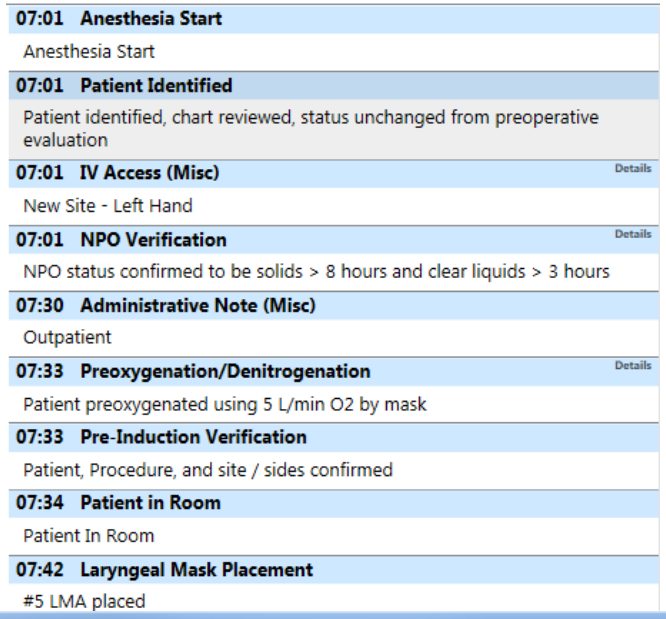
3. Mapping Type
    a. EAP/HLX = Procedure Notes
        i. If HLX intubation/extubation notes are available, exclude FLO variables associated with intubation/extubation.
    b. FLO = Data from Flowsheet (i.e. LDA)
    c. LEV = Event Note
    d. CT = Case Tracking variables (i.e. anes start/end)
        i. Exclude CT variables if multiple variables show for event times. CT variables come from nursing documentation and we are more concerned with anesthesia documentation.
4. Exclusions
    a. **DO NOT exclude any Units of Measurement (Administration). This will prevent all data with a unit of measurement from pulling over to MPOG.**

How Mapping Translates to MPOG Case Viewer

1. After you continue mapping, you will notice a growing number of pink, green, and white rows on the left side of the screen.
    a. **Pink** rows represent variables excluded from Import.
    b. **Green** rows represent variables mapped.
    c. White rows represent unmapped variables.



2. Mapped variables within the ‘Observation Type’ and ‘Observation Detail Type’ section of Variable Mapping utility will become visible in the Notes, Preoperative, or Physiologic sections of Case Viewer:



07:01 Anesthesia Start

Anesthesia Start

07:01 Patient Identified

Patient identified, chart reviewed, status unchanged from preoperative evaluation

07:01 IV Access (Misc) Details

New Site - Left Hand

07:01 NPO Verification Details

NPO status confirmed to be solids > 8 hours and clear liquids > 3 hours

07:30 Administrative Note (Misc)

Outpatient

07:33 Preoxygenation/Denitrogenation Details

Patient preoxygenated using 5 L/min O2 by mask

07:33 Pre-Induction Verification

Patient, Procedure, and site / sides confirmed

07:34 Patient in Room

Patient In Room

07:42 Laryngeal Mask Placement

#5 LMA placed

Preop

MPOG Concept	Value	Time
General - History - Pediatrics - OB/Gyn *(5 Items)*		
Uncategorized *(7 Items)*		
Cardiovascular *(7 Items)*		
Respiratory - Hematologic - ID - Misc *(9 Items)*		

Monitor

Readings	07:30	07:45	08:00	08:15	08:30
EKG Pulse Rate	118	136	124.5	114	107
BP Sys Non-invasive	100	74	64	66	66
BP Dias Non-invasive	62	34	32.5	32	32
Cardiac Rhythm			Sinus Tachy	Sinus Tachy	Sinus Tachy
Peak inspiratory pressure	16	18	18	19	19
Tidal Volume actual	0.2	0.34	0.335	0.29	0.31
Ventilator Respiratory Rate	26	14	14	14	14
Ventilator Respiratory Rate	29	15	14	14	14
Ventilator FiO2 % Measure	40	97	73	73	73
Positive End Expiratory Pres	2	2	2	2	2
Inspired CO2 %	1	1	1	1	1
End Tidal CO2 (mmHg)	32	38	32.5	31	31
Oxygen Exp %	35	82	67	69	69
Isoflurane Exp %	0	2.2	1.8	1.7	1.8

3. Mapped variables within the ‘Administration Type’ section of the Variable Mapping utility will populate to the Medication and Fluids sections of MPOG Case Viewer.

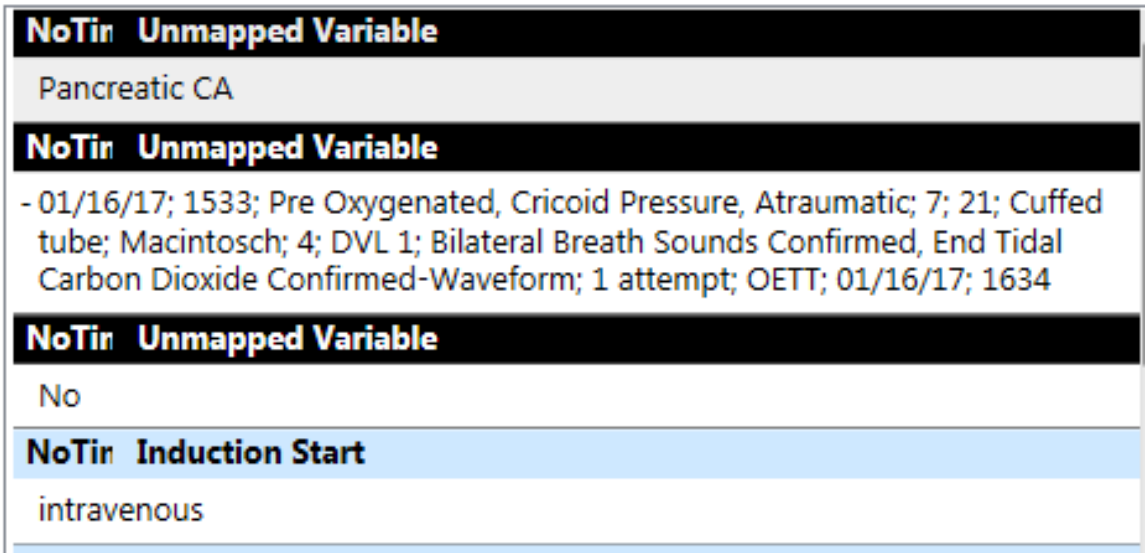
Medications

Medications	08:45	09:00	09:15
MIDAZOLAM MG IV (AIM	2	0	0
VANCOMYCIN GM IV (AI	1	0	0
ATRACURIUM MG IV (AIM	0	70	0
FENTANYL MCG IV (AIMS	0	*150*	0
PROPOFOL MG IV (AIMS:	0	200	0
DOLASETRON MG IV (AIM	0	0	0
GLYCOPYRROLATE MG IV	0	0	0
NEOSTIGMINE MG IV (AI	0	0	0

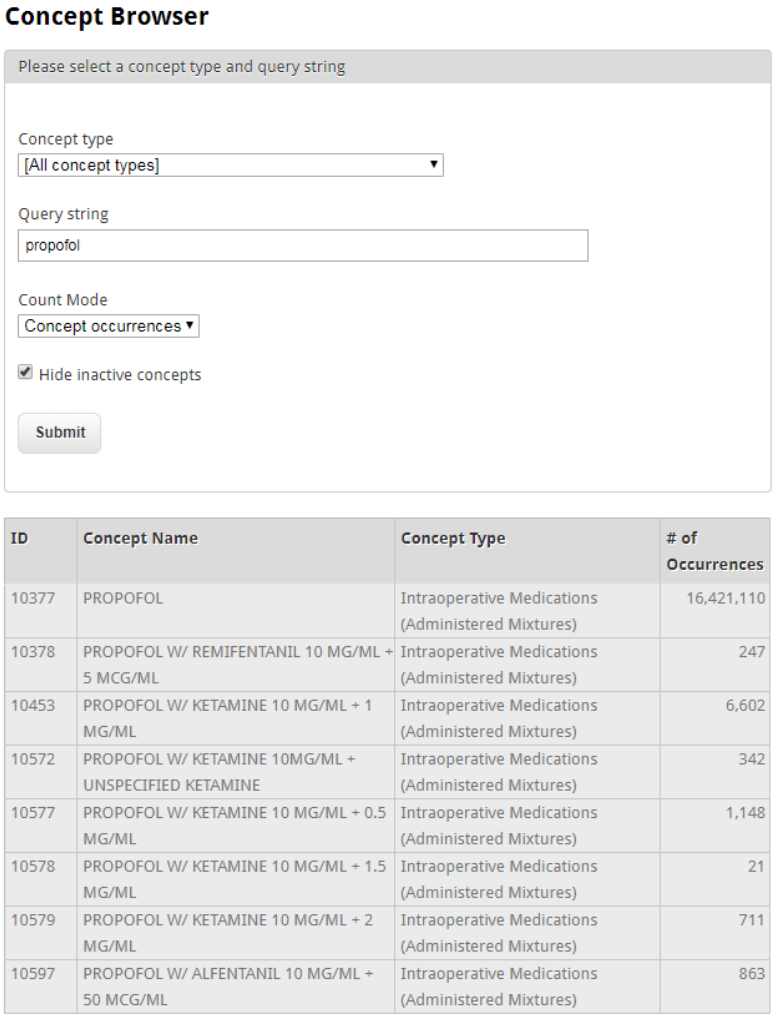
Fluids

Fluids	08:45	09:00	09:15
LACTATED RINGERS ML (	0	0	1000

4. Unmapped variables within Observation Type and Observation Details appear as a black line in MPOG Case Viewer intraoperative note details as an ‘Unmapped Variable’ and are not associated with a time.



5. Utilizing the MPOG Concept Browser utility will facilitate efficient identification of corresponding MPOG concepts. Please reference **Chapter 2: Concept Browser** for more information.



ID	Concept Name	Concept Type	# of Occurrences
10377	PROPOFOL	Intraoperative Medications (Administered Mixtures)	16,421,110
10378	PROPOFOL W/ REMIFENTANIL 10 MG/ML + 5 MCG/ML	Intraoperative Medications (Administered Mixtures)	247
10453	PROPOFOL W/ KETAMINE 10 MG/ML + 1 MG/ML	Intraoperative Medications (Administered Mixtures)	6,602
10572	PROPOFOL W/ KETAMINE 10MG/ML + UNSPECIFIED KETAMINE	Intraoperative Medications (Administered Mixtures)	342
10577	PROPOFOL W/ KETAMINE 10 MG/ML + 0.5 MG/ML	Intraoperative Medications (Administered Mixtures)	1,148
10578	PROPOFOL W/ KETAMINE 10 MG/ML + 1.5 MG/ML	Intraoperative Medications (Administered Mixtures)	21
10579	PROPOFOL W/ KETAMINE 10 MG/ML + 2 MG/ML	Intraoperative Medications (Administered Mixtures)	711
10597	PROPOFOL W/ ALFENTANIL 10 MG/ML + 50 MCG/ML	Intraoperative Medications (Administered Mixtures)	863

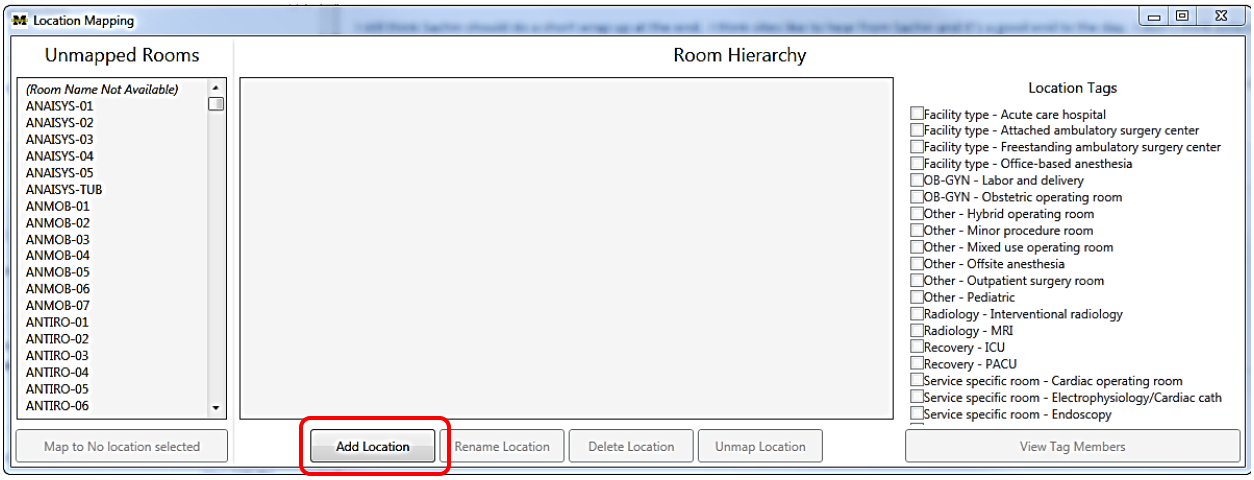
Chapter 4: Location Mapping

Location Mapping Overview

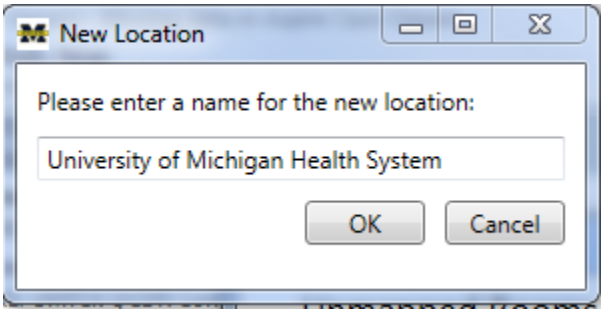
The Location Mapping utility provides sites the ability to establish a hierarchy of procedure rooms and facilities as they exist within the health system. Building the location hierarchy allows providers to filter performance data by operating locations. Assigning location tags provides the opportunity to filter and group locations that may have similar case types, though not physically located in the same building. For example, a site may have several outpatient surgery centers and would want to "group" the data from these locations to examine performance at outpatient facilities. Location mapping is also used to exclude certain case types for ASPIRE measures when CPT codes are not available, i.e. rooms tagged as labor and delivery rooms can be excluded as a means of excluding labor epidural cases. Mapping of locations is usually completed when a site initially joins MPOG but should be maintained as new rooms are added. The following education module explains how to access and utilize the Location Mapping application.

1. Access 'Location Mapping' on the MPOG Suite.

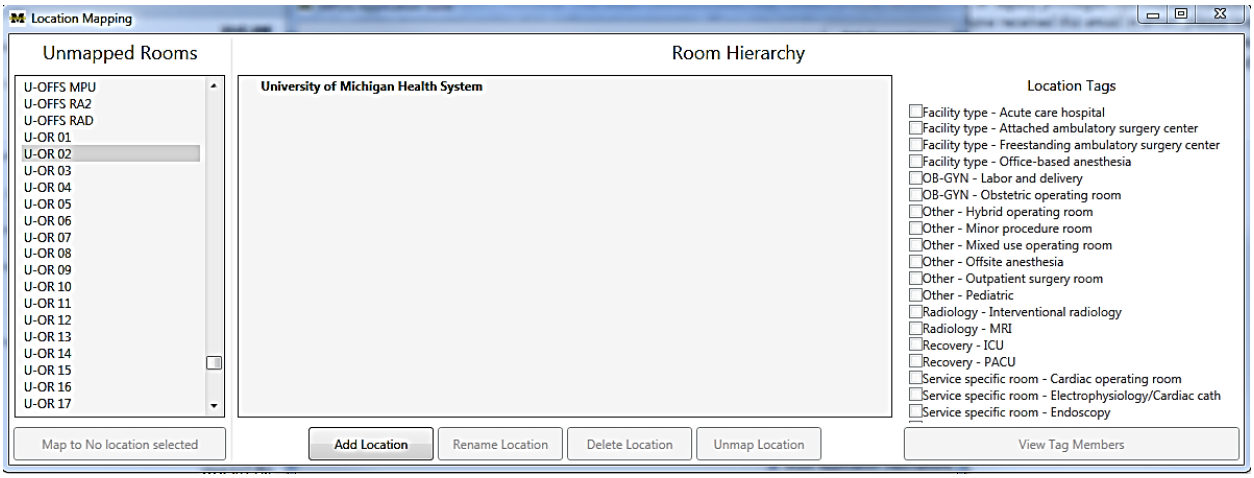
2. Select ‘Add Location’ from the bottom of the display box.



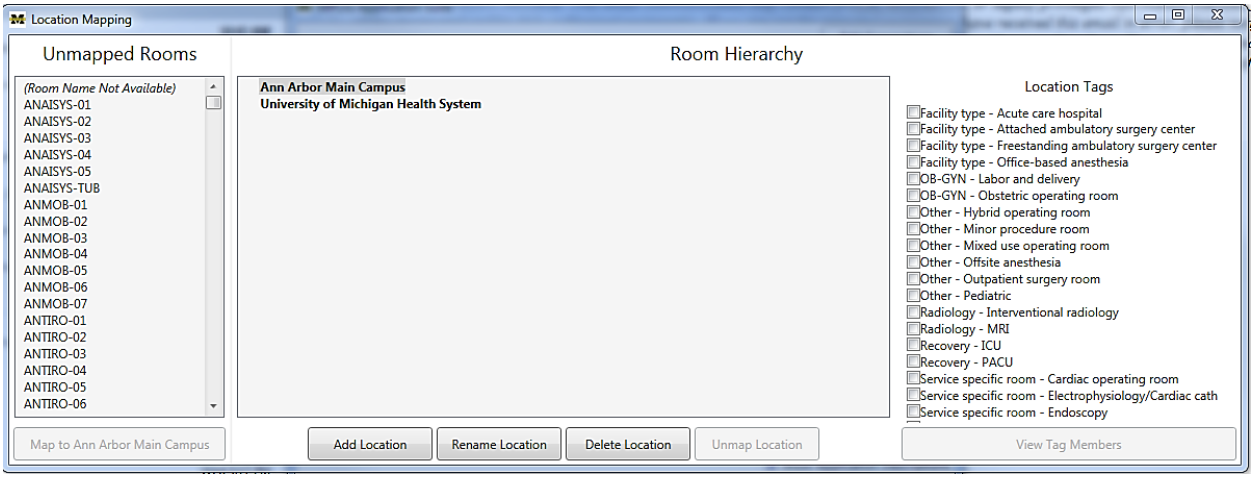
3. A text box will appear. Type the name of the primary site at your organization. For example: University of Michigan Health System, all other sites will be categorized under the primary location. Click “Ok.”



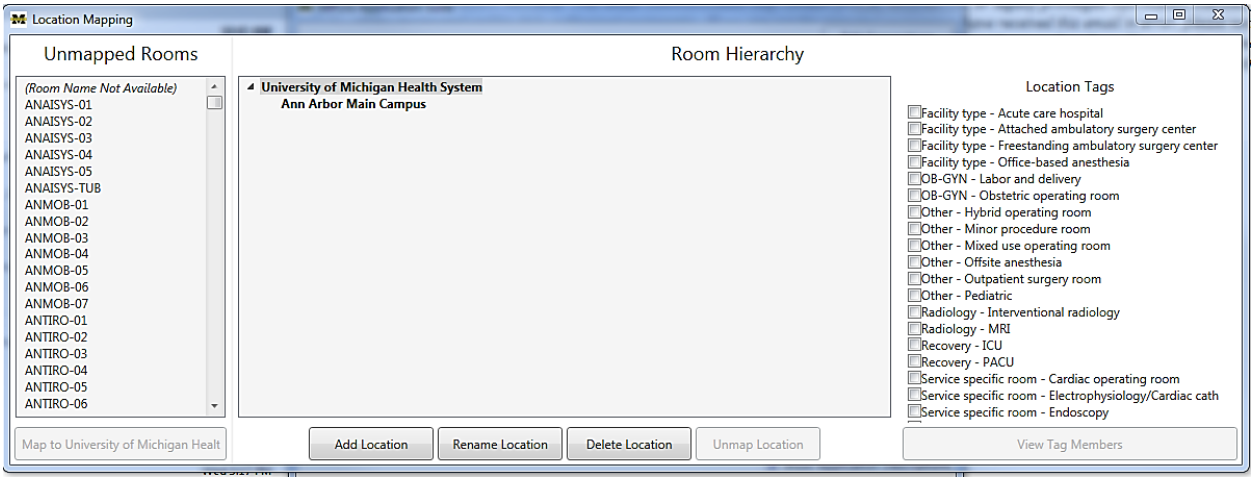
4. The new location will populate the middle portion of the display box to begin the Room Hierarchy process.



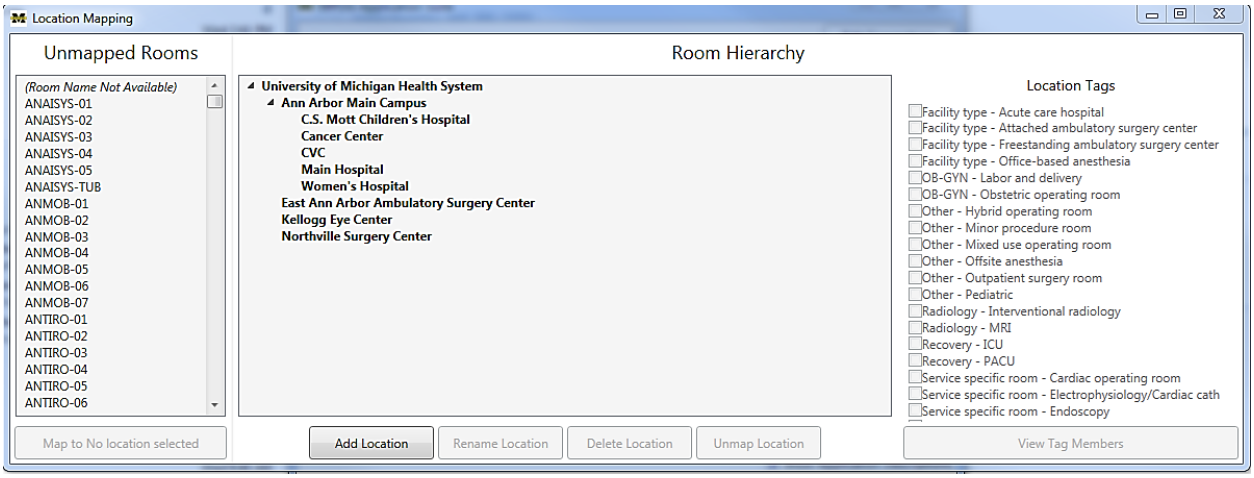
5. If your organization has multiple campuses or hospitals, continue to add those locations by selecting “Add Location.” As new locations are added, you can ‘click and drag’ to list secondary sites under primary locations. For example, ‘Ann Arbor Main Campus’ is currently listed as another primary location but belongs under the Health System title.



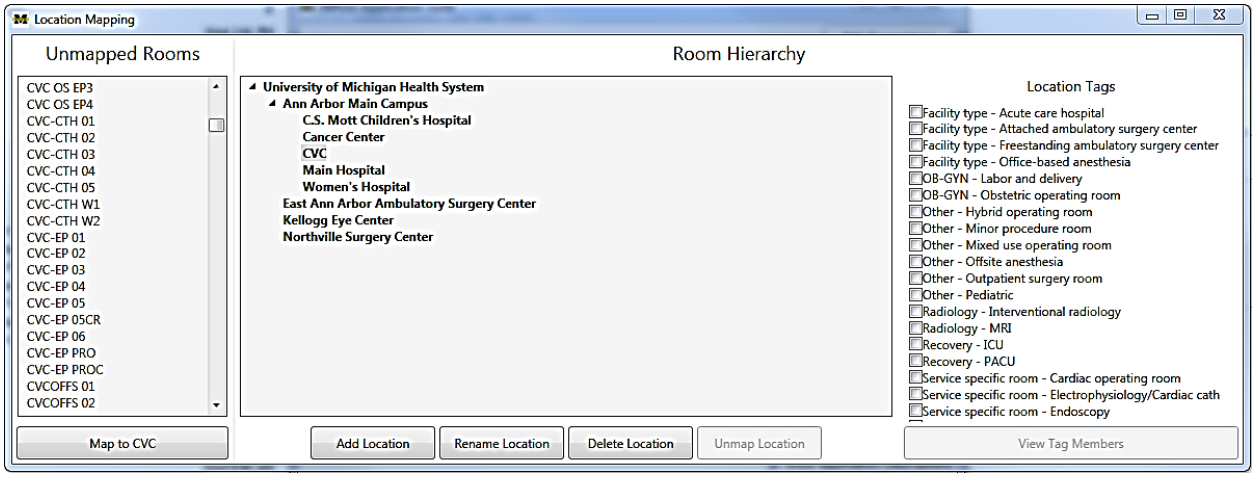
6. Clicking on ‘Ann Arbor Main Campus’ and dragging it over the ‘University of Michigan Health System’ title will indent the secondary site to be listed under the primary.



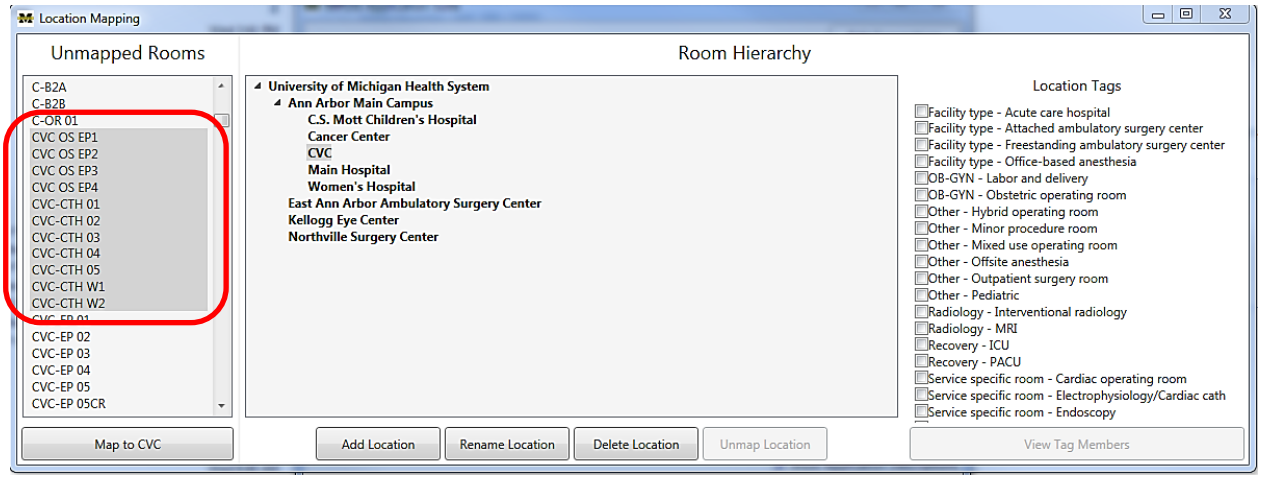
7. Continue to sort by clicking and dragging titles to properly reflect sites and locations at your facility. See example below.



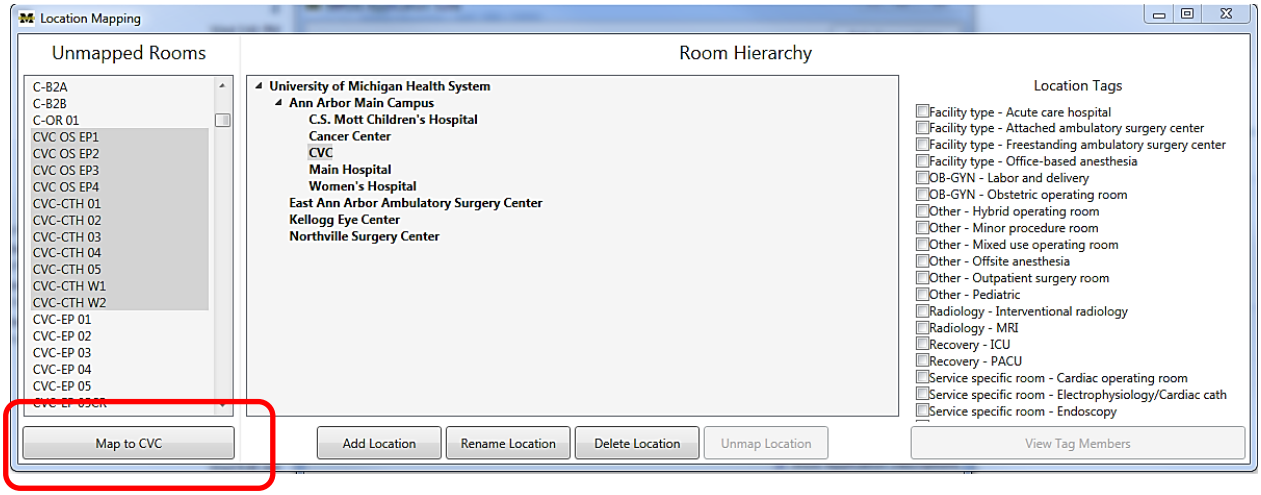
8. Click on the site in the middle of the screen that you would like to assign operating rooms. In the example below, 'CVC' is selected.



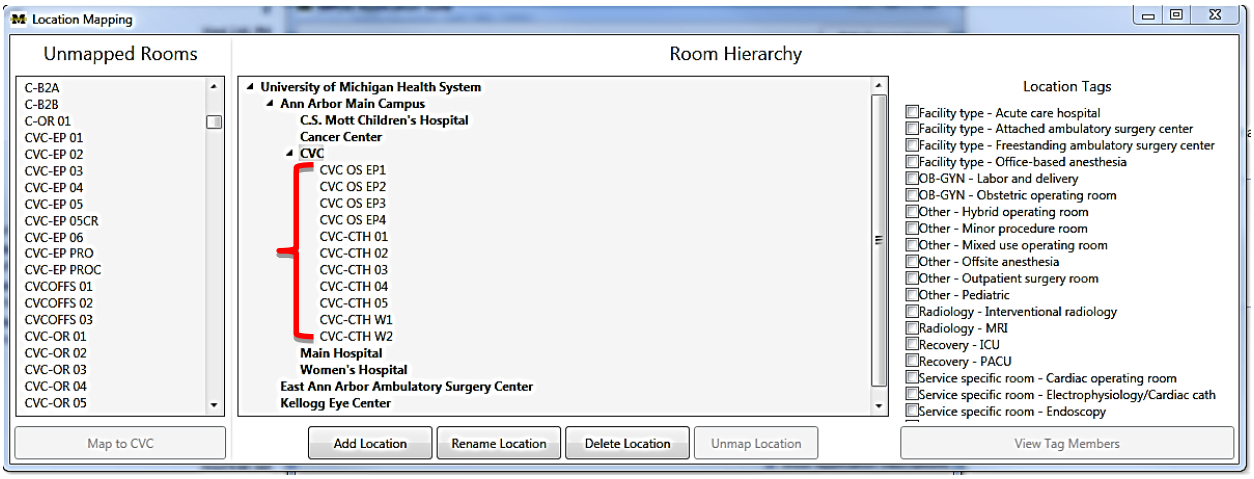
9. Select operating rooms from the left side of the screen. You can map one room at a time or select a group of rooms by holding the ‘shift’ key down and selecting all rooms applicable. It is also possible to click and drag rooms to sites within the hierarchy.



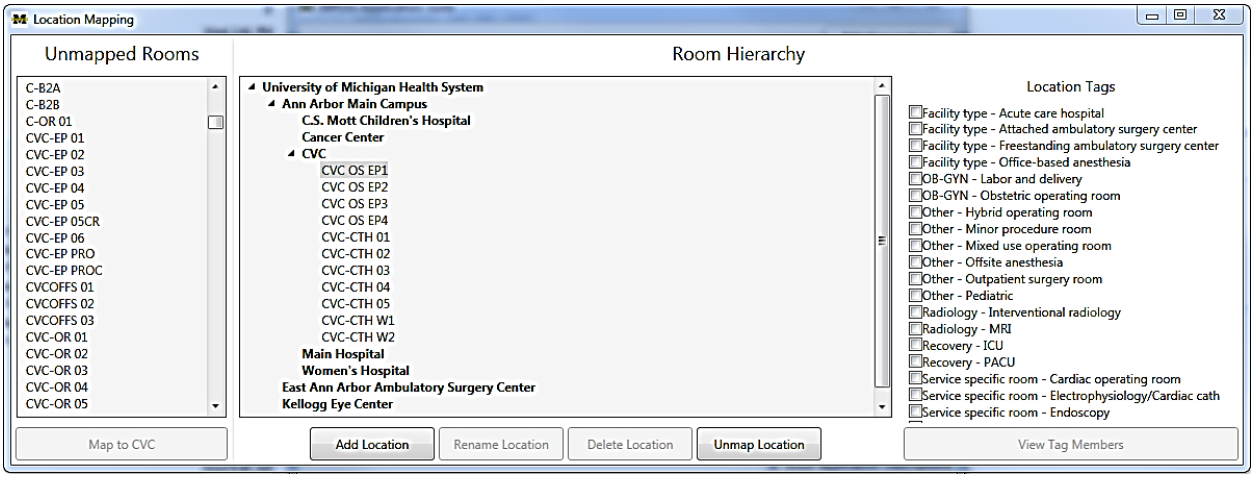
10. Now select the “Map to CVC’ button in the bottom left corner. All of the selected anesthetizing locations will move under the CVC title in the middle portion of the display box.



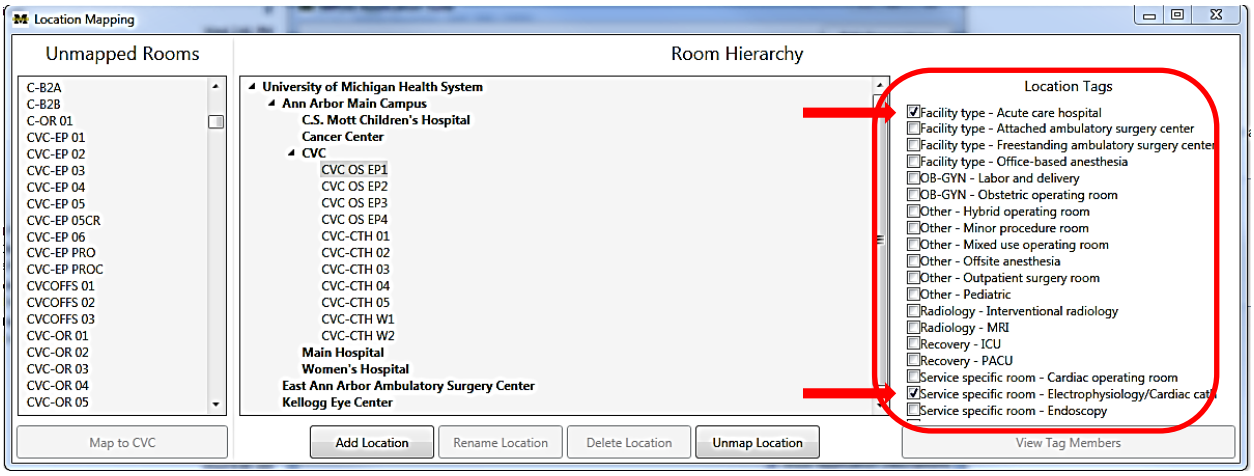
11. Continue mapping all unmapped rooms from the left column to the appropriate locations in the middle ‘Room Hierarchy’ column. **Epic Sites:** ‘Unspecified Room’ will remain in the unmapped rooms category and should not be mapped to a location as the ‘unspecified room’ designation is typically used across a variety of sites within the organization.



12. Each room can now be ‘tagged’ to indicate the type of room or type of procedures performed in each OR/procedure area. Select a room from the ‘Room Hierarchy’ list.



13. While the room is highlighted, click the appropriate ‘location tags’ from the right side of the display box to designate what procedures occur in the selected room. In the example below, the tags of ‘Facility type- Acute care hospital’ and ‘Service specific room- Electrophysiology/Cardiac Cath’ are applied to the CVC OS EP1 room.



14. Continue assigning the proper location tags for all rooms in the room hierarchy. There is no need to save any changes to room locations or tags. Any changes made are automatically saved.

15. To update the location mappings, the MPOG/ASPIRE programmer for your site will need to run the following script: EXEC Locations_UpdateCaseLocations. It is recommended that this script be programmed to run automatically on a schedule basis before diagnostics to capture any mapping changes that may occur in the future.

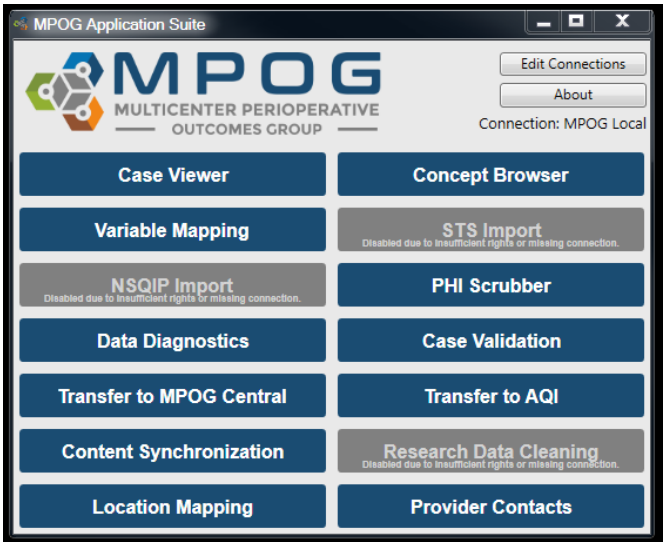
16. Note: It is possible to rename, delete, or unmap locations as necessary using the buttons at the bottom of the display box. However, if an operating room or location is no longer in use, it is best to leave mapped as historical data will still rely upon this hierarchy.

Chapter 5: Case Viewer

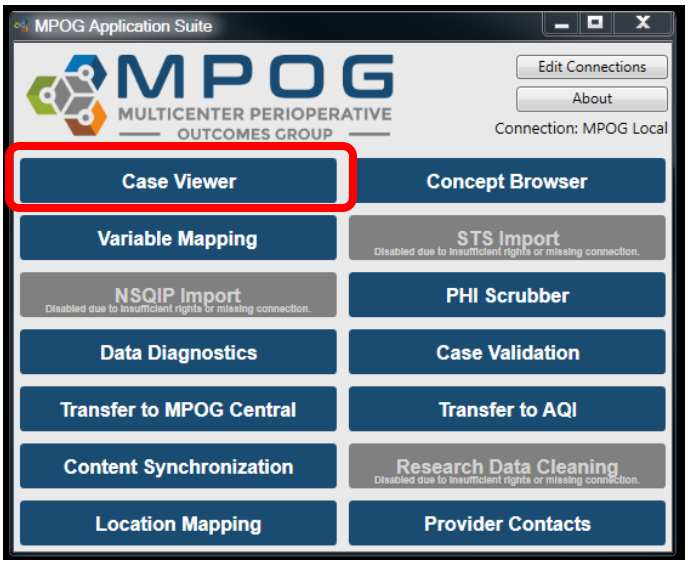
Case Viewer Overview

The MPOG Case Viewer application displays individual case data just as an anesthesia information management system (AIMS) would display. Intraoperative notes are visible on the left side of the screen, physiologic data shows both as a graphic and in grid form. Medications, fluids, laboratory values are all displayed in grid form underneath the physiologic data. The familiar format assists MPOG users in reviewing cases efficiently. Case Viewer can be filtered to display only for the intraoperative period or to include both preoperative and postoperative data as well.

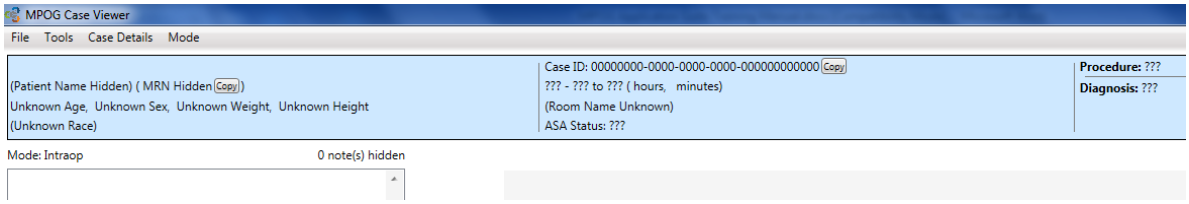
1. Open the MPOG Application Suite.



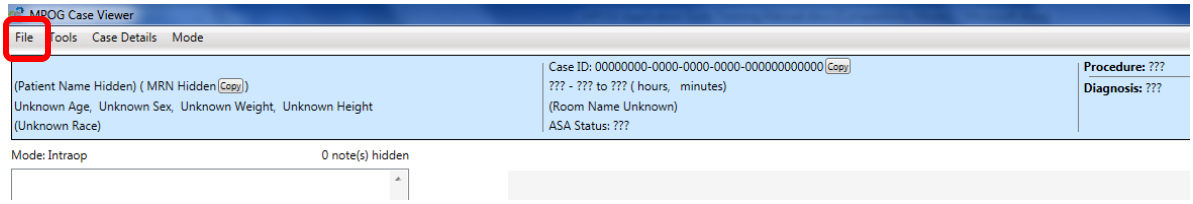
2. Click on “Case Viewer.”



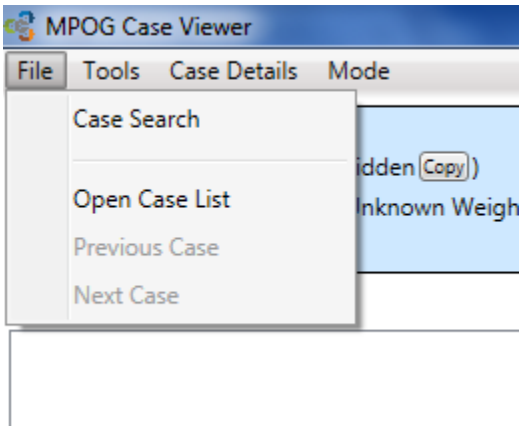
3. The Case Viewer will open. Because you have not selected a case yet, the screen will not populate with any patient information but should look as follows:



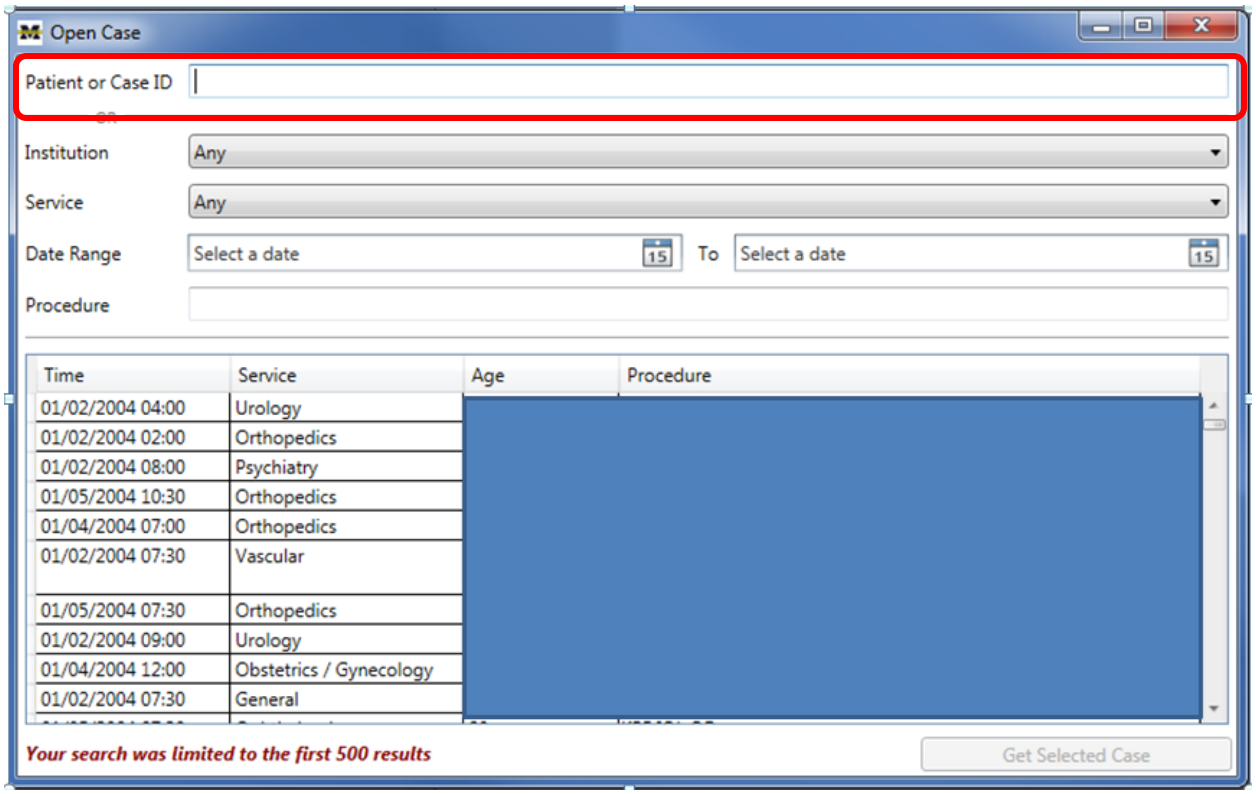
4. Select “File” in the upper left corner of the screen.



5. You will need either some case information or a specific case type you would like to review before selecting the “Case Search” option from the File dropdown menu.

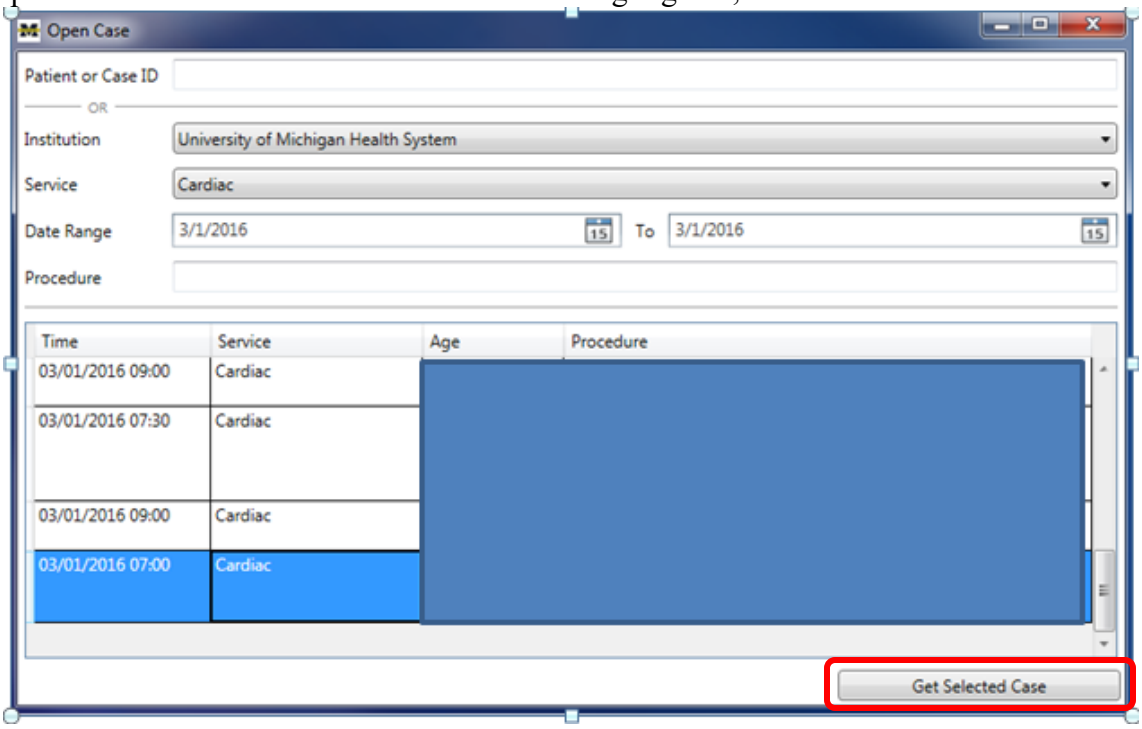


6. The ‘Open Case’ form will look as follows. If you have a specific patient or case that you would like to review, type or copy and paste the ID in the top row. If you prefer to search for cases by institution, service, time period or procedure, populate the sections below and leave the Patient Case ID row blank.

