



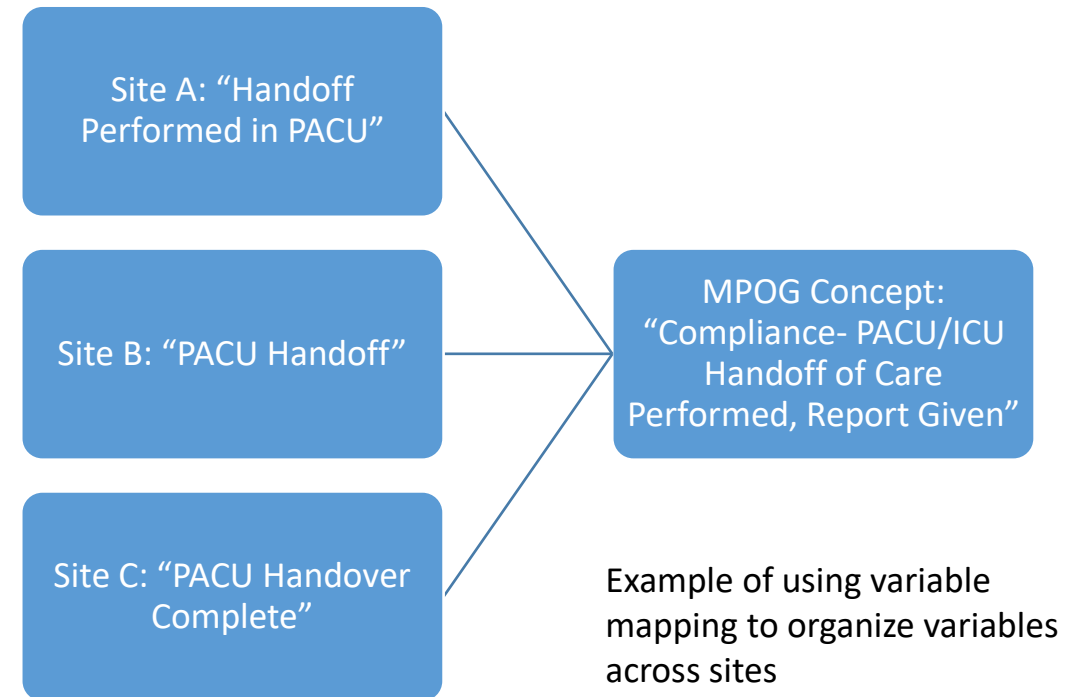
# Module 3

## Variable Mapping Utility



# Variable Mapping

- 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.



# Variable Mapping

- 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

# Variable Mapping

- **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.

# Pre-Mapping

- For new **Epic** sites, a select amount of variables will map automatically prior to beginning manual mapping.
- Your site technical team will be asked to run a script to complete the pre-mapping.
- Once the script is run, pre-mapped variables will show as 'green' in the variable mapping utility.

ID	Org	Name	Times Used	Mapped As	Type
FLO-4010000	OHSU	Airway Resp Rate	9,472	Respiratory Rate Actual from EtC	Physiolog
FLO-4010000	OHSU	ETCO2	9,405	End Tidal CO2 (mmHg)	Physiolog
FLO-4010000	OHSU	SpO2	9,335	SpO2 %	Physiolog
FLO-4010000	OHSU	Pulse - Plethysmograph	9,333	Physical Exam - Pulse Rate	Preop
FLO-4010000	OHSU	Pmean/PAW	9,262	Mean Inspiratory Pressure	Physiolog
FLO-4010000	OHSU	max Pos Airway P	9,229	Unknown Concept	Meta
FLO-4010000	OHSU	ETO2	9,216	Oxygen Exp %	Physiolog
FLO-4010000	OHSU	FIO2	9,216	Oxygen Insp %	Physiolog
FLO-4010000	OHSU	Heart Rate	9,047	Unknown Concept	Meta
FLO-4010000	OHSU	PeeP	8,910	Unknown Concept	Meta
FLO-1120016	OHSU	O2 FR Avance (Total Liters	8,263	Flows Oxygen (L/Min)	Physiolog
FLO-4010000	OHSU	Circuit O2	8,048	Unknown Concept	Meta
FLO-4010000	OHSU	Vent Mode	8,048	Ventilator Mode	Physiolog
FLO-4010000	OHSU	RR freq/Min	7,541	Ventilator Respiratory Rate Actu	Physiolog
FLO-4010001	OHSU	MV (L/min)	7,519	Minute ventilation	Physiolog
FLO-4010000	OHSU	Vte	7,496	Tidal Volume actual	Physiolog
FLO-4010000	OHSU	ST-II	7,357	ST Lead II	Physiolog
FLO-4010000	OHSU	Vt	6,946	Tidal Volume Set	Physiolog

# Using the Variable Mapper

- Open the MPOG Suite and select “Variable Mapping”

