Standardized Data File - User Guide

Version 2019-2022

Updated December 8, 2023

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1. Introduction

The Multicenter Perioperative Outcomes Group (MPOG) is a consortium of hospitals across the United States, which seeks to improve experiences of patients receiving care by anesthesia clinicians. Since its inception in 2008, MPOG has developed policies, procedures, and the technical infrastructure required to conduct large scale research, create quality improvement initiatives, educate caregivers, and guide healthcare administration.

The goal of MPOG research is to systematically transform real-world perioperative health data into actionable knowledge. The Perioperative Clinical Research Committee (PCRC) is made up of physicians and researchers at all participating MPOG institutions and governs the research efforts of MPOG, by reviewing all submitted proposals and tracking the progress of ongoing projects. The committee ensures the appropriateness of the clinical research conducted within MPOG and the use of MPOG resources.

The standardized data file (SDF) is a subset of MPOG data that is pulled once per year covering a specific timeframe and containing patient demographic information, all MPOG Quality measures, and over 100 phenotypes. The SDF can be requested via the usual PCRC process (proposal and presentation), and the data will be available almost immediately upon approval.

This user guide provides information on the included study population and data elements available, the structure of the data, and the process for accessing the data.

2. Phenotypes: Quality and Updates

Phenotypes help transform messy, real-world electronic health record data into structured, clinically useful inferences about the case and the course of clinical care. Each phenotype may be a computation, recode, or other combination of variables in the raw dataset that summarize information through one variable. Examples include the *BMI phenotype* (computed from weight and height) and the *Last Known Alive* (which is derived from the latest date that the patient has an anesthesia or lab record in the MPOG database). At MPOG, these phenotypes are subjected to rigorous development and validation processes based on the logical application of multiple raw data elements associated with each case. For a full description of the logic and definition for each phenotype, please refer to the [Phenotype Browser](#).

A video explaining the MPOG phenotypes can be found by accessing the MPOG research website → Tips & Tricks → "[Transforming Raw Data into Clinical Inferences: Phenotypes](#)"

3. Case Inclusion Criteria

The **2019-2022 Standardized Data File** includes MPOG cases meeting the following criteria:

- The case occurred between January 1, 2019 and December 31, 2022.
- The case occurred at an MPOG medical center located in the United States.
- The case occurred at a medical center that contributed more than 12 months of data in the time period covered by this standardized data file.
- The case met the data quality standards outline by the Intraoperative Research Standard detailed below.

To meet the **intraoperative research standard**, a case must satisfy all of the following criteria:

- There must be a date and time noted for the beginning and end of the anesthetic procedure. If multiple start times exist, the earliest is used, and the start time must be before the end time.
- If there is a patient in room time for a case, the case will be included if it is after, but not more than 30 minutes prior to the listed anesthesia start time. If a patient in room time is not present the case will still be included.
- For general anesthetic cases, the case duration must be greater than or equal to 10 minutes.
- For anesthetic cases when general anesthetic was not used, the case duration must be greater than or equal to 5 minutes.
- There must be an age listed for the patient in the data.
- There must be data regarding the patient's sex (either male or female). This phenotype does not reflect the patient's gender identity.
- The data must include an American Society of Anesthesiology Physical Status classification score (ASA), between 1 and 6, which gives information on the patient's overall health and potential risks in anesthetic management. A case is excluded if there are multiple ASA statuses, the ASA status is missing, or an unused classification number that is present.
- There must be at least one blood pressure value recorded in the case data, which cannot be an artifact or other invalid metric.
- At least one intraoperative medication must be listed as administered between the start and end time for the case.

4. Table Descriptions

The **2019-2022 Standardized Data File** contains separate pediatric (patient age 0-17) and adult case info, CPT, ICD, and Quality Measures table. In addition, the adult tables are split by year to reduce file size related issues. The full list of individual data tables is:

Pediatric tables:

- SDF2022_Pediatric_CaseInfo
- SDF2022_Pediatric_CPTCodes
- SDF2022_Pediatric_ICDCodes
- SDF2022_Pediatric_QMeasures

Adult tables:

- SDF2022_Adult_CaseInfo_2019
- SDF2022_Adult_CaseInfo_2020
- SDF2022_Adult_CaseInfo_2021
- SDF2022_Adult_CaseInfo_2022
- SDF2022_Adult_CPTCodes_2019
- SDF2022_Adult_CPTCodes_2020
- SDF2022_Adult_CPTCodes_2021
- SDF2022_Adult_CPTCodes_2022
- SDF2022_Adult_ICDCodes_2019
- SDF2022_Adult_ICDCodes_2020
- SDF2022_Adult_ICDCodes_2021
- SDF2022_Adult_ICDCodes_2022
- SDF2022_Adult_QMeasures_2019
- SDF2022_Adult_QMeasures_2020
- SDF2022_Adult_QMeasures_2021
- SDF2022_Adult_QMeasures_2022

Tables can be merged by the unique MPOG Case ID available for each case. Please note:

- If your analyses require merging multiple tables, we recommend that you apply inclusion criteria to individual CaseInfo tables first and then merge in only the data for those cases from the other tables, which will help avoid potential computational and server bandwidth barriers related to file size.
- Individual patients may be represented more than once in any given table, if they had multiple procedures (and thus multiple cases). The MPOG Patient ID can help identify those patients who appear more than once in any given table.