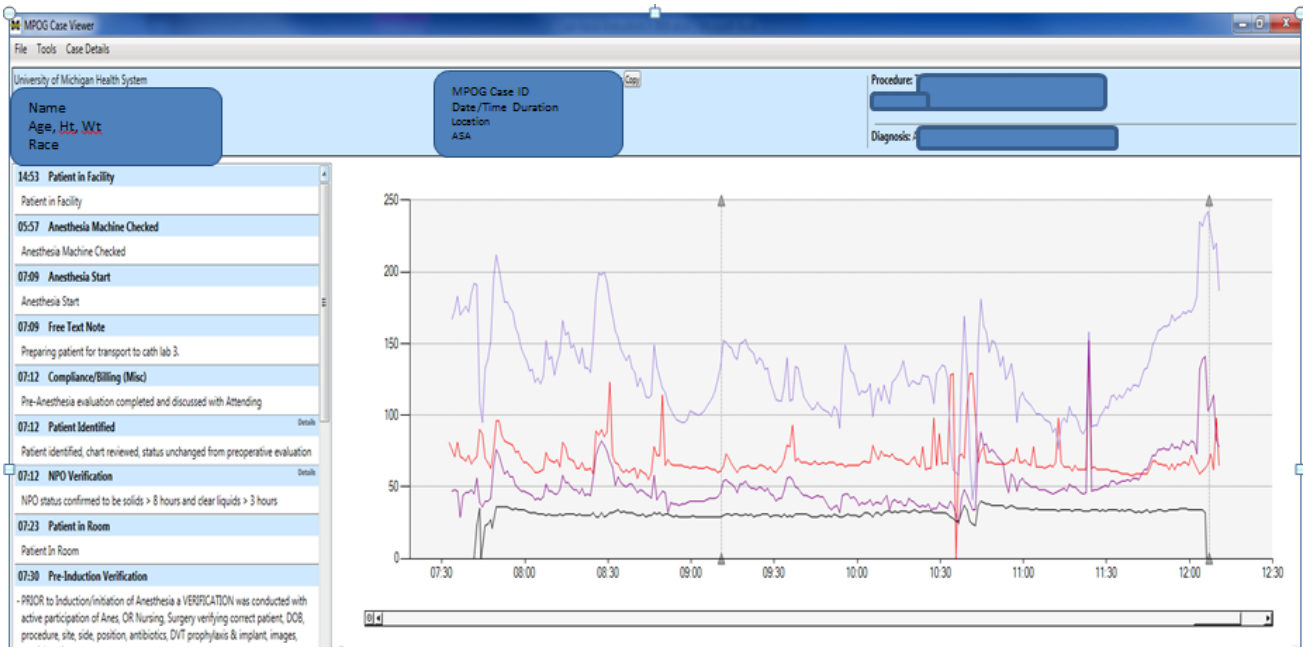


7. For the purpose of this training, PHI has been removed & filters have been applied for:
   - University of Michigan Health System
   - Cardiac Service cases only.
   - Date of operation: 3/1/2016.

   Cardiac cases will populate the bottom section of the screen, scroll until you find the case you plan to review. Click on the case row so it is highlighted, then click "Get Selected Case."



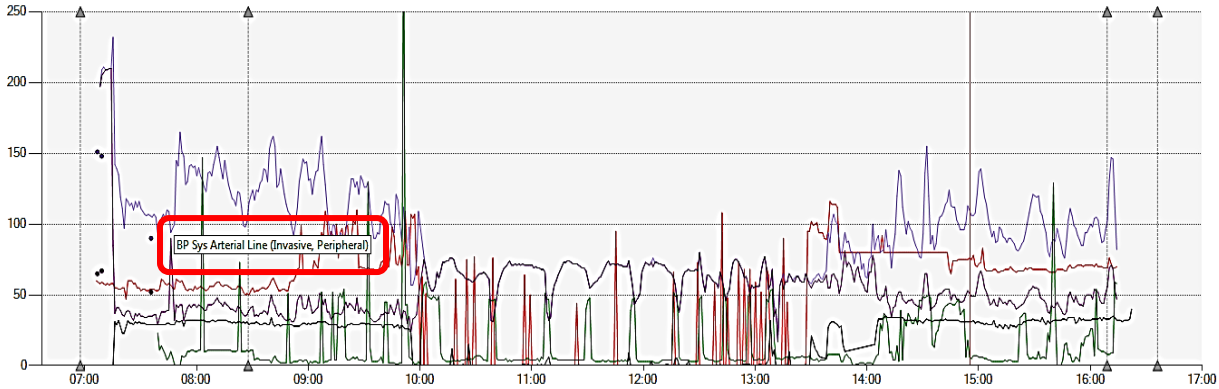
8. The Case Viewer will open with the case information for the case selected. PHI has been removed and labels replaced to indicate the type of information available in the Case Viewer header.



a. The light blue banner at the top of the screen provides basic demographic information:
   1) Institution Name
   2) Patient Name
   3) Age, Ht, Wt
   4) Race
   5) MPOG Case ID
   6) Date/Time/Duration of case
   7) Location
   8) ASA status.
   9) Procedure
   10) Diagnosis

b. The left side of the screen is the Intraoperative Notes section of Case Viewer and displays case events and the associated times for these events. Row colors indicate different data types:
   1) **Blue**: MPOG Concept that the AIMS Intraoperative Note was mapped to
   2) **Orange**: MPOG Concept mapped unexpectedly (potentially incorrect mapping-investigate). i.e.: ASA status is mapped as intraop note instead of pre-op.
   3) **Black**: Variable not mapped.
   4) **Red**: Deleted note (Will not see this unless you change the default in preferences to "Show audit trail/deleted documentation.")

9. Within the Case Viewer, you can view physiologic data such as pulse, BP, CVP readings in graphical format. By hovering over each line, the type of monitoring displays. The example below shows the light purple line represents BP Sys Arterial Line (Invasive, Peripheral).



Also, monitoring types will always be represented by the same line color.

For example:

Light purple line: BP Sys Arterial Line (Invasive, Peripheral)

Light purple dot: BP Sys Noninvasive

Dark purple line: BP Dias Arterial Line (Invasive, Peripheral)

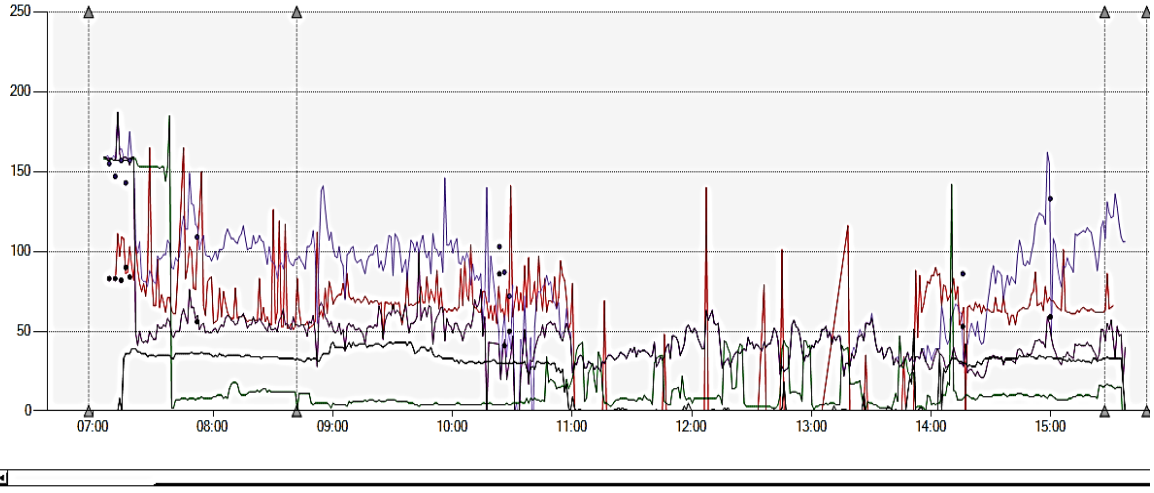
Dark purple dot: BP Dias Noninvasive

Green: CVP

Black: End Tidal CO_2

Red: EKG Pulse Rate

10. To view individual physiologic readings at specific times during the case, clicking on the "Monitor" section below the graph will open all physiologic readings during the case on the hour.



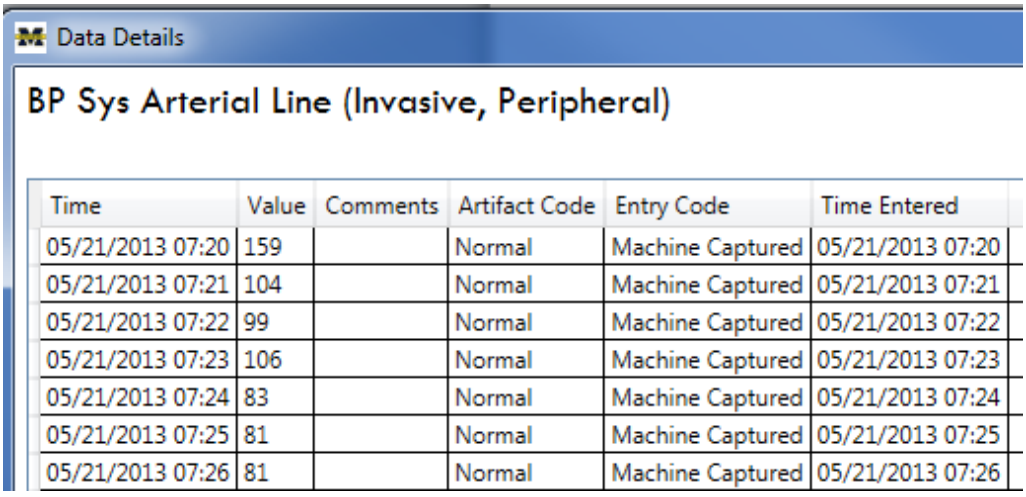
Medications

Fluids

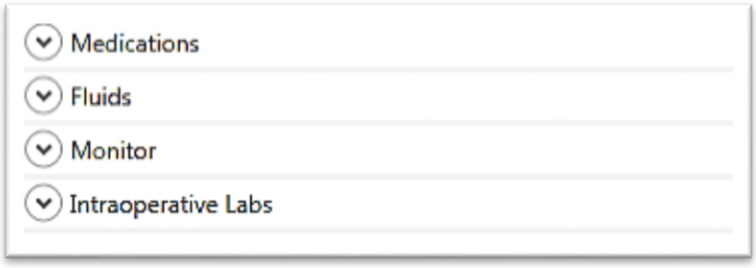
Monitor

Readings	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00
Eyes checked	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cardiac Rhythm	NSR	Sinus Brady	NSR	PVCs: Unifocal	Asystole	Asystole	Asystole	Paced Rhythm - DDD	NSR
BP Sys Arterial Line (Invasiv	98	102	99	69	34.5	40.5	39	73	108.5
Oxygen Insp %	98	98	98	98	99	99	99	98	99
Ventilator FiO2 % Measure	98	98	98	98	99	99	99	98	99
SpO2 %	98	97	98	99	82	77	92.5	99	99
Oxygen Exp %	94	94	93	95	99	99	99	94	95
EKG Pulse Rate	83.5	58	68	67.5	0	0	0	65.5	63
BP Dias Non-invasive	83	0	0	50	0	0	0	56	0
BP Mean Arterial Line (Inva	74	72	73	59	34.5	40.5	37	46.5	60
SpO2 Pulse Rate	67	57	68	59.5	66	66	64.5	65	64
BP Dias Arterial Line (Invasi	50	54.5	55	47.5	34.5	40.5	37	33	41
Flows Oxygen (L/Min)	5.5	0	0	0	0.2	0	4	0	0

11. Double-clicking on the specific monitor type will open up a separate window to view all recorded readings for that monitor type. Scroll to find the specific value or time period for review.



12. In addition to the “Monitor” section, there are three other sections under the graph that provide intraoperative details. See the screenshot below. The categories include: Medications, Fluids, and Intraoperative Labs. Clicking on any of these section headings will open a grid displaying the values and times for each of events associated with the indicated categories.

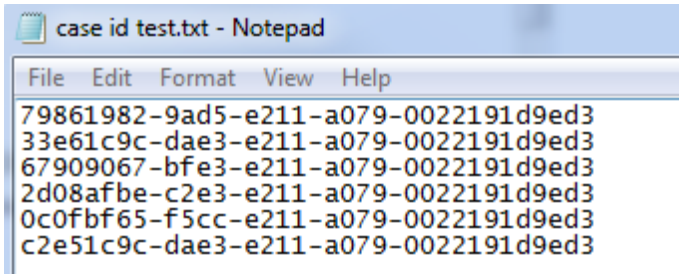


13. For example, clicking on “Medications” will display the grid of medications administered during the case. Infusion rows are highlighted in blue. XX indicates that the infusion was stopped. An arrow ( ) indicates the continuation of an infusion.

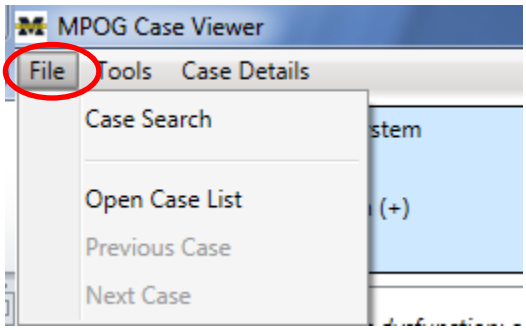
Medications

Medications	07:00	08:00	09:00	10:00	11:00	12:00	13:00
PHENYLEPHRINE MCG/MIN	20	*20*	80	*60*	80	---->	XX
TRANEXAMIC ACID MG/KG		4	---->	---->	---->	---->	---->
INSULIN REGULAR UNITS/H			3	---->	---->	4	6
NOREPINEPHRINE MCG/KG							0.05
MILRINONE MCG/KG/MIN							0.25
PROPOFOL MCG/KG/MIN (							
SODIUM CITRATE ML ORAL	0	0	0	0	0	0	0
LIDOCAINE MG IV (AIMS: L	60	0	0	0	0	0	200
SUCCINYLCHOLINE MG IV	120	0	0	0	0	0	0

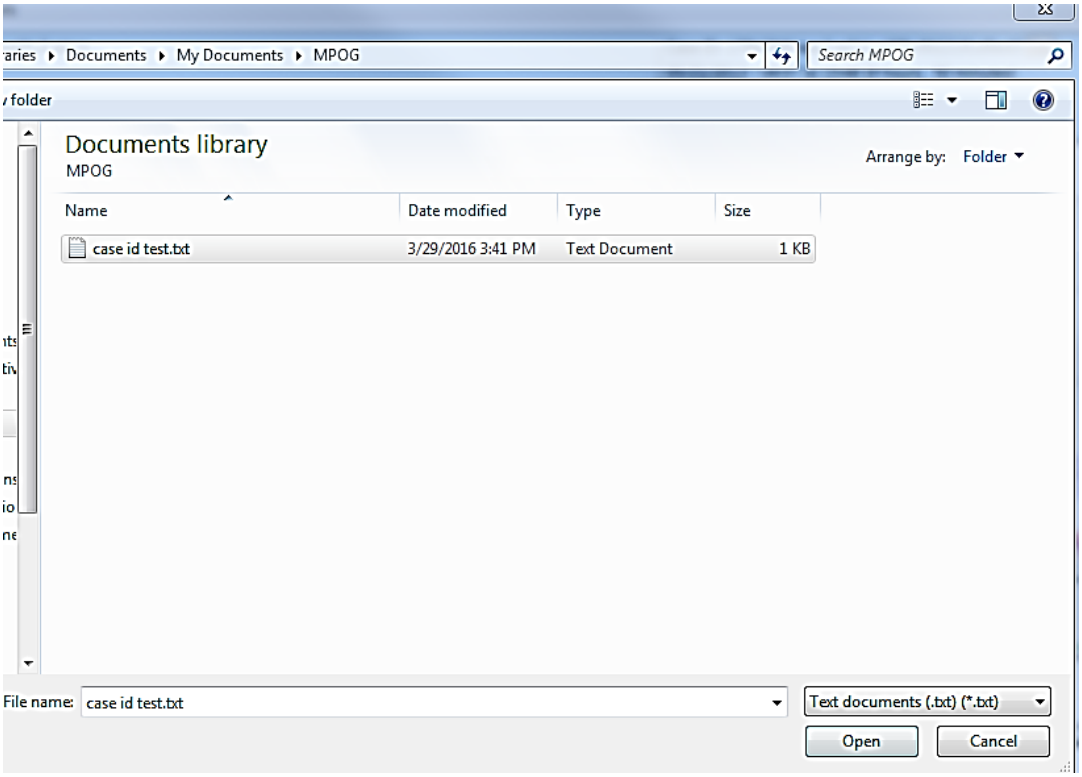
14. Case Viewer also has the capability to open and review multiple cases by accessing a saved *.txt file in Notepad that lists MPOG case IDs in the following format:



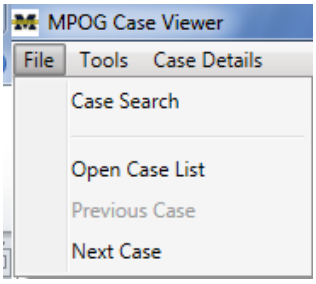
15. To open the list and begin case review, click on “File” and then click on “Open Case List.”



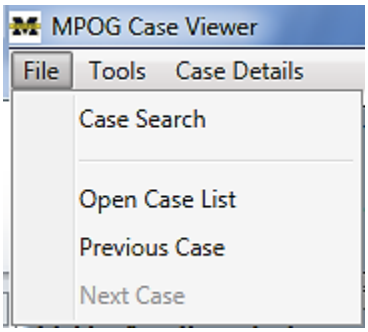
16. Select the file containing the MPOG Case IDs for review. Click “Open.”



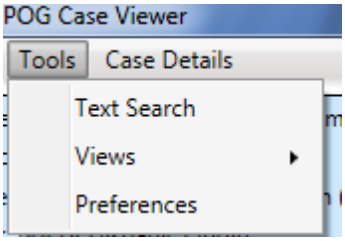
17. The Case Viewer will open to the first case listed in the file automatically. To move to the next case, select “Next Case” from the dropdown File menu:



18. Continue reviewing cases from the list in the saved file using the “Next Case” option in the File menu. When you have reached the last case from the list in the file, “Next Case” will be grayed out. You can either move to a previous case on the list or simply conclude your review and close Case Viewer.

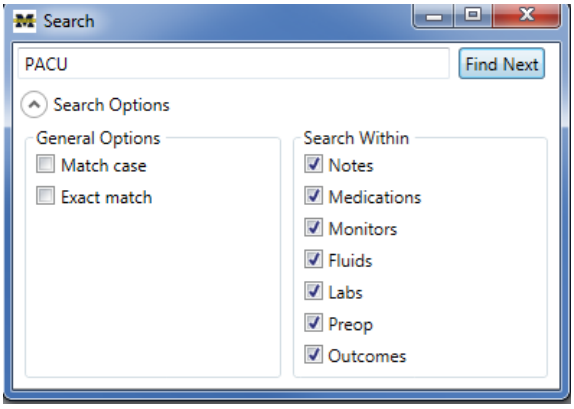


19. Under Tools, the “Text Search” option allows you to look for a specific word or phrase within the Case Viewer.



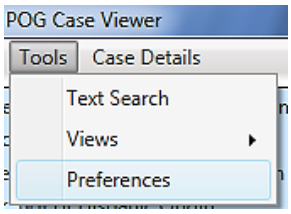
20. A text box will open allowing you to type the specific word or phrase you are seeking to find. Clicking on “Search Options” will list options for filtering or expanding your search.

21. After typing in the selected word or phrase and applying necessary filters, click “Find Next” on the right side of the display box.

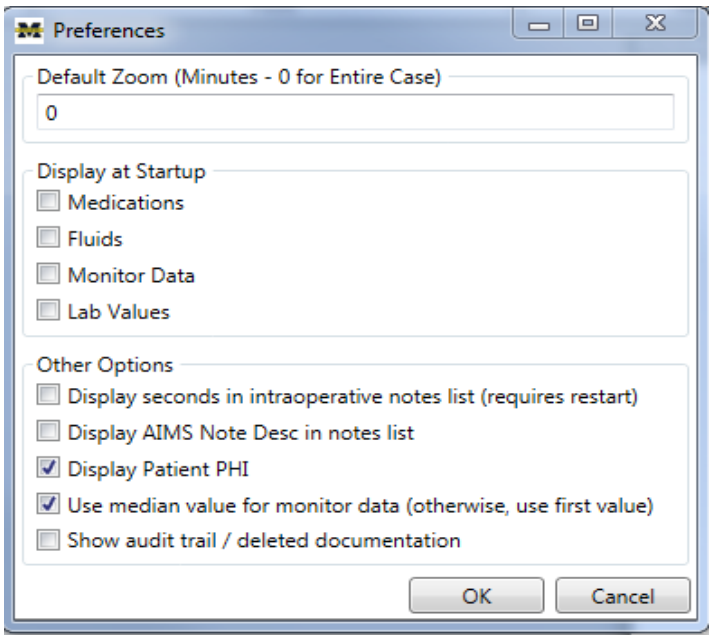


22. Case Viewer will now highlight in yellow the area(s) where the word or phrase is found. If the word does not exist within the page, nothing will be highlighted and a text box stating “End of results reached” will present.

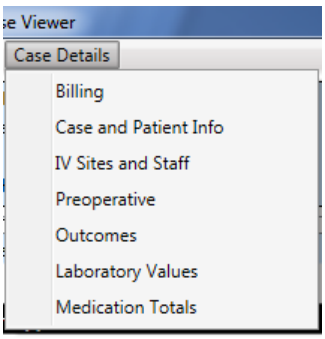
23. To modify your default display settings within Case Viewer, click on “Tools” and select “Preferences.”



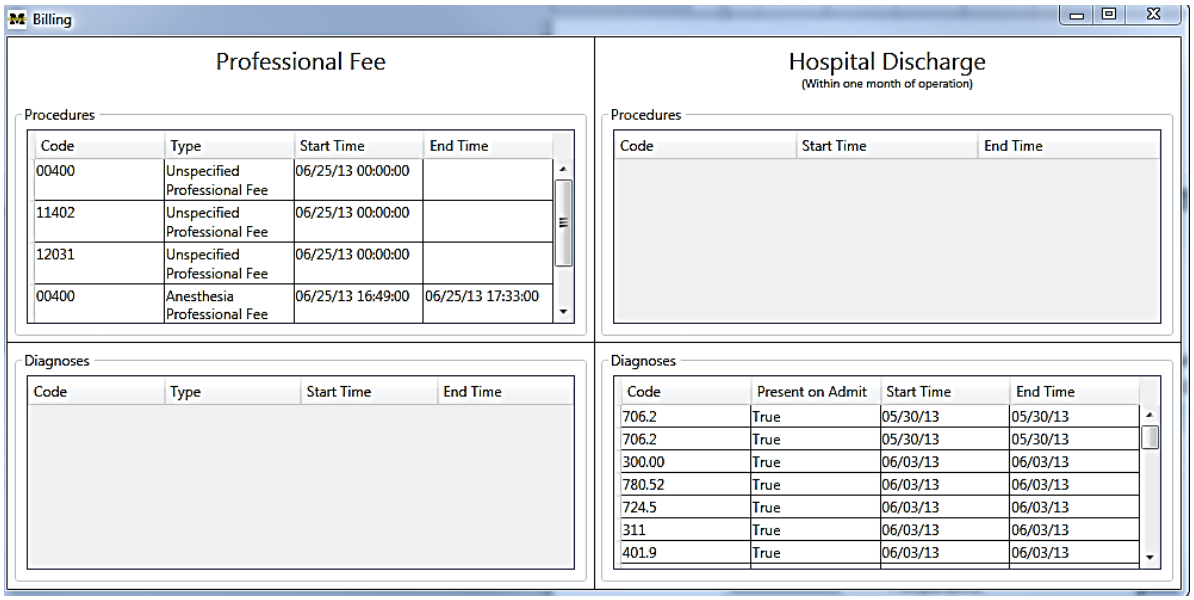
24. The ‘Preferences’ form will display options for Case Viewer. Most common option is the “Display Patient PHI.” When this option is NOT selected (default), PHI will be hidden in Case Viewer. This is important when sharing screens via webinar or when giving a presentation. You will need to select “Display Patient PHI” when doing Case Validation and using the Case Viewer. Click “Okay” after completing selections.



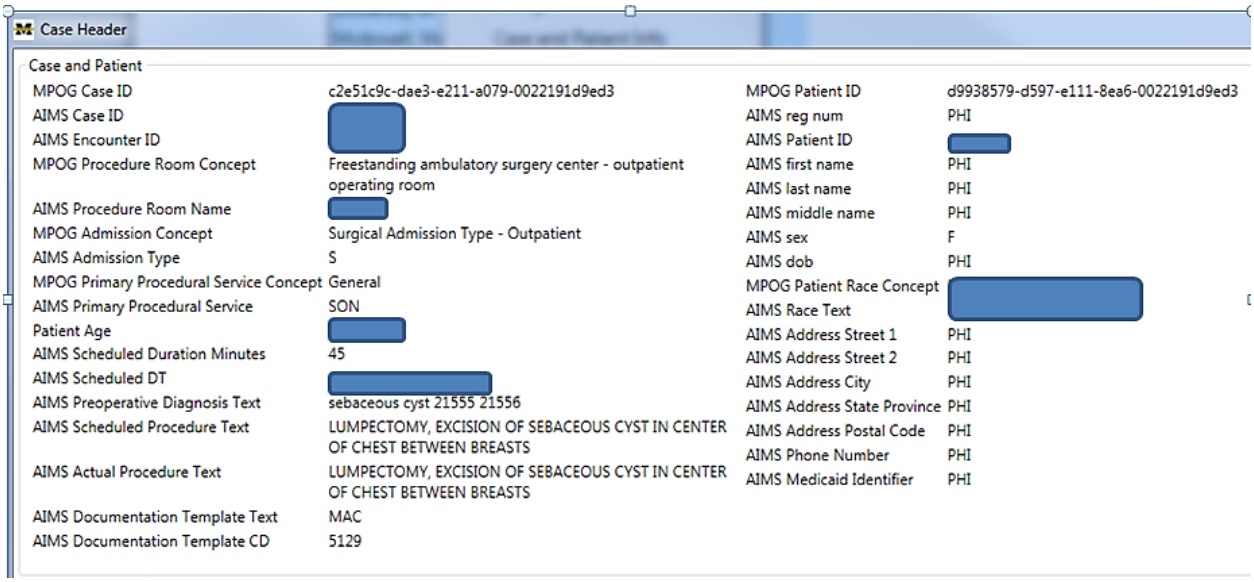
25. The next tab within Case Viewer is “Case Details.” This tab allows you to view more specific case information related to billing, case demographics, IV sites/staff, Preop, Outcomes, Lab values, and Medication Totals.



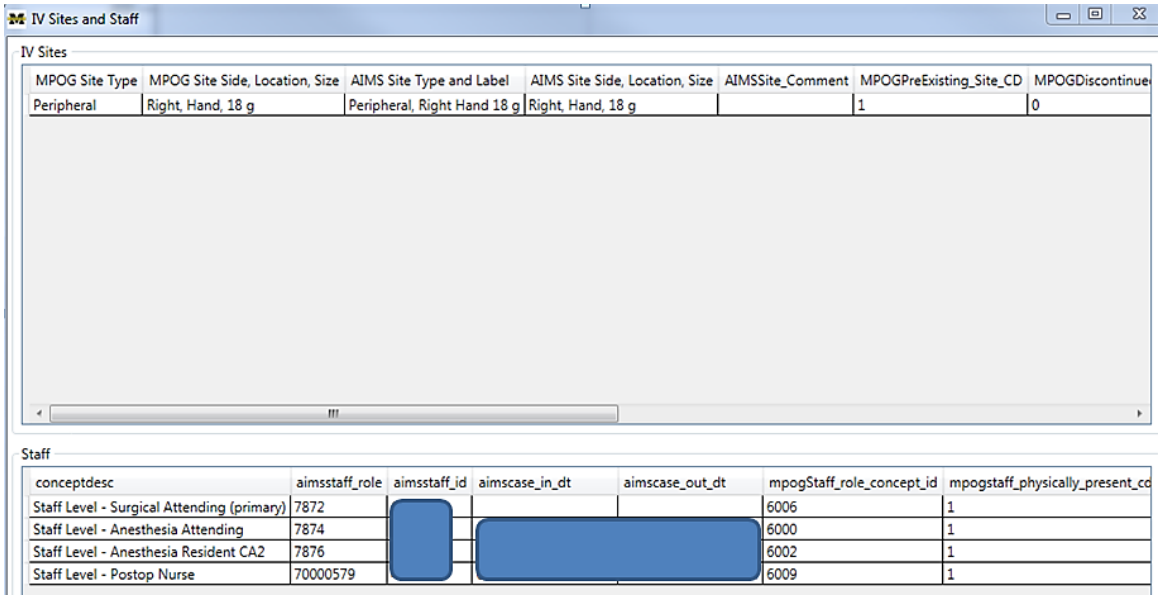
26. Returning to the Case Details dropdown menu, selecting “Billing” from the dropdown menu displays procedure and diagnosis codes as well as hospital discharge information. If your site has not yet loaded billing data, this form will be incomplete.



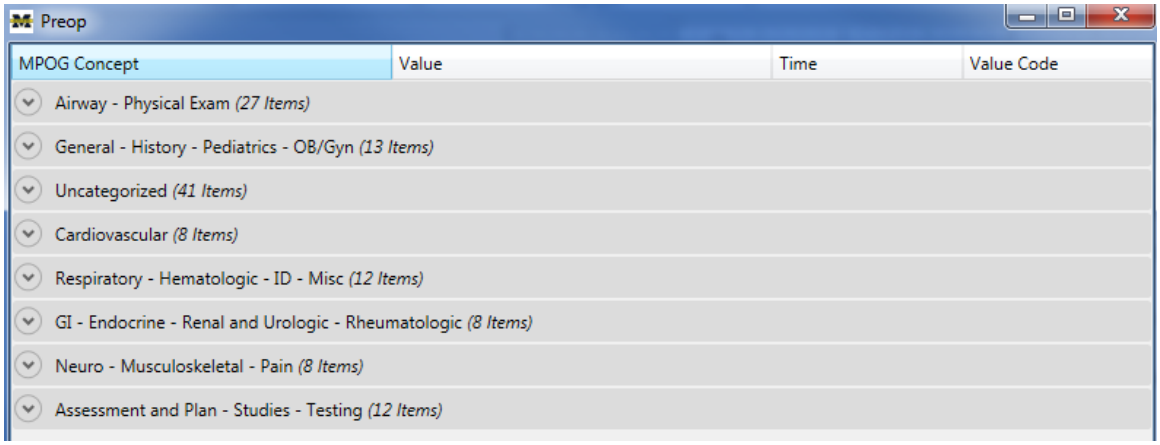
27. Returning to the Case Details dropdown menu, selecting “Case and Patient Info” from the dropdown list displays demographic information specific to the patient and case. PHI is hidden for this purpose of this training.



28. Returning to the Case Details dropdown menu, selecting “IV sites and staff” from the list displays all IV sites documented intraoperatively and all staff who signed into the case.

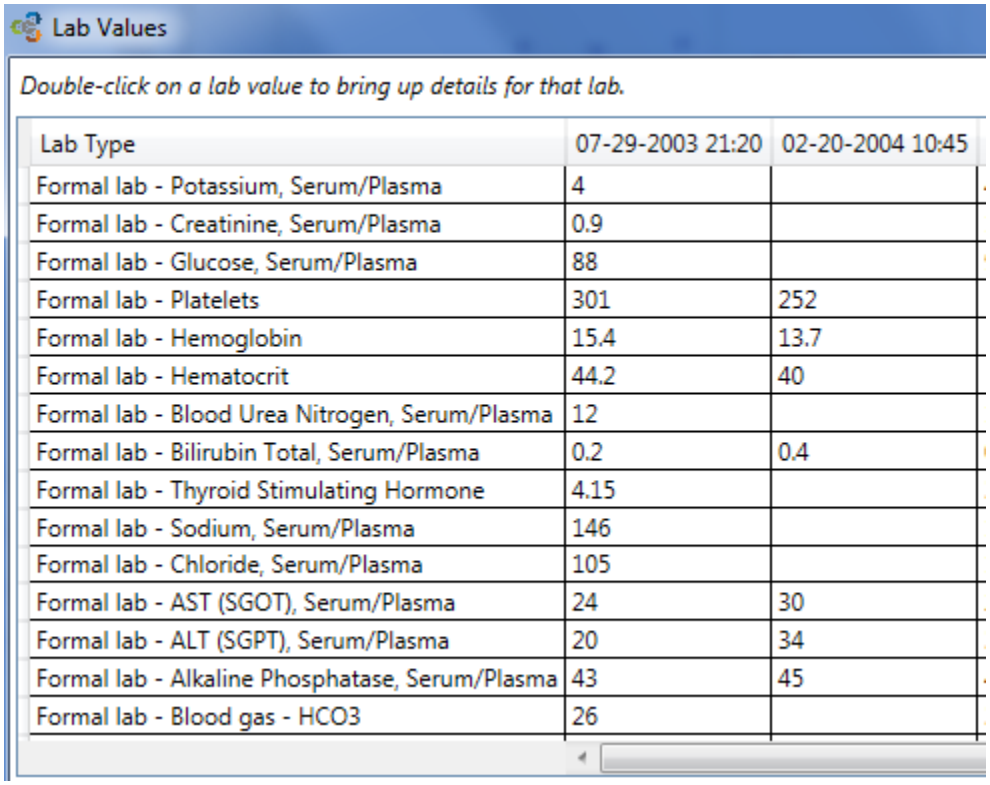


29. Returning to the Case Details dropdown menu, selecting “Preoperative” from the list displays all categories for the preoperative information present in the MPOG database. History and Physical, the Anesthesia Assessment and Plan will populate here. Click on any of the categories to display specific patient information.



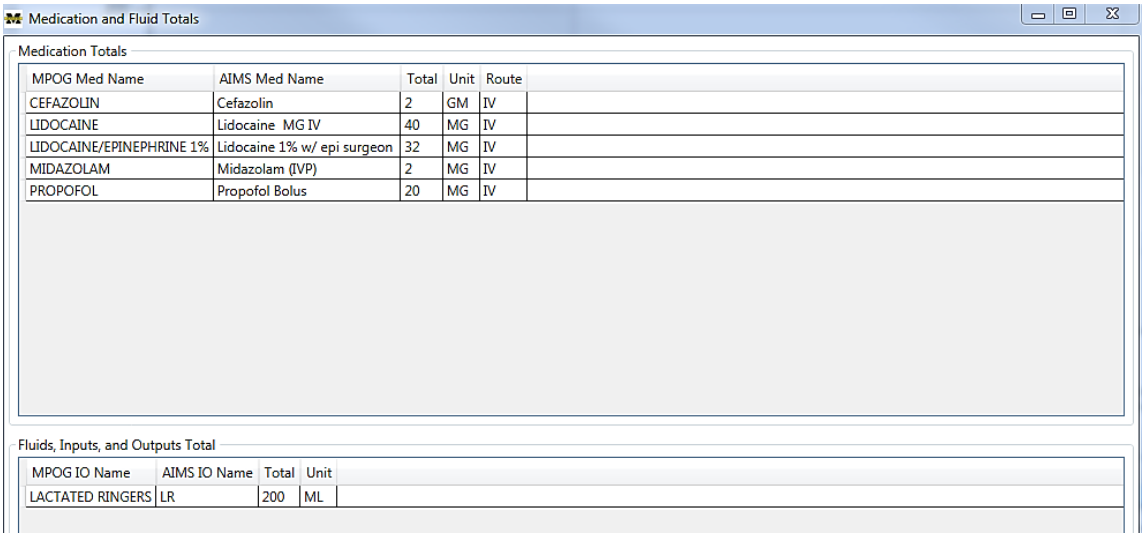
30. Returning to the Case Details dropdown menu, selecting “Outcomes” will display postoperative information, if present in the MPOG database.

31. Returning to the Case Details dropdown menu, selecting “Laboratory Values” displays a grid listing all preop and postop lab results available via the MPOG suite.

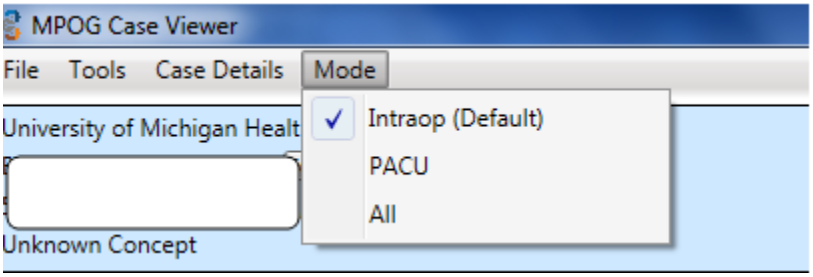


Lab Type	07-29-2003 21:20	02-20-2004 10:45
Formal lab - Potassium, Serum/Plasma	4	
Formal lab - Creatinine, Serum/Plasma	0.9	
Formal lab - Glucose, Serum/Plasma	88	
Formal lab - Platelets	301	252
Formal lab - Hemoglobin	15.4	13.7
Formal lab - Hematocrit	44.2	40
Formal lab - Blood Urea Nitrogen, Serum/Plasma	12	
Formal lab - Bilirubin Total, Serum/Plasma	0.2	0.4
Formal lab - Thyroid Stimulating Hormone	4.15	
Formal lab - Sodium, Serum/Plasma	146	
Formal lab - Chloride, Serum/Plasma	105	
Formal lab - AST (SGOT), Serum/Plasma	24	30
Formal lab - ALT (SGPT), Serum/Plasma	20	34
Formal lab - Alkaline Phosphatase, Serum/Plasma	43	45
Formal lab - Blood gas - HCO3	26	

32. Returning to the Case Details dropdown menu, selecting “Medication Totals” displays a grid listing all medication totals for the case.



33. The final tab in Case Viewer allows for changing the view mode of the Case Viewer. The Case Viewer displays only Intraoperative notes by default but by changing the mode, one can view only data documented in PACU or all data available, regardless of time period.

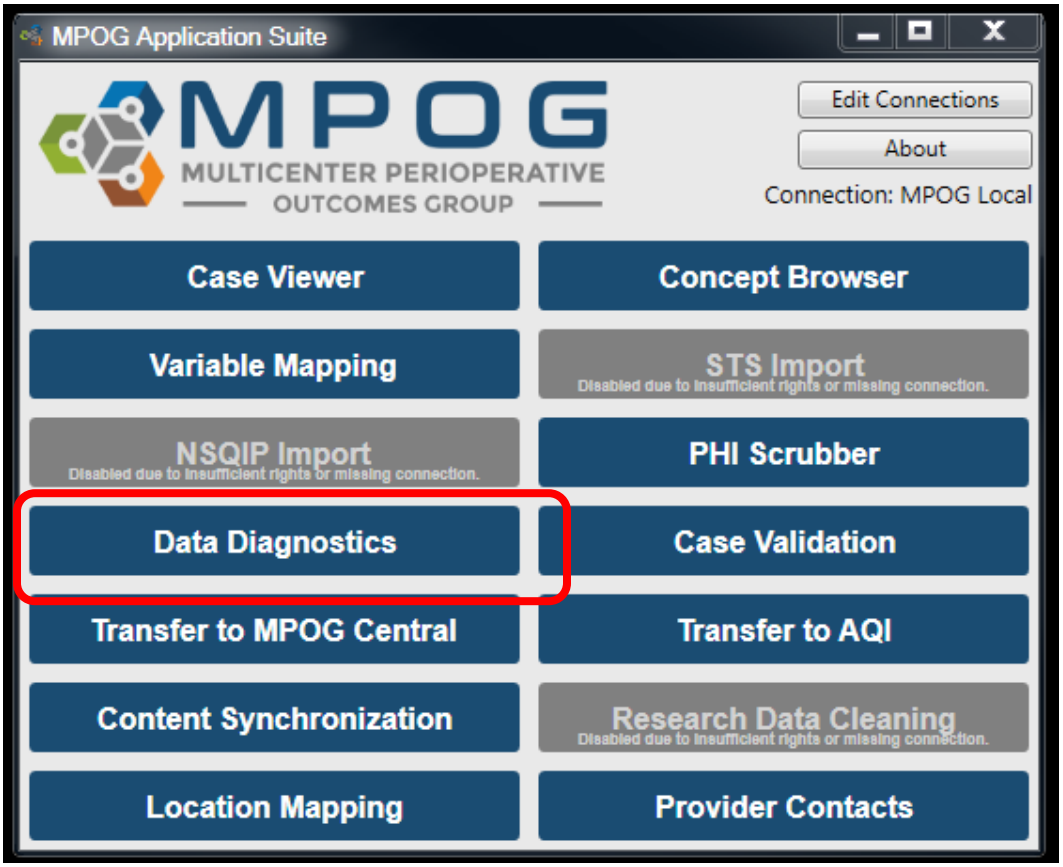


Chapter 6: Data Diagnostics

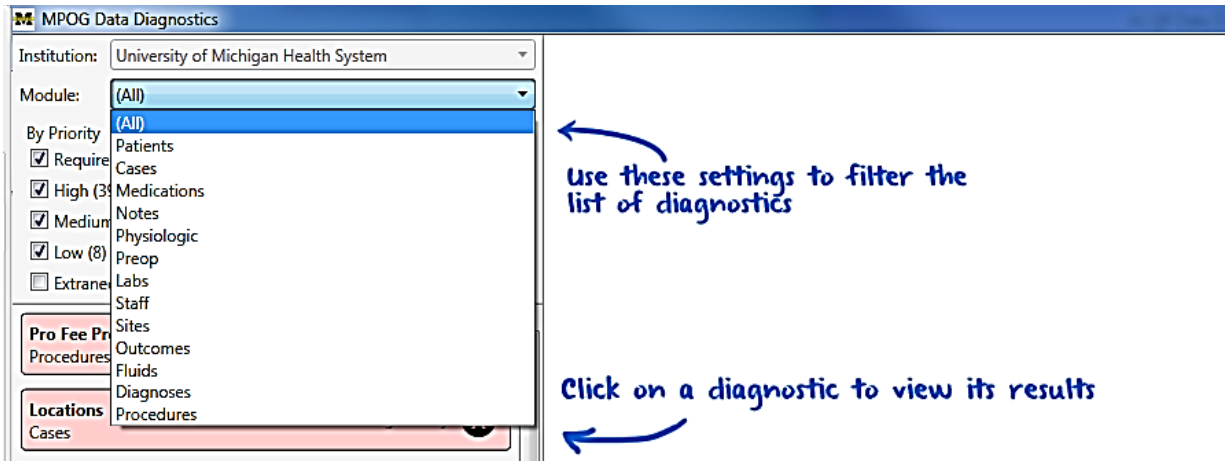
Data Diagnostics Overview

ASPIRE sites may contribute information from various sections of an EHR: preoperative, intraoperative, and postoperative notes and physiologic data, demographic information, laboratory values, and procedure codes. Two separate strategies are employed to improve data quality and ensure data accuracy. First, data diagnostics are used by technical and clinical staff to detect systematic errors with data extraction, transformation, or mappings. Diagnostic visualizations represent specific pass/failure thresholds to determine compliance at a macro level. Second, clinicians at each site are required to manually validate between 5 and 20 cases per month to ensure that the data that have been extracted into MPOG matches the original EHR information utilizing the Case Validator utility (see Chapter 7: Case by Case Validation module). This module reviews the Data Diagnostic application. **Data Diagnostic review and attestation is required for all sites before uploading to the Central MPOG database. All funded sites are required to conduct this attestation process on a monthly basis. Non-funded sites are required to complete before each upload to MPOG Central. If submission is on a monthly basis, then attestation should also occur on a monthly basis.**

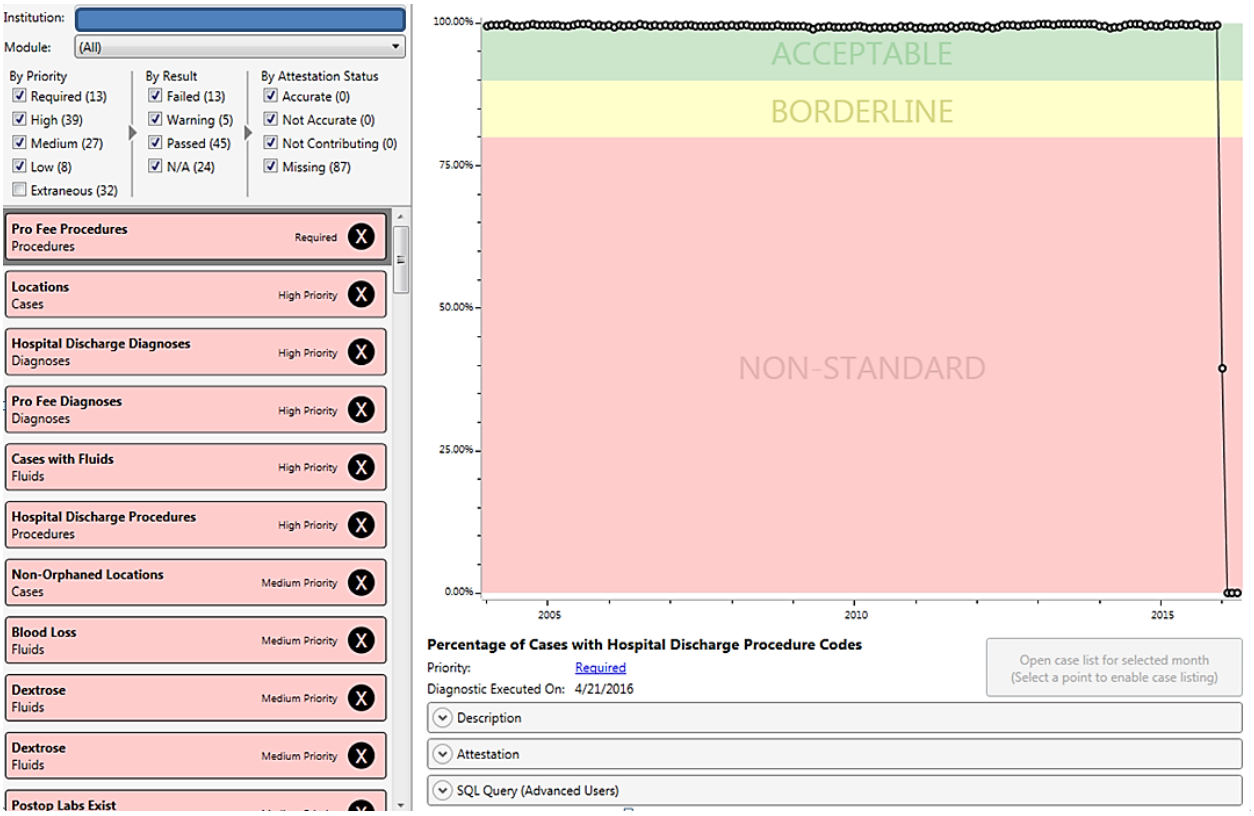
1. Access Data Diagnostics on the MPOG Suite



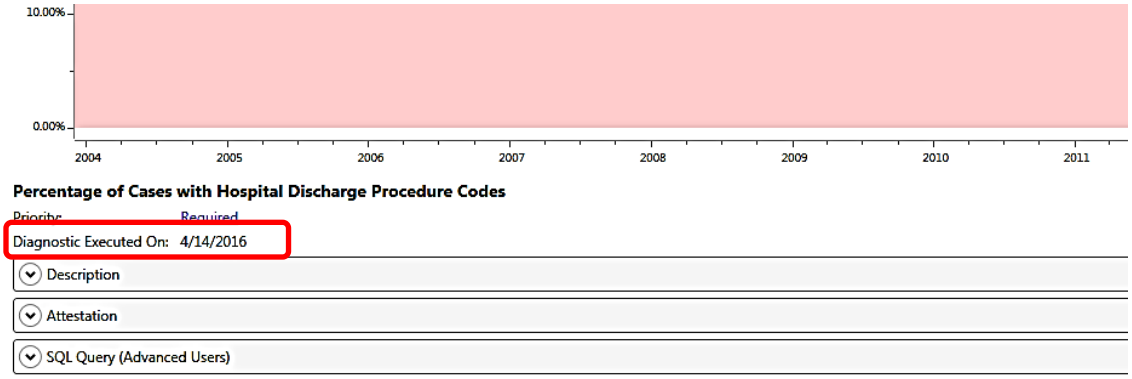
2. Your institution/site should be defaulted in the top field. Select a module to filter the diagnostic list to accommodate the type of data to review. If planning to review all data diagnostics for the monthly attestation process, click “(All)” from the dropdown menu.