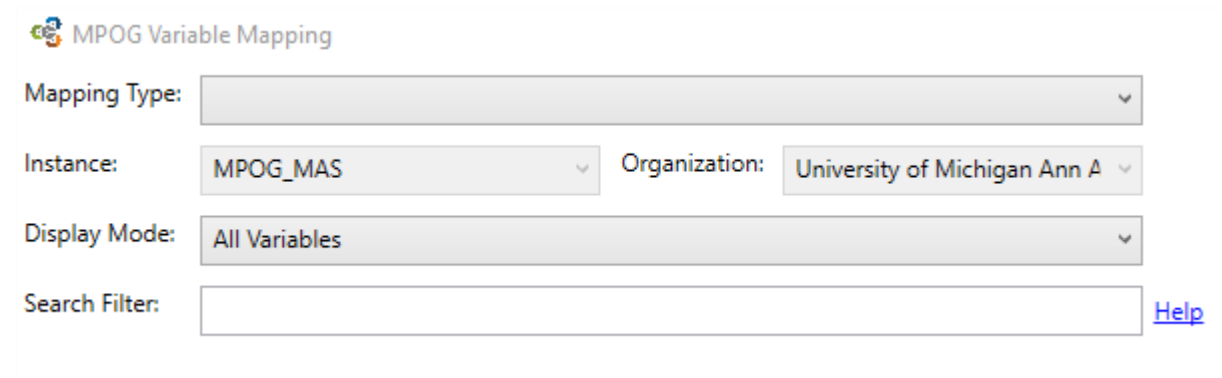


- The 'Variable Mapping' utility should open and look similar to the image below. The left side of the utility will list your institution (AIMS) variables and the right side will list MPOG concepts available to map to.
- You will also notice five fields within the MPOG Configuration that allow you to filter by category. These include Mapping Type, Instance, Organization, Display Mode, and Search Filter.

The screenshot shows the 'MPOG Variable Mapping' utility window. On the left, under the heading 'AIMS Variables', there is a table with columns: ID, Org, Name, Times Used, Mapped As, and Type. The table is currently empty. Above the table are filters: Mapping Type (dropdown), Instance (MPOG\_MAS), Organization (University of Michigan Ann A), Display Mode (All Variables), and a Search Filter field with a 'Help' link. On the right, under the heading 'MPOG Concepts', there is a table with columns: Name, ID, and Type. This table is also empty. Above it are filters: Direction (Normal), Options (Auto Search On, Auto Select On), and a Search Filter field. Between the two tables are buttons: Map, Unmap, Exclude, Export History, and Examine. At the top right of the right panel are 'Import' and 'Export' buttons.

- **Mapping Type:** This is a general mapping category that can be further filtered to subcategories
- **Instance:** This field will be populated with your default database instance (for sites that have more than one IM database).
- **Organization:** This field will be populated with your institutional name.
- **Display Mode:** This feature allows you to filter by 'All Variables,' 'Unmapped Variables,' or 'Mapped Variables.'
- **Search Filter:** This function allows you to search for a specific AIMS variable.
  - Can search by original variable ID using prefix "ID" (example "ID:1448")
  - Can search by the concept ID/name fields by using prefix "mapped:" (example "mapped:propofol")

*\*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). For institutions with multiple sites, It is recommended that mapping is completed under the Merged Organization.*



MPOG Variable Mapping

Mapping Type:

Instance:  Organization:

Display Mode:


Search Filter:  [Help](#)



- 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
- Select from the desired category from the 'Mapping Type' dropdown menu, as shown below

The screenshot shows the 'MPOG Variable Mapping' window. The 'Mapping Type' dropdown is open, displaying a list of categories: Administration Route, Administration Type (Inputs/Outputs/Meds), Admission Type, Ethnicity, Gender, Lab Type, Observation Detail Type (Event Details), Observation Type (Events/Physiologic/Outcomes), Procedure Service, Race, Staff Type, and Units of Measurement (Administration). The 'Administration Route' option is currently selected. To the right of the dropdown, there are buttons for 'Import' and 'Export'. Below these, there are fields for 'Direction' (set to 'Normal') and 'Options' (with 'Auto Search On' and 'Auto Select On' buttons). A 'Search Filter' text box is also present. At the bottom right, there are buttons for 'Map', 'Unmap', 'Exclude', 'Export History', and 'Examine'. A table with columns 'Name', 'ID', and 'Type' is visible at the bottom right.

- In the example below, we have selected the Mapping Type 'Race.'

 MPOG Variable Mapping

Mapping Type:

Instance:  Organization:

Display Mode:

Search Filter:  [Help](#)

- Once 'Race' has been selected from the dropdown menu, you will notice a variety of race related variables populate the window below. You may notice variables on the left side of the screen already appear green (mapped) if premapping has been completed.

- Click the 'Race' variable you wish to map. Once the row has been selected, it will turn blue and a corresponding auto-searched MPOG concept will appear in the 'Description' field on the right side. 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 on the right side to modify your search.
- In this example, we have selected 'American Indian/Alaska Native.'

The screenshot displays the 'MPOG Variable Mapping' application. On the left, a table lists various variables with their IDs, organizations, names, times used, mapped concepts, and types. The row for 'A' (University of Michigan Ann Arbor) is highlighted in blue, indicating it is the selected variable. To the right, a detailed view of the selected concept is shown, including a search filter 'Native alaska indian' and a list of related concepts. The concept 'American Indian or Alaska Native' (ID 304, Type Race) is highlighted with a red box.

ID	Org	Name	Times Used	Mapped As	Type
W	University of Michigan Ann Arbor	White	10,068	White	Race
B	University of Michigan Ann Arbor	Black	1,182	Black	Race
H	University of Michigan Ann Arbor	Unknown	430	Unknown	Race
O	University of Michigan Ann Arbor	Other	338	Other	Race
U	University of Michigan Ann Arbor	Unknown	329	Unknown	Race
A	University of Michigan Ann Arbor	Unknown Concept	55	Unknown Concept	Meta
D	University of Michigan Ann Arbor	Unknown	47	Unknown	Race
<No ID Given	University of Michigan Ann Arbor	<No ID Given>	14	Unknown	Race
P	University of Michigan Ann Arbor	Unknown Concept	6	Unknown Concept	Meta

- Click the MPOG Variable you wish to map to. This will highlight it in blue.
- Click “Map”. Your variable is now mapped to an MPOG Concept and will turn green. You can also map by double clicking the MPOG concept. The “Mapped As” column will be updated to reflect this change

**MPOG Variable Mapping**

Mapping Type: Race

Instance: MPOG\_MAS Organization: University of Michigan Ann A

Display Mode: All Variables

Search Filter:  [Help](#)

ID	Org	Name	Times Used	Mapped As	Type
W	University of Michigan Ann Arbor	White	10,068	White	Race
B	University of Michigan Ann Arbor	Black	1,182	Black	Race
H	University of Michigan Ann Arbor	Unknown	430	Unknown	Race
O	University of Michigan Ann Arbor	Other	338	Other	Race
U	University of Michigan Ann Arbor	Unknown	329	Unknown	Race
A	University of Michigan Ann Arbor	Unknown Concept	55	Unknown Concept	Meta
D	University of Michigan Ann Arbor	Unknown	47	Unknown	Race

Direction: Normal

Options: Auto Search On Auto Select On

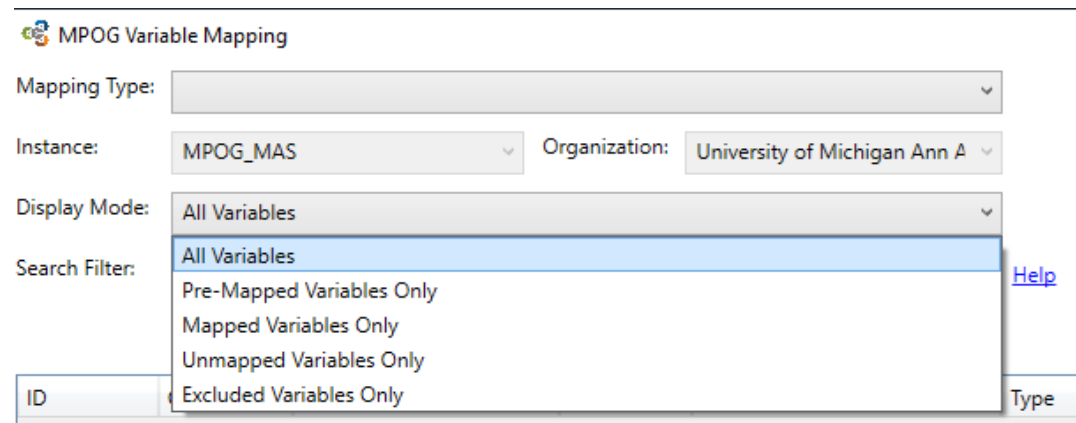
Search Filter: Native alaska indian

**A**

Name	ID	Type
American Indian or Alaska Native	304	Race

**Map** **Unmap** **Exclude**

- You may also filter by 'Display Mode' to sort the variables and help to focus mapping efforts. The categories are 'All Variables,' 'Pre-Mapped Variables Only,' 'Mapped Variables Only,' 'Unmapped Variables Only,' and 'Excluded Variables Only.' By selecting from the dropdown menu, only the variables within the selected category will appear.



The screenshot shows the 'MPOG Variable Mapping' interface. It includes a 'Mapping Type' dropdown, 'Instance' (MPOG\_MAS) and 'Organization' (University of Michigan Ann A) dropdowns, and a 'Display Mode' dropdown which is currently open, showing options: 'All Variables', 'Pre-Mapped Variables Only', 'Mapped Variables Only', 'Unmapped Variables Only', and 'Excluded Variables Only'. A 'Search Filter' field is also present. A 'Help' link is visible to the right of the dropdown. At the bottom, a table header shows 'ID' and 'Type' columns.

# Additional Functions within Variable Mapping

## Examine

- The 'Examine' function allows you to view the Epic variable in greater detail by values from different cases this variable has been documented. This is beneficial when you desire additional context related to the variable you wish to map.

ID	Org	Name	Times Used	Mapped As	Type	
15334	University o	Perfus  Hct Pump	1,492,628	Miscellaneous Perfusionist Parar	Physiolog	Map
684033	University o	Respiratory WDL	1,476,099	Unknown Concept	Meta	Unmap
304011	University o	BP Cuff Information	1,331,613	Unknown Concept	Meta	Exclude
160147	University o	Numeric Pain Rating	1,311,304	Pain Score (Generic)	Physiolog	
200054	University o	Allergies  Allergies (200054)	1,237,475	General - Allergies	Preop	
304116	University o	Neuro WDL	1,231,196	Unknown Concept	Meta	
662960	University o	Level Of Consciousness	1,183,132	Level of Consciousness	Physiolog	
304004	University o	Probe Placed On (Pulse Ox)	1,172,248	Variable Excluded from Import	Meta	
40903	University o	Perfus  CP Cum Vol	1,171,687	Perfusion- Cardiopulmonary vol	Physiolog	
304011	University o	Facial Symmetry	1,170,608	Unknown Concept	Meta	
37010	University o	Anes  Peds Monitor L NIRS Somat	1,157,472	rSO2 Index - Left Somatic	Physiolog	
304116	University o	Cardiac WDL	1,149,454	Unknown Concept	Meta	
9201	University o	Previous Intraoperative Record	1,115,287	General - Previous Intraop Reco	Preop	
666061	University o	Best Eye Response	1,111,698	Glasgow - Best Eye Response	Physiolog	
667253	University o	Best Motor Response	1,109,760	Glasgow - Best Motor Response	Physiolog	
360430	University o	Deterioration Index Model Score	1,108,315	Unknown Concept	Meta	Export History
160147	University o	Pain Assessment Method Used	1,102,635	Pain Assessment Tool	Physiolog	
304116	University o	Breath Sounds	1,095,967	Variable Excluded from Import	Meta	Examine
304116	University o	Peripheral Nerve Stimulation WDL	1,073,001	Unknown Concept	Meta	