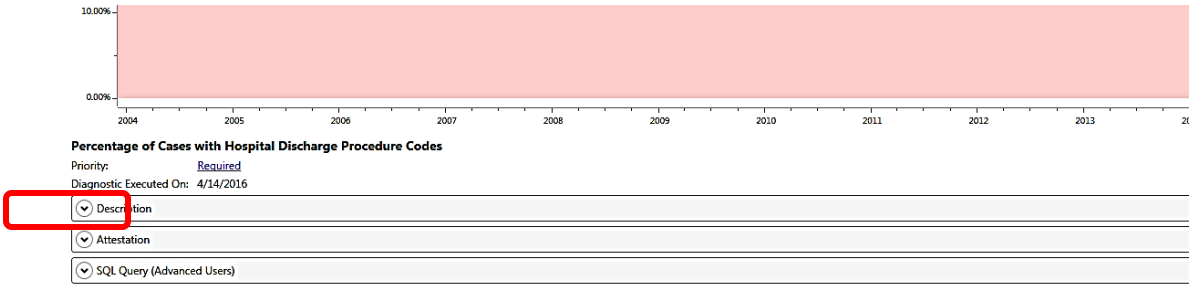
3. Click on the name of the Data Diagnostic in the left column to display the graphical results on the right. For example, Pro Fee Procedures are highlighted in the left column, the diagnostic displays the percentage of cases with hospital discharge procedure codes by month. If your site does not submit billing data, the graph will display 0% of cases have Pro Fee Procedure codes. According to the diagnostic shown below, this site has Pro Fee Procedure codes in the database for 99-100% of cases through January 2016 at which point there are Pro Fee Procedure codes for 0% of the cases in the database.



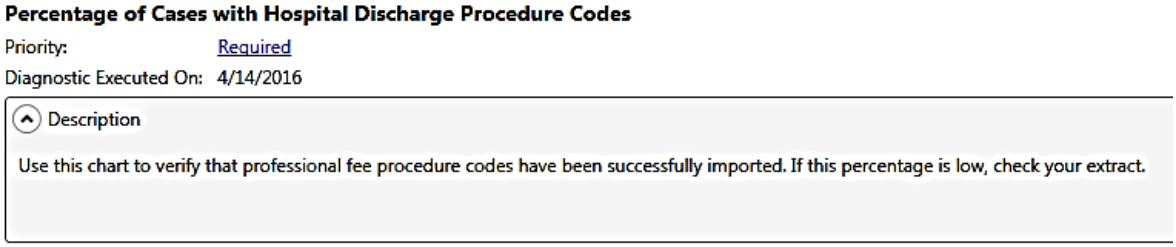
4. To understand when the Diagnostic was last updated, view the ‘Diagnostic Executed On: XX/XX/XXXX’ date listed beneath the graph.



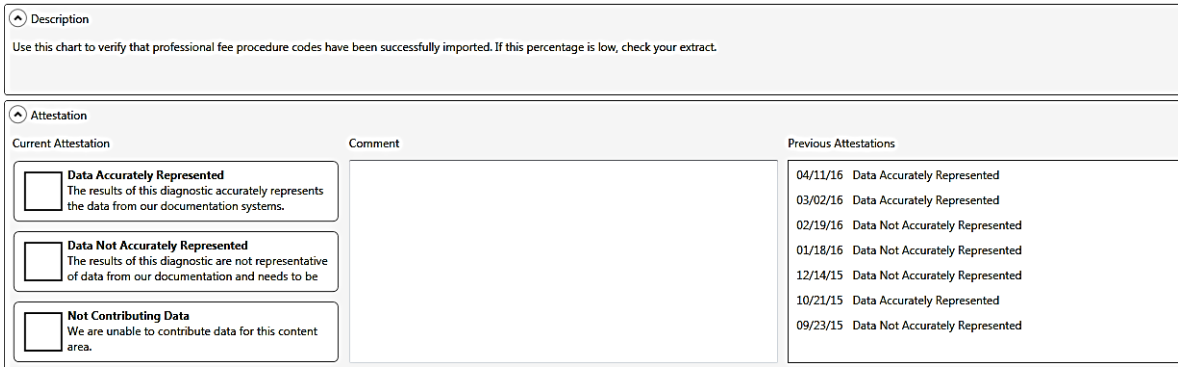
5. To seek further clarification for the diagnostic selected, click on the “Description” header beneath the graph:



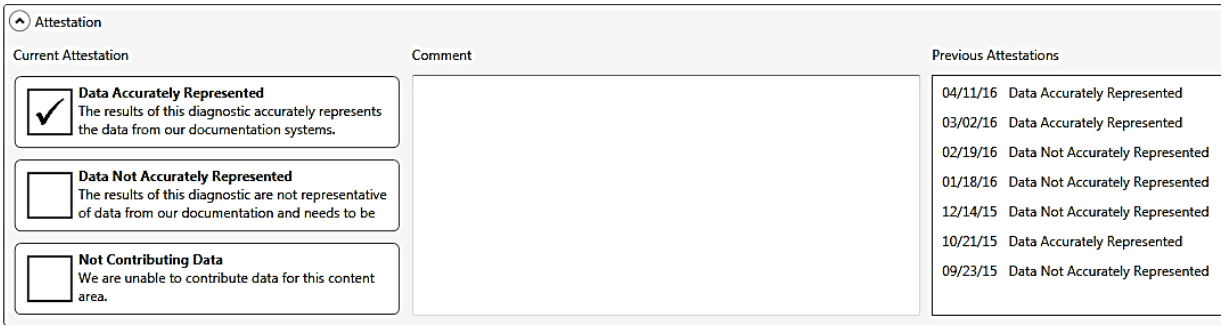
6. Clicking on the Description will expand the box to display the definition of the Data Diagnostic shown.



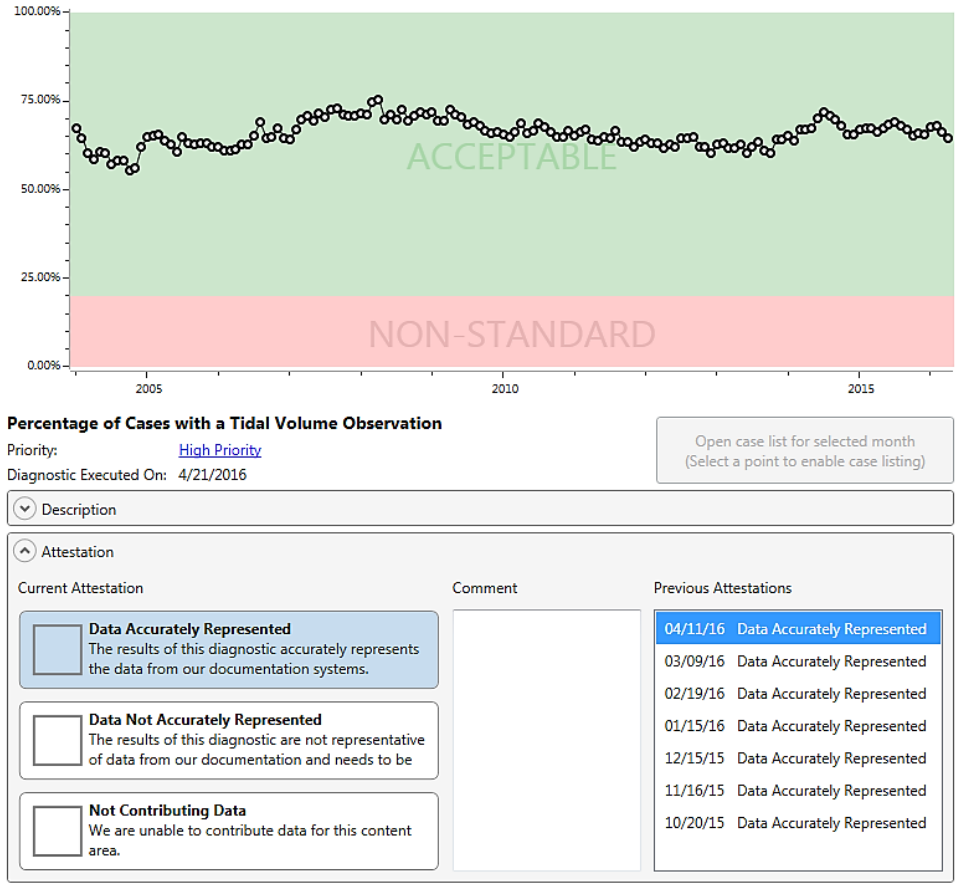
7. Beneath the description is an Attestation section. Click on the arrow next to Attestation to open.



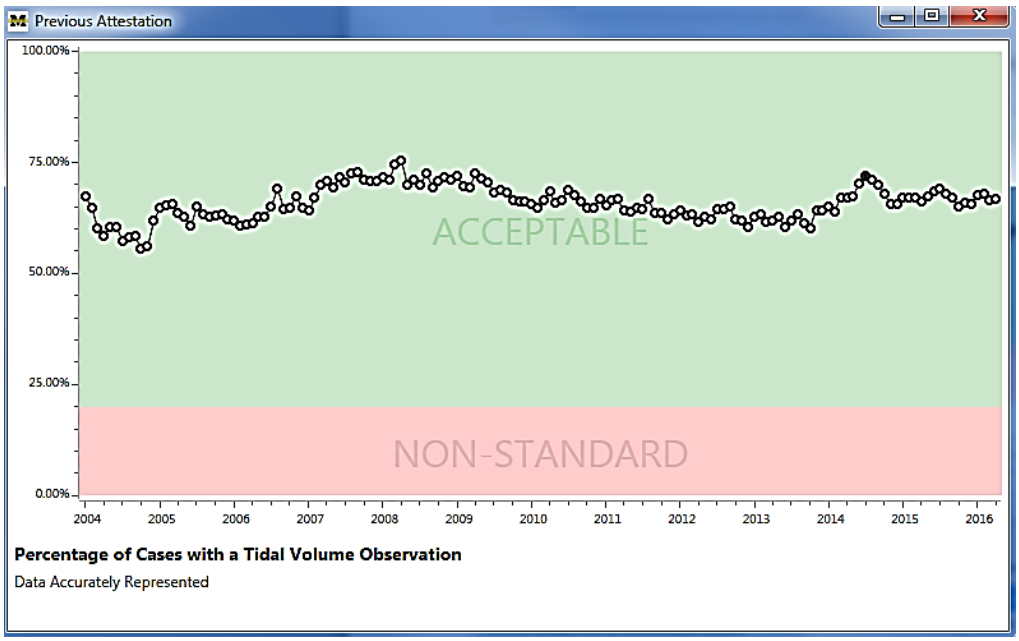
8. In the Attestation section, the site Anesthesia Clinical Quality Reviewer (ACQR) or Quality Champion has the opportunity to review the diagnostic and determine if the data accurately represents the documentation present at the site (either in the EMR or billing software). If the site is not submitting data for the content area measured in the diagnostic (i.e. billing data), the option of "Not Contributing Data" should be selected. For the purpose of this example, "Data Accurately Represented" would be chosen since the data reflects the documentation for the cases that have been loaded to date. Click the box next to the attestation selection that most represents the analysis conducted on the Data Diagnostic under review. When the Data Diagnostic application is updated the following weekend, the current attestation will move to the Previous Attestation box on right side of the screen with an associated date.



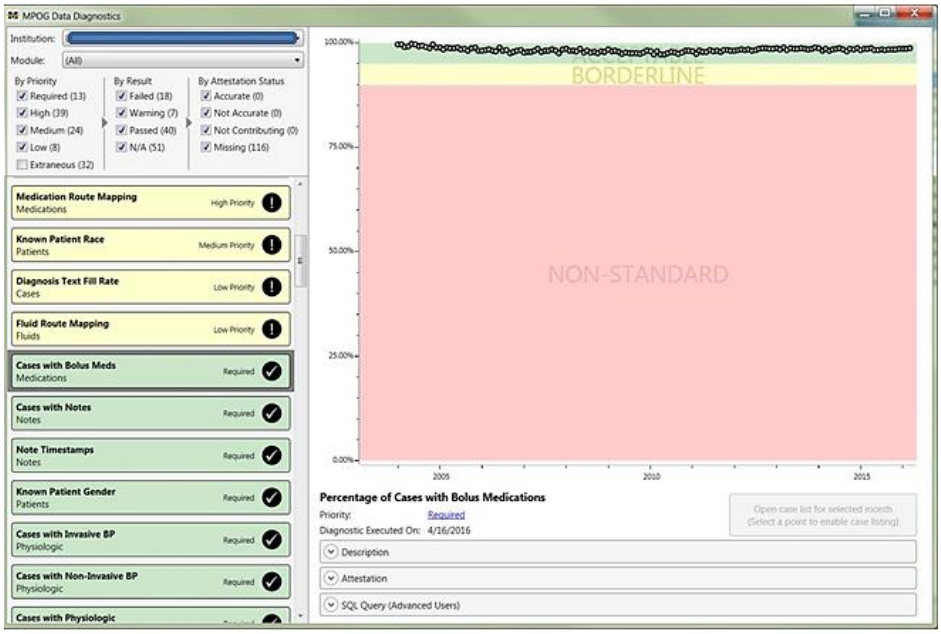
9. To view diagnostic graphs from a previous attestations, double-click on the row of the attestation to review and a new screen should display with the previous graph.



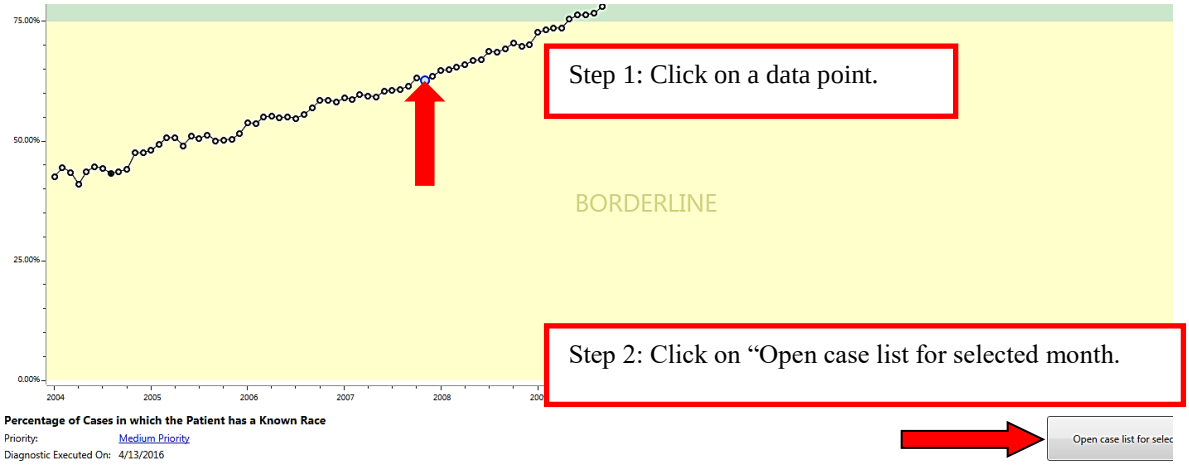
10. Previous attestation graph will display in a new window:



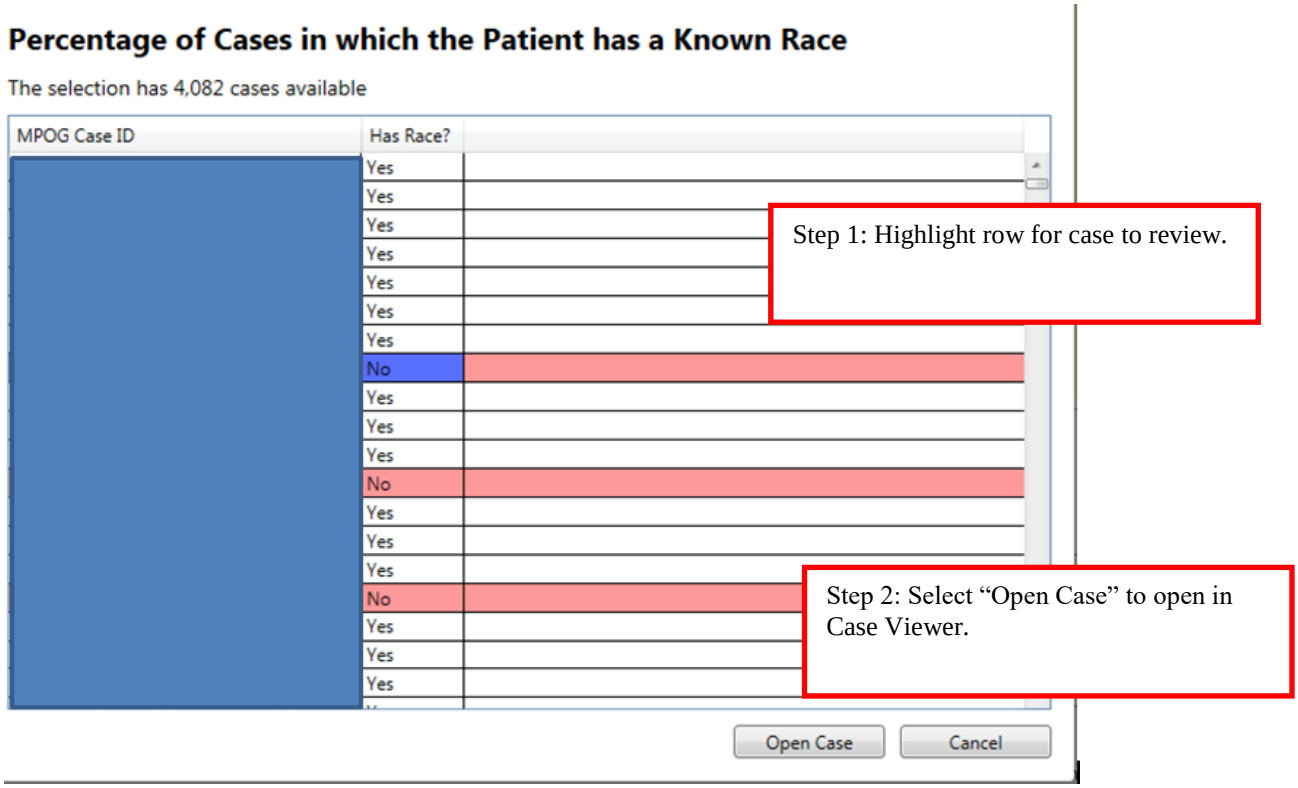
11. When attesting to diagnostics, it is important to conduct further investigation if the data is not accurately represented (gaps in the data or values are higher or lower than expected). To assist Quality Champions or ACQRs with this analysis, the Coordinating Center has established thresholds for many of the diagnostics that are reflective of common practice across many sites. Thresholds are indicated by the terms: Acceptable, Borderline, and Non-standard sections highlighted in green, yellow and red accordingly.



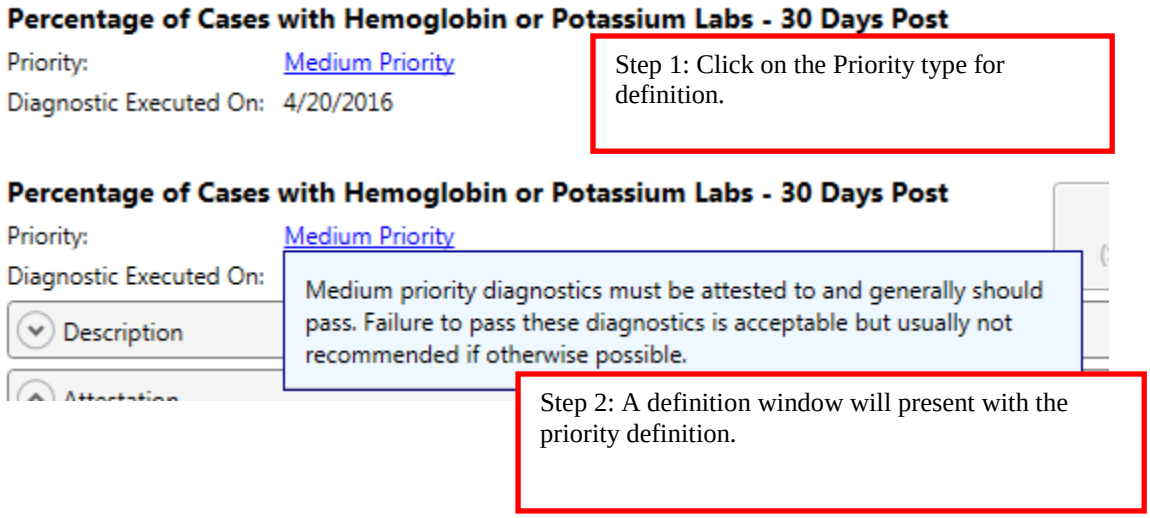
12. If you are below the threshold, with data in the 'Borderline' or 'Non-standard' areas of the graph, please verify the accuracy of the data. If not accurate, investigate further with the site technical team to identify if extract or mapping issues exist. Click on the data point associated with the time period in question and select 'Open case list for selected month' to display a list of cases for that time period.



13. Click on the row for the case to review (selecting a row highlighted in red will show a case that is missing the data evaluated in the diagnostic). Click on "Open Case" to conduct further investigation in Case Viewer. By reviewing several cases in this way, it may be possible to determine if a mapping issue exists. Contact the QI Coordinators at ASPIRE/MPOG to identify next steps to improving the data quality.



14. Diagnostics that are labeled by priority type. A definition for each priority type is listed below. These definitions are also available when clicking on the priority type



Diagnostic Priority Definitions (* indicated monthly attestation required):

***Required:** A required diagnostic MUST be passed before submission to MPOG.

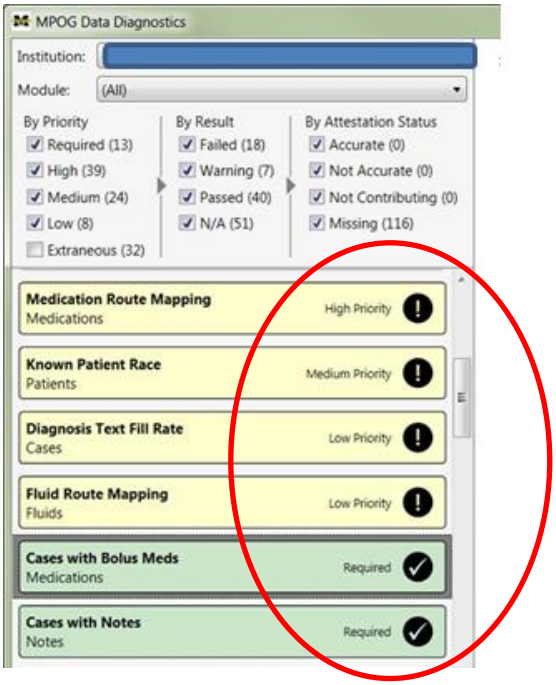
***High Priority:** High priority diagnostics must be attested to and it is strongly recommended that any detected issues are fixed prior to submission. Failure to pass these diagnostics can severely impact the quality assessment and research capabilities of your institution.

***Medium Priority:** Medium priority diagnostics must be attested to and generally should pass. Failure to pass these diagnostics is acceptable but usually not recommended if otherwise possible.

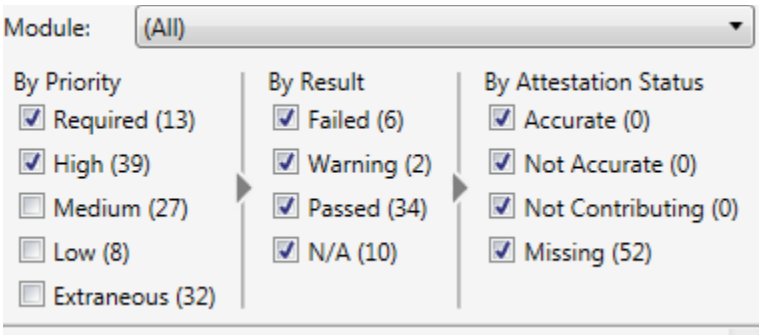
Low Priority: Low priority diagnostics are for low impact areas of the MPOG database.

Extraneous Priority: Extraneous diagnostics are meant purely as supplemental information. Reviewing them is not required and they are hidden by default.

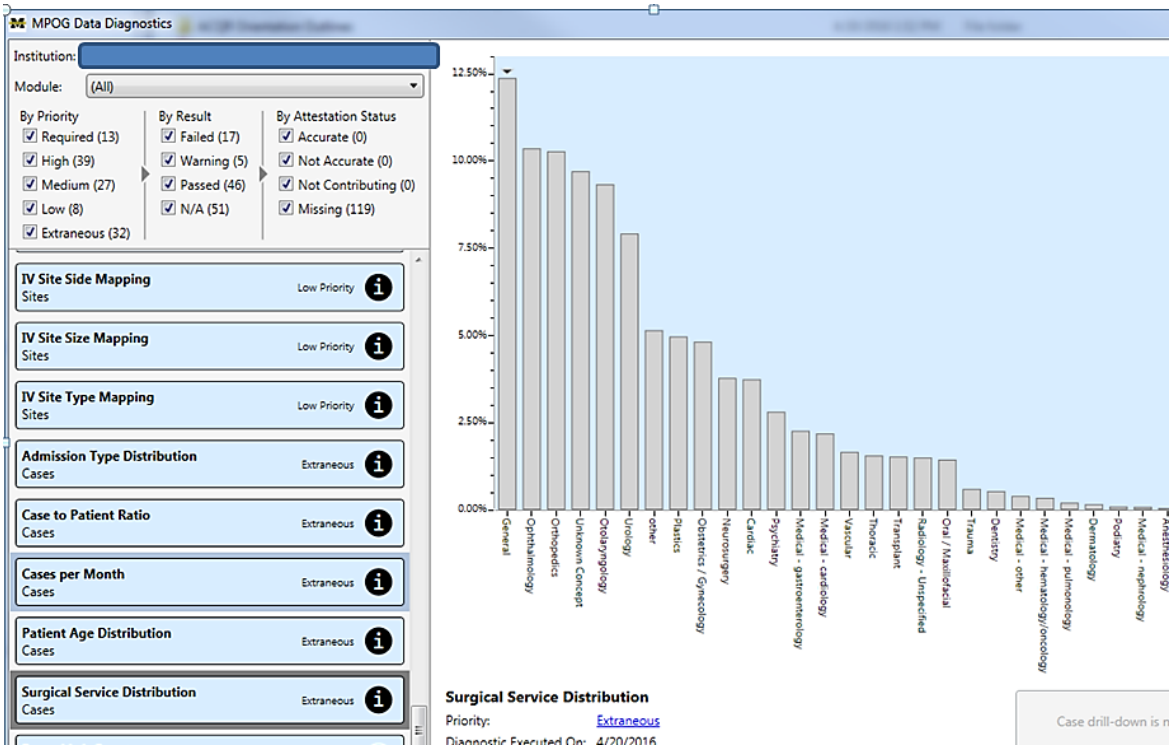
15. Priority type for each diagnostic is easily viewed on the right side in each diagnostic.



16. Filters can be applied by Priority, Result, or Attestation Type. Filtering allows the user to limit the number of diagnostics listed and improve the selection process for tailored and purposeful review of the data.



17. Finally, by clicking on "Extraneous" in the Priority filter list, a list of diagnostics that are helpful to understand site case mix and demographic types with populate at the bottom of the diagnostic list and coded blue. Blue diagnostics indicate that thresholds do not exist because every site differs in terms of case mix and patient population. It is important to verify that the diagnostic reflects your site case mix, population, practice, and distribution. See example of an extraneous diagnostic below:



18. An ASPIRE QI Coordinator will be available either on site or via web conference to conduct the first review of data diagnostics with the site.

Chapter 7.1 Case Validation: Case Selection Options

Case Validation Overview

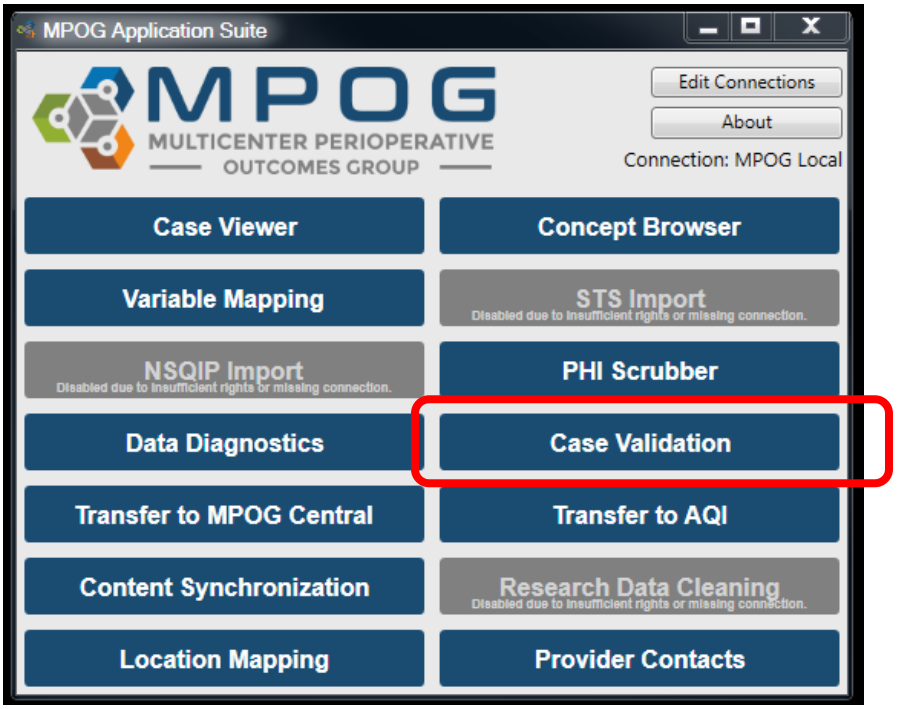
As mentioned in Chapter 6: Data Diagnostics, ASPIRE sites contribute information from various sections of the electronic health record to obtain preoperative, intraoperative, and postoperative data. Two separate strategies are employed to improve data quality and ensure data accuracy. First, data diagnostics are used by technical and clinical staff to detect systematic errors with data extraction, transformation, or mappings. Second, clinicians at each site are required to manually validate between 5 and 20 cases per month to ensure that the data extracted into MPOG matches the original EHR documentation utilizing the MPOG Case Validation application. This micro-level view of the data allows for detection of data issues at an individual case level that may not be visible using data diagnostics. A series of 32 standard questions are used to validate case information in MPOG is accurate. The first section of this chapter (7.1) outlines the options for how to select a case. The second section of this chapter (7.2) summarizes the steps for performing case validation.

For the purpose of the monthly required case validation, it is suggested that a variety of case types are included in the sample for case validation. For example, if your institution has cardiac surgery, orthopedic surgery, obstetrics/gynecologic surgery, vascular surgery, and transplant surgery, then you should review a case for every service. It is also recommended that emergent cases be validated as the data for an emergent case may not always extract in the same way a scheduled case does. After a few months, you may see trends in issues with mapping. Based upon initial review and with help from an MPOG QI Coordinator, you will decide how to select future cases for review. For example, you may find that there is a trend in issues with mapping for cardiac procedures. In this case, you will want to place emphasis on reviewing cardiac cases for a few months until the data issue is resolved.

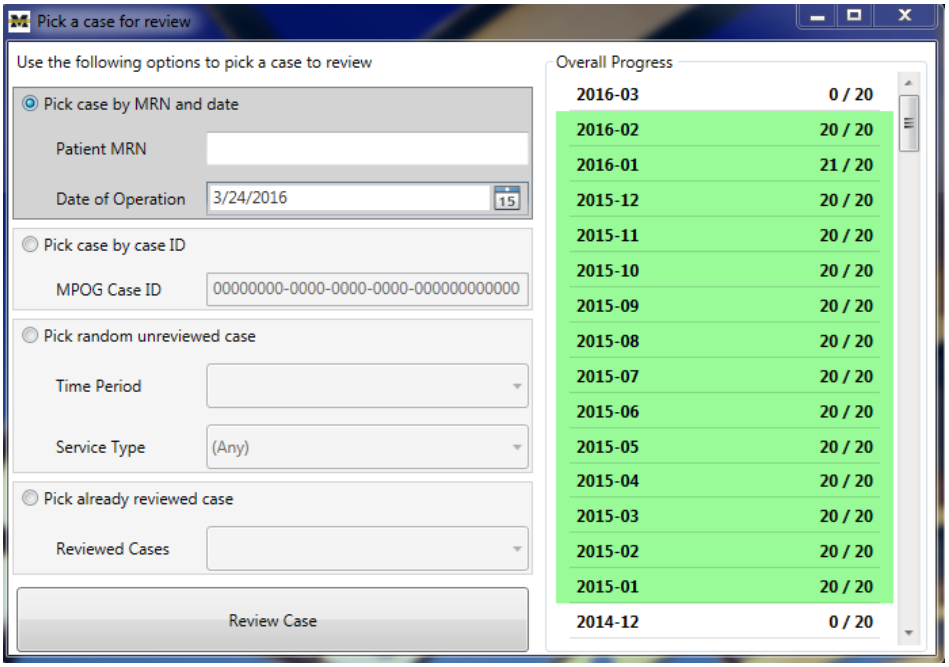
> **BCBS Funded sites**: MPOG requires review of 20 cases per month for at least 6 months prior to MPOG Central. All historical data should be validated with a minimum of 5 case validations completed per month.
>
> **Non-funded sites**: MPOG requires review of 5 cases per month for 6 months before initial upload. All historical data should be validated with a minimum of 5 case validations completed per month but can be completed after initial upload if Data Diagnostics are accurate throughout.

1. Open the MPOG Application Suite and Open Case Validation.

(For instructions on how to download, see ‘Chapter 1: Downloading and Accessing the MPOG Suite.’)



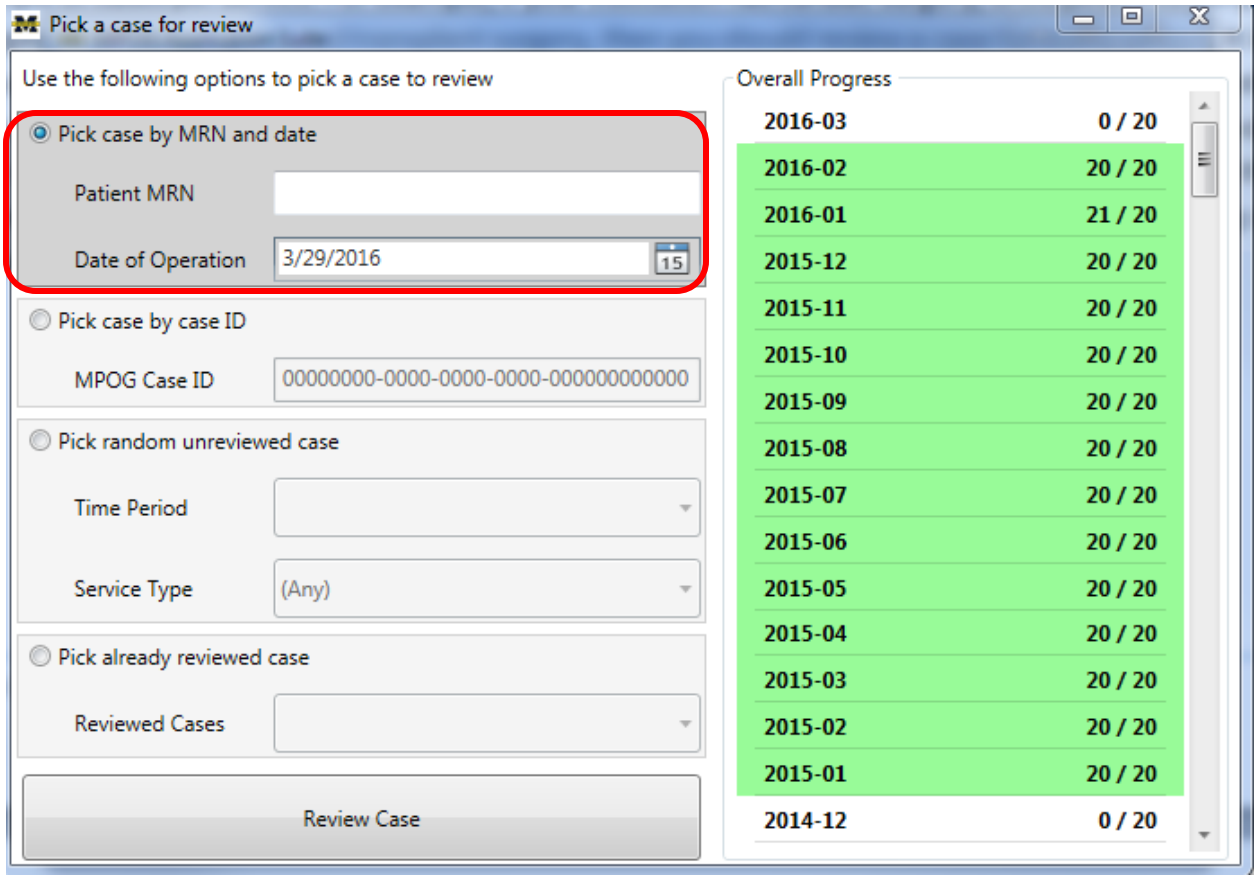
2. The left side of window displays 4 options for how you can select and open a case. The right side of the window displays the number of cases that have been reviewed historically for each month. Green indicates that at least 20 cases per month have been reviewed.



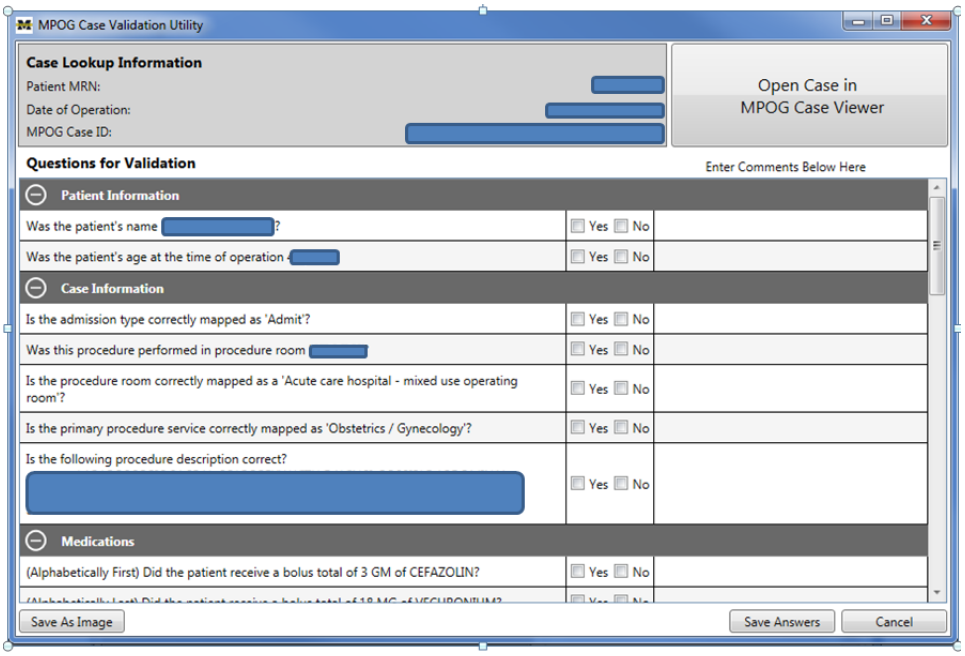
3. Pick a Case for Review: There are 4 options to select from.
    a. Pick case by MRN and date
    b. Pick case by case ID
    c. Pick random unreviewed case
    d. Pick already reviewed case

Case Selection Options

1. Pick case by MRN and date:
    a. Click the dial next to "Pick case by MRN and date." Both MRN and Date of Operation are required for this type of case selection method.

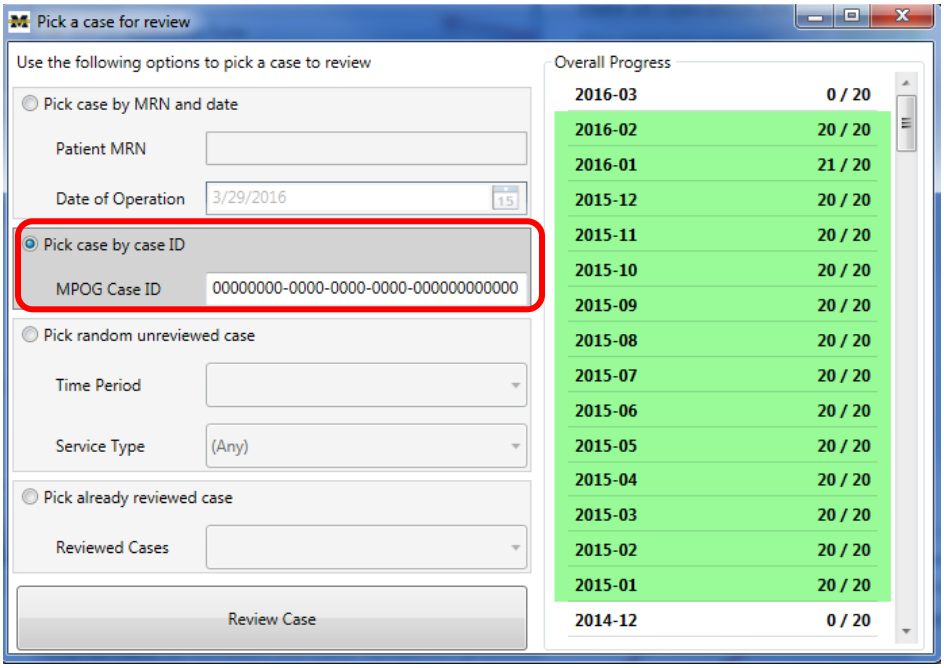


b. The Case Validation screen should display. For the purpose of this training, all Protected Health Information (PHI) has been removed. You would typically verify that the patient MRN & Date of Operation are the same as the case you were initially trying to select and then begin case validation. Refer to Section 7.2 for how to begin the case validation.



2. Pick case by case ID:

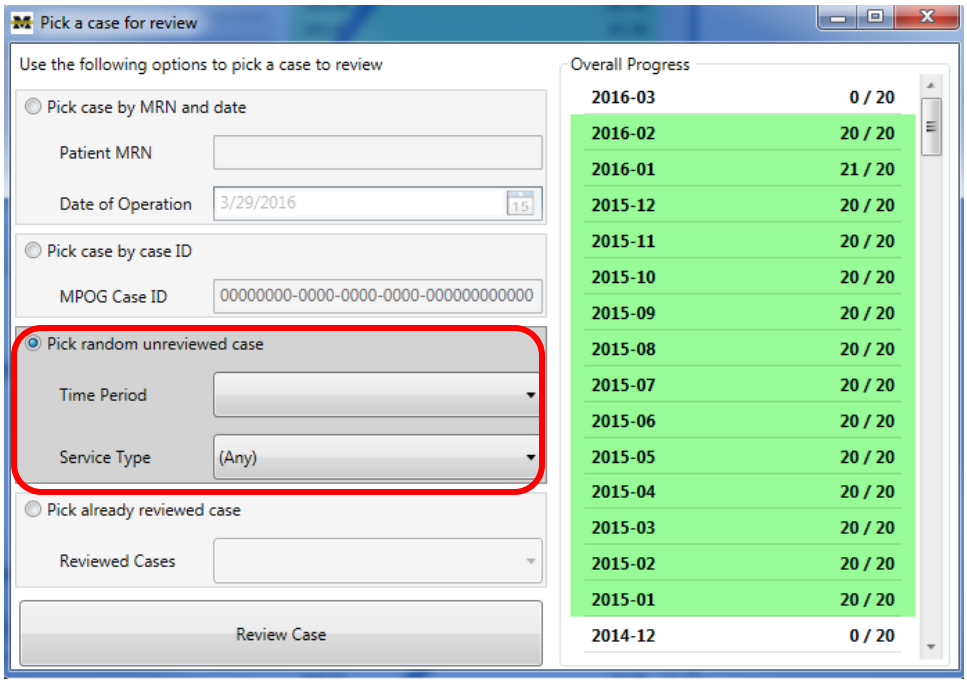
a. Click the dial next to "Pick case by case ID."



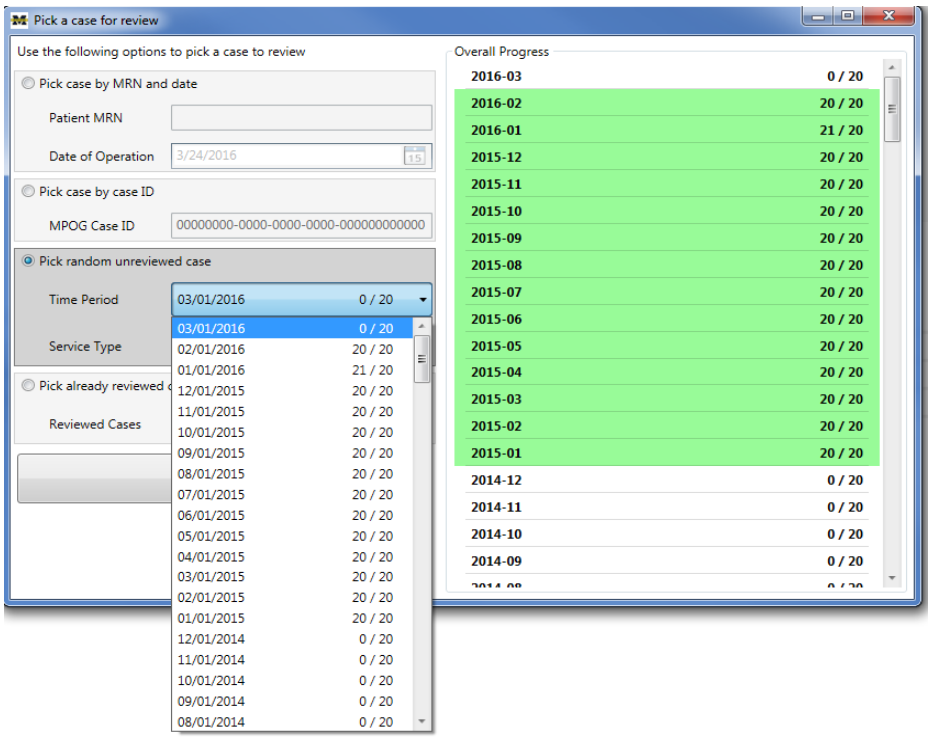
b. The Case Validation screen should display. For the purpose of this training, all PHI has been removed. Typically, you would verify that the MPOG Case ID is the same as the case you were initially trying to select and then begin case validation. Refer to Section 7.2 for how to begin case validation.