# Examine

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

The screenshot shows the MPOG Configuration application interface. On the left, the 'MPOG Configuration' window displays settings for 'Mapping Type: Observation Type', 'Organization: University of Michigan Ann Arbor', 'Display Mode: All Variables', and a 'Search Filter' field. Below these settings is a table of variables. The 'Variable Details' window is open, displaying a table of data for the selected variable. The 'Examine' button is highlighted in the bottom right corner of the 'Variable Details' window.

ID	Org	Name	Times
201424	University of	Monitor  ETCO2 Resp	94
201408	University of	Monitor  Oxygen Insp	94
1448	University of	NFF-  End Tidal CO2	94
201405	University of	Monitor  Nitrous Insp	94
201407	University of	Monitor  Oxygen Exp	94
201404	University of	Monitor  Nitrous Exp	94
42603	University of	Vent  Flows O2	91
15	University of	NFF-CV  Pulse	90
308	University of	NFF-CV  SpO2	90
9066	University of	CBD -  SpO2 HR	89
450	University of	NFF-Pul  FIO2 %	886,864
457	University of	NFF-Pul  Vent PIP	884,712
651	University of	NFF-Pul  Vent PEEP	882,105
201020	University of	Vent  Mean Airway pressu	868,590
201028	University of	Vent  Rate Setting	861,569
201032	University of	Vent  vent mode	860,404
7686	University of	NFF-Pul  Inspired CO2	838,969
504	University of	NFF- RR	695,978
201015	University of	Vent  Minute volume /l/m	686,203

Variable Name	ObservationTime	EnteredTime	WasDeleted	WasUser_Entered	WasUser_Entry_Expected	ObsValue
Oxygen Exp	10/29/2017 12:44:42 PM	10/29/2017 12:44:43 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18
Oxygen Exp	10/29/2017 12:48:46 PM	10/29/2017 12:48:48 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20
Oxygen Exp	10/29/2017 12:59:57 PM	10/29/2017 12:59:58 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	29
Oxygen Exp	10/29/2017 1:03:30 PM	10/29/2017 1:03:33 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	27
Oxygen Exp	10/29/2017 12:53:51 PM	10/29/2017 12:53:52 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	26
Oxygen Exp	10/29/2017 12:57:55 PM	10/29/2017 12:57:56 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28
Oxygen Exp	10/29/2017 12:52:50 PM	10/29/2017 12:52:51 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	26
Oxygen Exp	10/29/2017 12:56:54 PM	10/29/2017 12:56:56 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	27
Oxygen Exp	10/29/2017 1:07:34 PM	10/29/2017 1:07:38 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28
Oxygen Exp	10/29/2017 1:11:38 PM	10/29/2017 1:11:41 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28
Oxygen Exp	10/29/2017 1:01:59 PM	10/29/2017 1:02:00 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28
Oxygen Exp	10/29/2017 1:05:32 PM	10/29/2017 1:05:36 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28
Oxygen Exp	10/29/2017 1:00:58 PM	10/29/2017 1:00:59 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	29
Oxygen Exp	10/29/2017 1:04:31 PM	10/29/2017 1:04:34 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	27
Oxygen Exp	10/29/2017 1:09:36 PM	10/29/2017 1:09:40 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28

Export History

Examine

# Export History

- This function will pull the mapping logs to show which user completed each mapping and when that mapping was completed. It will be exported to your computer as an Excel file.

ID	Org	Name	Times Used	Mapped As	Type	
15334	University o	Perfus  Hct Pump	1,492,628	Miscellaneous Perfusionist Parar	Physiolog	Map
684033	University o	Respiratory WDL	1,476,099	Unknown Concept	Meta	Unmap
304011	University o	BP Cuff Information	1,331,613	Unknown Concept	Meta	Exclude
160147	University o	Numeric Pain Rating	1,311,304	Pain Score (Generic)	Physiolog	
200054	University o	Allergies  Allergies (200054)	1,237,475	General - Allergies	Preop	
304116	University o	Neuro WDL	1,231,196	Unknown Concept	Meta	
662960	University o	Level Of Consciousness	1,183,132	Level of Consciousness	Physiolog	
304004	University o	Probe Placed On (Pulse Ox)	1,172,248	Variable Excluded from Import	Meta	
40903	University o	Perfus  CP Cum Vol	1,171,687	Perfusion- Cardiopulmonary vol	Physiolog	
304011	University o	Facial Symmetry	1,170,608	Unknown Concept	Meta	
37010	University o	Anes  Peds Monitor L NIRS Somat	1,157,472	rSO2 Index - Left Somatic	Physiolog	
304116	University o	Cardiac WDL	1,149,454	Unknown Concept	Meta	
9201	University o	Previous Intraoperative Record	1,115,287	General - Previous Intraop Reco	Preop	
666061	University o	Best Eye Response	1,111,698	Glasgow - Best Eye Response	Physiolog	
667253	University o	Best Motor Response	1,109,760	Glasgow - Best Motor Response	Physiolog	
360430	University o	Deterioration Index Model Score	1,108,315	Unknown Concept	Meta	
160147	University o	Pain Assessment Method Used	1,102,635	Pain Assessment Tool	Physiolog	
304116	University o	Breath Sounds	1,095,967	Variable Excluded from Import	Meta	Export History
304116	University o	Respiratory WDL	1,072,081	Unknown Concept	Meta	Examine