3. Pick random un-reviewed case:

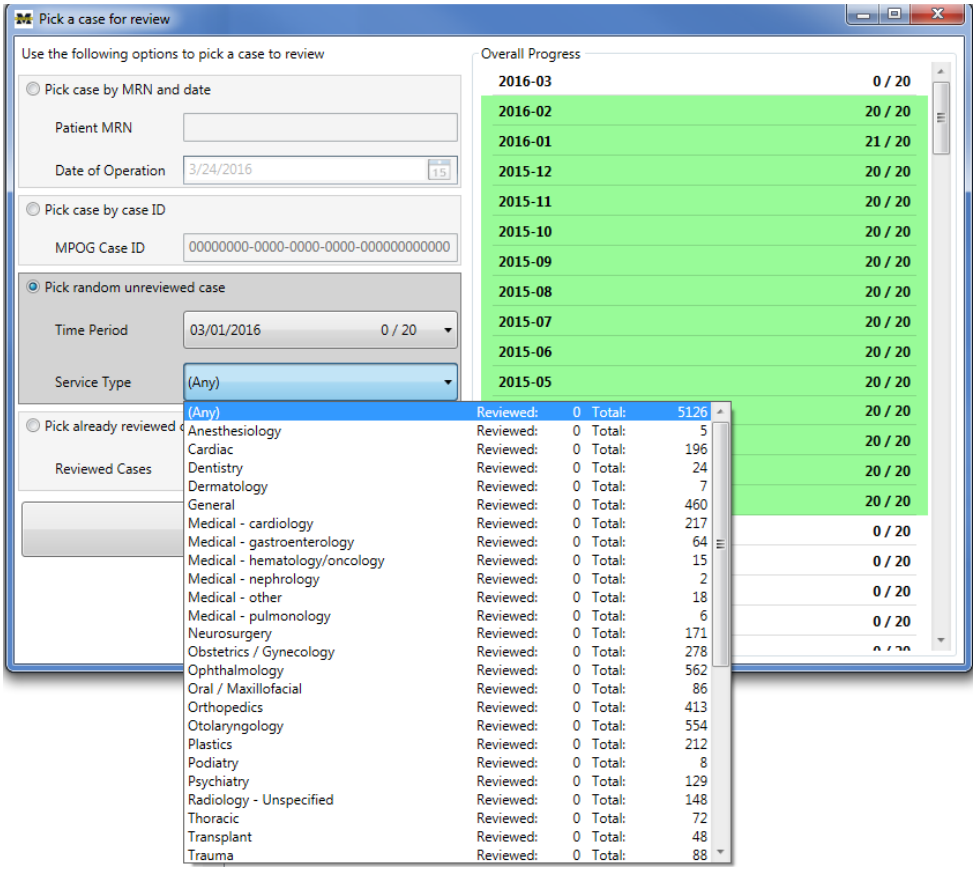
a. Click the dial next to "Pick random un-reviewed case."



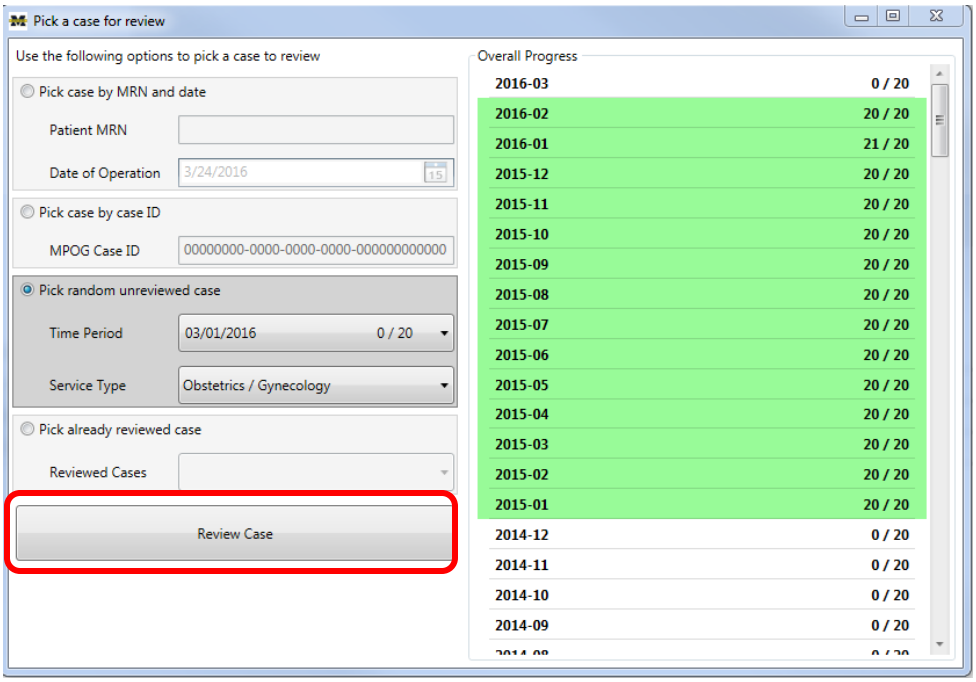
b. Choose the date range.



c. Select a service from the dropdown menu (optional).

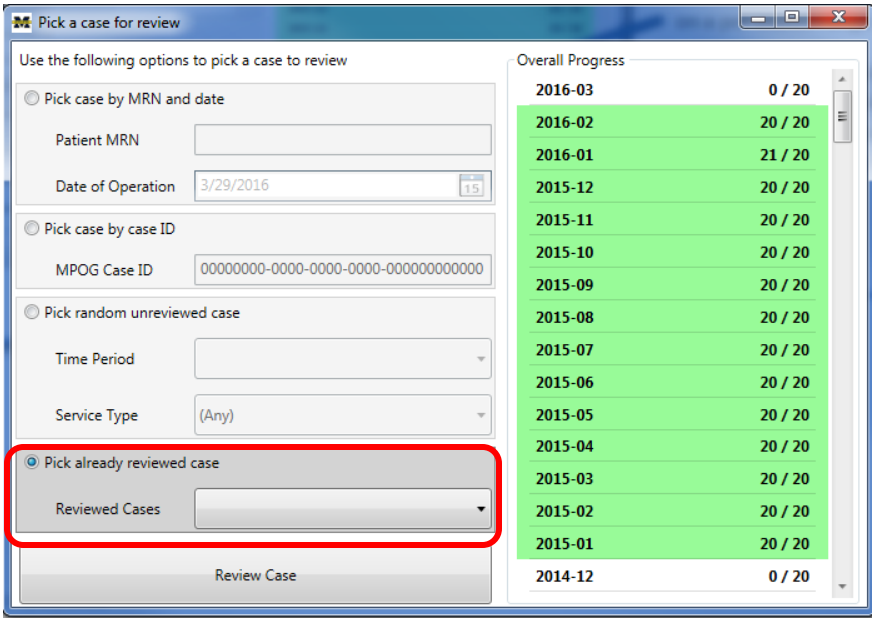


d. Select “Review Case” at the bottom of the screen.

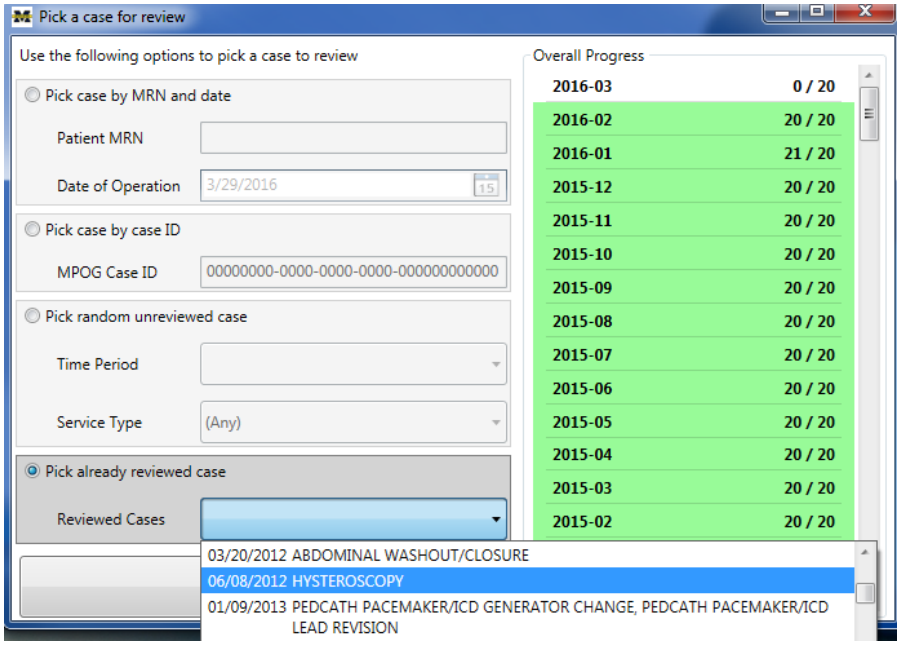


e. The Case Validation screen should display. For the purpose of this training, all PHI has been removed. At this point, you could begin case validation. Refer to Section 7.2 for how to begin case validation.

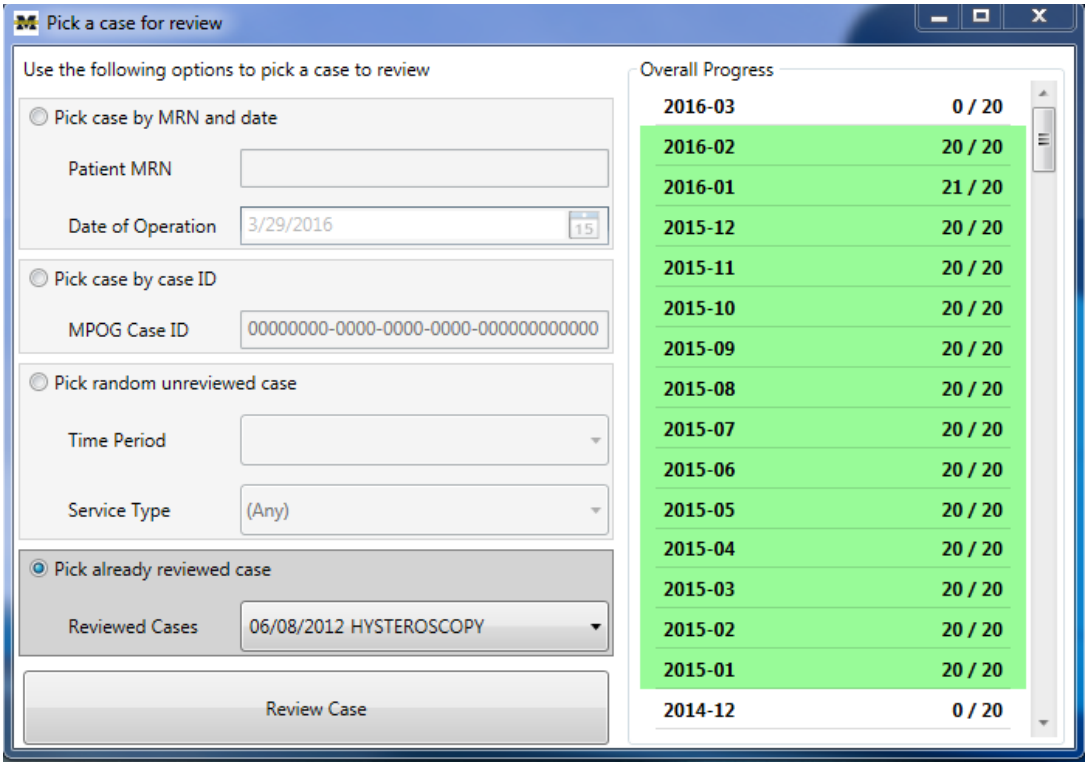
4. Picking an Already Reviewed Case:
   a. Click the dial next to "Pick an already reviewed case."



   b. Select a case from the dropdown menu. The date of operation and procedure type will display.



c. Select “Review Case” at the bottom of the screen.



d. The Case Validation screen should display. For the purpose of this training, all PHI has been removed. At this point, you would verify that the case selected matches the case type that displays in the validator and begin case validation. Refer to Section 7.2 for how to begin case validation.

Chapter 7.2 Case Review & Validation

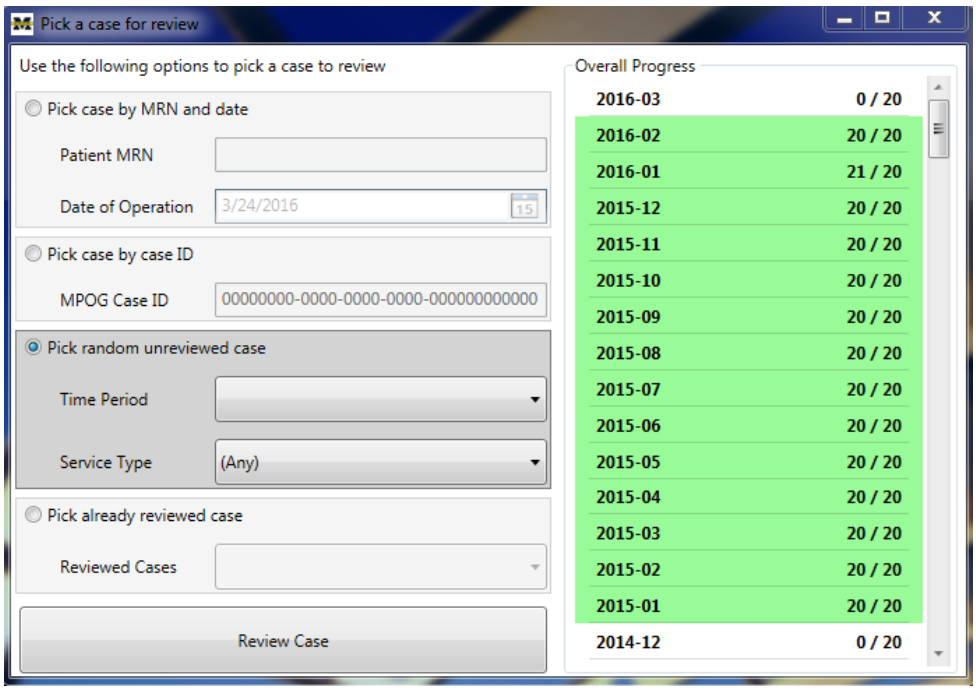
Case Validation Overview: See Chapter 7.1

Validation Requirements:

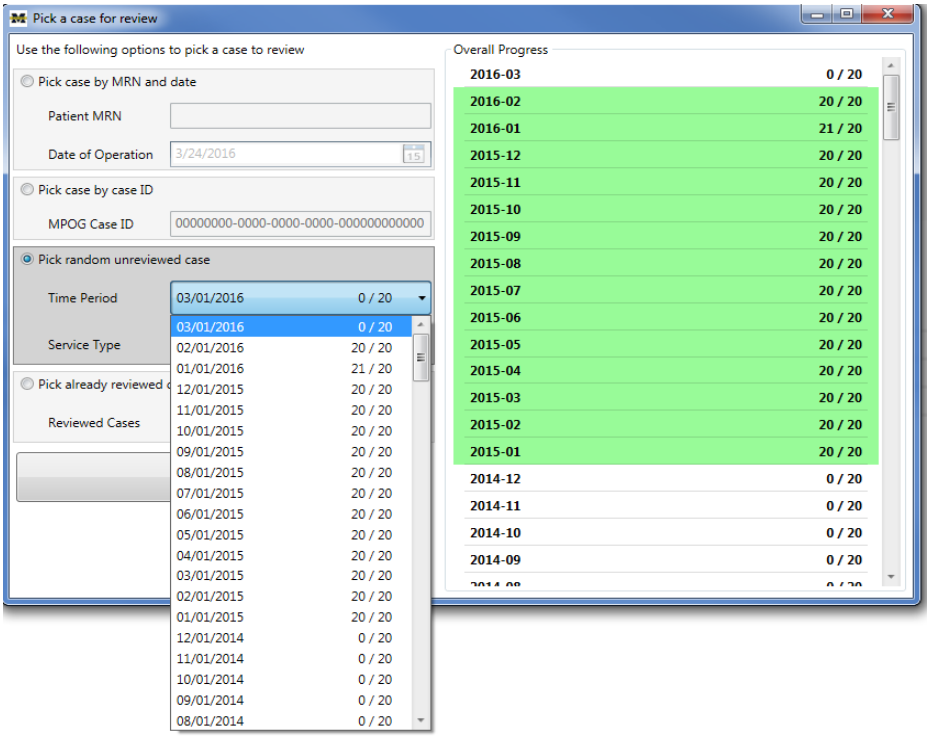
BCBS Funded sites: MPOG requires review of 20 cases per month for at least 6 months prior to MPOG Central. All historical data should be validated with a minimum of 5 case validations completed per month.

Non-funded sites: MPOG requires review of 5 cases per month for 6 months before initial upload. All historical data should be validated with a minimum of 5 case validations completed per month but can be completed after initial upload if Data Diagnostics are accurate throughout.

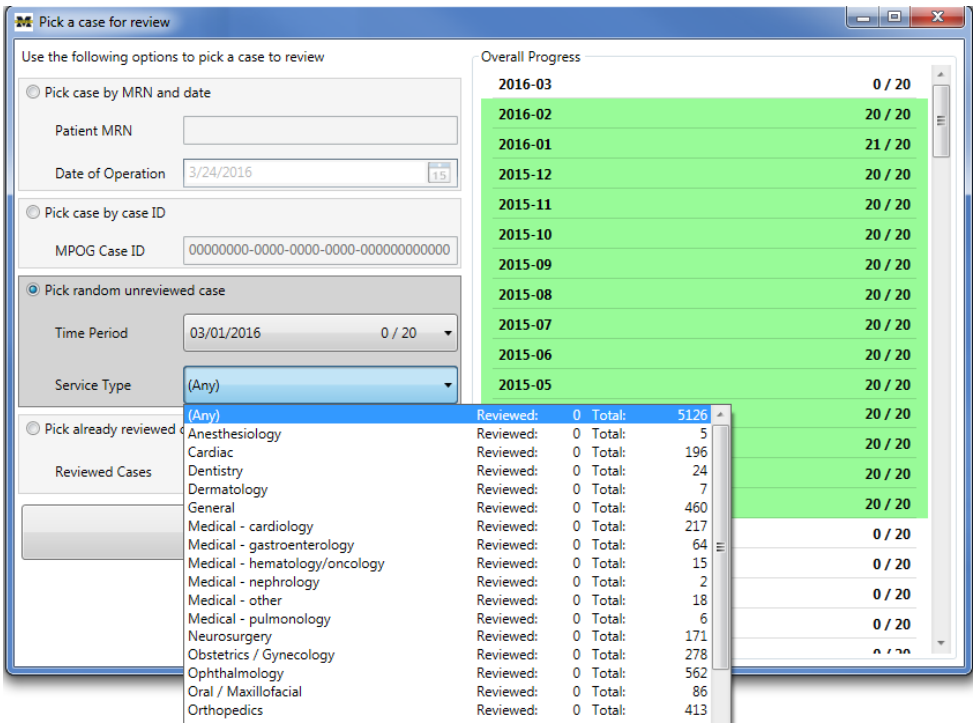
1. Select a case using one of the options discussed in Section 7.1. For the purpose of this training, random case selection will be utilized as this is the most common method applied for case validation.



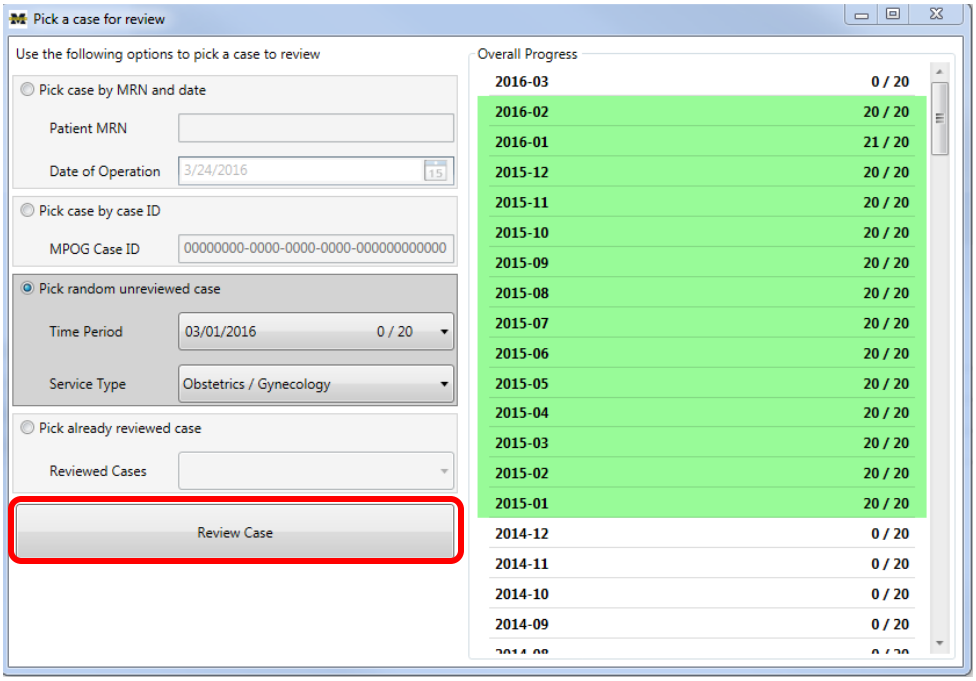
2. Choose the date range for the month of data requiring validation.



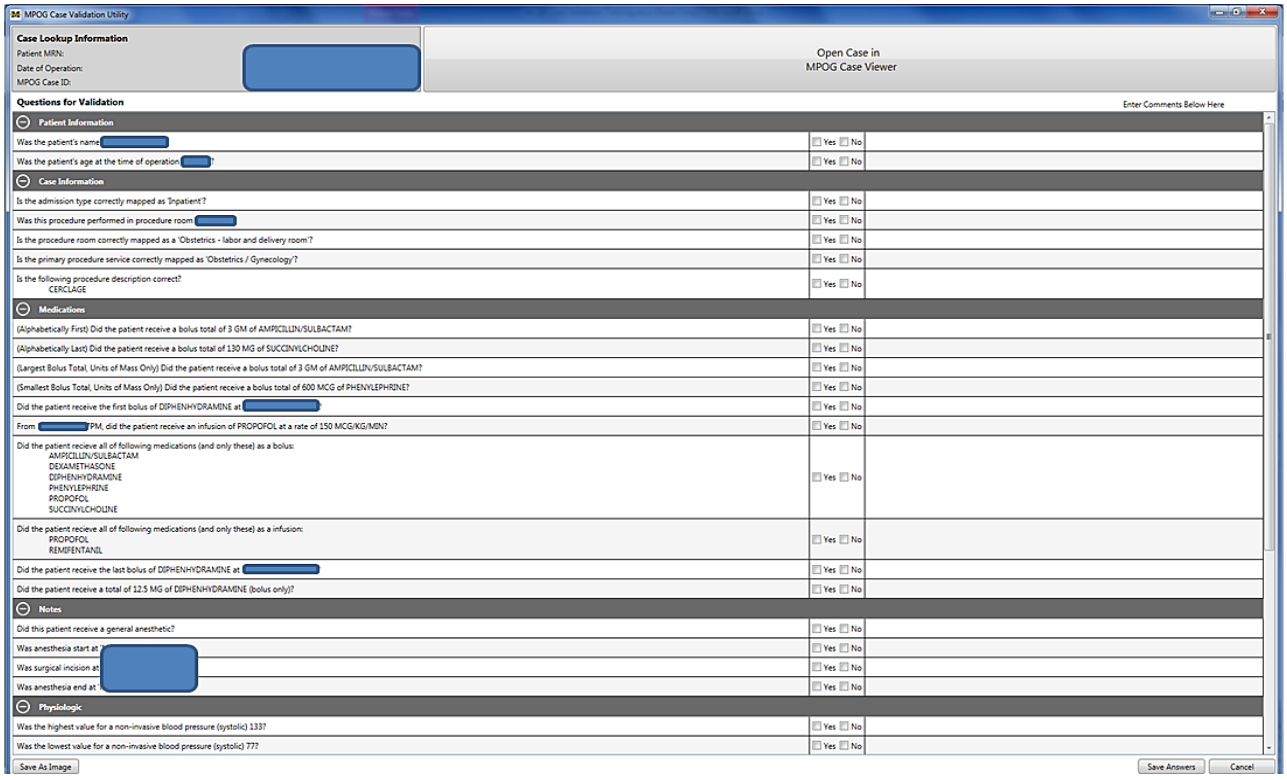
3. (Optional) Select a service from the drop down menu.

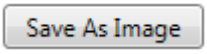


4. Select ‘Review Case.’



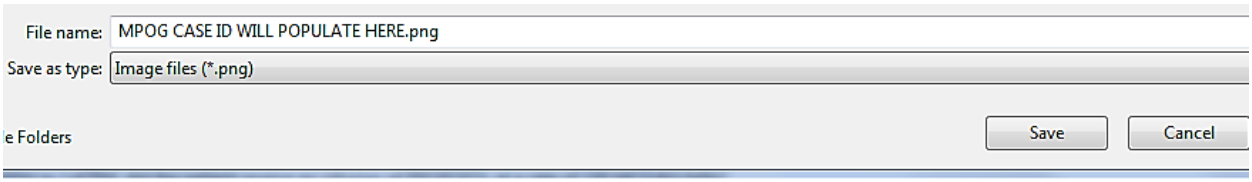
5. The Case Validation questionnaire will display. For the purpose of this training exercise, the PHI was removed.



6. On this screen, you must answer every question with ‘yes’ or ‘no’ unless there is no data in which case the row for the question is highlighted in red (see step 11 below). Please add comments as needed to explain any discrepancies. For issues that need follow-up from the site technical team or coordinating center, the 

button is now available to save a screenshot of the case. **PHI will automatically be eliminated from the screenshot.**

7. A window will display asking you to save the image. The MPOG Case ID will automatically populate the File Name. Choose a file location where you will be able to access again. Click ‘Save.’



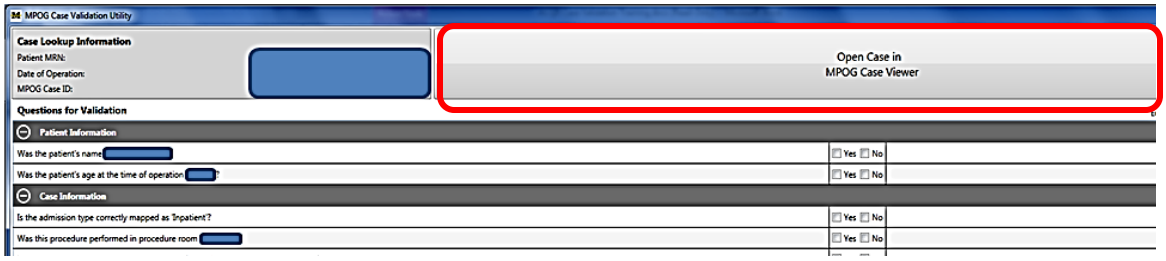
8. You can now email and attach the saved screenshot to communicate any issues to the site technical team or member of the ASPIRE coordinating center.

9. As you answer each question, you may need 3-4 programs open at a time to verify the information in the MPOG case validator “matches” the information present in the hospital Anesthesia Information Management System (AIMS). For this reason, it is recommended that you have at least 2 monitors/screens available for use. Most likely, you will need the intra-op record open on one screen and the MPOG case validator on the other. However, the source of truth varies per institution depending on the electronic documentation system.

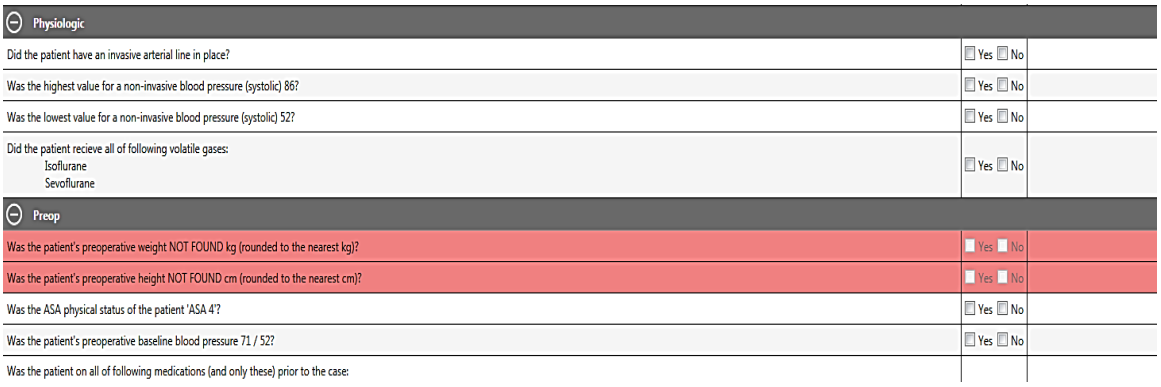
For example: At the University of Michigan Health System, multiple systems are used for case validation:

a. Centricity contains the Intra-op record, Anesthesia H&P, Case details.
b. Epic: Inpatient record, used for validation preop medications and admission status
c. Carelink: Previous EHR used for validating cases pre-dating Epic implementation.

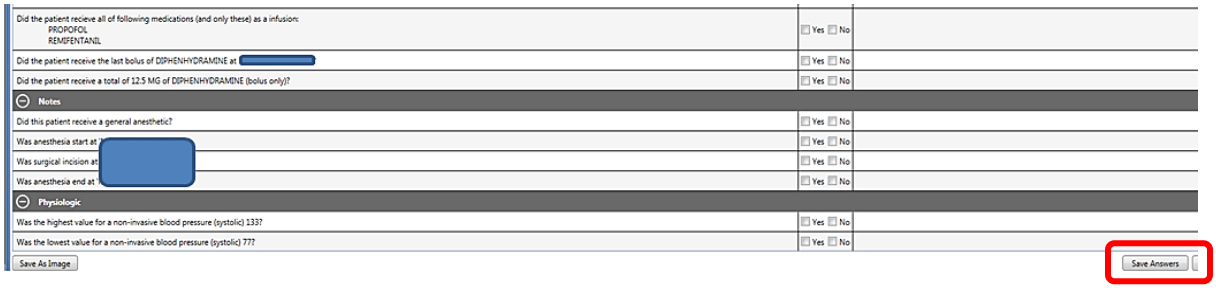
10. It may be useful to open the Case Viewer within the MPOG Suite to assist in the case review. To access from the Case Validation Utility screen, click on the 'Open Case in MPOG Case Viewer' tab at the top right hand of the screen. For further details on the Case Viewer, refer to Chapter 3 of the ACQR User Manual.



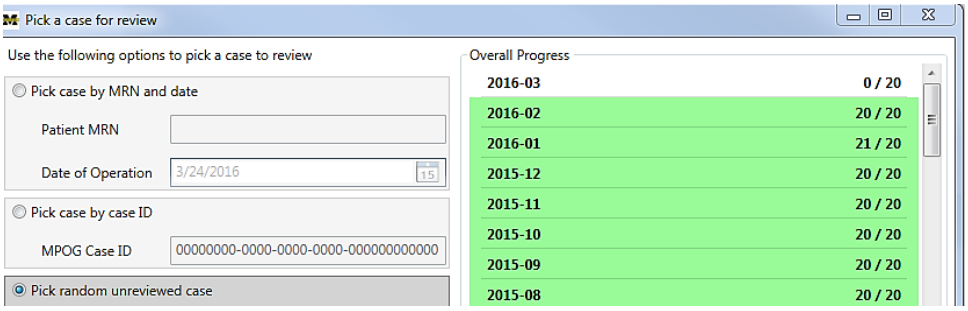
11. If a case is missing information in the MPOG database for any reason, the case validator will highlight the row for that question in red and will not gray out the yes/no checkboxes. If multiple cases seem to be missing the same type of data, note the MPOG case IDs. This can indicate an extract issue or a documentation issue- discuss with the MPOG QI Coordinator to identify next steps. See example below.



12. After all questions are answered for the selected case, click the Save Answers button in the bottom right corner of the screen. Once the case has been submitted, there is no way to go back to review the form at this time. Also, once the case is open, you must complete it as the information will not be saved if the case is closed before submitting.



13. This will automatically save and update the monthly count for cases reviewed in the ‘Overall Progress’ section as seen below.



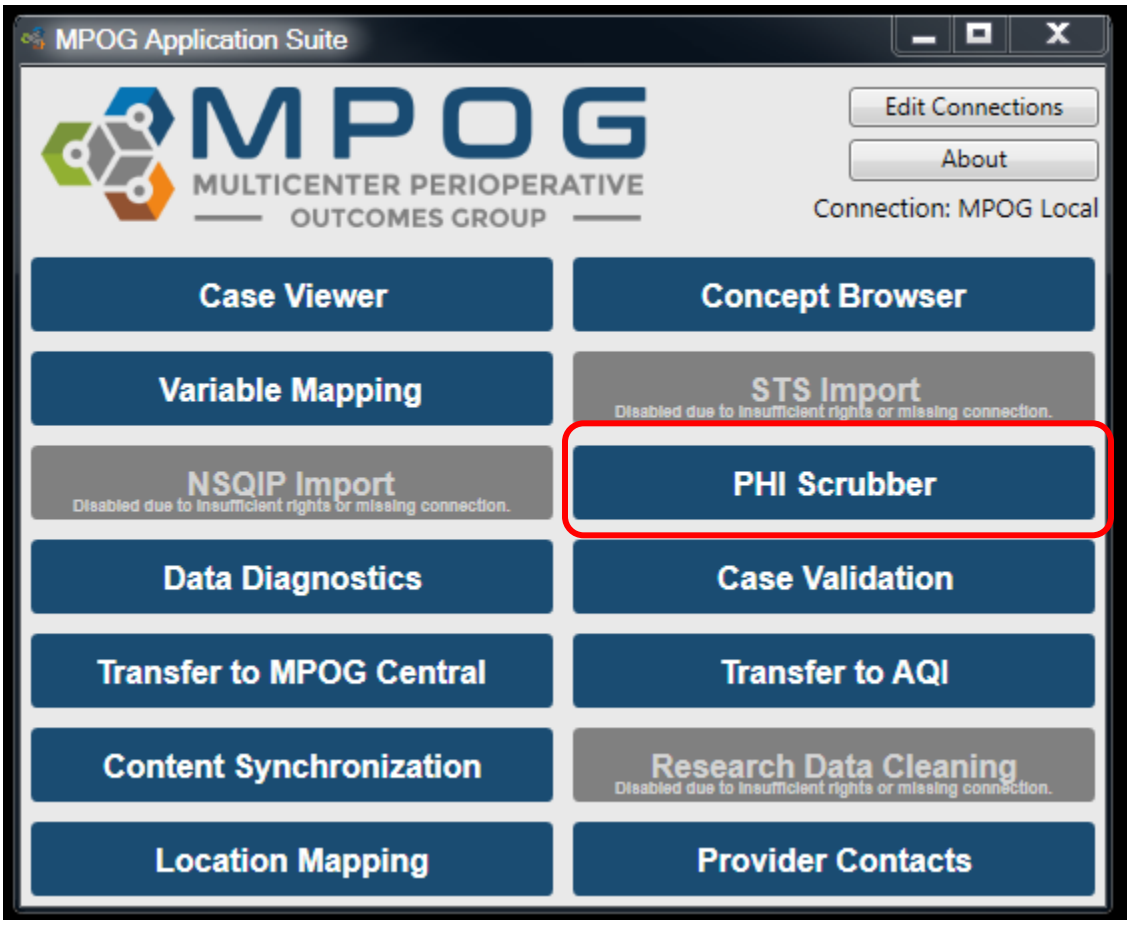
14. MPOG QI Coordinators are available via web conference or email for any questions regarding case validation.

Chapter 8: PHI Scrubber

PHI Scrubbing Overview

The PHI Scrubber application allows sites to remove staff and patient identifiers before transferring data to the MPOG Central database. Scrubbing should be executed before each transfer. Several dictionaries have been preloaded into the application including a list of the most common first and last names from the US Census Bureau and the Snomed dictionary to identify healthcare terminology that should remain with the transfer. The site technical team must load the local institution-specific provider names and identifier dictionary to allow scrubbing of staff identifiers. It is important to note that though the PHI Scrubber will remove as many identifiers as it detects, there will always be a minimal (non-zero) risk of identifiers transferring via free text notes.

1. Access PHI Scrubber on the MPOG Suite:



2. PHI Scrubbing Options

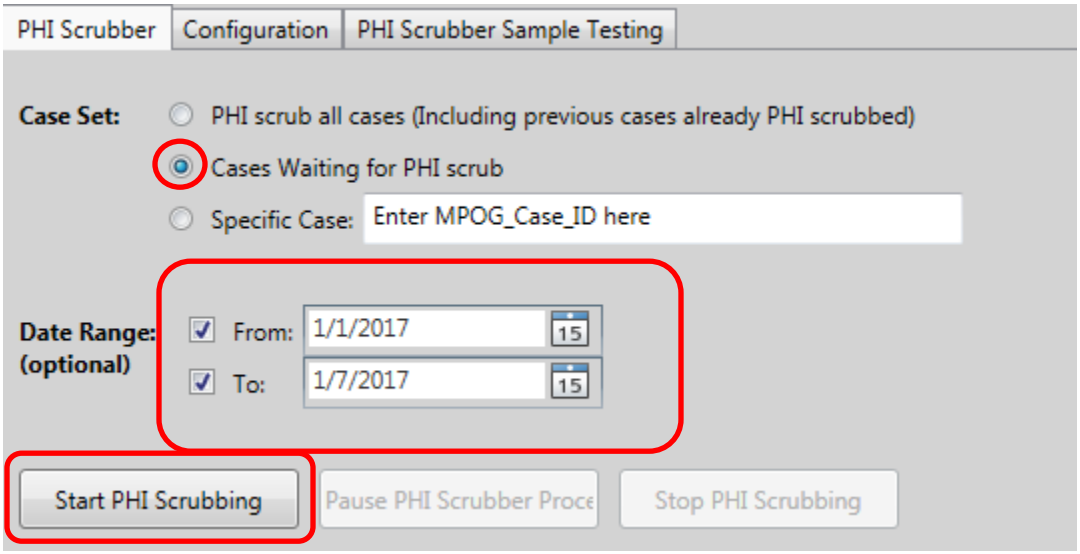
Three options exist within the PHI Scrubber application for selecting cases to be scrubbed.

Note: One of these options must be selected before selecting a date range.

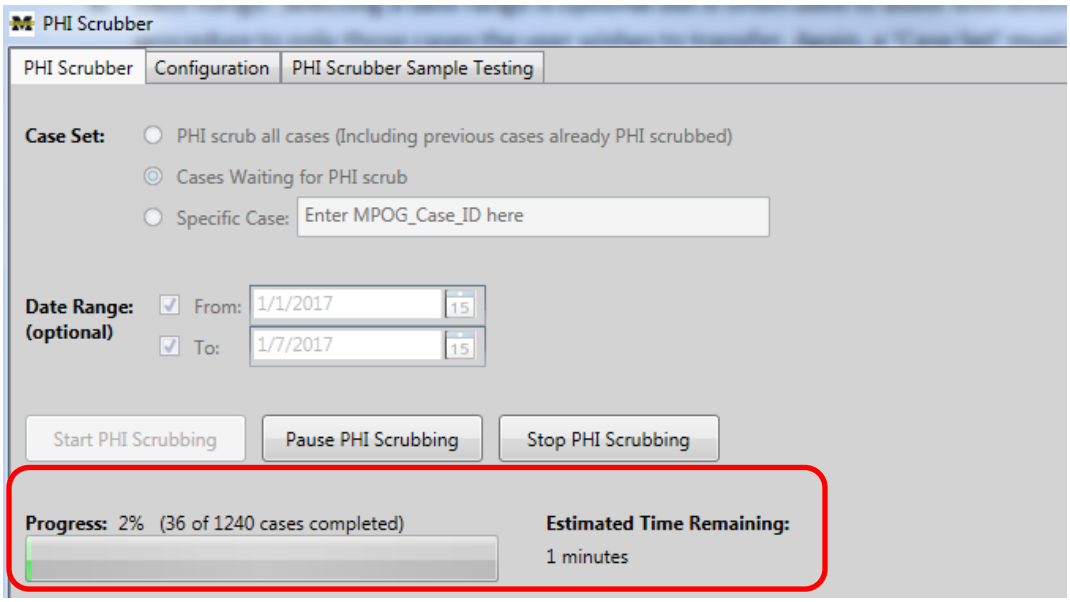
a. **PHI scrub all cases (Including previous cases already PHI scrubbed):** Allows users to scrub all cases including those that have been scrubbed in the past.
b. **Cases Waiting for PHI scrub:** Allows users to scrub only those cases marked as needing to be scrubbed.
c. **Specific Case:** Allows users to scrub a single case using the MPOG Case ID. A date range should not be selected for scrubbing a single case.
d. **Date Range:** Selecting a date range is optional but is often used to assist with limiting the scrubbing procedure to only those cases the user wishes to transfer. Again, a 'Case Set' must be selected in addition to a date range in order to proceed with the scrubbing process.

3. Initiating PHI Scrubber

a. Once the case set is selected, click 'Start PHI Scrubbing' to start the process. There are options to 'Pause' or 'Stop' PHI Scrubbing. If pausing the PHI Scrubber, the application must remain open in order to 'un-pause' and restart the scrubbing process. If for some reason, the user exits out of the application while 'paused,' the Case Set and Date Range (if applicable) will need to be selected again to continue scrubbing.



b. The Progress Bar displays the percent complete and number of cases completed. The tool also assigns an Estimated Time Remaining to the job.

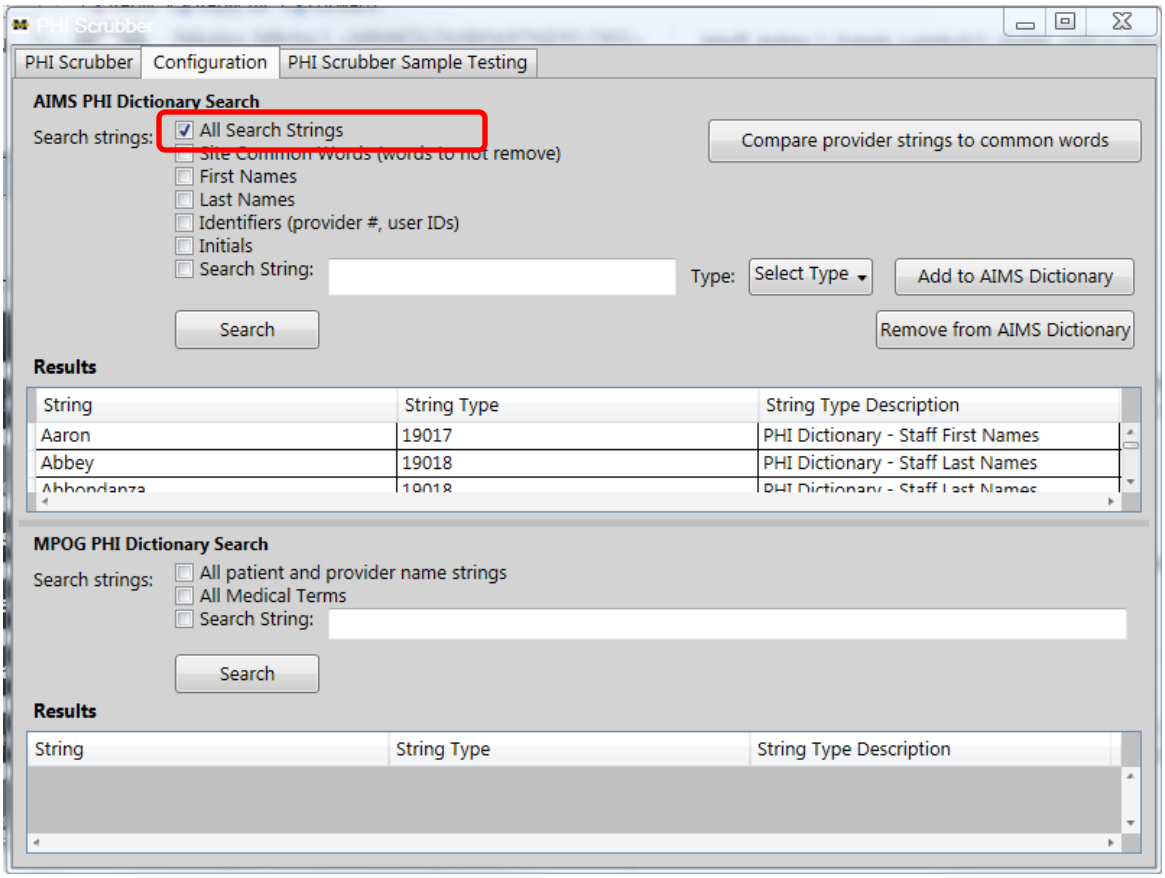


4. AIMS Dictionary Configuration

The Configuration tab provides access to the AIMS PHI Dictionary and allows you to search through several dictionaries to establish what strings should be considered PHI and removed, and which strings should remain.

The AIMS PHI Dictionary should be previously loaded by your designated technical team and consists of all institution-specific provider names and identifiers. The purpose of the institution specific provider PHI dictionary is to allow the PHI scrubbing process to remove provider names or identifiers that you do not want included in your MPOG contribution. Although the scrubbing algorithm can use MPOG dictionaries to remove nationally known common names (e.g. Kevin), local dictionaries are needed for uncommon names (e.g. Sachin).

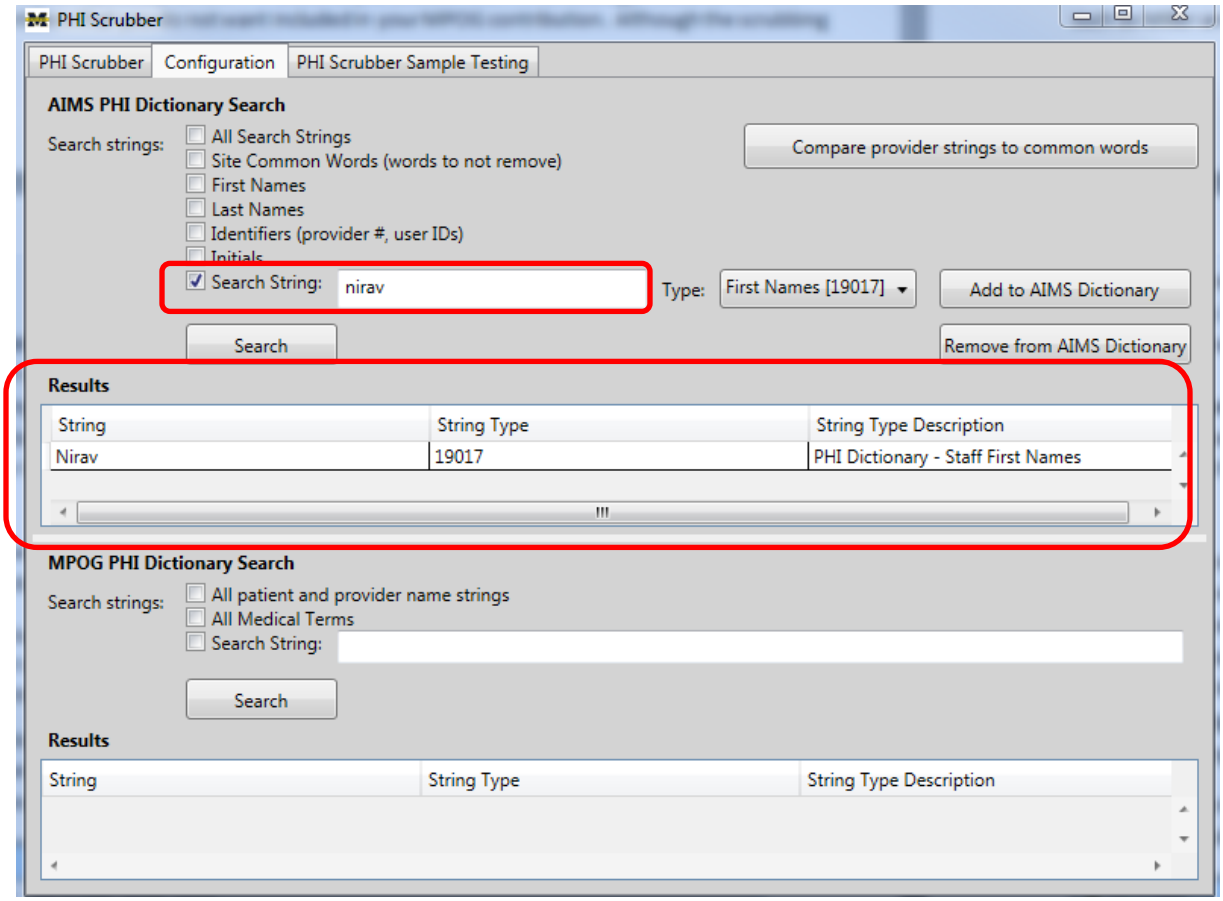
a. To search specific strings, select ‘All Search Strings’ and then click ‘Search’ to display the list of strings in your local database. Each institution must determine what provider information they are comfortable leaving in their database (i.e. provider numbers, initials, clinical terms, etc.)



Note: If the custom search string checkbox is not selected, the program will display all the words found in the dictionary for the selected categories.

b. If ‘Search String’ is selected, the program will search the selected categories for the specified search string indicated. To remove a string from the AIMS PHI Dictionary, simply highlight the desired string and click ‘Remove from AIMS Dictionary.’ Assess the list to determine which terms are common words that you want to keep. For example, you may have a provider name of “Pain,” you must determine the research value vs. privacy risk.

c. Clinical terms will need to be removed from the local dictionary. All instances of clinical terms such as Miller and Macintosh will not be scrubbed unless it is the patient’s name.

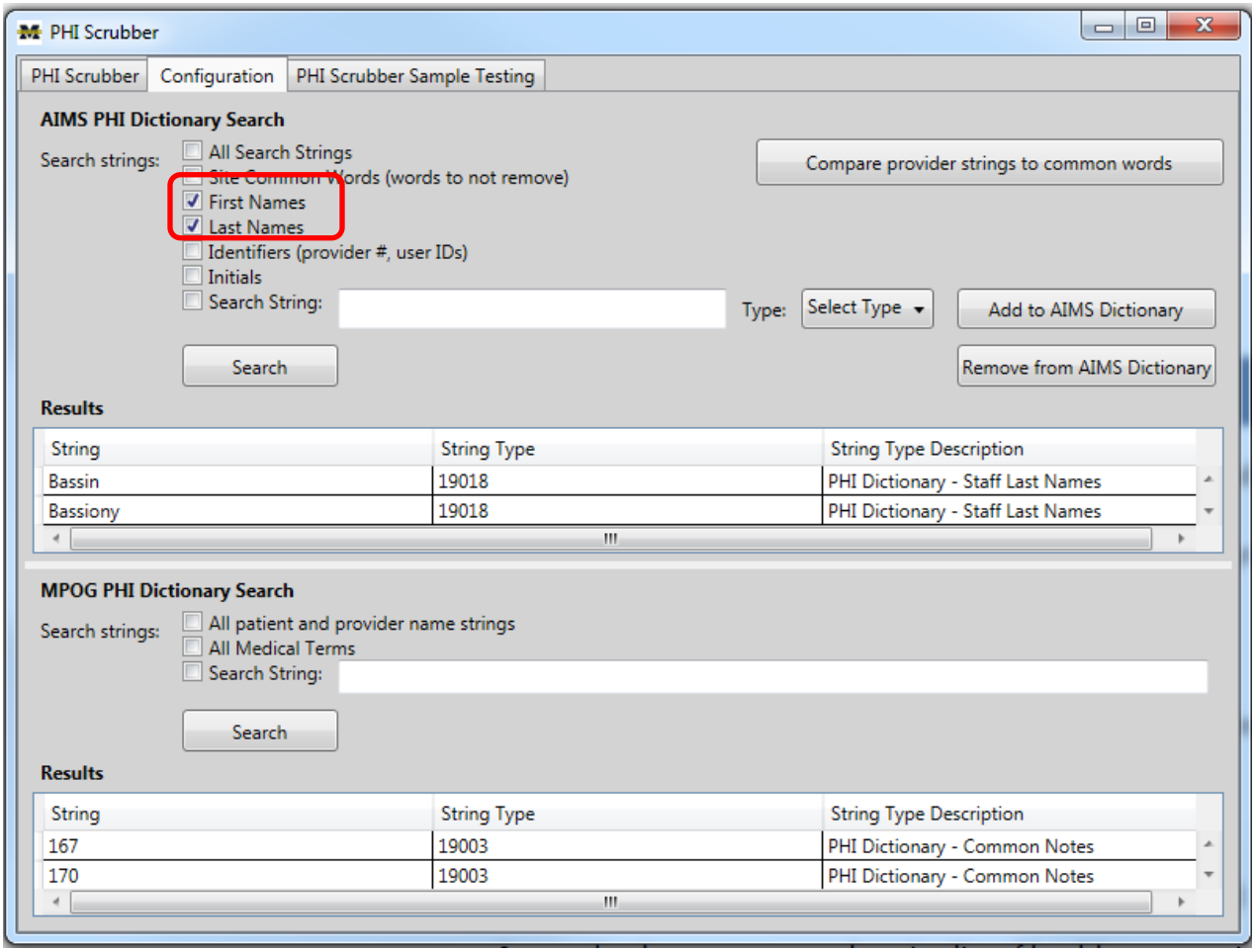


The ‘Compare provider strings to common words’ function searches through the preloaded dictionaries to identify PHI, which strings should be removed, and which strings should be kept. Once you have removed all terms in your local dictionary, click on ‘Compare provider strings to common words.’ This will compare the provider names in your local dictionary to clinical terms which are listed in Snomed (such as CRNA, attending, and Miller).

The MPOG PHI Dictionary can also be tested to identify medical terminology and provider names already existing in the default dictionary. The MPOG Dictionary includes:

- US Census: Includes all common first and last names (strings to remove)
- Snomed: Includes comprehensive list of medical terms (strings to keep)
- Common Perioperative Terms and Acronyms (strings to keep)

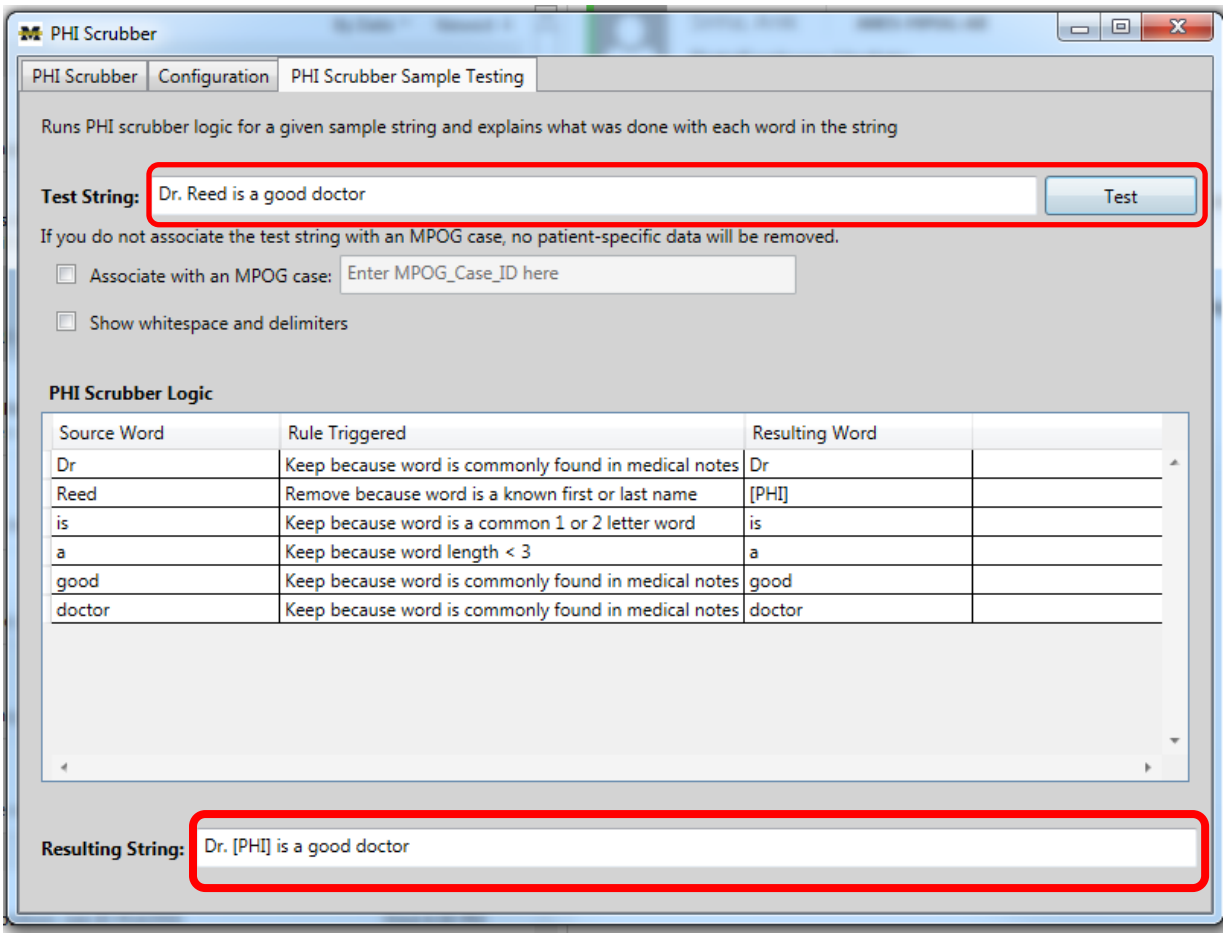
To test the ‘Configuration’ function, select the ‘Configuration’ tab at the top. Select ‘First Names’ and ‘Last Names,’ then click ‘Search.’ Provider names from the PHI dictionary should display in the Results section as shown below. If the Results display is empty, contact your technical team to load your local PHI dictionary data.



5. PHI Scrubber Sampling Test

The 'PHI Scrubber Sample Testing' runs scrubbing logic for a given sample string and categorizes each word. This function is used to run a test string to determine if identified PHI information (in this case, staff names) will be properly excluded.

To run a test string, type the phrase "Dr. Reed is a good doctor" in the test string window and select 'Test.'

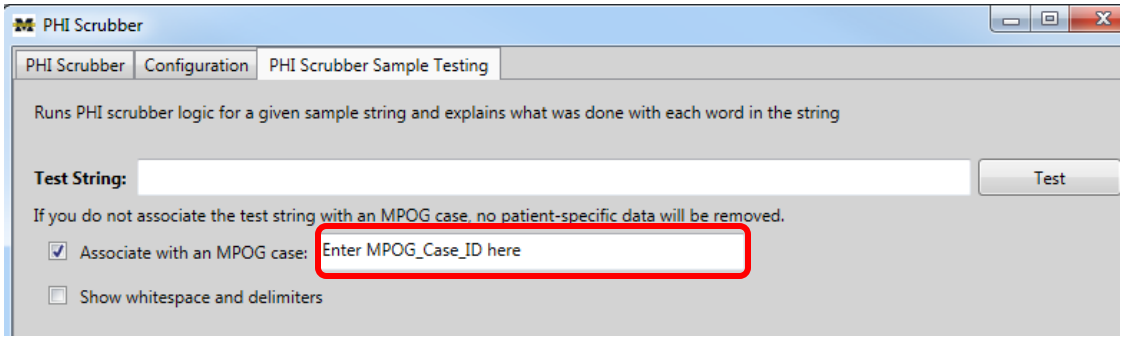


PHI Scrubber Logic will display included and excluded variables within your test string phrase, indicating PHI has been removed as displayed in the 'Resulting String.'
A grid will display the following elements:

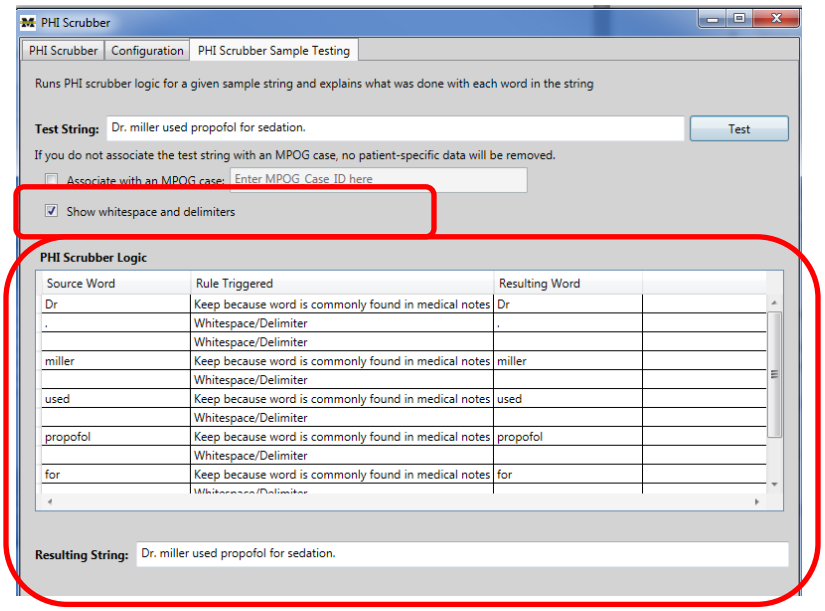
- **Source Word:** Original word(s) entered into the 'Test String' prior to PHI removal
- **Rule Triggered:** The reason why the word was or was not removed
- **Resulting Word:** The word(s) after 'PHI Scrubber Logic' has been applied and PHI has been removed

Note: Clinical terms will need to be removed from the local dictionary. All instances of clinical terms such as Miller, Macintosh, and Brown will not be scrubbed unless it is the patient name.

Associate with an MPOG Case: You can also run a 'Test String' against a specific case to ensure PHI is being scrubbed from cases. This allows users to enter a valid case ID, which will run the results of the' PHI Scrubber' process. To run a 'Test String,' enter the MPOG Case ID from a specific case in the test string window, select 'Associate with an MPOG case' then click 'Test.' The MPOG case ID can be obtained from the MPOG case viewer application. Without associating with an MPOG case, no patient specific data scrubbing can be tested. Only name strings in the US Census Bureau and MPOG staff identifier list would be removed. If there is patient PHI in the test string that is not a common name or institution-specific staff name, association with an MPOG case will show the patient name and will not be scrubbed.



'Show whitespace and delimiters' displays the whitespace and the delimiter characters that were present in the test string as words in the Results data grid.

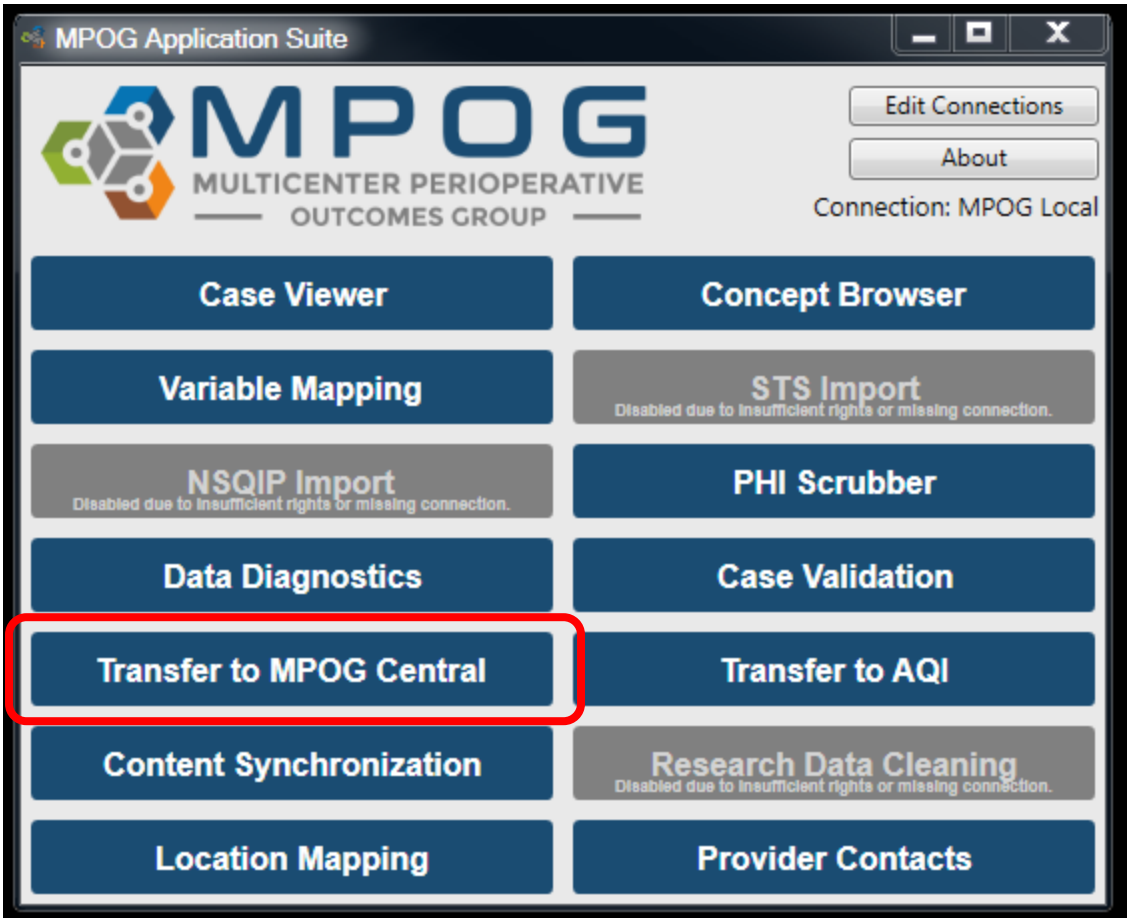


Chapter 9: Transfer to MPOG Central

Transfer to MPOG Overview

The MPOG Transfer to Central utility exports cases from your Local MPOG database and sends them to the MPOG Central Repository. It is important to note that a 'Test Transfer' of your local data to 'MPOG Central' is required prior to the initial 'Production Transfer.' MPOG QI Coordinators will assist you with initial upload to the MPOG Central TEST and Production environments. Before transferring data to MPOG Central, PHI Scrubbing must first be executed. Refer to Chapter 8 for more details on how to complete the scrubbing process.

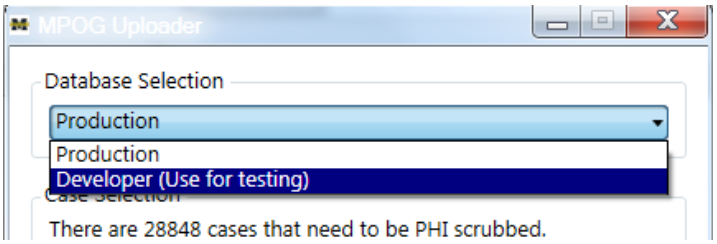
To begin, open the MPOG Application Suite. (For instructions on how to download, see 'Chapter 1: Downloading and Accessing the MPOG Suite.')



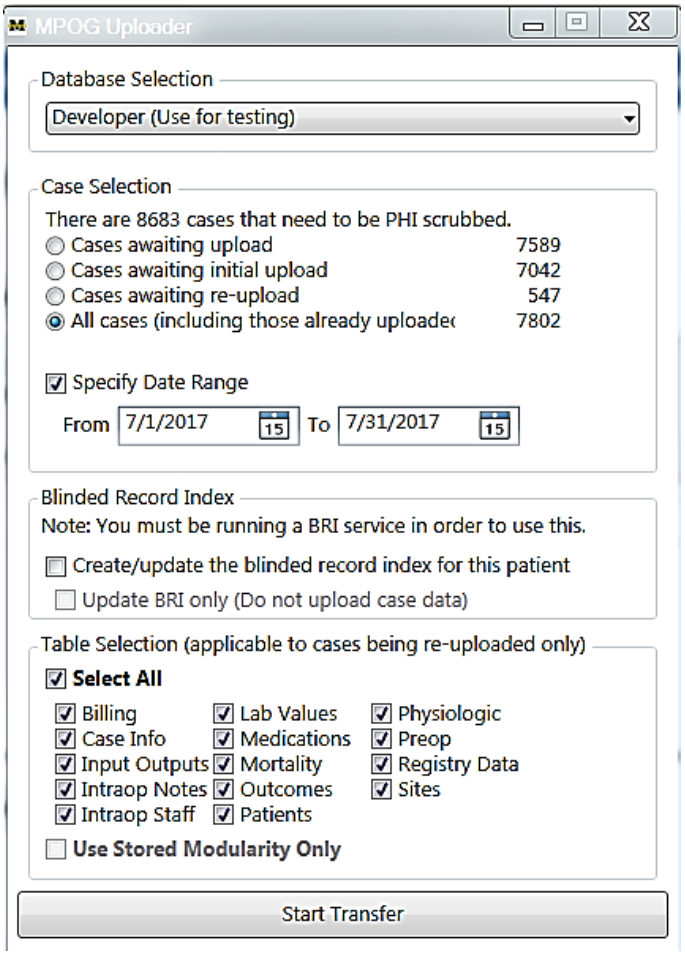
Transferring to MPOG Central- TEST Environment

MPOG provides a test environment for sites to transfer data to the Coordinating Center without impacting the larger production data set used for research and quality improvement activities. A QI Coordinator will direct the transfer process for initial upload.

1. To transfer to the MPOG test environment, open the 'Database Selection' dropdown window and select the 'Developer (Use for testing)' option.



2. Next, ensure the following selections have been made prior to beginning the transfer process (The MPOG QI Coordinator will advise on the date range to transfer for initial upload):



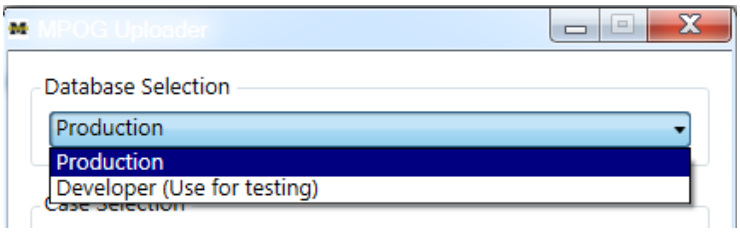
3. You have completed the transfer to MPOG Central TEST. Once cases have processed in Central, a QI Coordinator will review your data and contact you with how to proceed.

Uploading cases to MPOG Central- Production Environment

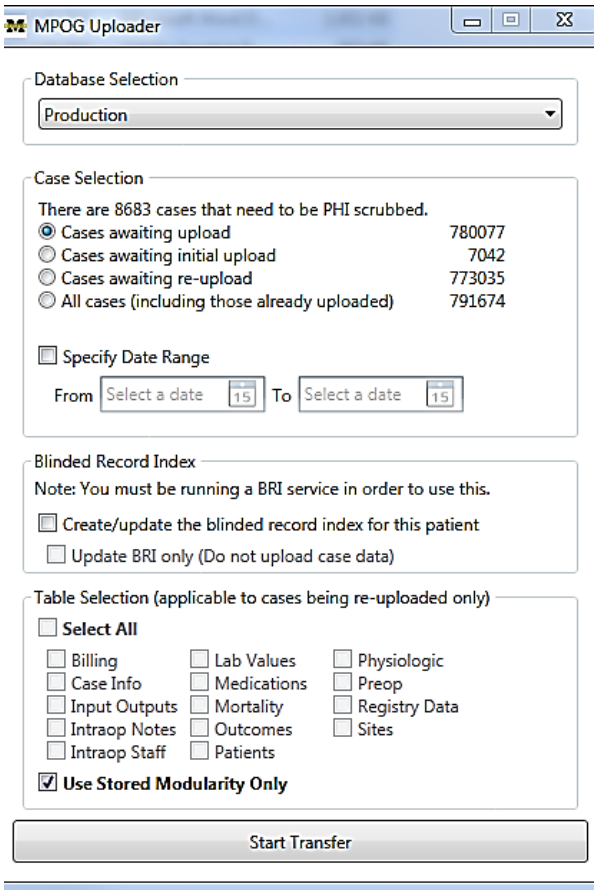
Note: An MPOG QI Coordinator or MPOG Director must approve first upload to the MPOG Central Production Environment. Please contact the Coordinating Center for directions on how to execute your first transfer to production.

1. Open 'Transfer to MPOG Central' in the MPOG Suite.

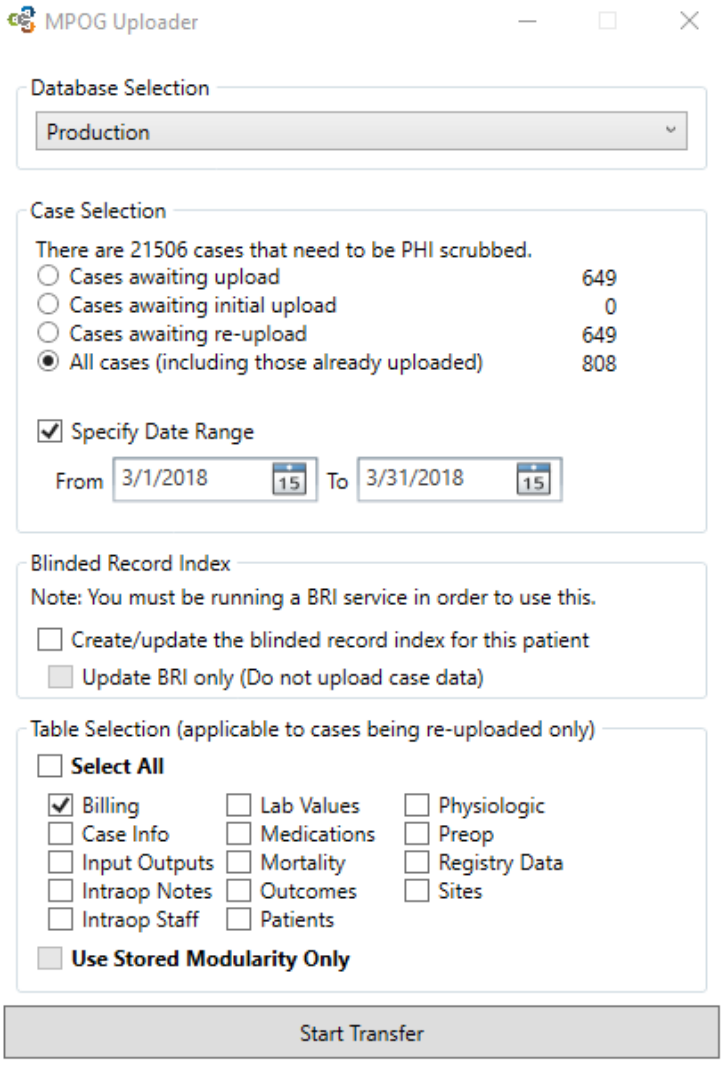
2. In the Database Selection window, check that the default selection for 'Production' is highlighted in the dropdown menu.



3. Next, ensure the following selections have been made prior to beginning the production transfer process and select 'Start Transfer:'



Resubmitting data for transfer to MPOG Central:
Occasionally, data may need to be resubmitted to MPOG Central. A subset of data, such as 'Billing' or 'Intraop Notes' may need to be updated in MPOG Central due to changes made in the local environment. If the entire dataset is not affected, a user can transfer only a subset of the data and decrease processing time. The example below shows the appropriate method.
To resubmit data, such as 'Billing' to MPOG Central, ensure the following selections have been made in the MPOG Uploader window prior to beginning the production transfer process:

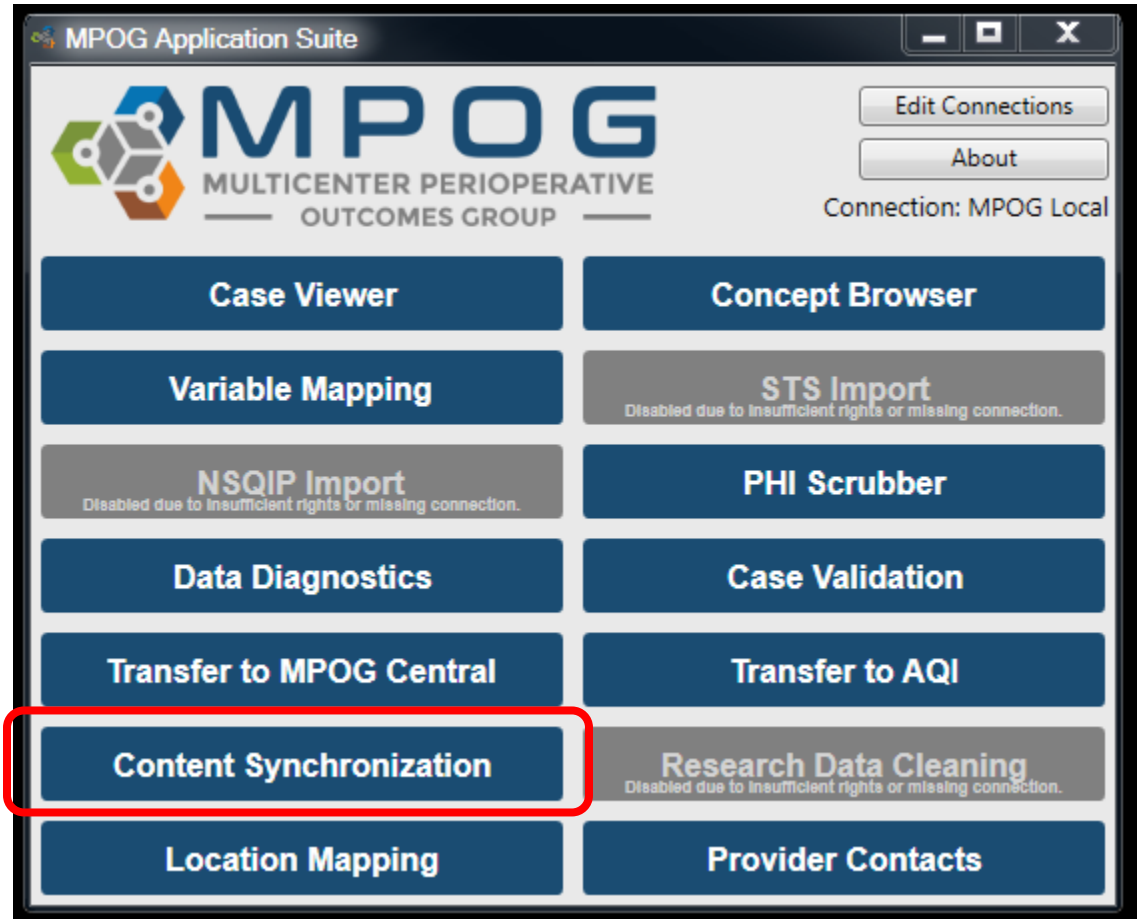


Chapter 10: Content Synchronization

MPOG Content Synchronization Overview

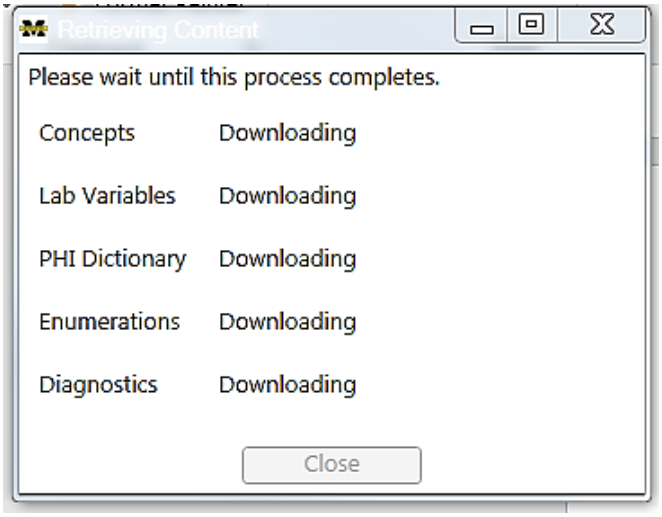
Occasionally, MPOG will update content, such as new concepts and PHI terminology. The 'Concept Synchronization' utility allows you to synchronize or apply these changes within your local database. MPOG recommends performing 'Content Synchronization' on a monthly basis. However, you may also be advised by the Coordinating Center to perform 'Content Synchronization' to pull over specific content to continue mapping new variables or update diagnostics. The MPOG Quality Improvement Coordinators will notify you when 'Content Synchronization' is required outside of the monthly recommendation.

1. Access Content Synchronization in the MPOG Suite:

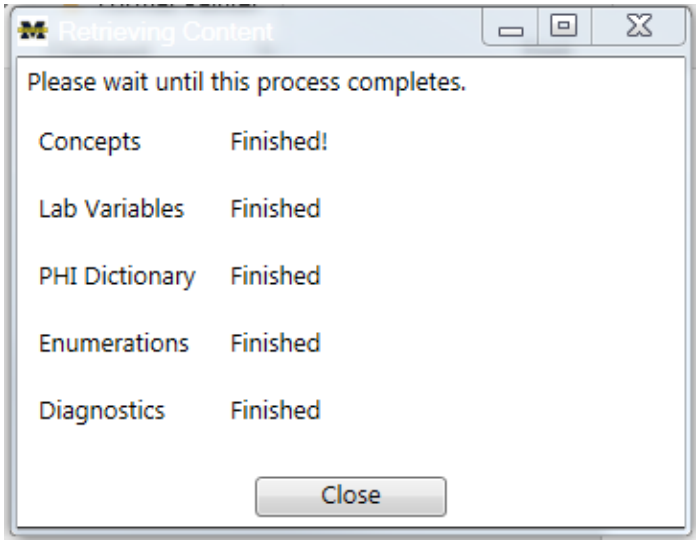


2. The following window will open in ‘Content Synchronization.’ Using the default settings as seen below, select ‘Synchronize Content.’

3. Once you have selected ‘Synchronize Content,’ retrieving content will begin and systematic downloading of new content will occur.



4. Once the content retrieval process has completed, you will notice a ‘finished’ comment in the ‘Retrieving Content’ window, indicating ‘Content Synchronization’ was successful.



5. Congratulations! Content Synchronization is now complete.

Chapter 11: Provider Contacts

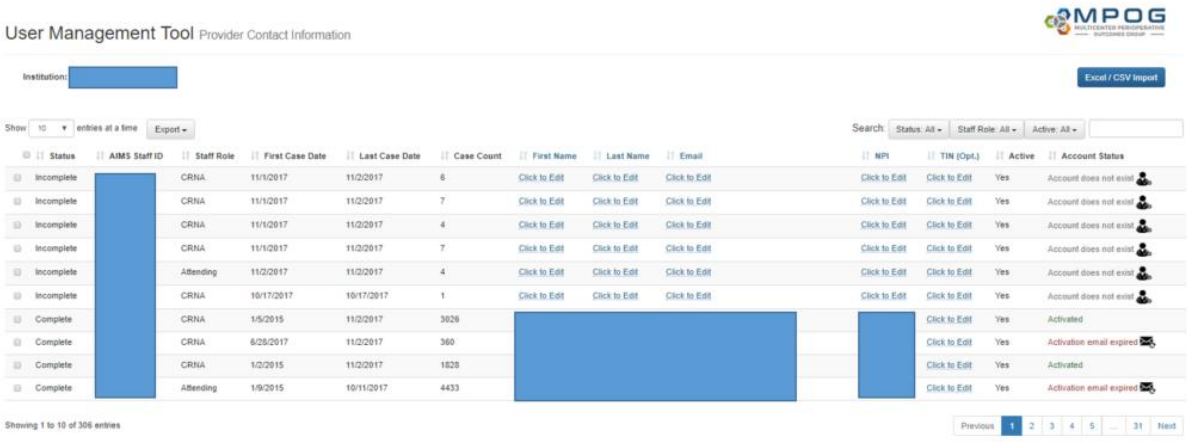
Provider Contacts Overview

The Provider Contacts Tool allows ASPIRE sites to update provider information for the purpose of sending feedback emails. For those sites participating with the MPOG QCDR, this tool is also used to send consents to providers for submitting data to CMS. If opting out of ASPIRE and the feedback emails, the Provider Contacts tool does not need to be populated. It is important to note that the Provider Contacts tool cannot be populated until data has been submitted to MPOG Central. There will be no case information available until a site has successfully transferred to the Coordinating Center.

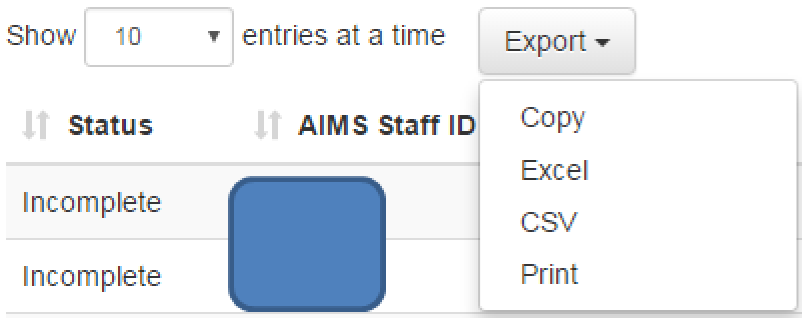
1. Access Provider Contacts via the MPOG Suite or via the link:
https://www.aspirecqi.org/AppSuite//UserManagement/Index/

2. Clicking on the link will open the login screen. An additional level of access is needed to populate the User Management Tool. If your ASPIRE username and password does not work at this point, please contact Katie Buehler (kjbucrek@med.umich.edu), Chris Ladd (laddchri@med.umich.edu) or Genevieve Bell (gkbell@med.umich.edu) to obtain access.

3. Upon login, the web application will display as follows:



4. The first 6 columns of the User Management Tool (Provider Contacts) will be auto-populated based upon case information in the MPOG database. The technical team lead at your site should be able to assist with pulling the corresponding names for the AIMS Staff IDs listed. To send the technical lead a list of the AIMS Staff IDs, it may be useful to export the current list from the Provider Contacts tool. To do so, click on 'Export,' and select 'Excel' or 'CSV,' whichever format you prefer. The list will then export to an Excel or CSV document that you can send on to retrieve additional provider information such as first names, last names, and NPIs. **Please note**: this export cannot be imported in the same format. There is an option to import an Excel document using the template found under 'Excel/CSV Import.' See instructions in Step 8 for more information.

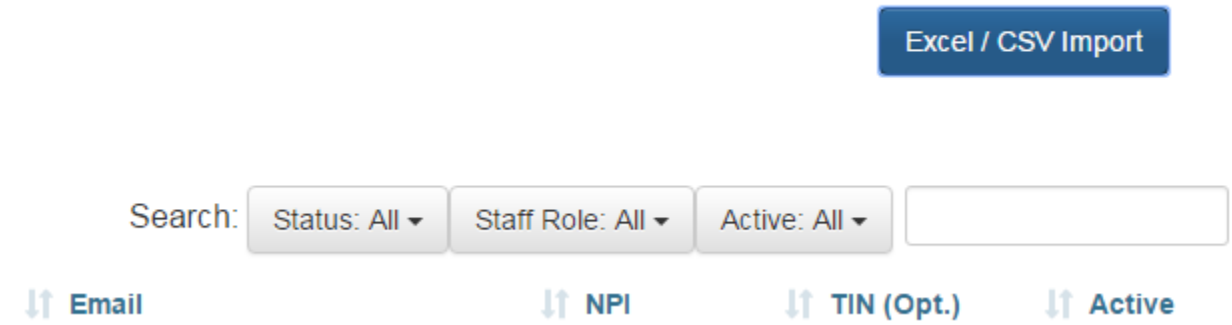


5. Once the AIMS Staff ID has been linked to an individual, please update the remaining 4 columns (shown below) with the appropriate information- First Name, Last Name, Email, National Provider Identification (NPI) number. Those sites planning to participate with the ASPIRE QCDR program need to also populate the TIN column with the appropriate Tax Identification Number for each provider. Only rows with active provider information need to be completed- i.e. providers who have left the organization (inactive) do not need to populate the historical data.

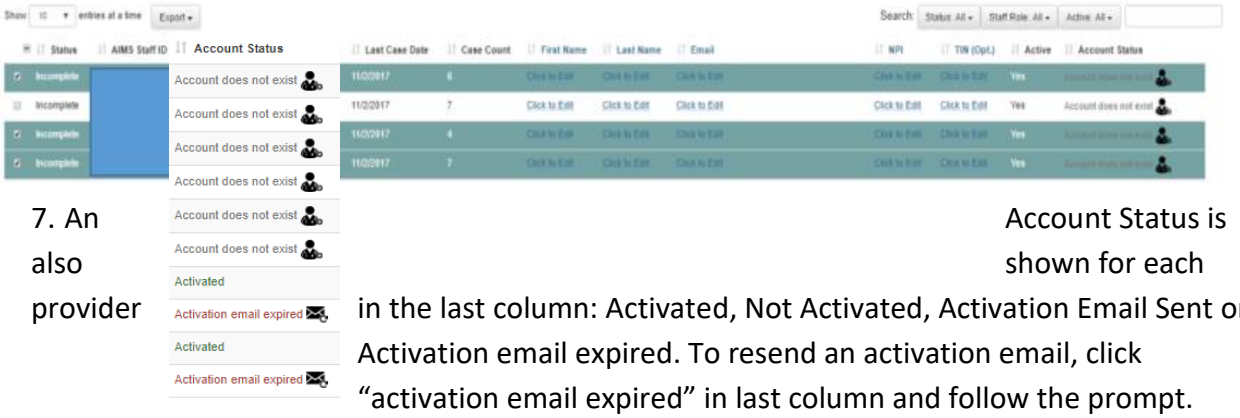
First Name	Last Name	Email	NPI	TIN (Opt.)	Active	Account Status
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist
Click to Edit	Click to Edit	Click to Edit	Click to Edit	Click to Edit	Yes	Account does not exist

6. To

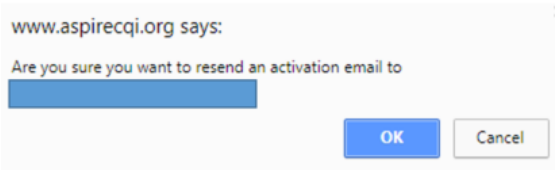
update a provider's status to Active or Inactive, click the selection box on left hand side. A prompt will then show in the bottom left corner where you can click Active or Inactive. See image below.



You can change the status for multiple providers by selecting multiple rows.

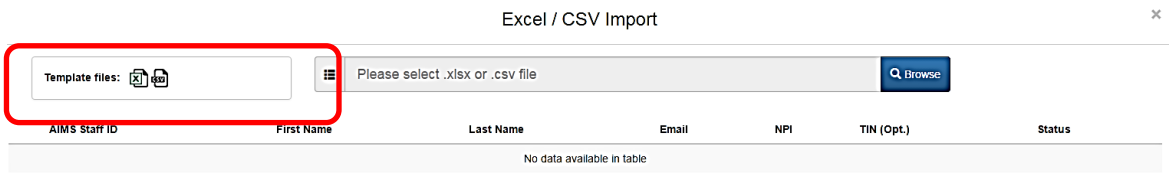


7. An provider also Account Status is shown for each in the last column: Activated, Not Activated, Activation Email Sent or Activation email expired. To resend an activation email, click "activation email expired" in last column and follow the prompt.



8. To update information for a large group of providers, importing using the provided templates may be the best option. To access the templates, click on the 'Excel/CSV Import' button in the right corner of the web page.

9. The Excel/CSV import page will open. Templates can be found in the left corner of the new page. Select the format you wish to use for import. The import tool will only accept files using one of these two templates. **Errors will result from using a modified version of either of these templates.**



10. Update the template with the provider information and save to your computer. Return to the Excel/CSV Import page, select 'Browse' and locate the file on your computer and click 'Open.' The Provider Contacts tool will begin to update information from the selected file and will notify of any errors. Correct any errors as needed and then click 'Submit.'

Chapter 12: ASPIRE Dashboards

ASPIRE Dashboards Overview

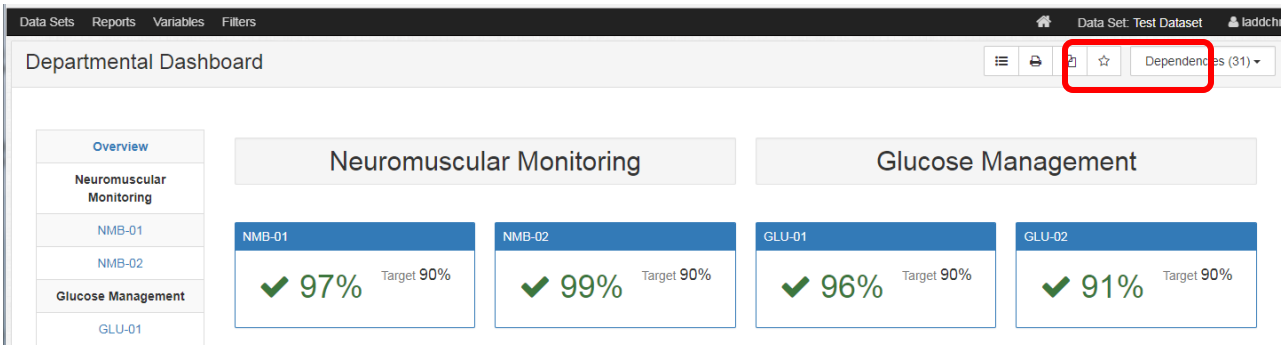
1. Access your institution's ASPIRE dashboard through the MPOG website https://mpog.org/

   a. Click on 

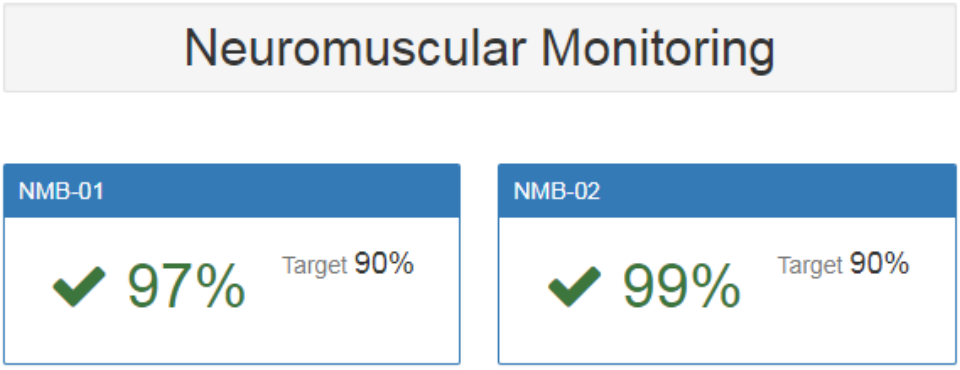
located on the home page.

   b. You will be directed to the login screen below. Type in your user name and password. If you forgot your username or password, click on 'Forgot your password?' located below the login button near the bottom of the screen and follow the prompts.

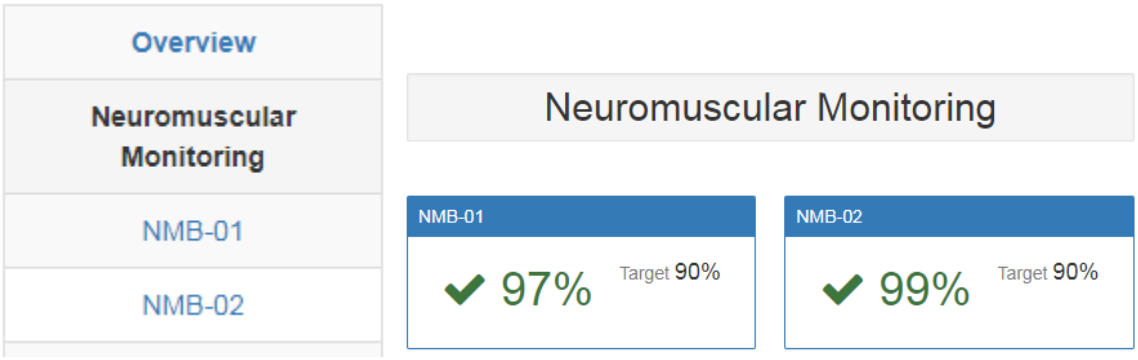
2. Once you have logged into your account, you will be directed to your ASPIRE Institutional dashboard. Your institution name will be visible in upper the right hand corner of the dashboard.