# 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'. The variable will then turn white.

ID	Org	Name	Times Used	Mapped As	Type	
FLO-4010000	OHSU	Airway Resp Rate	9,472	Respiratory Rate Actual from EtC	Physiolog	Map
FLO-4010000	OHSU	ETCO2	9,405	End Tidal CO2 (mmHg)	Physiolog	Unmap
FLO-4010000	OHSU	SpO2	9,335	SpO2 %	Physiolog	Exclude
FLO-4010000	OHSU	Pulse - Plethysmograph	9,333	Physical Exam - Pulse Rate	Preop	
FLO-4010000	OHSU	Pmean/PAW	9,262	Mean Inspiratory Pressure	Physiolog	
FLO-4010000	OHSU	max Pos Airway P	9,229	Unknown Concept	Meta	
FLO-4010000	OHSU	ETO2	9,216	Oxygen Exp %	Physiolog	
FLO-4010000	OHSU	FIO2	9,216	Oxygen Insp %	Physiolog	
FLO-4010000	OHSU	Heart Rate	9,047	Unknown Concept	Meta	
FLO-4010000	OHSU	PeeP	8,910	Unknown Concept	Meta	
FLO-1120016	OHSU	O2 FR Avance (Total Liters	8,263	Flows Oxygen (L/Min)	Physiolog	
FLO-4010000	OHSU	Circuit O2	8,048	Unknown Concept	Meta	
FLO-4010000	OHSU	Vent Mode	8,048	Ventilator Mode	Physiolog	
FLO-4010000	OHSU	RR freq/Min	7,541	Ventilator Respiratory Rate Actu	Physiolog	
FLO-4010001	OHSU	MV (L/min)	7,519	Minute ventilation	Physiolog	
FLO-4010000	OHSU	Vte	7,496	Tidal Volume actual	Physiolog	
FLO-4010000	OHSU	ST-II	7,357	ST Lead II	Physiolog	
FLO-4010000	OHSU	Vt	6,946	Tidal Volume Set	Physiolog	
FLO-4010000	OHSU	ST-V	6,704	Unknown Concept	Meta	

Export History  
Examine

# 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

ID	Org	Name	Times Used	Mapped As	Type
FLO-4010000C	OHSU	Airway Resp Rate	9,472	Respiratory Rate Actual from EtC	Physiolog
FLO-4010000C	OHSU	ETCO2	9,405	End Tidal CO2 (mmHg)	Physiolog
FLO-4010000C	OHSU	SpO2	9,335	SpO2 %	Physiolog
FLO-4010000C	OHSU	Pulse - Plethysmograph	9,333	Physical Exam - Pulse Rate	Preop
FLO-4010000C	OHSU	Pmean/PAW	9,262	Mean Inspiratory Pressure	Physiolog
FLO-4010000C	OHSU	max Pos Airway P	9,229	Unknown Concept	Meta
FLO-40100001	OHSU	ETO2	9,216	Oxygen Exp %	Physiolog
FLO-40100001	OHSU	FIO2	9,216	Oxygen Insp %	Physiolog
FLO-4010000C	OHSU	Heart Rate	9,047	Unknown Concept	Meta
FLO-4010000C	OHSU	PeeP	8,910	Unknown Concept	Meta
FLO-1120016C	OHSU	O2 FR Avance (Total Liters	8,263	Flows Oxygen (L/Min)	Physiolog
FLO-4010000C	OHSU	Circuit O2	8,048	Unknown Concept	Meta
FLO-4010000C	OHSU	Vent Mode	8,048	Ventilator Mode	Physiolog
FLO-4010000C	OHSU	RR freq/Min	7,541	Ventilator Respiratory Rate Actu	Physiolog
FLO-4010001C	OHSU	MV (L/min)	7,519	Minute ventilation	Physiolog
FLO-4010000C	OHSU	Vte	7,496	Tidal Volume actual	Physiolog
FLO-4010000C	OHSU	ST-II	7,357	ST Lead II	Physiolog
FLO-4010000C	OHSU	Vt	6,946	Tidal Volume Set	Physiolog
FLO-4010000C	OHSU	ST-V	6,704	Unknown Concept	Meta

Map

Unmap

Exclude

Export History

Examine

# Exclude

- Highlight the variable(s) you wish to exclude from mapping and click “Exclude”
- Excluded variables will turn pink.

MPOG Variable Mapping

Mapping Type: Observation Detail Type

Instance: MPOG\_MAS Organization: University of Michigan Ann A

Display Mode: Mapped Variables Only

Search Filter:  [Help](#)

ID	Org	Name	Times Used	Mapped As	Type
29134	University of	Taped at @	134	Intubation Endotracheal Tube S	Intraop N
47910	University of	Blade/View	129	Intubation view note	Intraop N
38178	University of	Concerns	124	Airway - Laryngeal Mask Airway	Intraop N
7758	University of	Stopped indicator	124	Variable Excluded from Import	Meta
8559	University of	Paresthesia	120	Neuraxial insertion parasthesia y	Intraop N
8563	University of	Aspiration	118	Neuraxial insertion aspiration of	Intraop N
15814	University of	Skin Depth	116	Epidural catheter withdrawn to c	Intraop N
36891	University of	Position Confirmed by	110	Categorized note - Positioning	Intraop N
15905	University of	Sensory Level	108	Neuraxial technique - Bilateral S	Intraop N
8570	University of	Test Dose	108	Epidural test dose administered	Intraop N
8595	University of	Catheter status	106	Epidural anesthesia catheter pla	Intraop N
40011	University of	Type of Medication	92	Misc - Medication Free Text Enti	Intraop N
47914	University of	Cricoid Pressure	89	Intubation - cricoid pressure ap	Intraop N
36542	University of	Nurse's Name	86	Variable Excluded from Import	Meta
36543	University of	Pain Score	86	Pain Score (Generic)	Physiolog
36544	University of	Repositioned	86	Positioning - Patient position	Intraop N
44130	University of	Motor Blockade	82	Regional - Motor response to st	Intraop N
5976	University of	Attempts	82	Neuraxial technique number of i	Intraop N
36558	University of	Sensory Level	82	Neuraxial technique - Bilateral S	Intraop N

# Category Exclusion Rules

Can Exclude	Do Not Exclude
Administration Type	Administration Route
Observation Type	Units of Administration
Observation Type Detail	Room Type
Lab Type	Procedure Type

# Auto Search

- While auto search is ON, the variable name that is selected on the left hand side will auto populate in the search filter on the right side. Clicking the auto search button will turn this function OFF and will not auto populate the search filter.

The screenshot displays the MPOG Variable Mapping application. On the left, the 'Mapping Type' is set to 'Observation Type', the 'Instance' is 'MPOG\_MAS', and the 'Organization' is 'University of Michigan Ann A'. The 'Display Mode' is 'Mapped Variables Only'. Below these settings is a table of mapped variables. The variable 'University of Discharges Score' (ID 304011384) is selected and highlighted in blue. On the right, the 'Options' section has 'Auto Search On' highlighted with a red box. The 'Search Filter' is populated with 'score'. Below the options is a table of search results for 'Discharges Score'.

ID	Org	Name	Times Used	Mapped As	Type
304011390	University of	Total Score	5.585	Unknown Concept	Meta
304011388	University of	Risks Score	5.585	Unknown Concept	Meta
304011387	University of	Orders Score	5.585	Unknown Concept	Meta
304011385	University of	LDAs Score	5.585	Unknown Concept	Meta
304011389	University of	Wounds Score	5.585	Unknown Concept	Meta
304011383	University of	Assessments Score	5.585	Unknown Concept	Meta
304011382	University of	Admissions/Transfers Sco	5.585	Unknown Concept	Meta
304011381	University of	ADLs Score	5.585	Unknown Concept	Meta
304011386	University of	Medications Score	5.585	Unknown Concept	Meta
304011384	University of	Discharges Score	5.585	Unknown Concept	Meta
30411682634	University of	Cardiac WDL	5.571	Unknown Concept	Meta
30411683963	University of	Peripheral Neurovascular	5.543	Unknown Concept	Meta
40900	University of	Perfus JB000 Device Event	5.515	Unknown Concept	Meta
30400400555	University of	Probe Placed On (Pulse O	5.194	Unknown Concept	Meta
30411682586	University of	Breath Sounds	5.189	Unknown Concept	Meta
661176	University of	Speech	5.163	Unknown Concept	Meta
3040112059	University of	All anterior fields	5.139	Unknown Concept	Meta
661932	University of	Skin Integrity	4.896	Unknown Concept	Meta
660037	University of	Brain Care Self	4.874	Unknown Concept	Meta

Name	ID	Type
FLACC Score: Legs	3098	Physiologic
FLACC Score: Activity	3099	Physiologic
FLACC Score: Cry	3101	Physiologic
FLACC Score: Consolability	3104	Physiologic
Braden Score: Friction and Shear	3106	Physiologic
Braden Score: Sensory Perception	3107	Physiologic
Braden Score: Mobility	3108	Physiologic
Braden Score: Moisture	3109	Physiologic
Braden Score: Activity	3111	Physiologic
Braden Score: Nutrition	3112	Physiologic
RAMSAY Sedation Score	3126	Physiologic
Modified Early Warning Sign Scor	3127	Physiologic
Systemic Inflammatory Response	50092	Intraop Notes
National Early Warning Score (NE	50093	Intraop Notes
Fall Risk Score	50094	Intraop Notes
Phase II Discharge Score	50104	Intraop Notes
Patient Discharge Score	50111	Intraop Notes
Obstetrics - Apgar score checked	50359	Intraop Notes
Obstetrics - Apgar score 5 minutes	50360	Intraop Notes