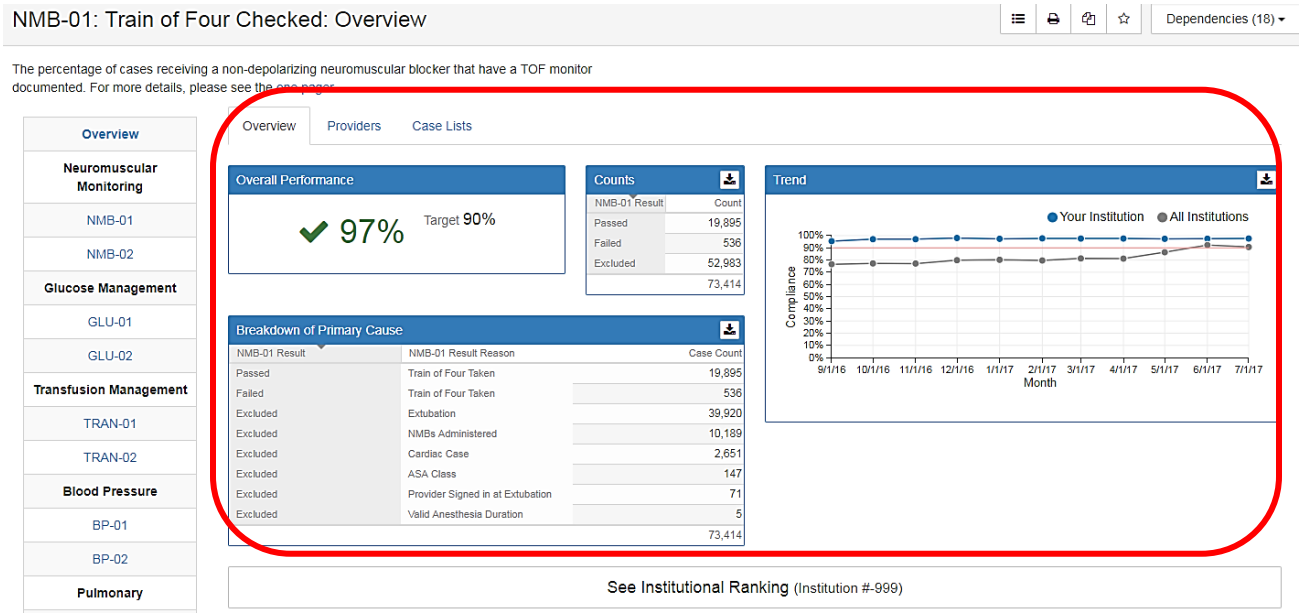
a. You will notice an overview of measures, similar to an index located in the left hand column of the ASPIRE dashboard. Performance for these measures is further displayed by measure group. For example, 'Neuromuscular Monitoring' is comprised of two measures, 'NMB-0'1 and 'NMB-02.'
b. Each measure shows institutional performance and the targeted performance threshold.



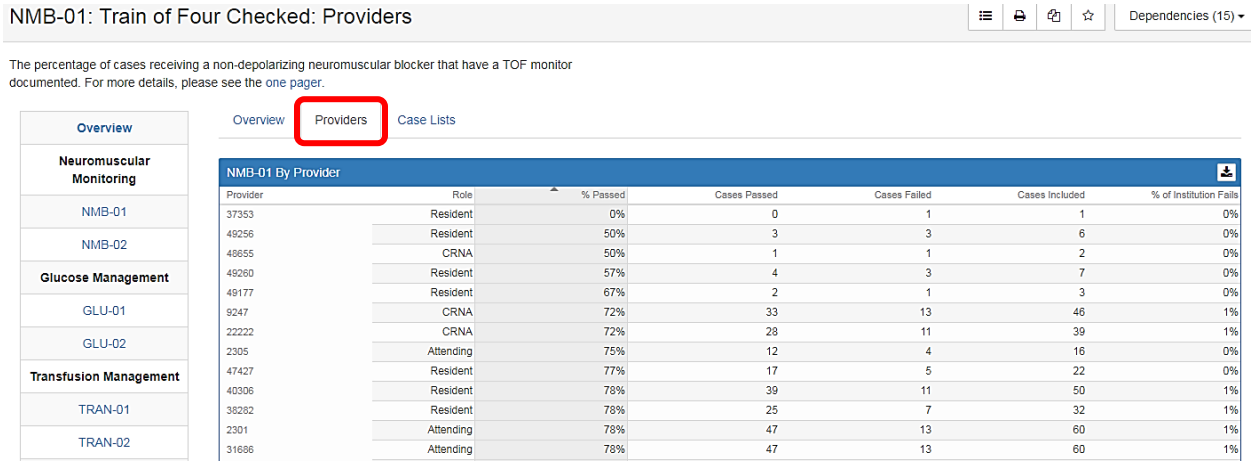
3. A detailed view of each measure is available by clicking the specific measure title (i.e. 'NMB-01, NMB-02') located in the left hand column or anywhere with the specific measure box.



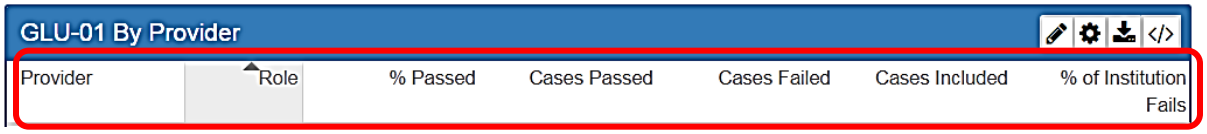
a. Clicking on the measure will result in the specific measure overview, which will include overall performance, case counts, trend graph, and a detailed breakdown of primary cause.



b. By selecting ‘Providers,’ you can see individual performance for all anesthesia providers within your institution.

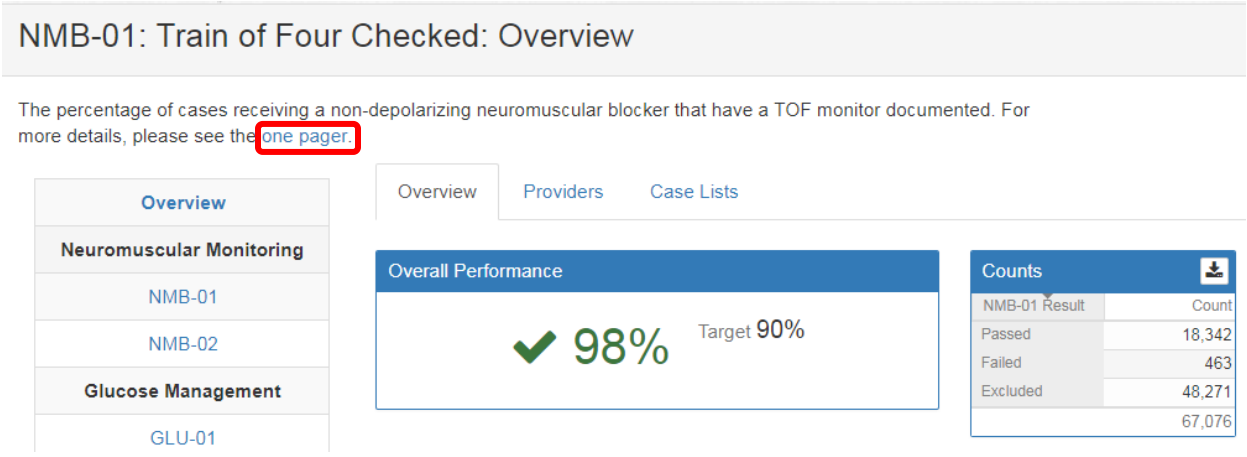


c. You may also sort by Provider, Role, % Passed, Cases Passed, Cases Failed, Cases Included, and % Institutional Fails by clicking the one of these titles below the measure header.



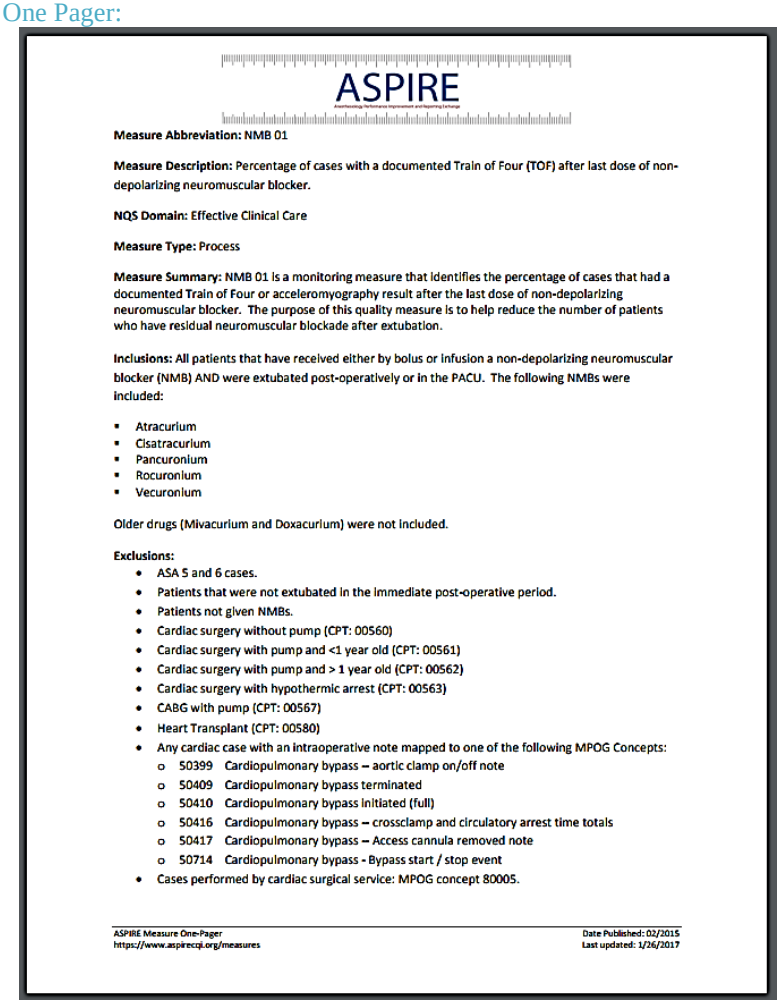
4. By selecting the ‘Case Lists’ tab, all failed, passed, and excluded will appear for the specific measure. Once again, you have the ability to sort by clicking on any of the titles below the measure header.

5. To reference an abbreviated version of the measure specification, click on one pager link located in the upper left hand corner of the screen.



The one-pager will display in a separate tab in pdf form:

Example of Measure One Pager:



ASPIRE

Measure Abbreviation: NMB 01

Measure Description: Percentage of cases with a documented Train of Four (TOF) after last dose of non-depolarizing neuromuscular blocker.

NQS Domain: Effective Clinical Care

Measure Type: Process

Measure Summary: NMB 01 is a monitoring measure that identifies the percentage of cases that had a documented Train of Four or acceleromyography result after the last dose of non-depolarizing neuromuscular blocker. The purpose of this quality measure is to help reduce the number of patients who have residual neuromuscular blockade after extubation.

Inclusions: All patients that have received either by bolus or infusion a non-depolarizing neuromuscular blocker (NMB) AND were extubated post-operatively or in the PACU. The following NMBs were included:

- Atracurium
- Cisatracurium
- Pancuronium
- Rocuronium
- Vecuronium

Older drugs (Mivacurium and Doxacurium) were not included.

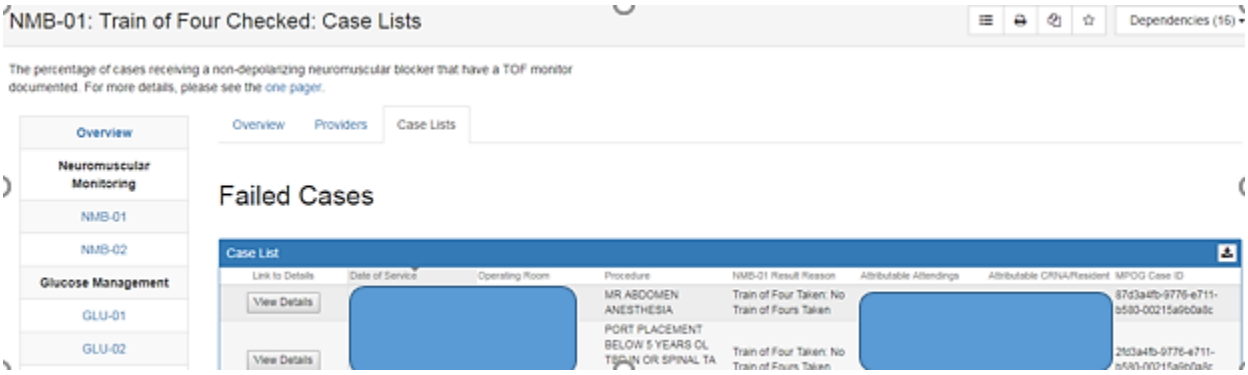
Exclusions:

- ASA 5 and 6 cases.
- Patients that were not extubated in the immediate post-operative period.
- Patients not given NMBs.
- Cardiac surgery without pump (CPT: 00560)
- Cardiac surgery with pump and <1 year old (CPT: 00561)
- Cardiac surgery with pump and > 1 year old (CPT: 00562)
- Cardiac surgery with hypothermic arrest (CPT: 00563)
- CABG with pump (CPT: 00567)
- Heart Transplant (CPT: 00580)
- Any cardiac case with an intraoperative note mapped to one of the following MPOG Concepts:
  - 50399 Cardiopulmonary bypass -- aortic clamp on/off note
  - 50409 Cardiopulmonary bypass terminated
  - 50410 Cardiopulmonary bypass initiated (full)
  - 50416 Cardiopulmonary bypass -- crossclamp and circulatory arrest time totals
  - 50417 Cardiopulmonary bypass -- Access cannula removed note
  - 50714 Cardiopulmonary bypass - Bypass start / stop event
- Cases performed by cardiac surgical service: MPOG concept 80005.

ASPIRE Measure One-Pager
https://www.aspirecqi.org/measures

Date Published: 02/2015
Last updated: 1/26/2017

6. To review specific case details and facilitate failed case review, you may select View Details for the desired case.

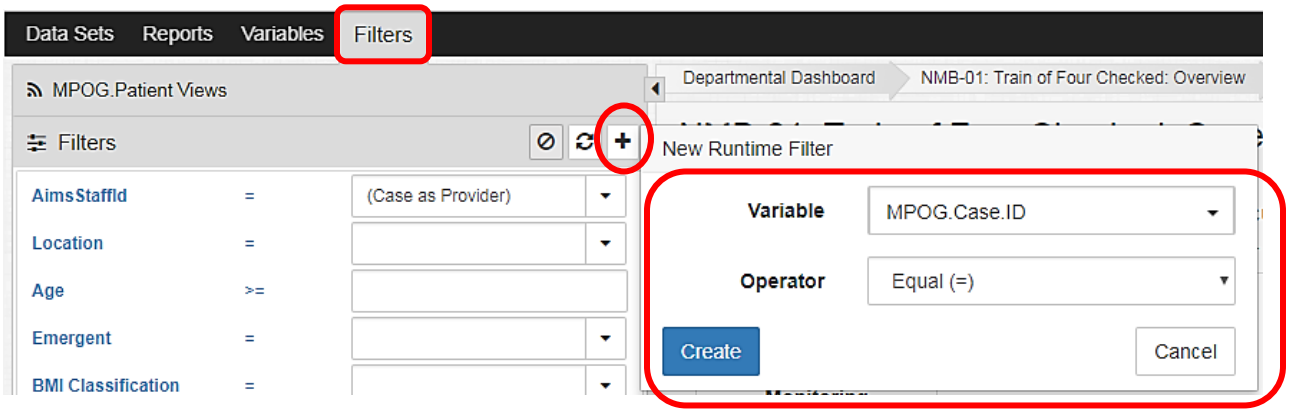


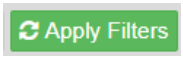
a. You may also utilize the filter option when searching for a specific case. For example, you may search for a failed case related to a particular measure by entering the MPOG Case ID.

   i. To accomplish this, select Filters in the upper left hand corner.

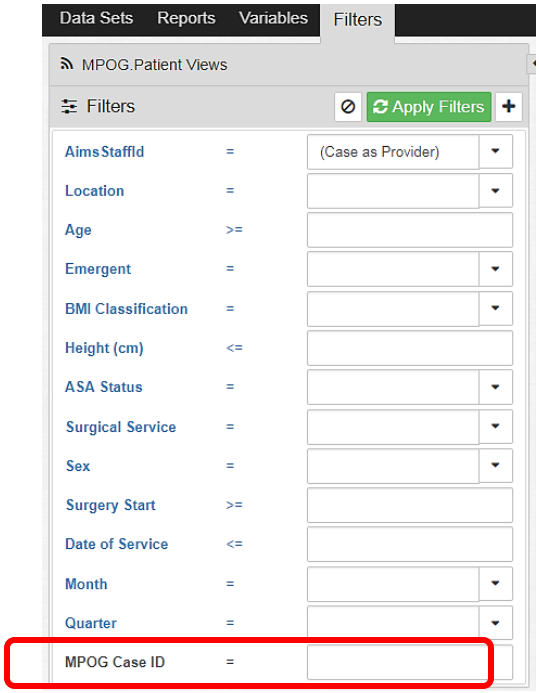
   ii. Select + and type in MPOG.Case.ID in the 'Variable' field or search for MPOG.Case.ID in the dropdown menu.

   iii. Select 'Equal (=)' from the Operator dropdown menu and click Create.

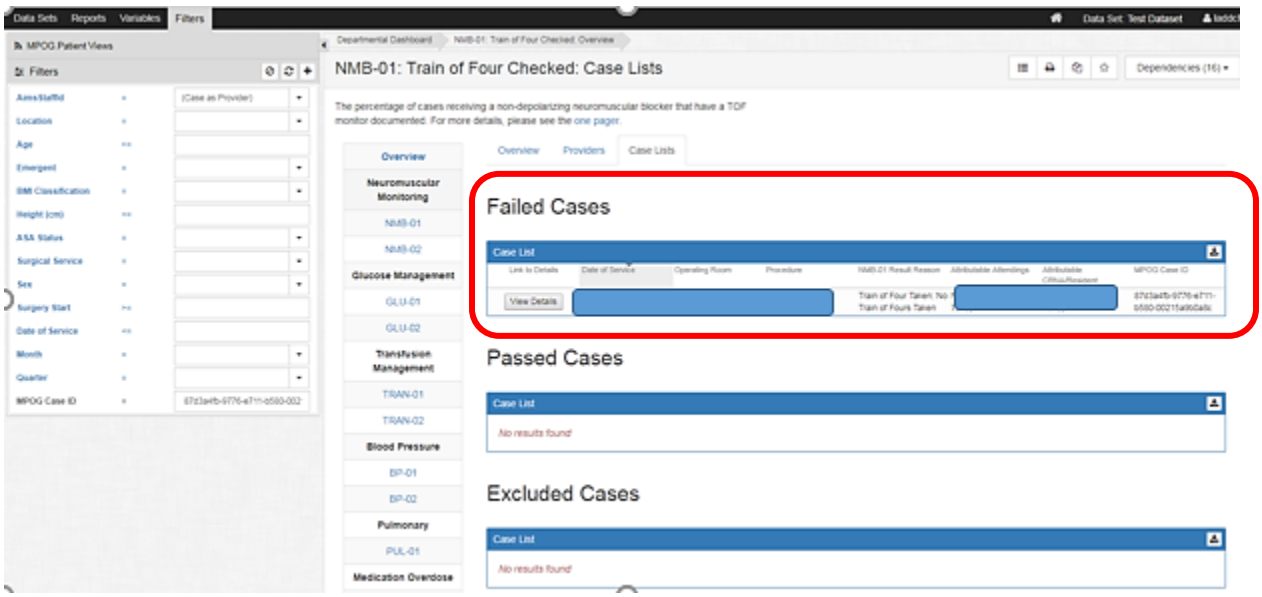


iv. The added ‘MPOG Case ID’ filter will display at the bottom of the filter menu. You may paste the desired MPOG Case ID into the empty field and click 

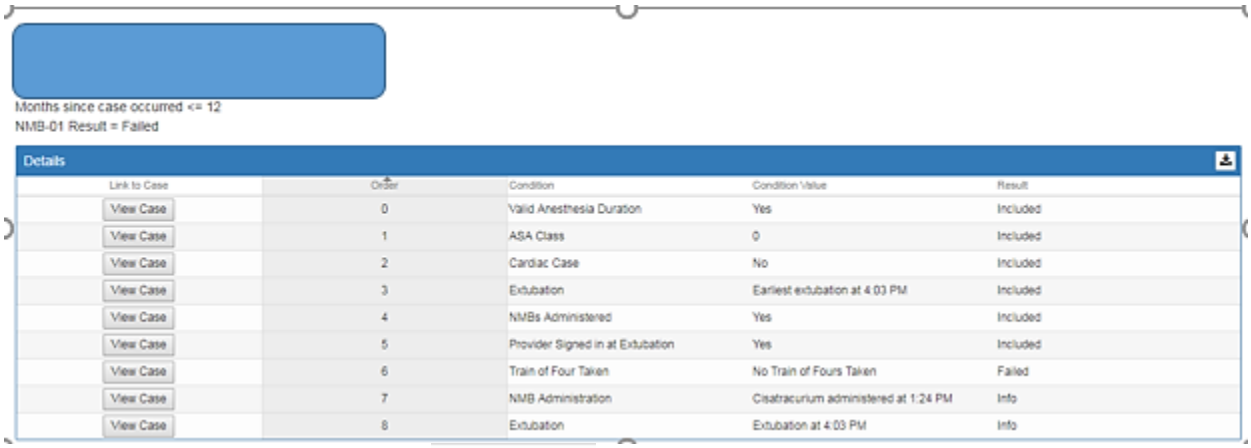
.



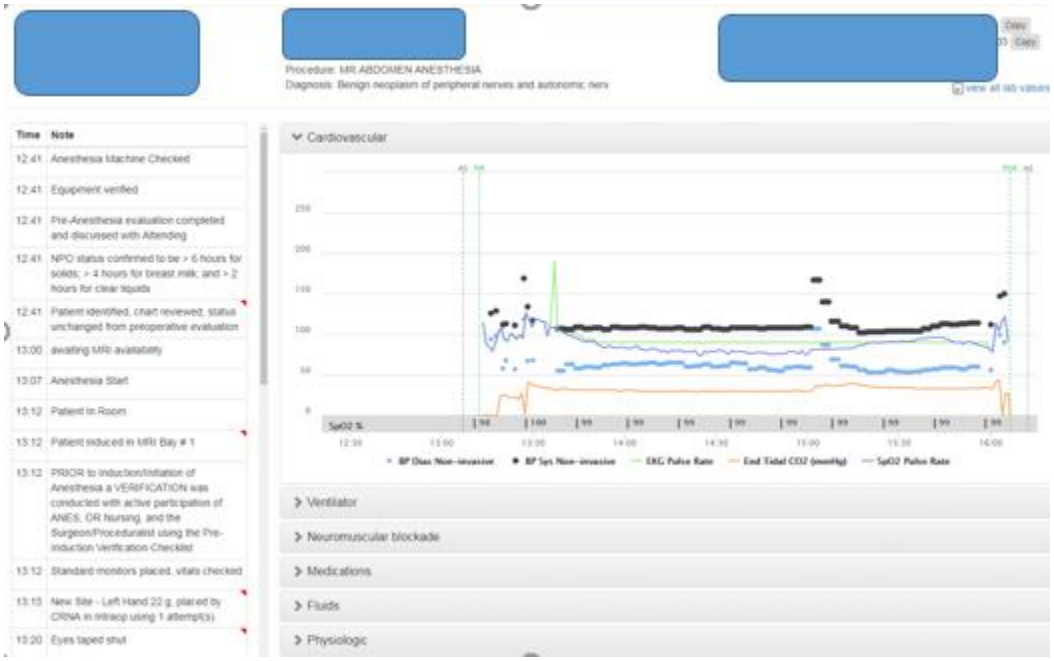
v. Utilizing the filter to search for a specific MPOG Case ID will result in an independent display of the desired case.



vi. Click on View Details to display details of a case from any of the case lists (failed, passed, excluded), as shown below.

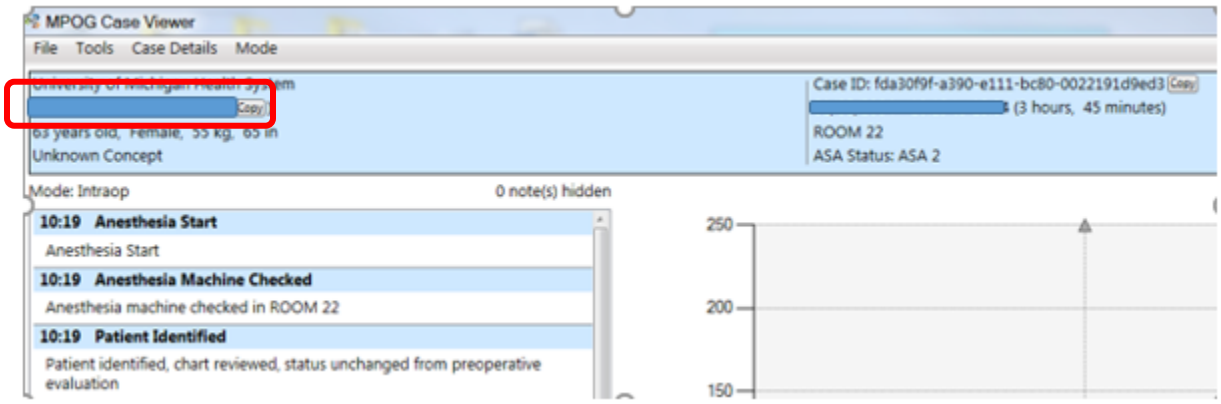


vii. Click on View Case from the grid above to display intraoperative case information and details in 'Case Viewer.'



7. If preferred, you may copy the MPOG Case ID from the web Case Viewer (see below) and paste into Case Viewer accessible through the MPOG application suite. This will allow you to review cases in greater detail.

8. Once you have opened MPOG Case Viewer and searched by ‘Patient or Case ID,’ you may retrieve the MRN from Case Viewer to insert into the institution electronic health record to facilitate case review.



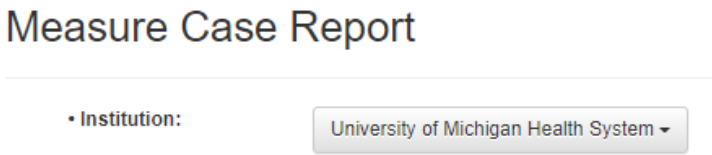
Chapter 13: Measure Case Report

Measure Case Report

The Measure Case Report application allows users to create a passed/failed/excluded case report for a specific date range and/or specific measures. Each report contains case information pertinent to each measure selected. The purpose of this tool is to provide an organized document with all information necessary for case reviewers to use when investigating why a provider failed, passed or was excluded from a particular measure/case. This application can be accessed through the following link: https://www.aspirecqi.org/appsuite/report.

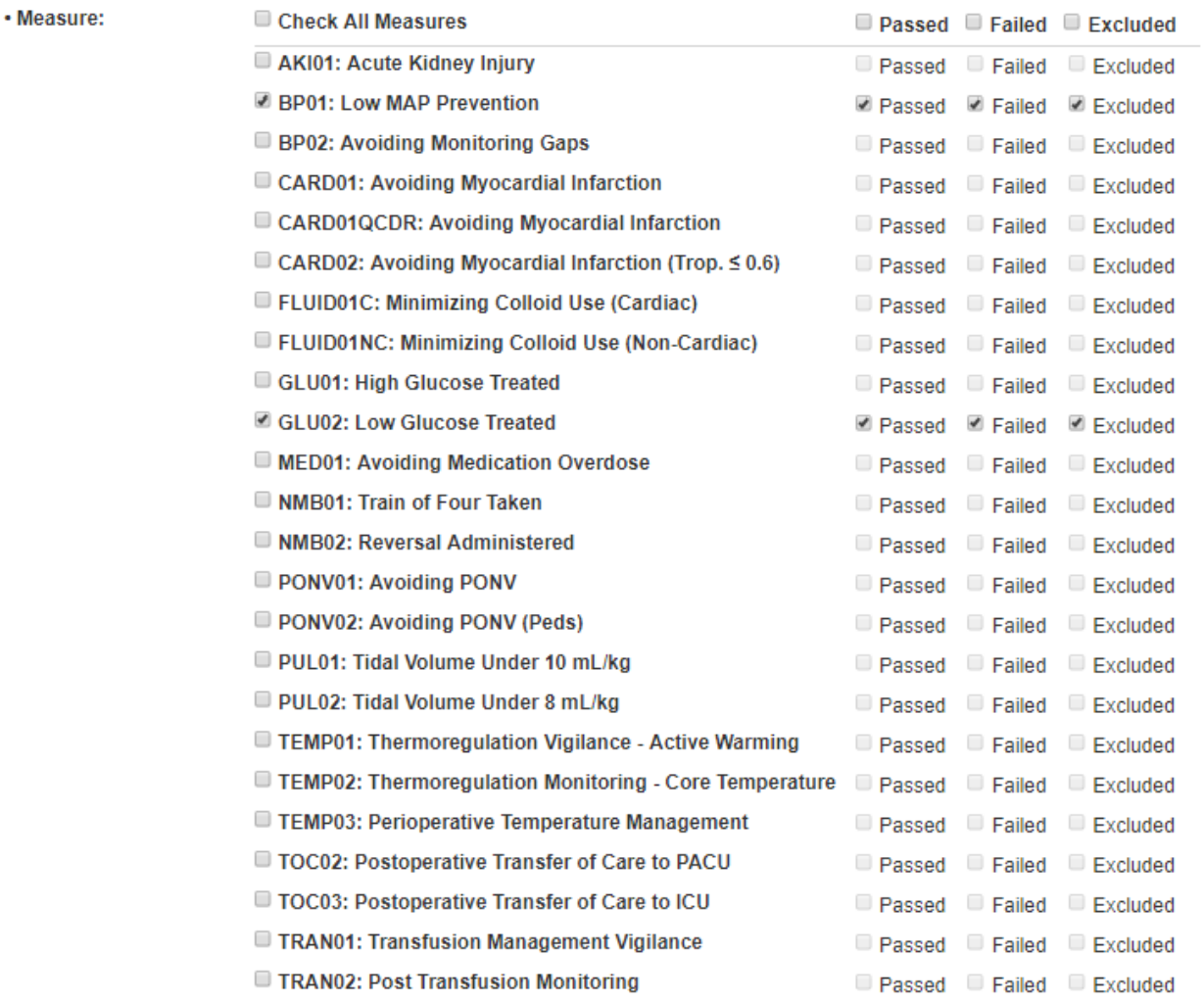
1. Login using your ASPIRE account information:

2. Select your institution from the dropdown menu:

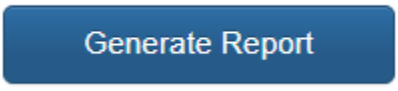


3. Select the date range you would like the application to pull cases from:

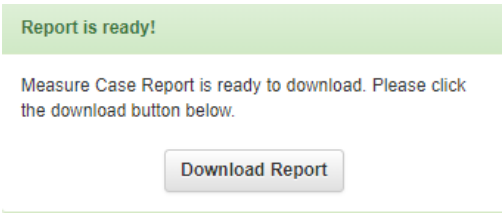
4. Select the box next to each measure you wish to include in your report. For each measure of interest, select the boxes next to “passed”, “failed” and/or “excluded” to determine what types of results you would like included. *To include all passed, failed and excluded cases and/or to include all measures in your report, select the top box over each column (i.e. “Check all measures”)



5. Once you have selected the measures of interest, click “Generate Report” located at the bottom:



6. An approximate processing time will then display. Choosing multiple measures for the report will increase processing time. Once report is ready, click “download report”



7. Measure case reports are exported in an excel spreadsheet. Each measure included in the report is separated by tabs in the bottom right hand corner. Once saved on your computer, the report is ready to import into the Batch MRN lookup tool which matches MRNs to MPOG Case IDs allowing the case reviewer to quickly compare data to the source system. *Step by step instructions for this process are located in **Chapter 16: Batch MRN Lookup Tool**

Chapter 14: Batch MRN Lookup

Batch MRN Lookup Overview

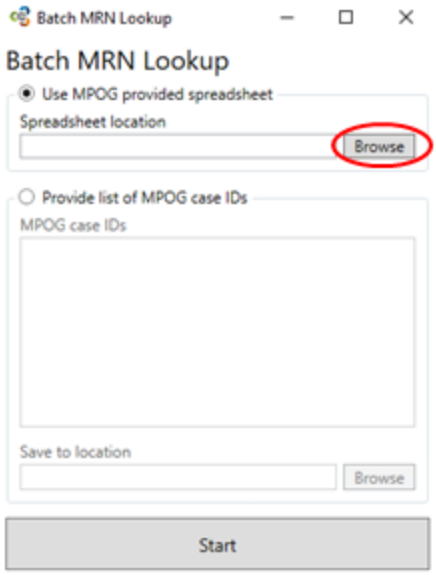
1. The MPOG Batch MRN Lookup Tool is used to retrieve the MRN associated with an MPOG Case ID for multiple cases at a time. There are two methods for adding the MRN column to the existing Failed Case Grid for each measure:
    a. Load the saved Case Grids into the Batch MRN Lookup Tool. If using this method, save the Case Grid Excel document first before loading into the MRN Lookup Tool. For more information about how to access the Measure Case Report, see Chapter 15 of the MPOG Training Manual.

    OR

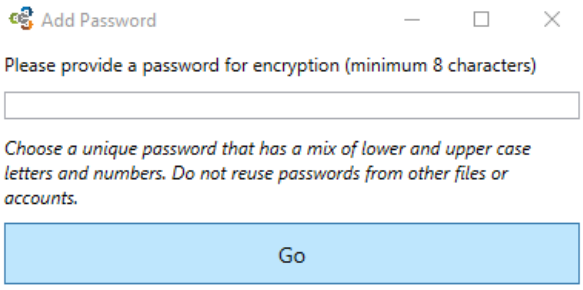
    b. Copy MPOG IDs and paste them into the designated field in the Batch MRN Lookup Tool.

2. Access the Batch MRN Lookup utility in the MPOG Suite:

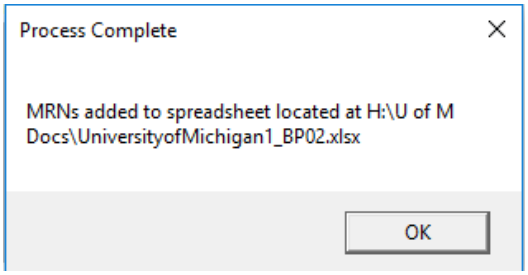
3. If using the Case Grid method, this step will guide you through loading the saved Case Grid file into the Batch MRN Lookup Tool. This will automatically add a column of MRNs to the saved Case Grid file that was exported and saved from step 1a. If using the second method, skip to step 4 of this user guide.
    a. First, locate the file by selecting 'Browse' in the Batch MRN Lookup Tool.
    b. Once you locate the desired Case Grid, simply double click on the file to load it into the 'Spreadsheet location field.' Click 'Start.'**Note the spreadsheet you are uploading cannot be opened on your computer during upload.



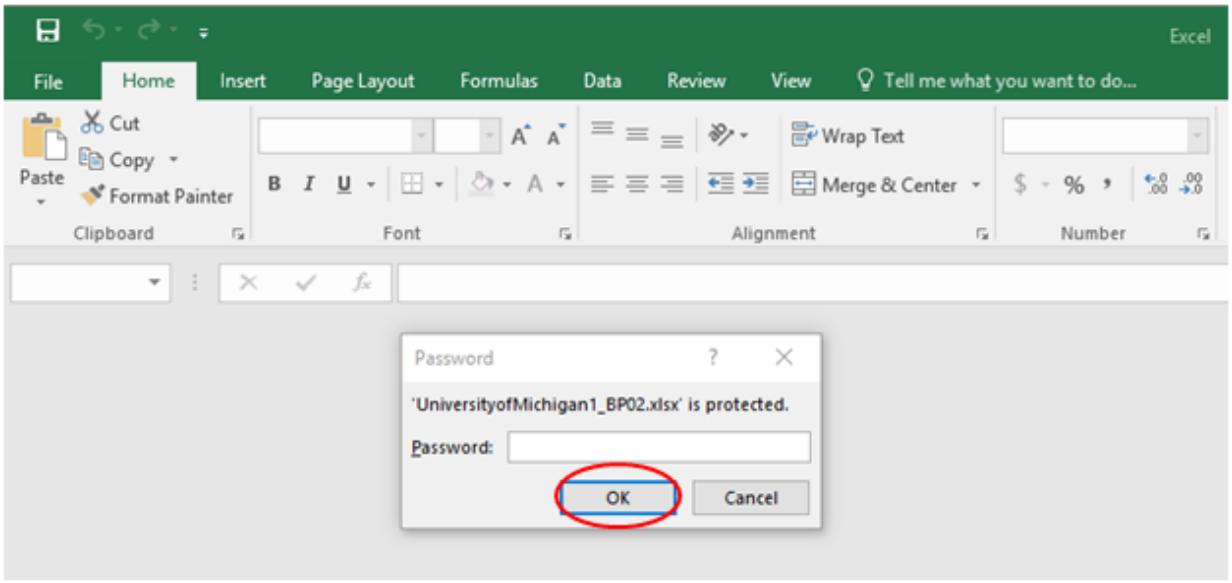
    c. Follow the prompt and enter a password with at least 8 characters for encryption purposes. Click 'Go' to continue.



    d. Once the MRN column has been successfully added to that file you will receive a notification. Click 'OK'

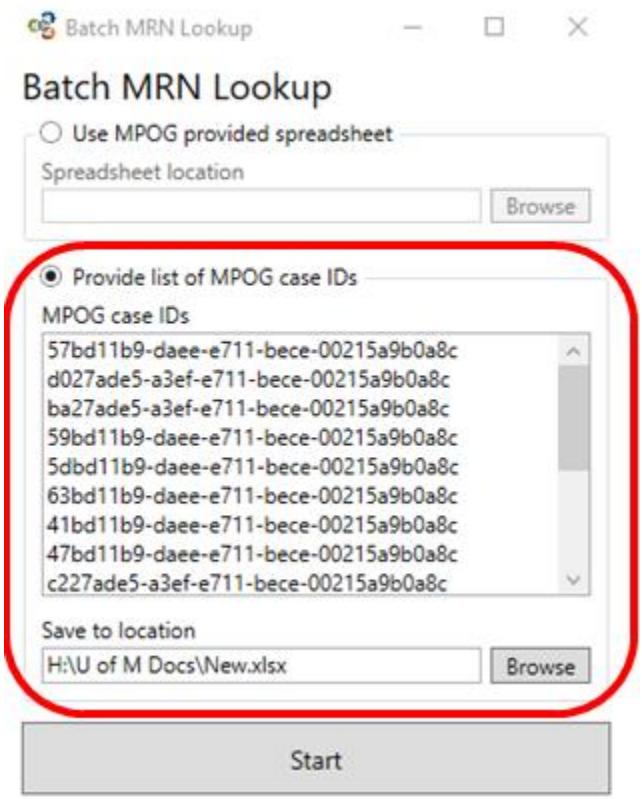


e. Go to the folder where the spreadsheet is saved and open in Excel. Upon opening, you will be prompted to enter the password you previously entered to view the modified Case Grid. Enter your password and click ‘OK.’

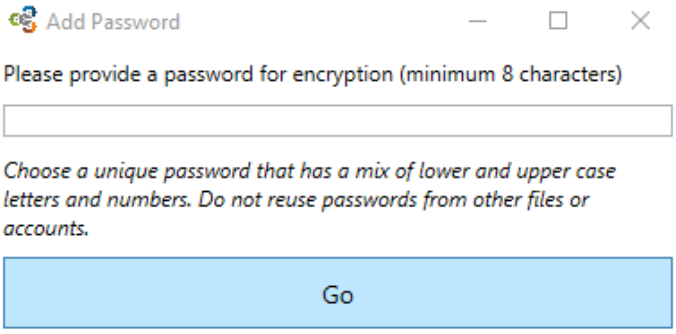


f. A new column titled MRN will appear to the left of the MPOG Case ID column in your existing spreadsheet. The encrypted file will automatically save.

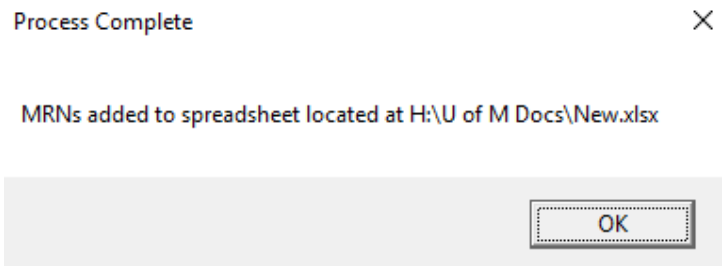
4. If opting to use the second method to load MPOG Case IDs into the Batch MRN Lookup Tool, this step will guide you through this process.
    a. Select the second radio dial: ‘Provide list of MPOG case IDs’
    b. Copy and Paste all MPOG Case IDs into the text box and click ‘Browse’ to select a location for the new spreadsheet to be saved. Click ‘Start’



    c. You will be prompted to enter a password.



d. After clicking ‘Go’ you will receive a message saying the process is complete. Go to the saved file and open.



e. Enter your password when prompted and the MPOG Case IDs you submitted with their associated MRNs will be visible. Again, the encrypted file will automatically save.

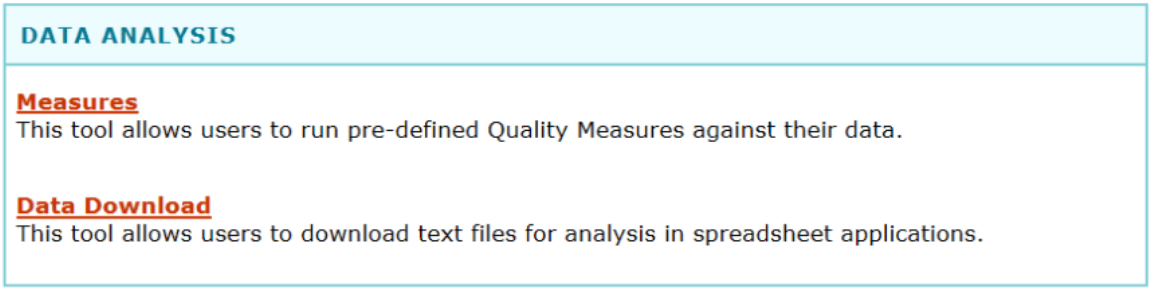
Appendix A: NSQIP Import Tool

NSQIP Import Tool

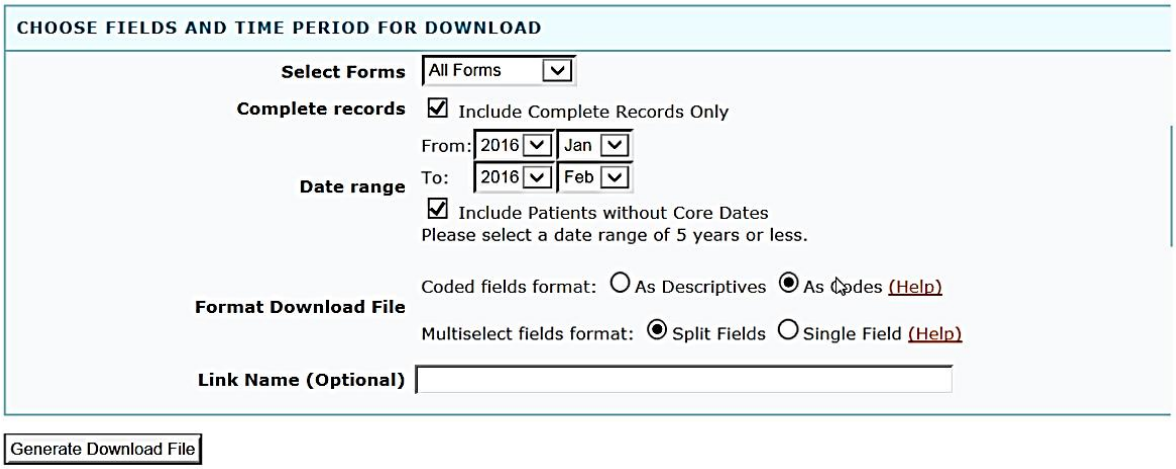
The NSQIP Import Tool allows the site to merge the surgical data abstracted for NSQIP with the MPOG anesthesia data.

1. Log into the NSQIP website at https://registry.acsnsqip.org/
2. In the upper right corner, select “Data Portal” then “Online Data Reports”.

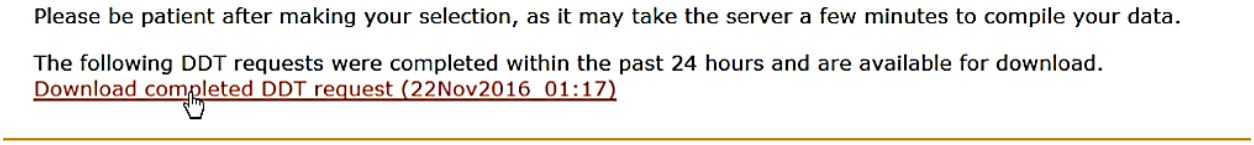
3. Scroll down to near the bottom of the page. Select “Data Download” underneath the “Data Analysis” heading.