# Auto Select

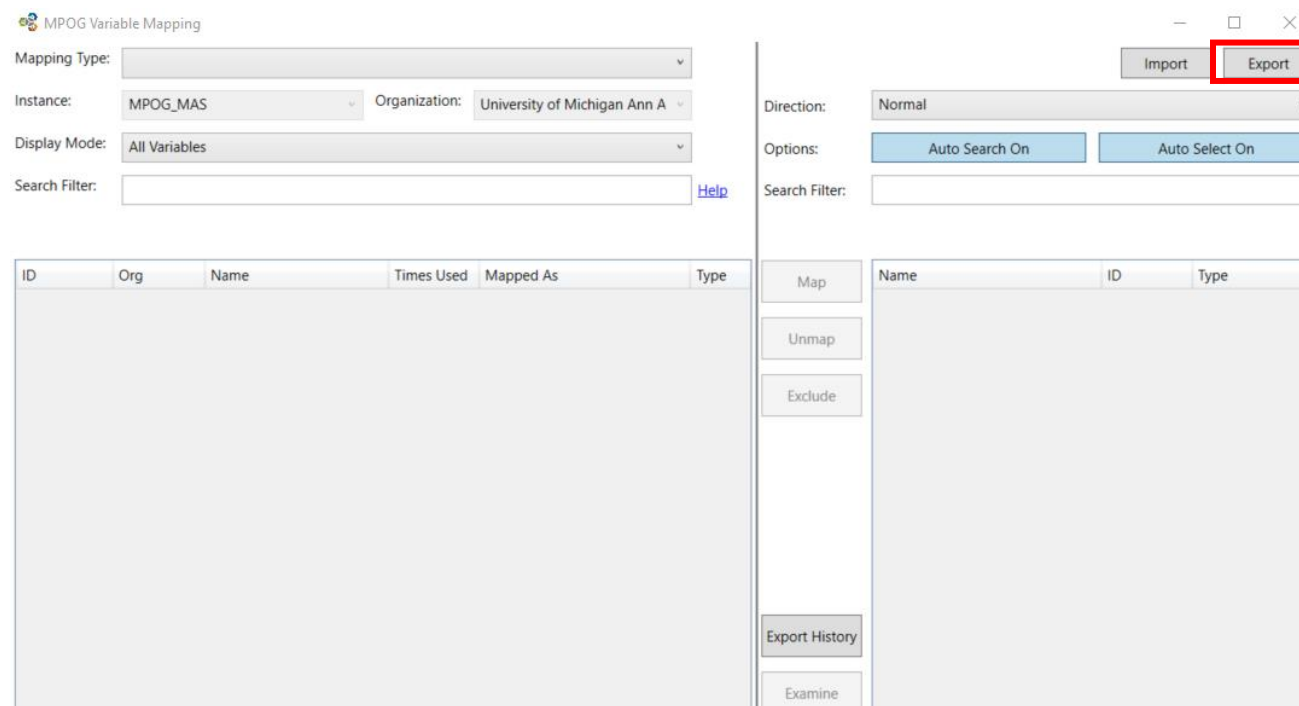
- After mapping a variable on the left hand side, having auto select ON will automatically jump to the next variable. To turn this function OFF, click the “auto select” button.

The screenshot shows the MPOG Configuration window. On the left, the 'Mapping Type' is set to 'Observation Type', 'Organization' is 'University of Michigan Ann Arbor', 'Display Mode' is 'Unmapped Variables Only', and 'Search Filter' is 'discharge'. Below this is a table of variables. The first row is highlighted in green, indicating it is selected. On the right, the 'Direction' is 'Normal', 'Options' are 'Auto Search On' and 'Auto Select On' (highlighted with a red box), and 'Search Filter' is 'discharge phase'. Below this is a table of mapped variables.

ID	Org	Name	Times Used	Mapped As	Type
304011384	University of Michigan	Discharge Score	5,585	Patient Discharge Score	Intraop Notes
1072004280	University of Michigan	Phase I Discharge Criteria Met	3,442	Unknown Concept	Measures
1071705010	University of Michigan	Discharge Prescription Reviewed	1,648	Unknown Concept	Measures
1072004281	University of Michigan	Phase II Discharge Criteria	484	Unknown Concept	Measures
3040120038	University of Michigan	Team Anticipated Discharge Date	453	Unknown Concept	Measures
30402266378	University of Michigan	CM Daily Plan and Discharge Plan	444	Unknown Concept	Measures
30402266136	University of Michigan	CM Discharge Disposition	375	Unknown Concept	Measures
30401300217	University of Michigan	Discharge Disposition of Belonging	256	Unknown Concept	Measures
3040221043	University of Michigan	CM Barriers to Discharge	252	Unknown Concept	Measures
30402266353	University of Michigan	Equipment Needed At Discharge	178	Unknown Concept	Measures
30402266621	University of Michigan	CM Discharge Risks	113	Unknown Concept	Measures
3040150387	University of Michigan	Anticipated Discharge Disposition	97	Unknown Concept	Measures
5220	University of Michigan	Anticipated Equipment Needs at Discharge	88	Unknown Concept	Measures
3040150385	University of Michigan	Is this patient cleared for safe home	71	Unknown Concept	Measures
3040080031	University of Michigan	Functional Status/Discharge/Follow-up	66	Unknown Concept	Measures
304022246	University of Michigan	Priority Discharge	36	Unknown Concept	Measures
3040260113	University of Michigan	Priority Discharge (Read Only)	36	Unknown Concept	Measures
3040031684	University of Michigan	Patient Exercise = Patient will be in	34	Unknown Concept	Measures

# Export

- You can export all variables and their mappings to an Excel spreadsheet through the export button



The screenshot shows the 'MPOG Variable Mapping' application window. On the left, there are configuration fields: 'Mapping Type' (dropdown), 'Instance' (set to 'MPOG\_MAS'), 'Organization' (set to 'University of Michigan Ann A'), 'Display Mode' (set to 'All Variables'), and a 'Search Filter' input field with a 'Help' link. Below these is a large table with columns: ID, Org, Name, Times Used, Mapped As, and Type. On the right, there are additional controls: 'Direction' (set to 'Normal'), 'Options' (with 'Auto Search On' and 'Auto Select On' buttons), and another 'Search Filter' input field. At the top right of the right-hand panel, there are 'Import' and 'Export' buttons; the 'Export' button is highlighted with a red rectangle. Below the right-hand table, there are buttons for 'Map', 'Unmap', 'Exclude', 'Export History', and 'Examine'.

# Tips for Mapping Success

- 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
1600000310	University of	Heart Rate Source	14,656	Unknown Concept
40877	University of	Perfus  Stockert Air Needl	13,003	Unknown Concept
40876	University of	Perfus  Stockert Air Needl	13,003	Unknown Concept
40886	University of	Perfus  Stockert CP RPM	13,003	Unknown Concept
40890	University of	Perfus  Stockert LV Vent(n	13,002	Unknown Concept
40895	University of	Perfus  Stockert Pump Suc	13,002	Unknown Concept
40889	University of	Perfus  Stockert LV Vent R	13,002	Unknown Concept
40894	University of	Perfus  Stockert Pump Suc	13,002	Unknown Concept
16011780	University of	BP Method	10,304	Unknown Concept
3040103232	University of	Pulse Oximetry Type	9,689	Unknown Concept



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

#### Concept Browser

Please select a concept type and query string

Concept type  
[All concept types] ▼

Query string  
propofol

Count Mode  
Concept occurrences ▼

☒ Hide inactive concepts

Submit

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

# Groups to Map First

- **DO NOT EXCLUDE IN ANY OF THESE CATEGORIES**
  - Race
  - Gender
  - Ethnicity
  - Procedure Service
  - Admission Type
  - Staff Type

# Groups to Map Last

- *Lab Type*

- Map variables that are important to surgical/anesthesia care i.e. Hgb/Hct/Creatinine/Troponin/Glucose. Focus on mapping labs that MPOG has concepts for an exclude the rest

- *Administration Type*

- This category includes IN's and OUT's such as fluids, medications, blood products, EBL and urine output.
- Exclude “volume (mL)” medication variables.
- **\*\*Exclude all physiologic and gas flow variables from this mapping group**

# Groups to Map Last

- *Administration Route*
  - Do Not Exclude in this category – map unspecified concepts to “Other”
- *Units of Measurement Administration*
  - Do not exclude in this category – leave those variables without a corresponding MPOG concept unmapped
- *Observation Detail Type*
  - These are observation Details. Map Observation Type first.
- *Observation Type (procedure notes)*

# Variable Type Mapping Guide- EPIC Sites Only

Variable Type	Description	Notes
LEV-* variables	Timed Event Notes	Most reliable when looking for timing of events (i.e. intubation/extubation)
EAP/HLX-* variables	Procedure Note Documentation	Provides the details associated with a procedure: size, number of attempts etc. Observed time is not always populated. If no time associated with EAP/HLX note, map related LEV note as well.

# Variable Type Mapping Guide - EPIC Sites Only

Variable Type	Description	Notes
FLO-* variables	Data from flowsheet	Data from flowsheet. LDA documentation corresponding to placement, removal etc. Usually duplicate doc
CT-* variables	Case Tracking Variables	Exclude these if multiple variables show for event times. *If you do not have an LEV variable for a certain concept you will need to include the CT variable.
AT-* variables	Attestations	Exclude or leave unmapped

# Airway Variable Mapping

- ETT/LMA/Intubation/Extubation, regional and neuraxial
- Map LEV/HLX/EAP variables
  - Exclude FLO variables associated with these concepts ***if*** both an HLX/EAP and LEV variable exists.
- If duplicate variables exist for critical times such as anesthesia start/end, surgery start/end, In room times, etc.- can exclude the CT variables as these come from nursing. If there are only nursing (CT) variables, keep them and map (Phase I, Phase II in/out times, etc.). Bottom line: Anesthesia documentation is preferred but adopt nursing documentation if anesthesia documentation is not available for critical times/events.

# How Mapping Translates to MPOG Case Viewer

The **‘type’** of MPOG concept you map to an AIMS variable will determine where the data within that variable will display in Case Viewer.

- Those mapped to *‘Physiologic’* and *‘Intraop Note’* type concepts will populate in the **Chart** section of case viewer
- Those mapped to *‘Preop’* type concepts will populate in the **H&P** section of case viewer
- Those mapped to *‘Outcomes’* type concepts will populate in the **Outcomes** section of case viewer

Name	ID	Type
BP Combined Invasive Unspecified Site 3	3706	Physiologic
BP Combined Aorta	3707	Physiologic
BP Combined Invasive Unspecified Site 5	3708	Physiologic
Unmapped Intraoperative Note Concept	50000	Intraop Notes
AACD Time Room Ready Date/Time	50001	Intraop Notes
AACD Anesthesia Start Date/Time	50002	Intraop Notes
Respiratory - Oral steroids required	71230	Preop
Respiratory - Prior intubation for pulmonary	71235	Preop
Respiratory - Most recent exacerbation (Date	71240	Preop
Unmapped Outcome Concept	90000	Outcomes
Intraoperative observed quality assurance evi	90001	Outcomes
Postoperative visit patient pain score	90002	Outcomes