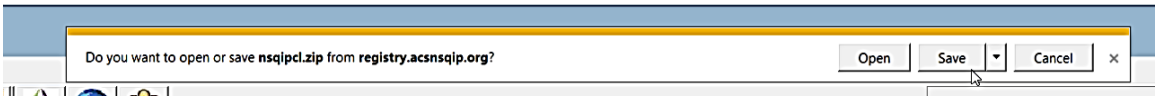
4. In the form pictured below, use the following options:
    a. Select Forms: Choose “All Forms”
    b. Complete records: Check “Include Complete Records Only”
    c. Date range:
        i. Choose your desired date range
        ii. Check “Include Patients without Core Dates”
    d. Format Download File:
        i. Coded fields format: Choose “As Codes”
        ii. Multiselect fields format: Choose “Split Fields”
    e. Link Name: As this option will not affect the data in the files, any label can be entered.
    f. Select: ‘Generate Download File’



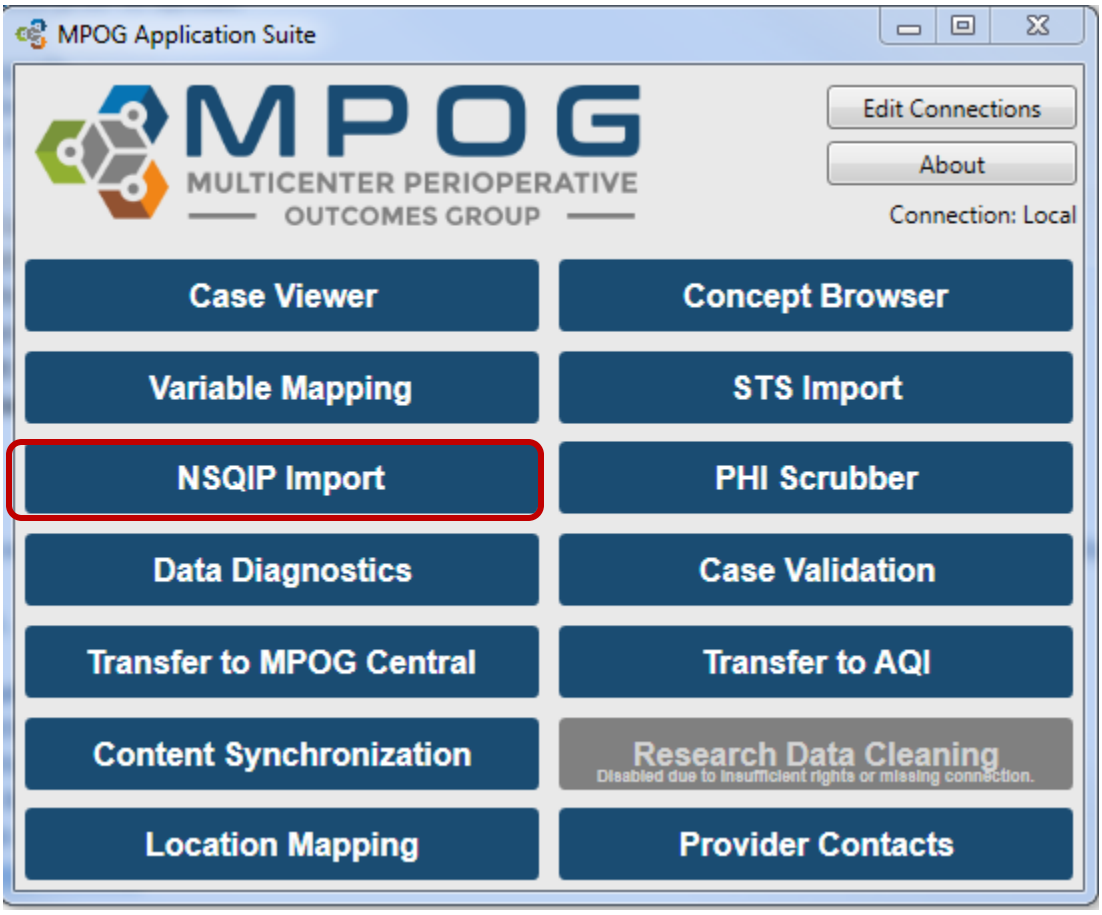
5. After the download is complete, you will receive an email to notify the file is ready. Return to the Data Download page and click on the download link that appears underneath the Data Download form:



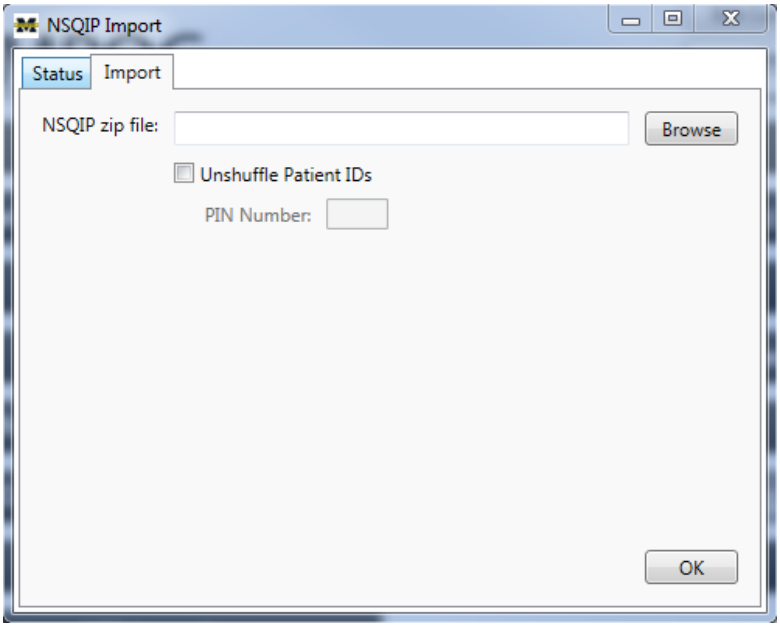
6. After clicking on the link shown in Step 5, the following prompt will display at the bottom of the screen. Click on ‘Save.’ Save the file in a secure location that you can access again for step 8.



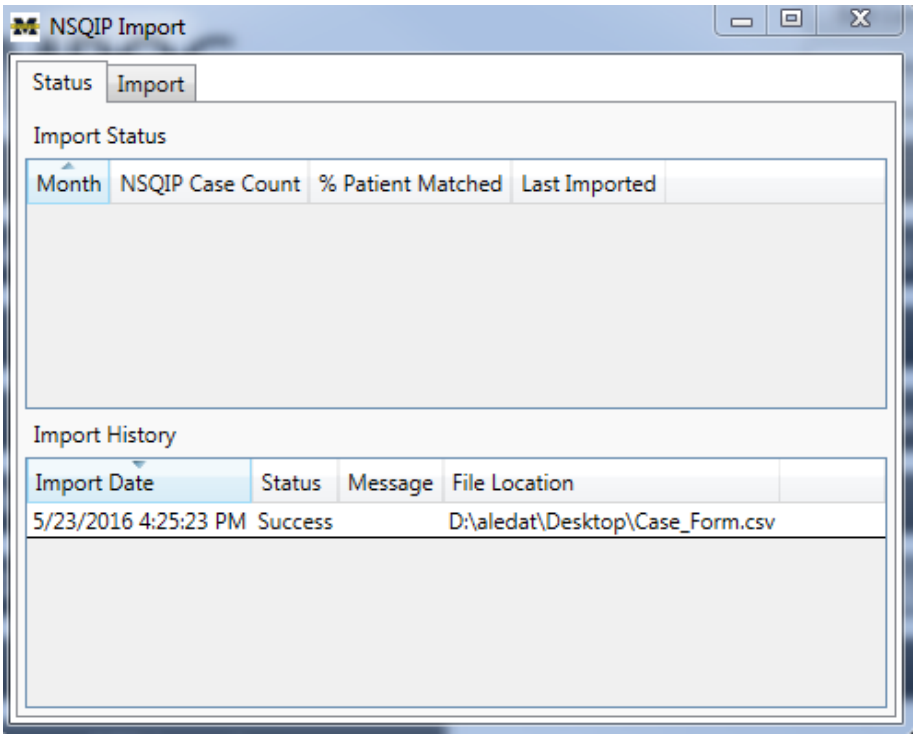
7. Open the MPOG Application Suite and run the NSQIP Import Tool.



8. Under the Import tab, click the ‘Browse’ button. Select the zip file downloaded in step 6. If this is an older NSQIP download with scrambled patient IDs, check the “Unshuffle Patient IDs” checkbox and enter the PIN. Click ‘OK.’



9. The application will now insert the NSQIP data into the local database and automatically perform patient matching to existing MPOG patients. Matched data will be sent to the central repository when the patient data is next uploaded. To check historical import status, click on the ‘Status’ tab within the NSQIP Import application.



Recommended Import Schedule Options

There are 46 cycles of 8 days each during which NSQIP data is entered. However, changes can be made to a NSQIP record up to 90 days after the date of service. After 90 days, the record is "locked" from modification. For this reason, MPOG recommends importing on either a monthly or quarterly basis using the schedules listed below.

Monthly Import Schedule

Month	Extract Date Ranges
January	September of the previous year
February	October of the previous year
March	November of the previous year
April	December of the previous year
May	January of the same year
June	February of the same year
July	March of the same year
August	April of the same year
September	May of the same year
October	June of the same year
November	July of the same year
December	August of the same year

Quarterly Import Schedule

Month	Extract Date Ranges
January	Q3 of previous year (Jul 1– Sept 30)
April	Q4 of previous year (Oct 1 – Dec 31)
July	Q1 of same year (Jan 1 – Mar 31)
October	Q2 of same year (Apr 1 – Jun 30)

Appendix B: QCDR Audit Tool

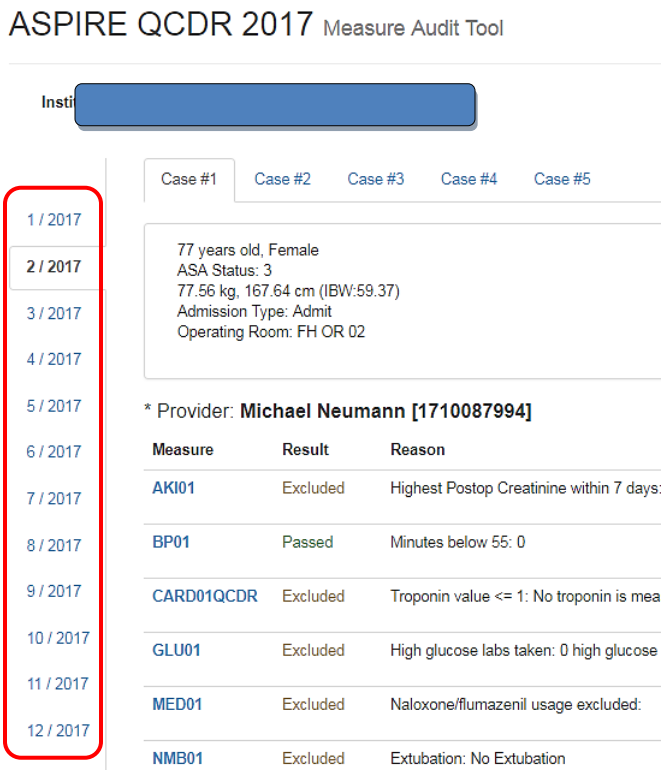
MPOG QCDR Audit Tool

The QCDR Audit Tool is only accessible to QCDR Champions and ACQRs at participating sites via the following link: https://www.aspirecqi.org/AppSuite/QCDR/MeasureAudit/2017. For more information about the MPOG QCDR program, please see the MPOG website: https://mpog.org/quality/qcdr/
Sites participating in the QCDR program are required to audit a minimum of 5 cases per month or 60 cases per year for each group (TIN). Cases and providers are randomly sampled. Only participating providers are included in the sampling. For example, if a site has opted for ASPIRE to report for attendings only, residents and CRNAs will not be sampled. All cases must be reviewed by the time MPOG submits data to CMS. Any documentation entered into the audit tool is subject to further audit by CMS. **Please do NOT include Protected Health Information (PHI) in any comments submitted via the tool.**

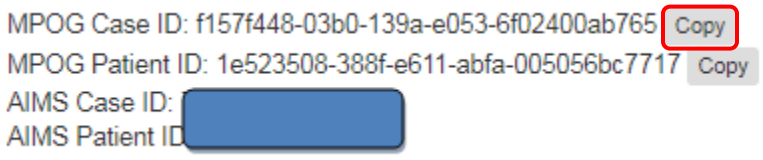
1. Access the QCDR Audit Tool:
https://www.aspirecqi.org/AppSuite/QCDR/MeasureAudit/2017

2. Log into the application using your ASPIRE username and password:

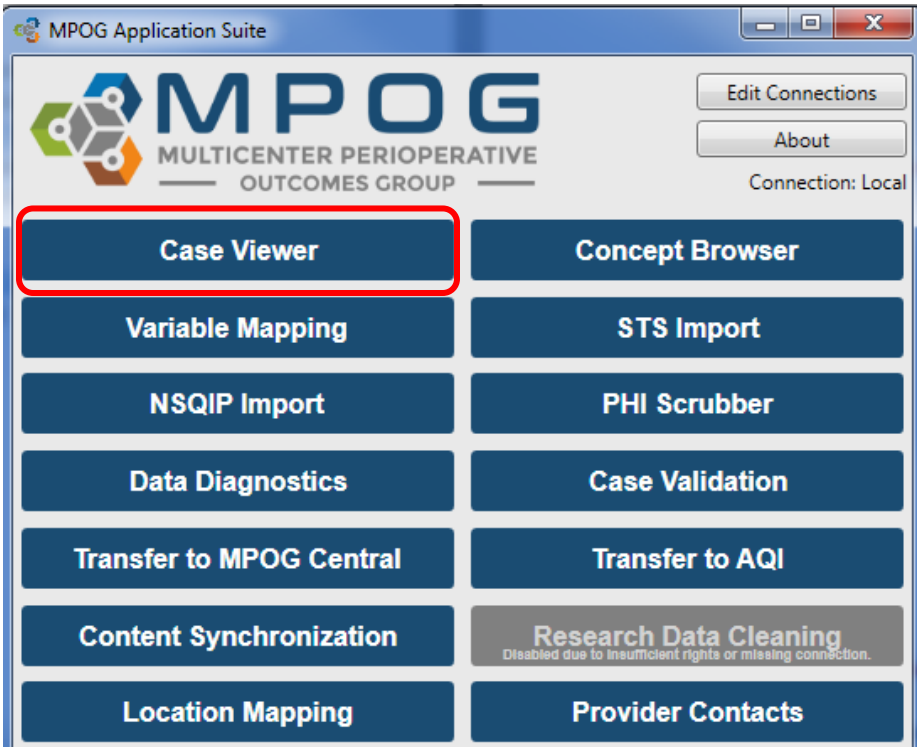
3. The audit tool will display and defaults to opening the current month. Select the month from the tabs on the left side of the screen to begin case review. All QCDR measures for all cases (5) must be reviewed for each month (60 cases in total) before the tool is considered complete.

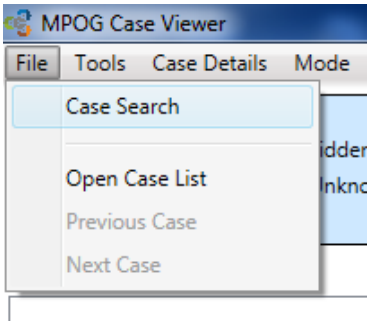


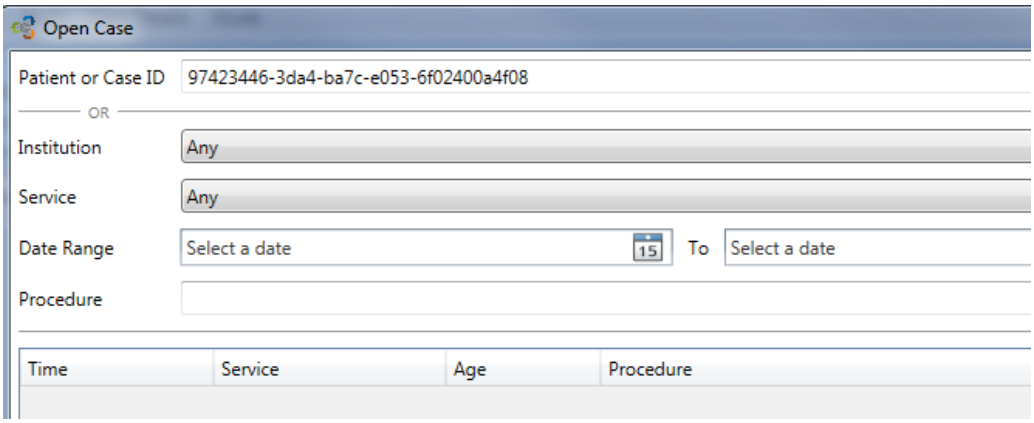
4. After selecting a month to begin review, the tool will default to opening Case #1. Begin review by copying the MPOG Case ID from the right side of the banner.



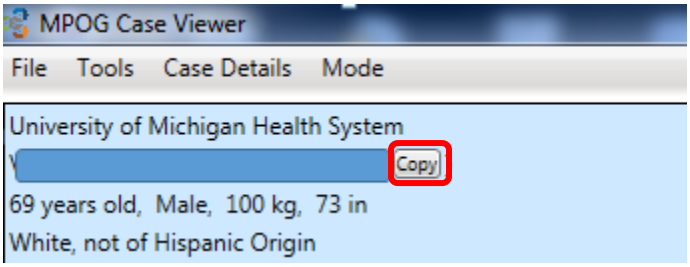
5. Paste the MPOG Case ID into Case Viewer in the MPOG Application Suite:





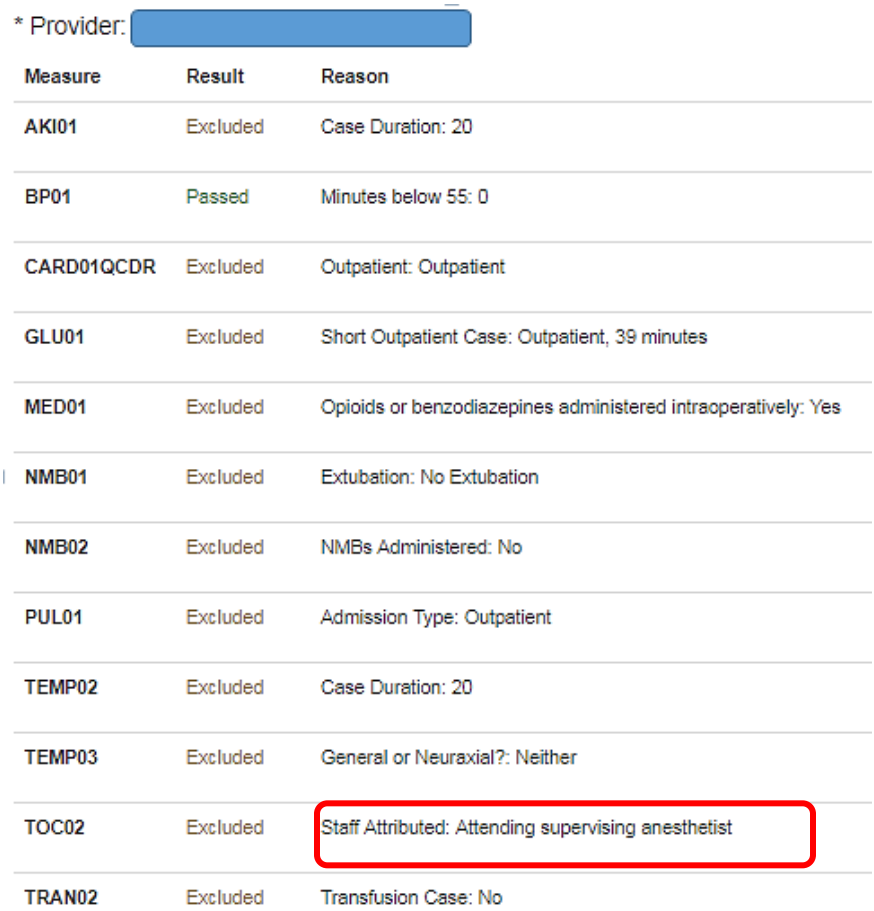


6. Open the case to retrieve the MRN from the banner in MPOG Case Viewer. Click copy.



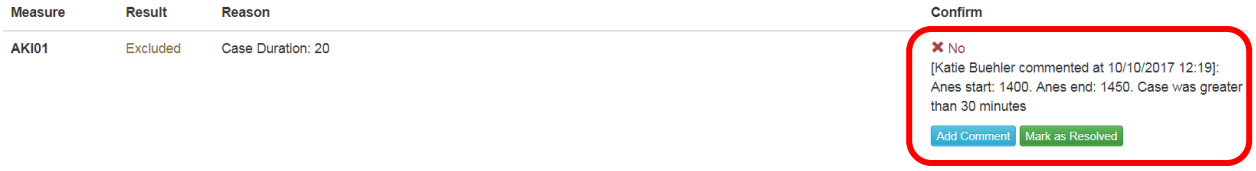
7. Paste the MRN into your site's anesthesia information management system (AIMS) or electronic health record to begin case review. To expedite review, the use of two monitors is recommended. Open the electronic health record on one screen and the QCDR Audit tool on the second monitor.

8. During case review, please note that the review of each measure is specific to the provider listed. For example, the case may have been excluded specifically for the selected provider due to staff attribution rules. See measure specifications for details related to provider attribution.



9. For this provider, the case was excluded for AKI01 because the case duration was less than 30 minutes. To confirm this, compare the case duration noted in the QCDR Audit Tool (20 minutes) to the case duration listed in the electronic health record. If the case duration is confirmed, click 'Yes' on the right side of the tool. See step 10 if a discrepancy was noted.

10. If a discrepancy is noted between the audit tool and the electronic health record, select 'No' and enter a comment to describe what was found in the EHR documentation. Upon clicking 'Submit,' this comment will be sent to the Coordinating Center for further review. **Please do not include any Protected Health Information (PHI), including MRN, in the comments section.** When the MPOG QI coordinators have reviewed the case, they will enter a comment in response to the discrepancy. The reviewer who originally placed the comment will receive an email notifying them that a comment was added. Click on the link within the email to open the case and review the comment. If additional action is needed, please submit an additional comment or take steps to address the data quality issue. When all data accuracy issues have been remedied, the site reviewer will be asked to 'Mark as Resolved.' Any data accuracy issues must be resolved before submission of performance data to CMS.

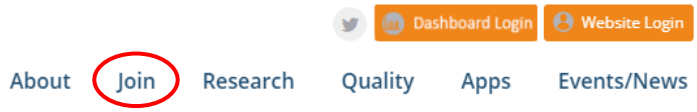


Appendix C: DataDirect User Guide

DataDirect is an application that allows users to create queries using data that has been submitted to MPOG for quality improvement and research purposes. It contains multiple filters that can help easily identify a cohort of patients. For example: Before a researcher begins work on a proposal, they can use DataDirect to identify patient, case, and institution counts for the cohort they are interested in studying. For QI purposes, providers can generate a count of how many patients received reversal for neuromuscular blockade during a specific timeframe and compare that to institution reintubation rates to identify if any correlation exists.

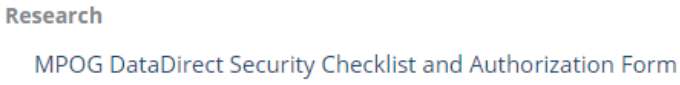
Gaining DataDirect Access

DataDirect contains a limited dataset: Protected Health Information is excluded except for date of service. However, because DataDirect may contain information regarding hospital level quality indicators (i.e. hospital mortality), we ask that approval from the appropriate hospital department (i.e. Quality or Health Information Management) is obtained. In order to obtain 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/ under the "Join" tab in the top right corner.



Next click "Downloads" from the menu on the left side:

To download the form click "MPOG DataDirect Security Checklist and Authorization Form" located under Research at the top



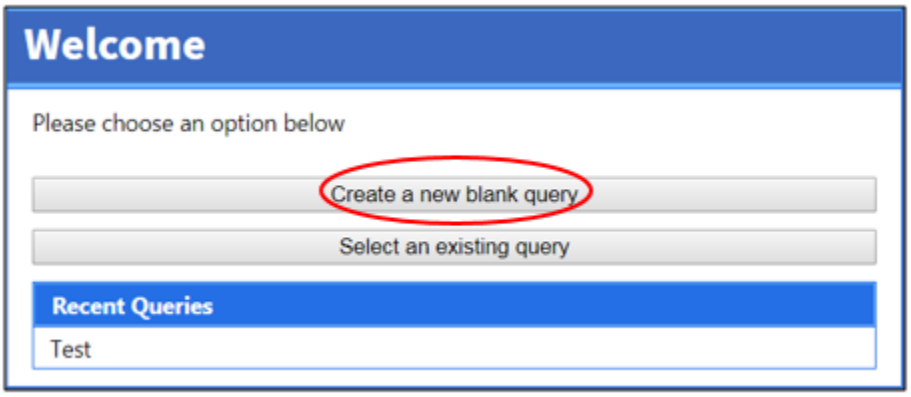
Please scan and email the completed form to Chris Ladd (laddchri@med.umich.edu) or Meridith Bailey (meridith@med.umich.edu). You will be contacted once login permissions have been updated.

Generating a Query

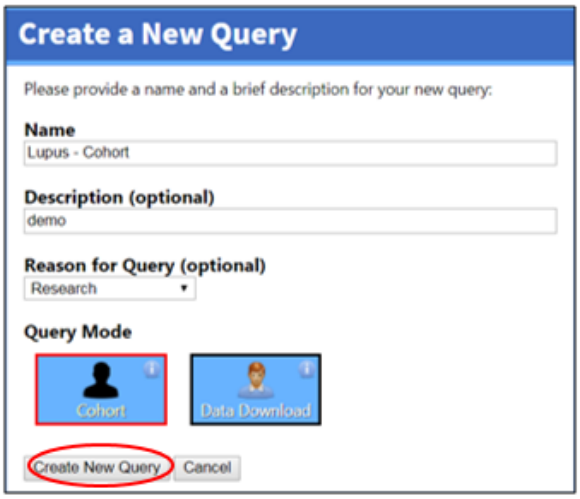
When creating a query, there are two modes you can choose from. **Cohort Mode** allows you to view case counts across all MPOG sites while **Data Download mode** allows you to only download cases from your site. Although DataDirect will display final case counts, institution's will remain unidentified. The following guide walks through the filters available and steps needed to create a query.

Cohort Query Mode

Upon logging in, select **Create a new blank query** to proceed. To use a previously created query, click **Select an existing query**. In cohort mode, you are able to view case counts across all MPOG sites.



Enter a name, description, and reason for your query. Select **Cohort** under Query Mode and then click **Create New Query**.

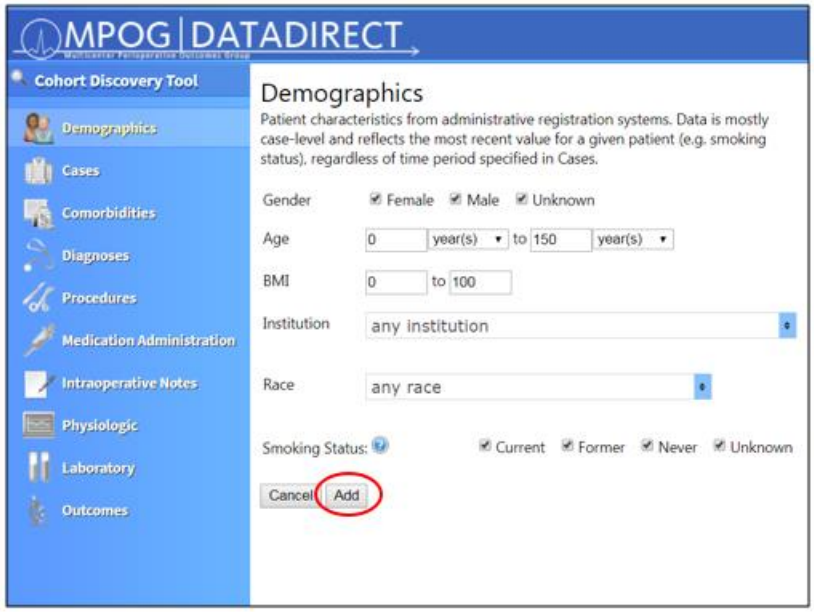


Next begin defining criteria for your query. Choose from the filters listed in the left panel, for example, select **Demographics**.

Demographics are *patient-level* characteristics available from the administrative registration systems (**not** case-level data, in other words, they do not change from one case to another).

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 include any institution in cohort mode.

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



Cohort Results: As DataDirect retrieves data to match the selected criteria, the right panel of the screen will display final counts. Note: Your query is also saved to your individual profile in DataDirect.

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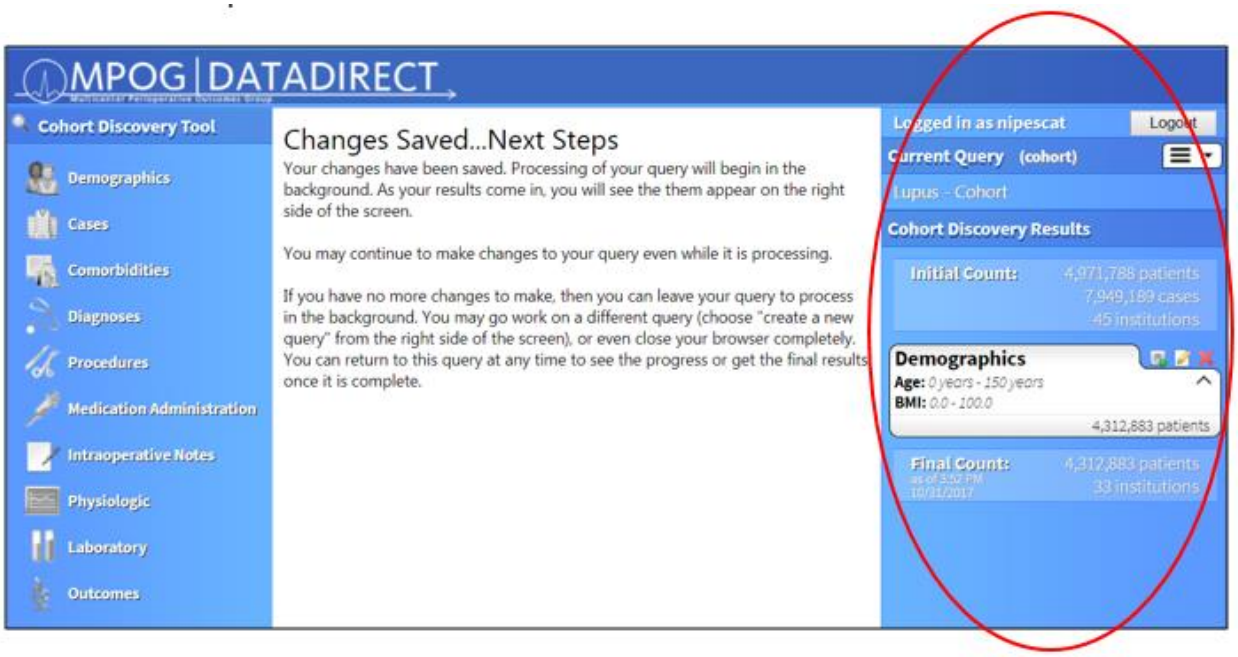
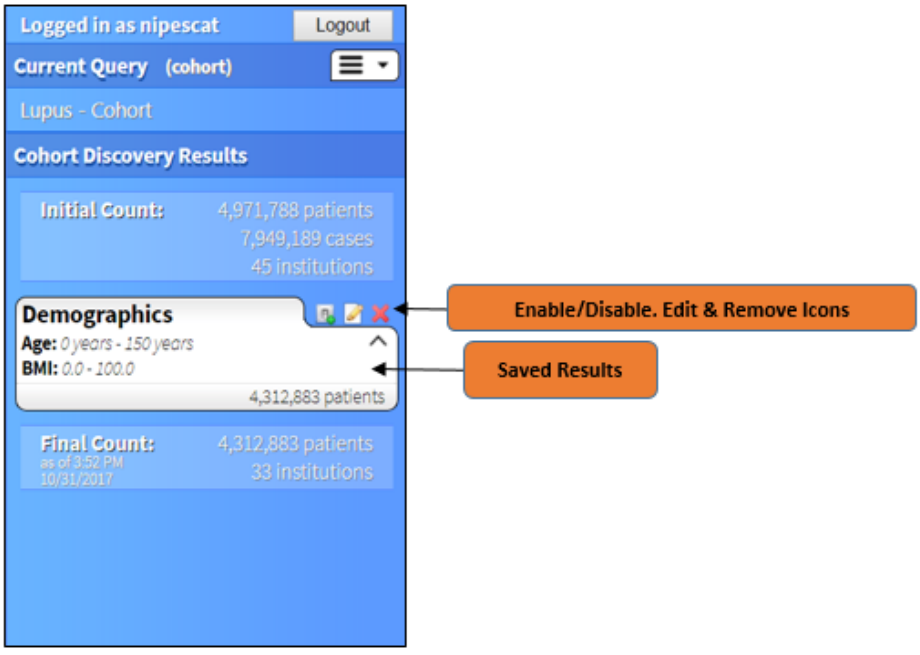
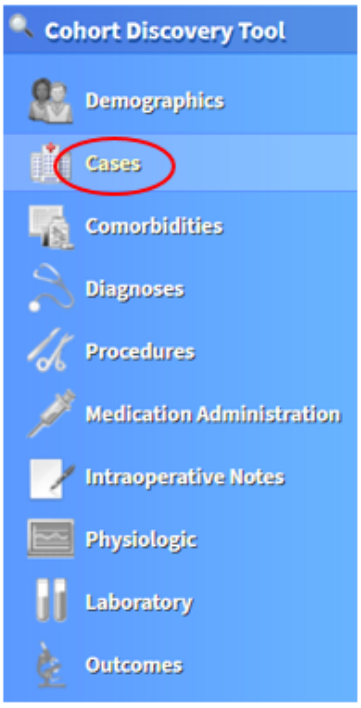


Cohort Discovery Results include 1) *initial patient, case, and institution counts*, 2) *saved query criteria*, and 3) *final count of patient data matching your query*. As you build your query, check the right panel to verify that your criteria have been added. At any time, you may enable/disable, edit or remove an individual filter from your query.

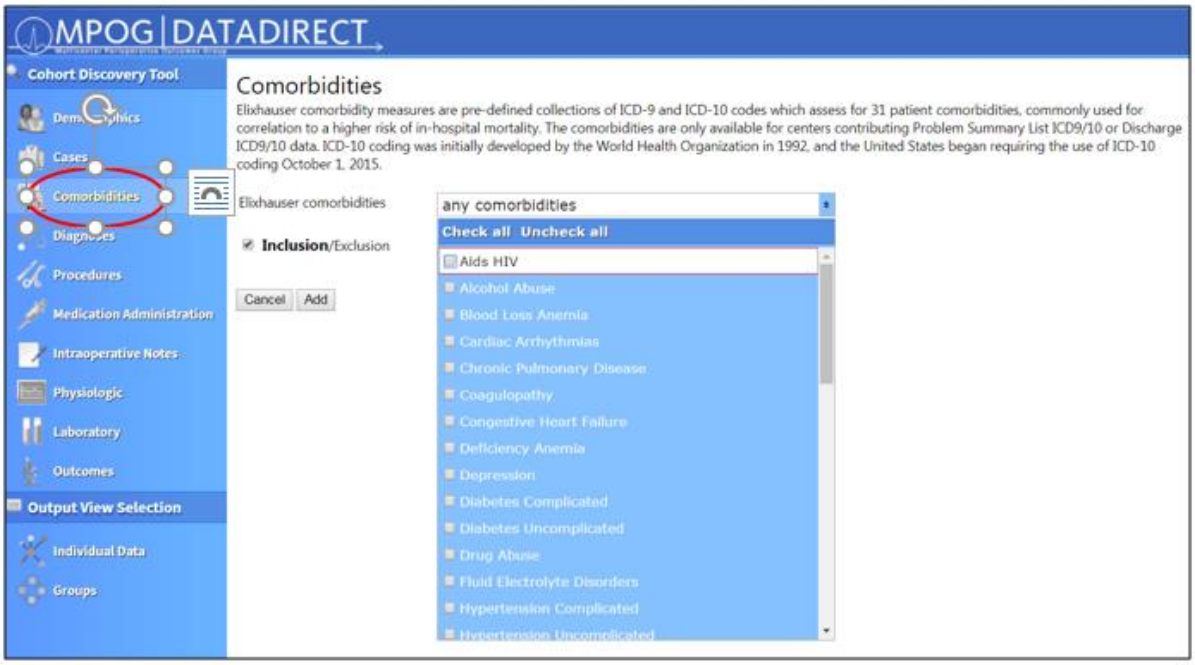


Cases: To continue building your query, select an additional filter category, for example, **Cases**. Check boxes you wish to select per each field. Click "Add" to finalize.

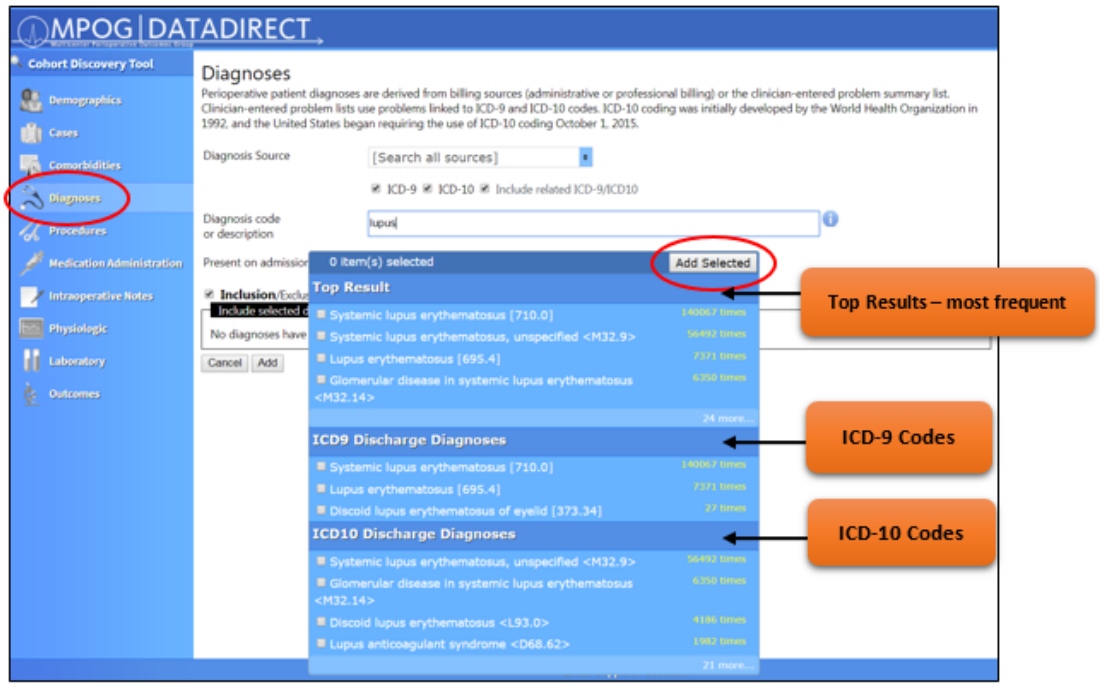


Review the updated result panel on the right side of the screen each time you click "**Add**" to note the additional criteria have been *saved* to your query. In this example, both Demographics and Cases criteria have been added to the query, and a final count has been generated:

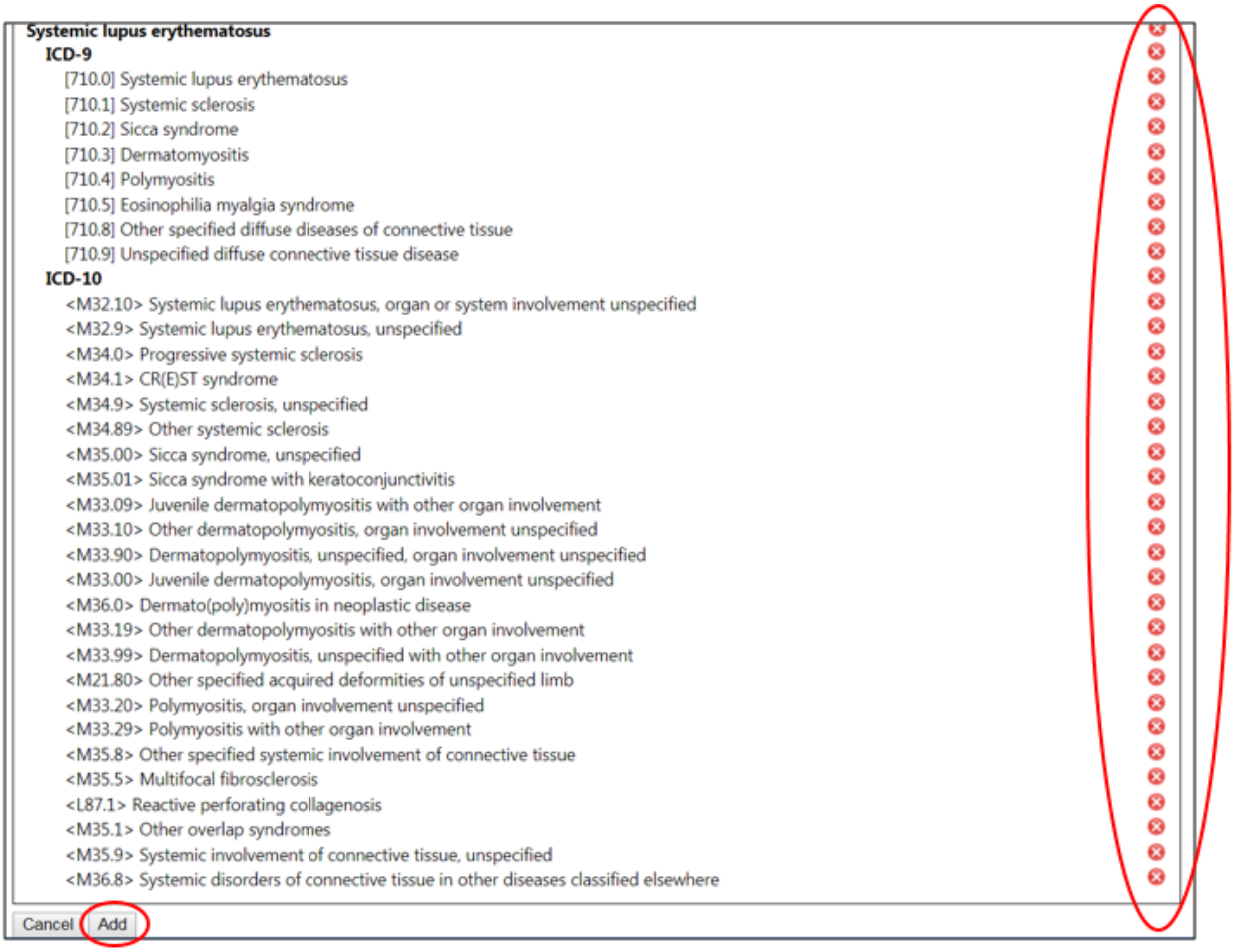
<u>Comorbidities</u>: Next, Select **Comorbidities**, and continue to check the boxes of from the dropdown menu of comorbidities you want to include in your query.



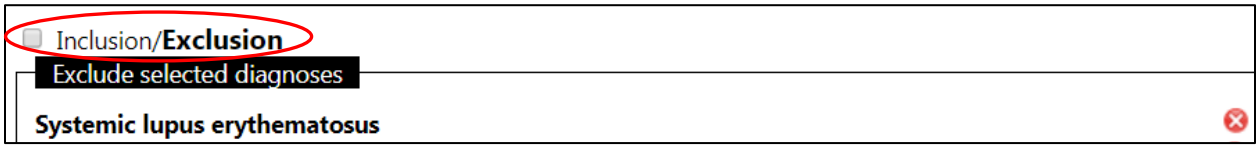
<u>Diagnoses:</u> Begin typing the desired diagnosis name (or associated ICD-9 and ICD-10 codes) into the Diagnosis Code field. IDC-10 codes were required as of October 1, 2015, therefore historical data may not include ICD-10 codes. If you are interested in capturing diagnosis data for a case before that occurred before this date, please choose both ICD-9 and ICE-10 codes. Select the codes you desire, then click "**Add Selected".**



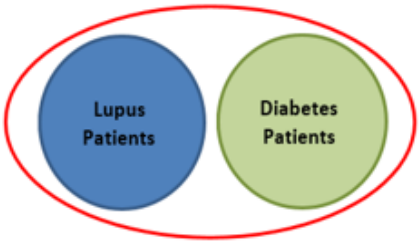
As you select a diagnosis code, the 'parent' ICD-9 and ICD-10 codes and its associated 'child' ICD-9 and ICD-10 codes will be displayed and automatically **included**. De-select (click the red X) any individual code you wish to remove from the suggested list. "Inclusion" is the default selection. Click "Add" when finished.



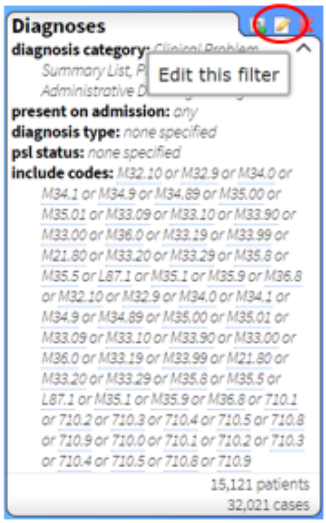
NOTE: To **Exclude** a characteristic in your query (e.g., run a query to retrieve patients who do NOT have Lupus), you must "UNCHECK" the Inclusion / Exclusion checkbox. When the box is **unchecked**, the indicator "Exclusion" appears in bold print.



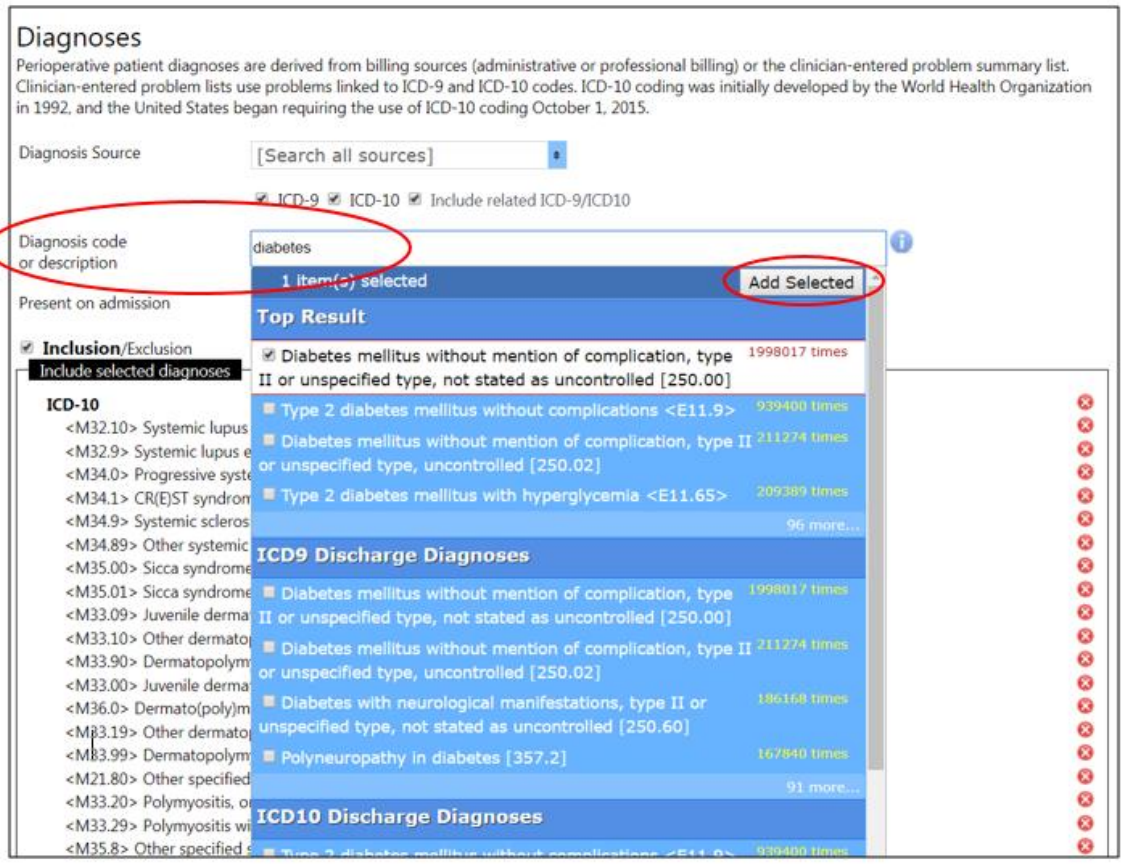
Adding "OR" Logic: You may be interested in patients who have ***either*** one condition ***or*** a second condition. For example, if you were interested in patients with Lupus **OR** patients with Diabetes, use "OR" logic. To achieve this, include the Diabetes criteria in the "same criteria box" as the Lupus diagnoses. Open the existing Diagnoses query Lupus. Click the **Edit** icon  to edit the Diagnoses filter.



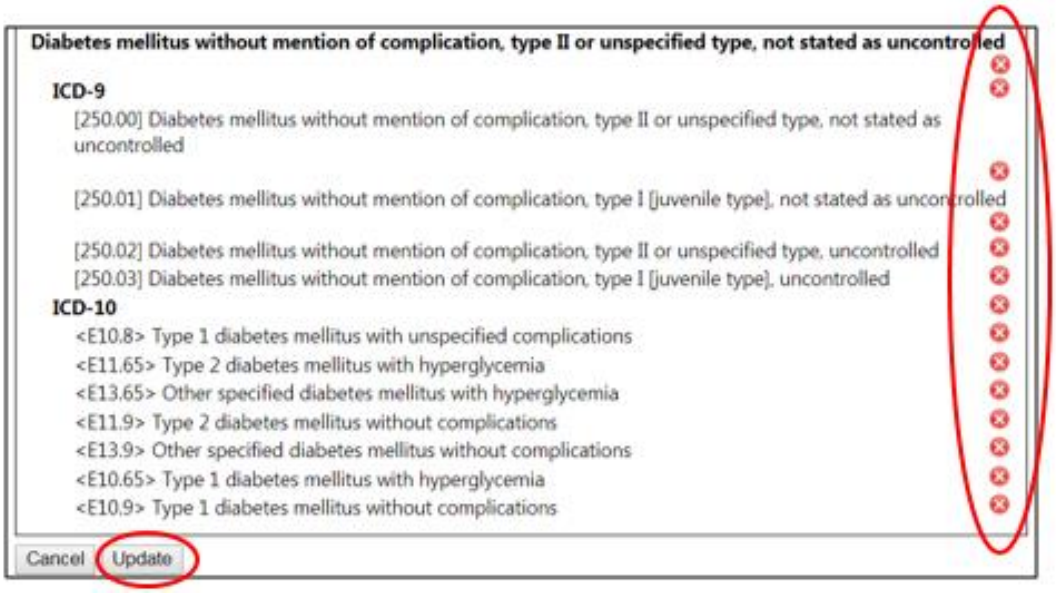
The TWO groups will be retrieved with "OR" logic.



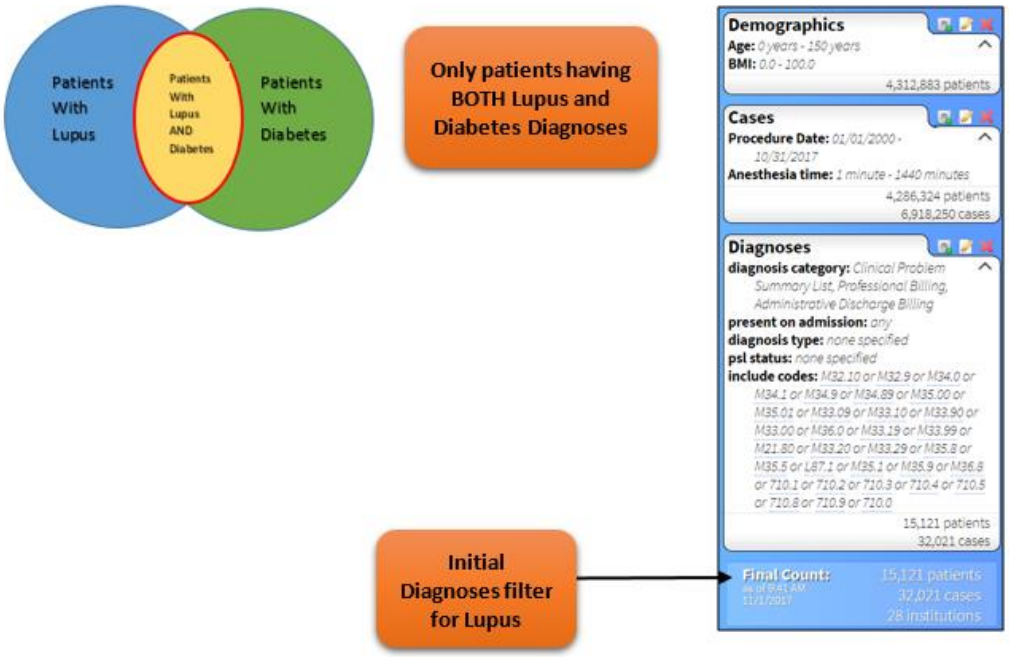
Enter the second criteria, e.g., Diabetes. Select the desired code(s) by clicking **Add Selected**



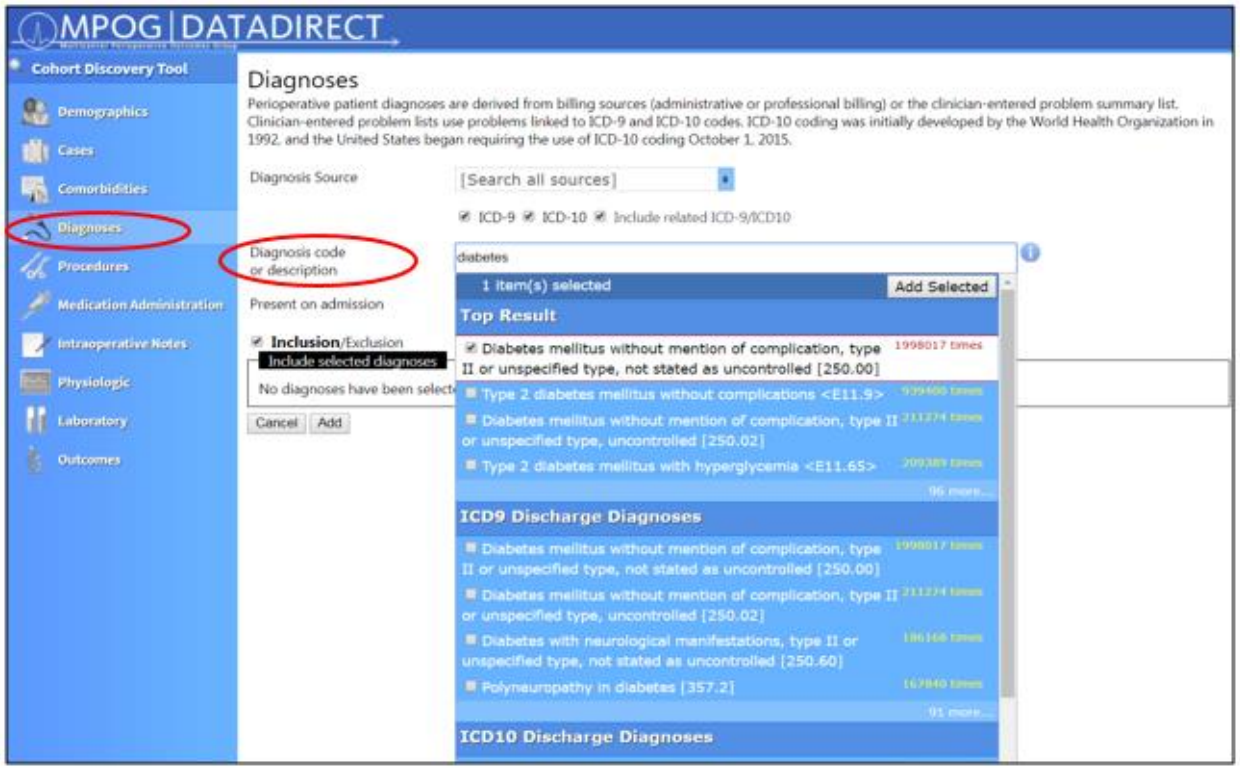
Remove any "child" ICD-9 and ICD-10 codes that you do not wish to keep (by clicking the red X for each). Click **Update** (both conditions will be listed).



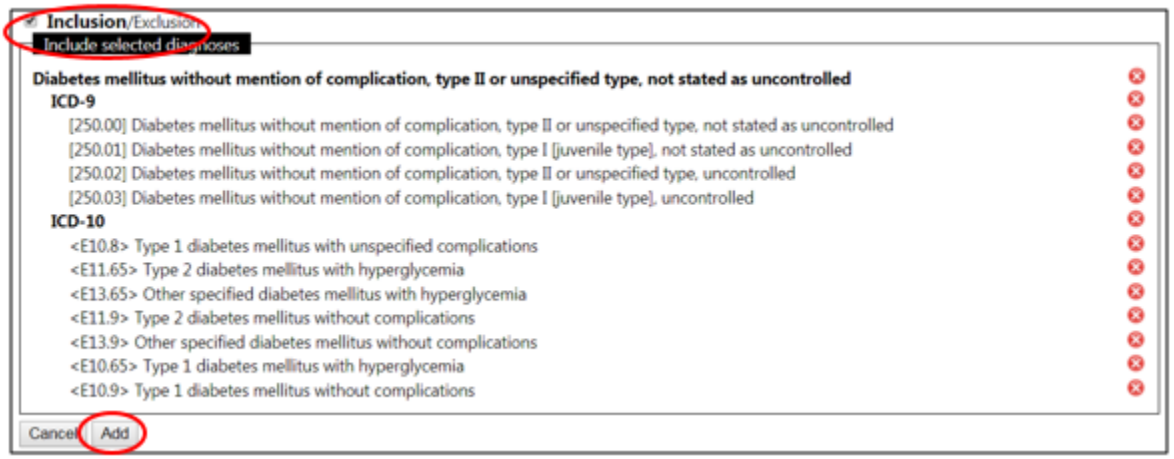
<u>Adding "AND" Logic</u>: In contrast, if you are interested in patients who have BOTH Lupus AND Diabetes diagnoses, use "**AND**" logic. To find these patients, build two separate filters (i.e. one for Lupus, and a separate one for Diabetes). Start with an initial Diagnosis filter including Lupus.



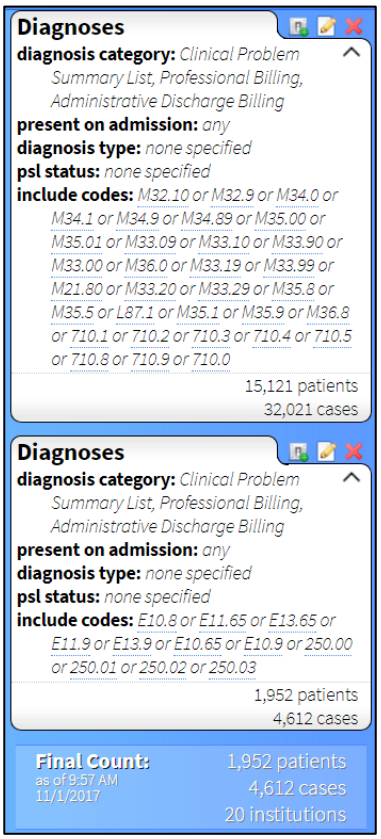
Build an additional Data Source (Diagnosis) by *returning* to the main filter list. Click **Diagnoses**, enter Diabetes into the Diagnosis code field, and click **Add Selected** to create new, separate criteria.



After specifying the details (refining your ICD-9 and ICD-10 codes if desired), click **Add**. Each time you click **Add**, you are adding a new criteria panel (i.e. an 'AND' statement to the query).

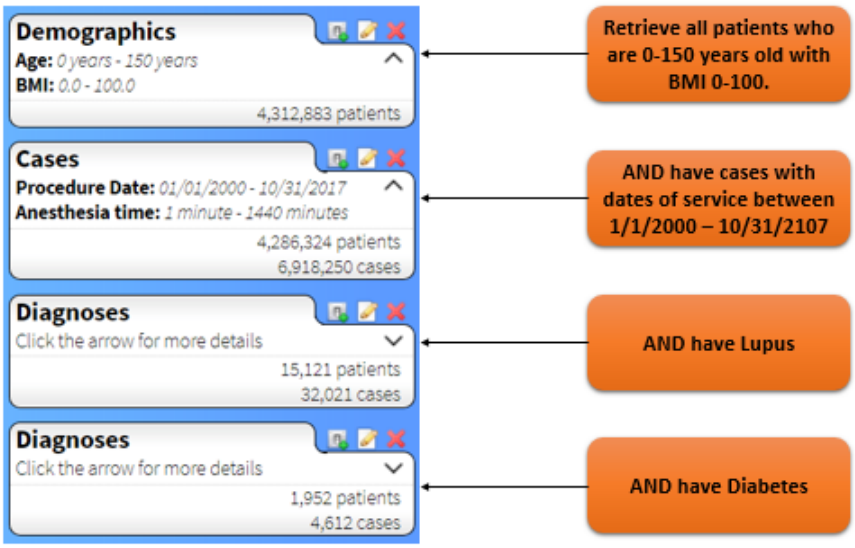


The additional required criteria appear as a separate criteria box in the right hand panel, and the narrowed query results show a far more limited population of patients – only those patients who possess BOTH of the listed diagnosis codes.

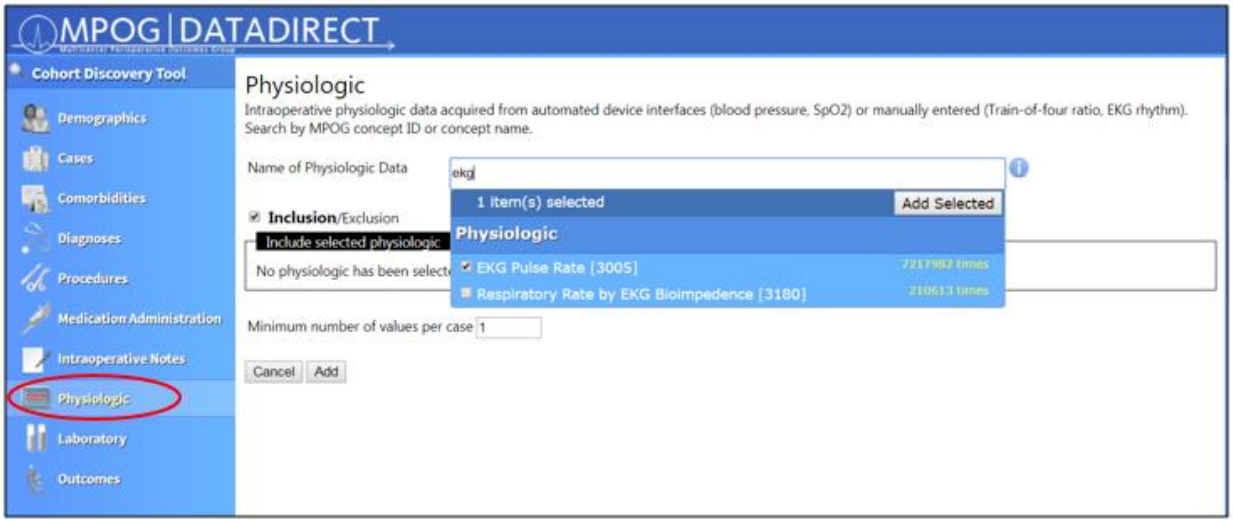


Separate Diagnoses Criteria filters represent "AND" logic – patients who have Lupus AND Diabetes

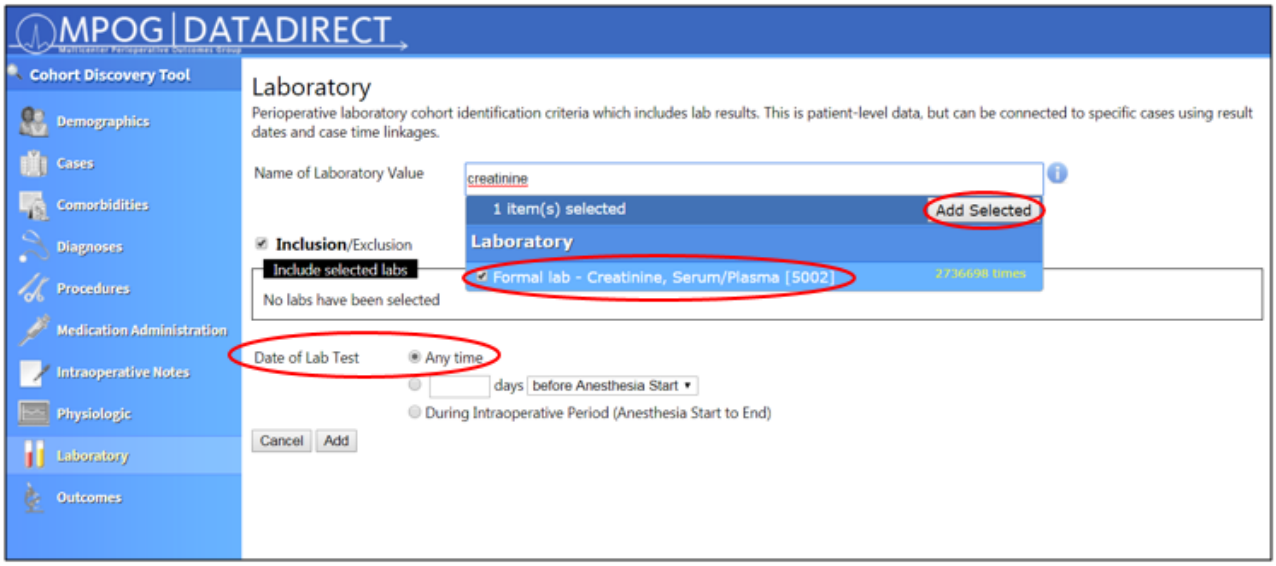
Each of the displayed criteria boxes in the right-hand panel represents an "AND" statement – in other words, all retrieved patients must possess ALL of these criteria:



In addition to the Procedures, Medication Administration, Intraoperative Notes, and Laboratory filters, you may select **Physiologic** data.



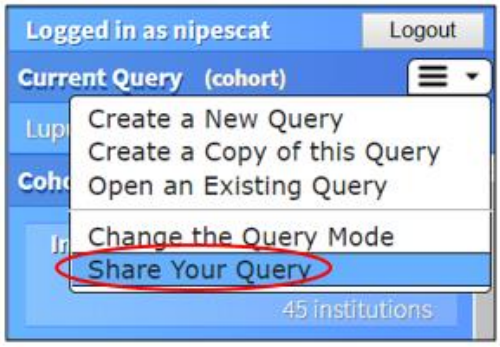
Continue to build and refine your query using Data Sources on the left-hand panel. Refer to the instructions inside each filter panel to determine the source and details for the information available.



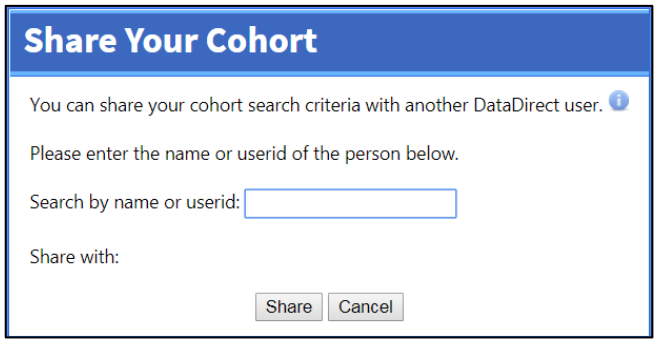
Share Your Query

Users have the ability to share queries that create. For example, researchers may explore ideas in DataDirect to identify a viable research topic and then share their query to the Coordinating Center programmer assigned to their PCRC project to have them run the query on the database before submitting to the PCRC committee. For Quality Improvement, a QI champion may generate a query that they share with their administration. An ACQR may want to share a query to track a certain subset of patients before or after QI project implementation

To share your query, select the dropdown menu icon  and select **Share Your Query**.

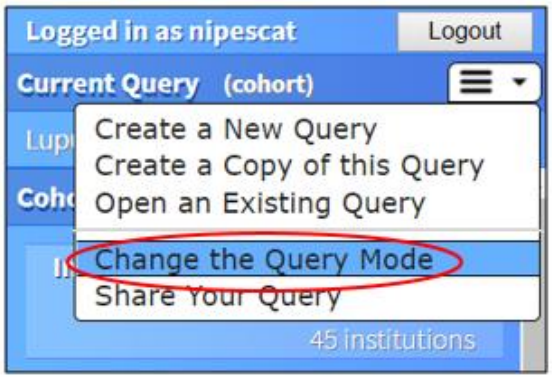


Enter the name or UserId of the DataDirect user you wish to share your query with, and click **Share**.

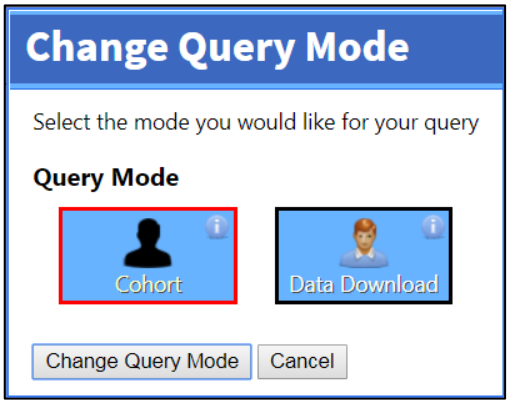


Toggling Between Query Modes

To switch from Cohort Mode to Data Download Mode (or vice versa), click on the dropdown menu icon  and select **Change the Query Mode**.

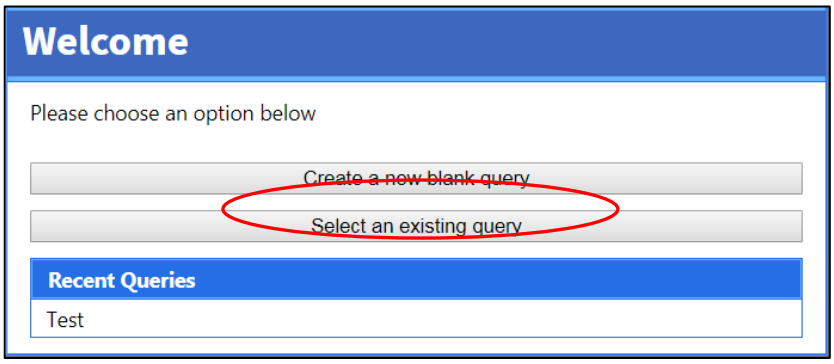


Select the desired mode for your query, then click **Change the Query Mode**.

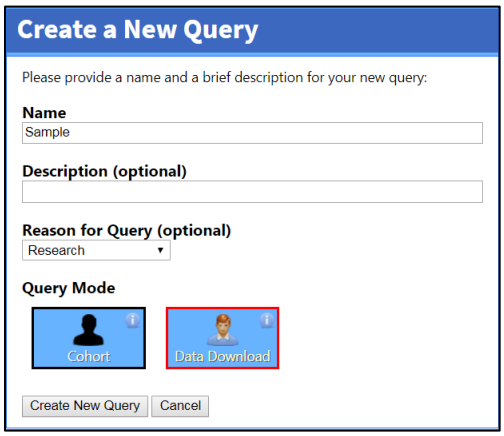


Data Download Mode

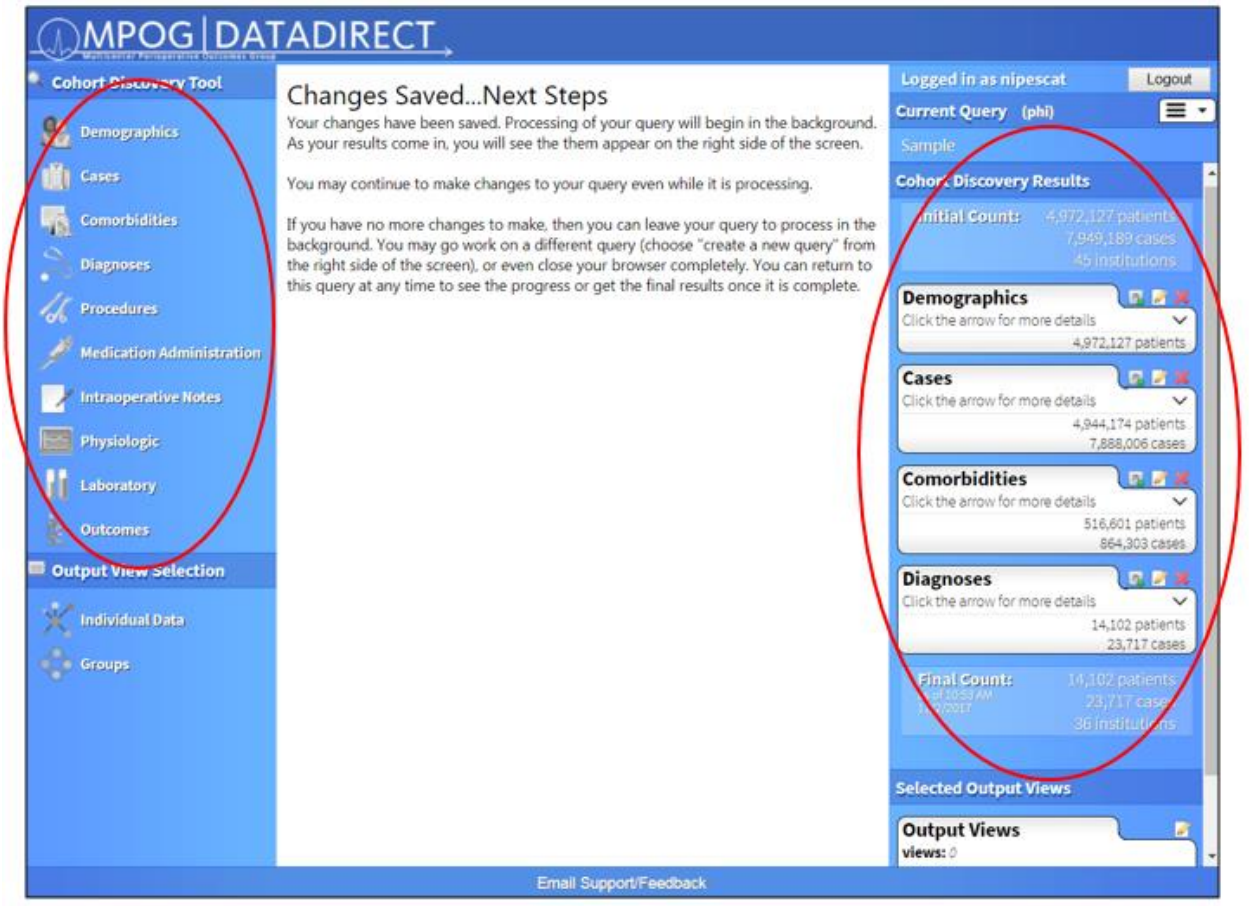
Creating a New Query: After logging in, select **Create a new blank query** to proceed (or **Select an existing query** to use a previously created query). Note: In data download mode, you are ONLY able to download cases from your site.



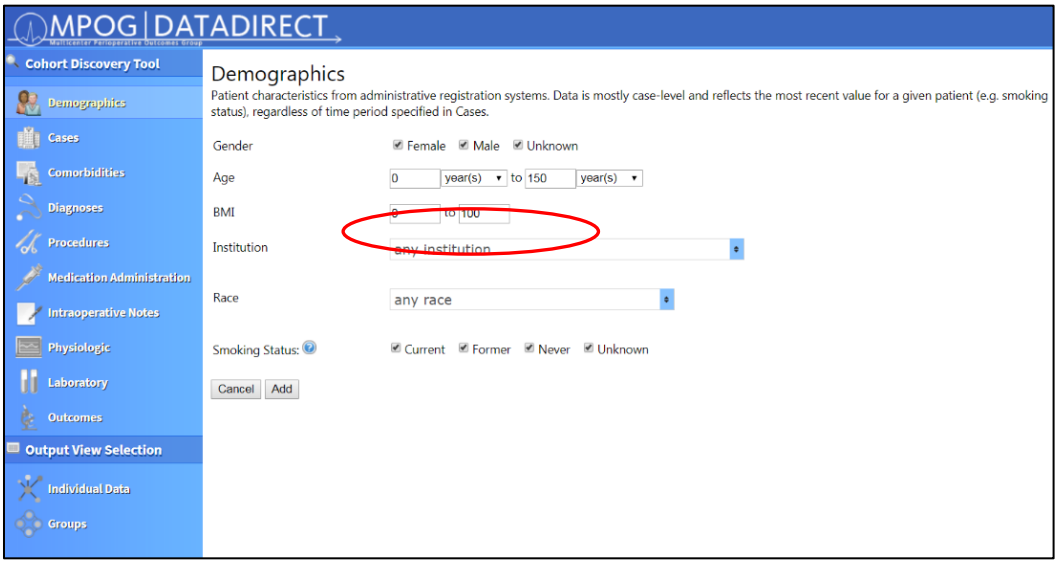
Enter a name, description, and reason for your query and select Data Download, then click **Create New Query**. You may also download an existing Cohort query by editing your query and toggling the Query Mode to Data Download.



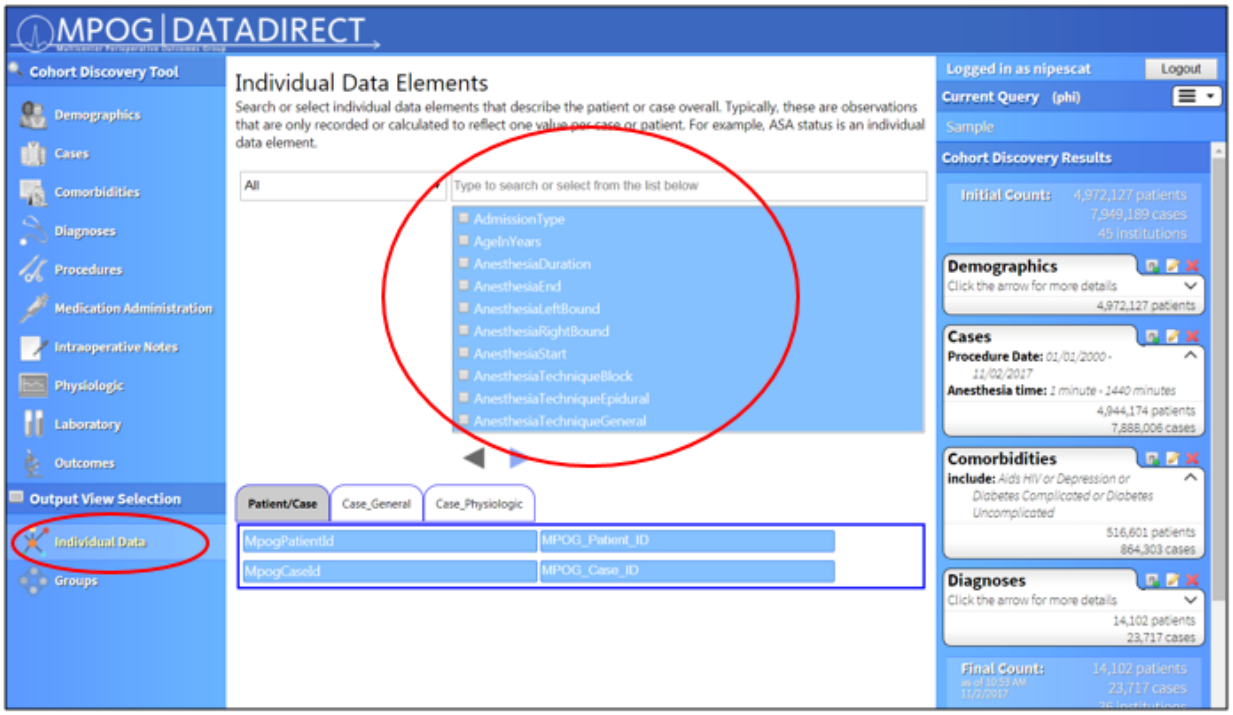
Continue to add criteria from the left panel to your query as you would in Cohort mode.



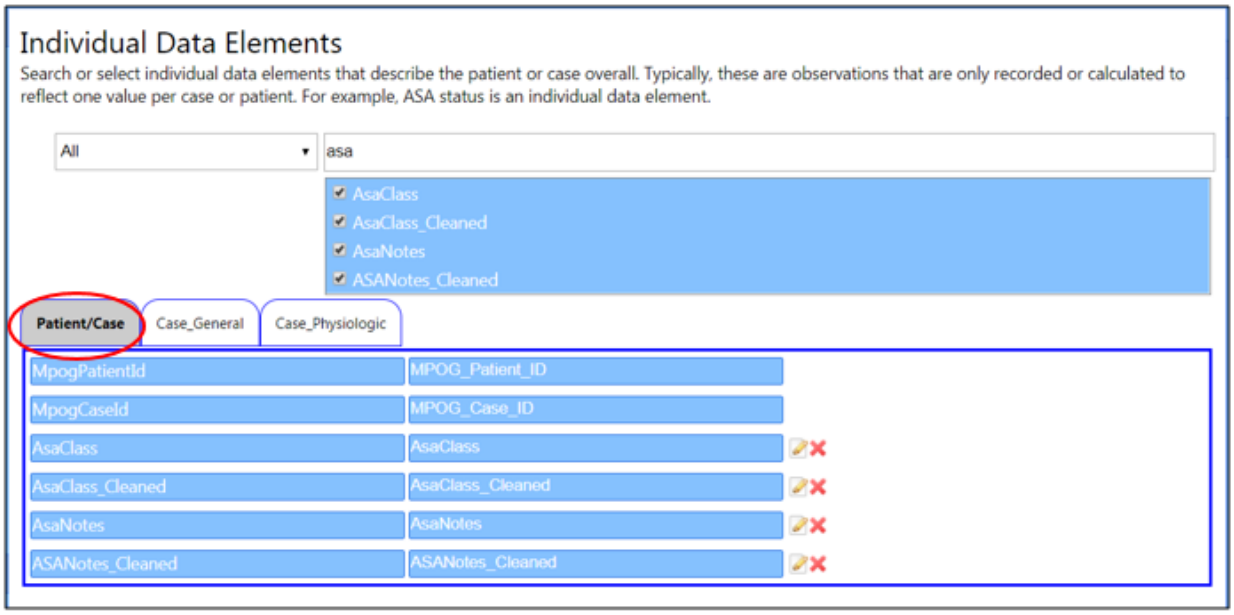
NOTE: Since you may only download cases from your own site, you will receive an error message if you attempt to run a query with a filter that includes multiple sites. Verify that you have selected your institution in the **Demographics** section.



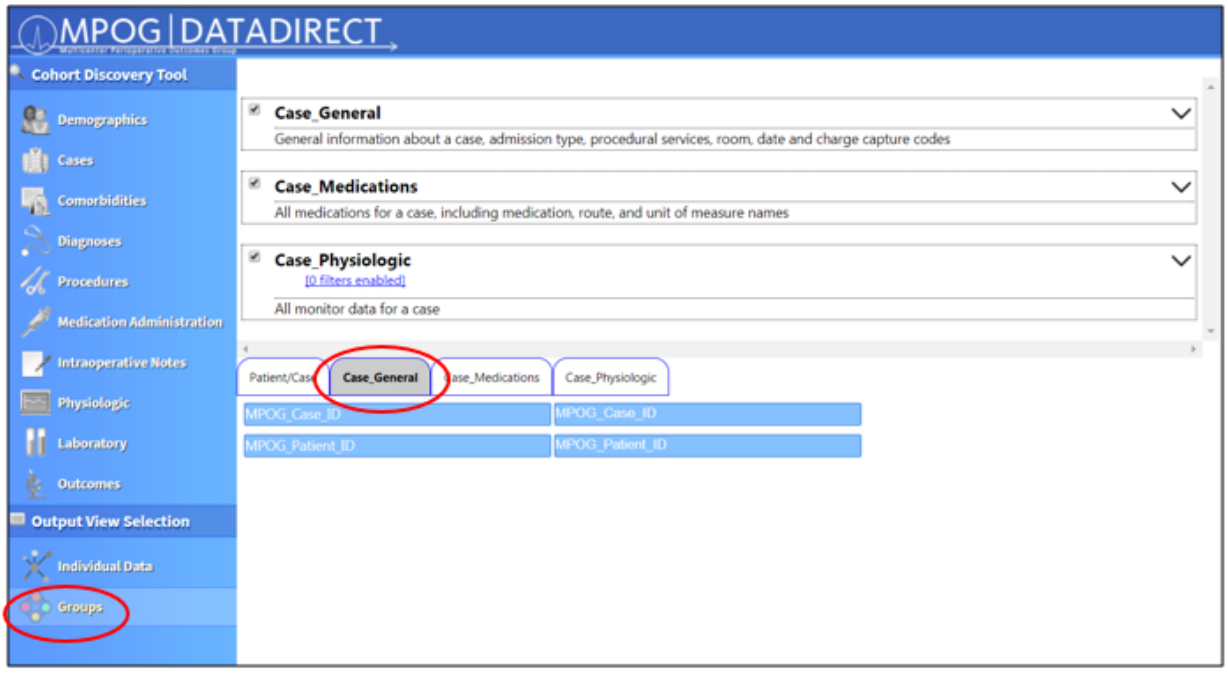
To select the data elements, you want included in your dataset, click on **Individual Data** under the Output View Selection.



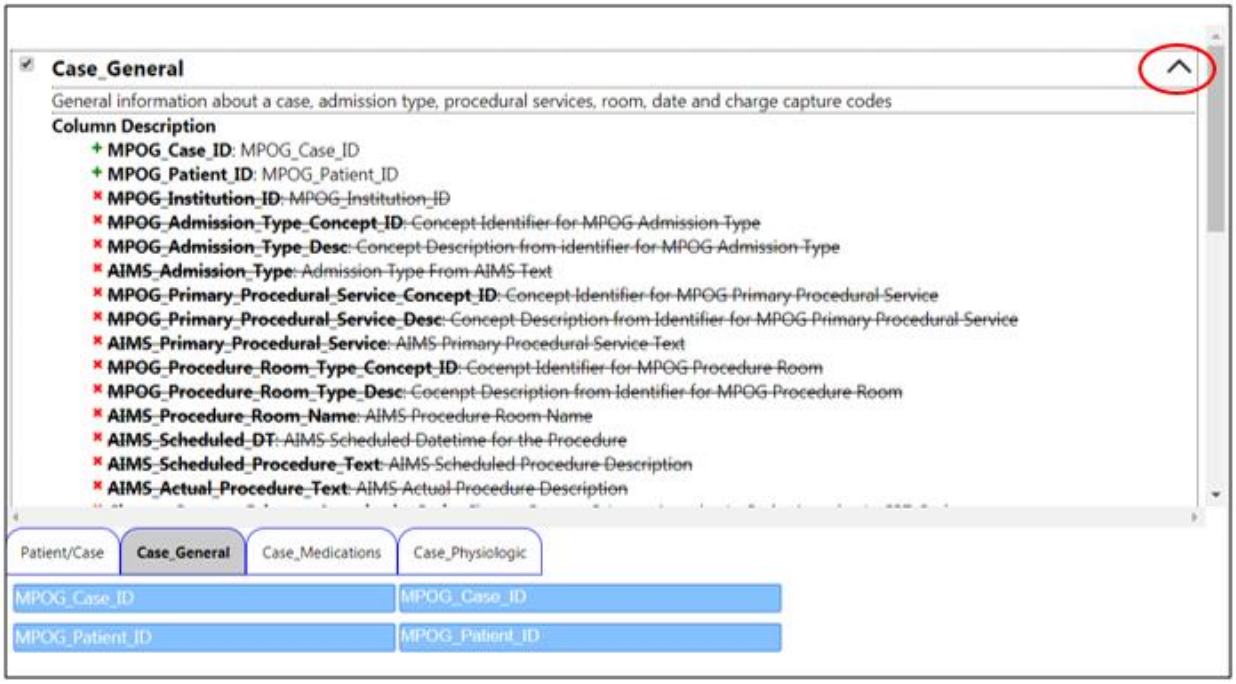
In this section, you may select individual data elements that describe the *patient* or *case overall*. Begin typing the name of the item, and check the appropriate boxes to save these data elements.



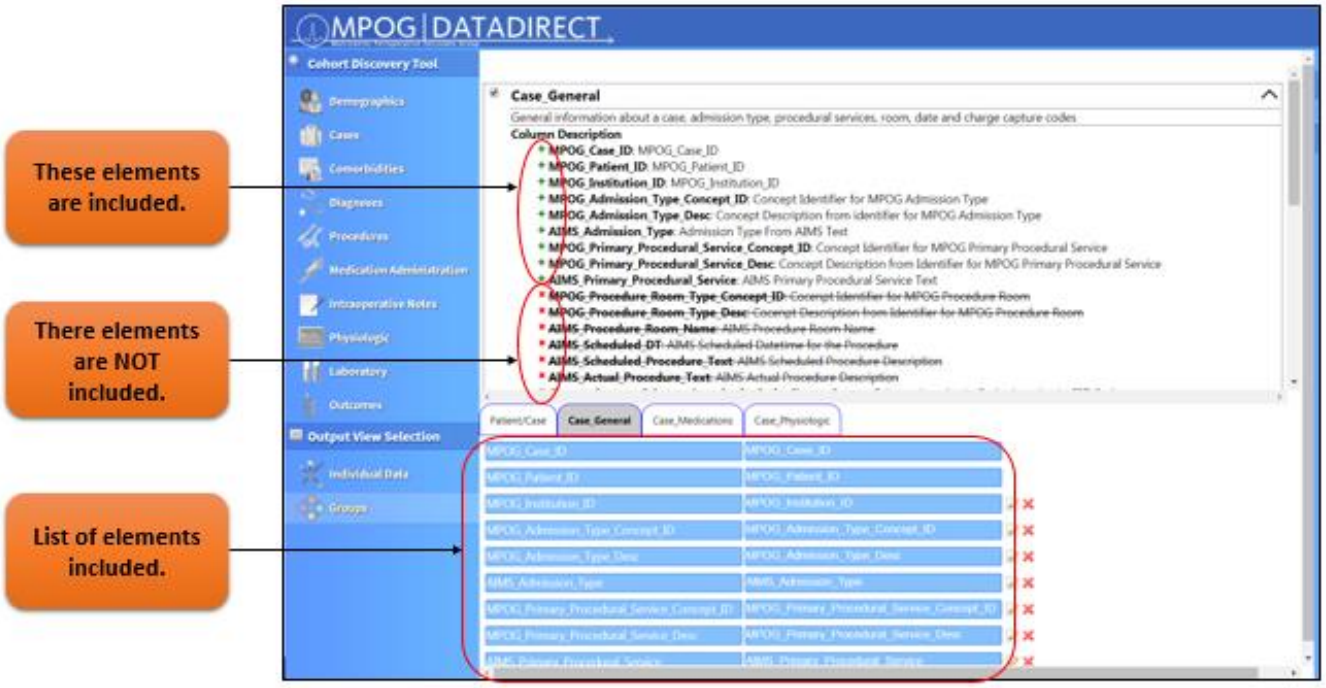
Select the **Case_General** tab or click on **Groups** under the Output View Selection section to choose case specific data elements such as admission type and procedural services. Check the box next to **Case_General** to begin selecting the items you desire.



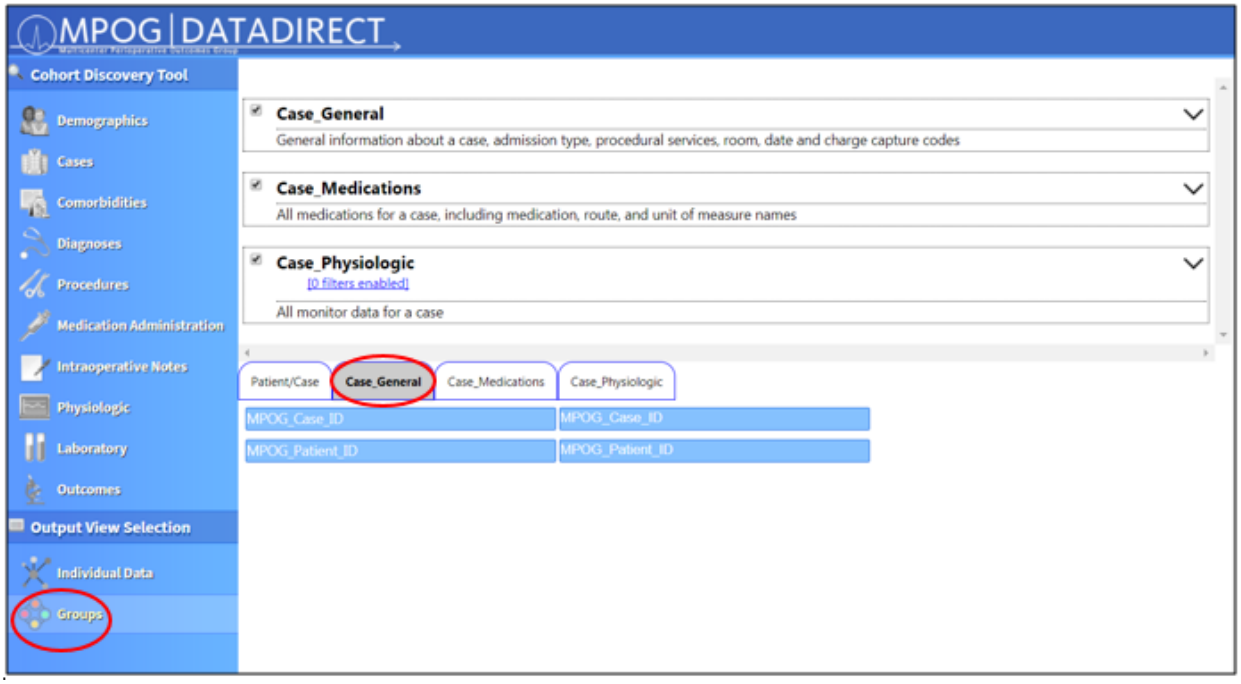
Click on the arrow to view the items associated with general case information. The green plus sign signifies that the item will be included. The red X items display in “strike-through” to indicate that they will NOT be included.



Click on the red X to change the symbol to a green plus sign

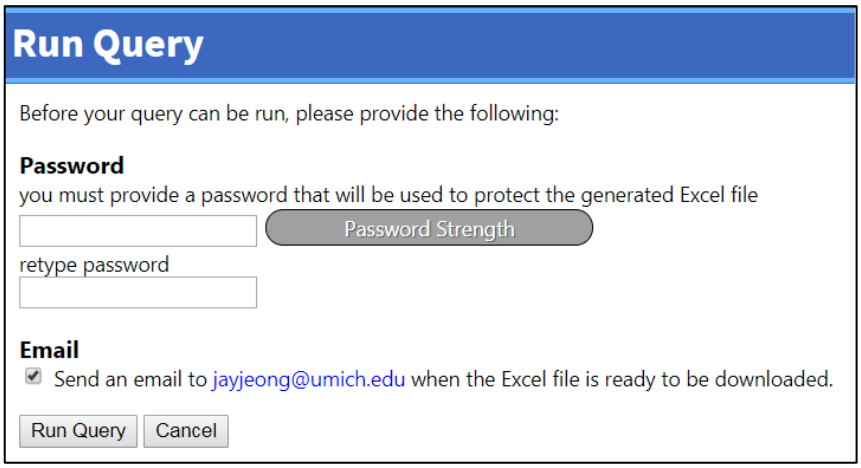


If desired, proceed to check the boxes next to **Case_Medications** and **Case_Physiologic**, and select the items you wish to be included in your dataset as previously described.

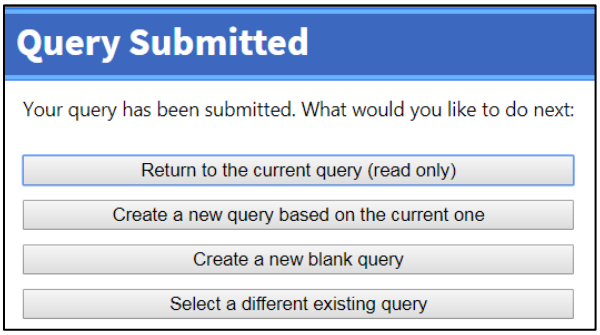


Running your Query: When you are ready to build your query, click the **Run Query** button.

Enter a password that will be used to protect the Excel file containing your data and select **Run Query**.



Click **Return to current query (read only)** to view the status of your request. To create a copy of your query, select **Create a new query based on the current one**. Otherwise, choose from any of the other options presented. NOTE: You cannot modify your query once you have submitted it. You must create a new query based on the current one.



A progress bar will appear at the top to indicate the status of your query. Once you have submitted your query you can no longer edit it. You can either cancel your submission or create a copy of your query.