5. Included Variables

Below is an overview of variables included in the **2019-2022 Standardized Data File.** For the complete list of variables, please see Appendix A.

Case Info – The Case Info tables contain the broadest about of information including:

- **Basic patient information** including each patient's age, sex, height, weight, smoking status, and calculated BMI.
- **Institution** information including a de-identified institution ID, medical school affiliation status, and bed size.
- **Date/Time** related information including the date of service (and whether that was a weekend or holiday), last known alive date, date of death (where applicable), and start/end times for anesthesia, induction, cardiopulmonary bypass, and surgery.
- **Patient comorbidity** information including a variety of Elixhauser comorbidities (obesity, hypertension, diabetes, renal failure, etc.) and comorbidity phenotypes created by MPOG including cerebrovascular disease and coronary artery disease.
- **Preop lab values** including common CMP/Chem-14 and CBC lab values.
- **Procedure type** information including body region, surgical service, and indicators of whether the procedure was one of several specific types of surgery or procedure (bronchoscopy, cardiac, liver transplant, MRI, etc.)
- **Patient status and vital signs** information including ASA class, airway upon arrival, blood pressure at specific time points (preop, first in room), urine output, PIP, PEEP, and Tidal Volume.
- **Anesthesia technique** information including general, neuraxial, nerve block, sedation, propofol use, nitrous oxide use, arterial line use, etc.
- **Medication and blood product** information related to antiemetics, oral morphine equivalents, non-opioid analgesics, and total blood products (cryoprecipitate, FFP, Platelets, PRBCs, etc.).
- **Provider information** limited to de-identified provider ID (for attending, resident, CRNA, fellow) and the minutes each attending, CRNA, or resident were on the case. (Please note that MPOG does not have demographic information about providers.)
- **Procedure text** provided for each case.

CPT Codes – The current procedural terminology (CPT) code administrative data table contains all *case-linked* anesthesia and surgical CPT codes. This table also includes the primary anesthesia CPT code along with the base unit value associated with that primary code. In addition, this table includes results from the CPT prediction tool, along with the associated ranking for each of those predicted codes.

ICD Codes - The ICD Codes (ICD 9/10 administrative data) table contains all ICD 9/10 codes from 365 days before to 365 days after the date of service along with case date and the admit and discharge dates associated with those codes.

Quality Measures - The Quality Measures table includes information about *case-linked* quality measures. Please note that not all cases meet the inclusion criteria for a given measure. Details regarding how each quality measure is defined can be found at the following link on the MPOG website (https://spec.mpog.org/Measures/Public).

6. Request Process

To obtain access to the standardized data file, researchers should follow the steps to "[Write a Research Proposal](#)" as outlined on the MPOG website. This process includes submitting a research cover sheet and consultation request, writing a full research proposal, submitting an IRB application at your home institution, and presenting your proposal for vote at a PCRC meeting.

The two main differences between requesting the SDF and a typical MPOG data request process are:

1. Instead of preparing a full query spec, you can just specify that you want the current adult and/or pediatric SDF.
2. If your IRB application (from your home institution) has been approved at the time your proposal is approved by PCRC, you will receive data almost immediately upon proposal approval, instead of waiting for several months for a custom data pull.

As is the case for other MPOG data pulls, the standardized data file will reside on the MPOG, HIPAA-compliant virtual server, along with statistical and analytic software. As a reminder, case-level data can **never** be removed from the protected virtual server, however, summary outputs (tables, figures, etc.) can be moved off the server.

7. Limitations

Although great care is taken at every stage of data collection/extraction and several validation steps are used before the data becomes part of the MPOG database, errors in the MPOG datasets may arise. These can come from issues with the source data, problems with merging multiple sources of data, and difficulties with concept mapping. Additional limitations stem from variations in the level of detail reported by each MPOG center, factors related to site selection and inclusion, types of procedures performed at each site, and so on. Any errors that exist in the larger MPOG dataset and other limitations of the full dataset are also limitations of the standardized data file. For a full description of all the steps the

data go through to become part of the MPOG dataset and additional limitations, please see the manuscript [Considerations for Integration of Perioperative Electronic Health Records Across Institutions for Research and Quality Improvement: The Approach Taken by the Multicenter Perioperative Outcomes Group](#) (2020).

8. Contact Information

Please direct any questions or concerns regarding the MPOG standardized data to mpog-research@med.umich.edu.

Appendix A: Complete Variable List

The following table contains the complete list of variables in the 2019-2022 SDF (organized in dataset order by table), as well as a link to the documentation about each variable where available. Please note that phenotypes and quality measures are periodically revised, so if the documentation available online does not seem to align with the data in the SDF, please reach out to the MPOG coordinating center (mpog-research@med.umich.edu) to request the previous version of documentation if needed.

Table	Variable Name	Link
CaseInfo	MPOG_Case_ID	MPOG_Case_ID (no link)
CaseInfo	MPOG_Patient_ID	MPOG_Patient_ID
CaseInfo	Date of Service	Date of Service (no link)
CaseInfo	Holiday	Holiday
CaseInfo	Weekend	Weekend
CaseInfo	Admission Type	Admission Type
CaseInfo	Surgical Service	Surgical Service
CaseInfo	Institution	Institution
CaseInfo	Medical School Affiliation	Medical School Affiliation
CaseInfo	Hospital Bed Size	Hospital Bed Size (no link)
CaseInfo	Age (Years)	Age (Years)
CaseInfo	Race	Race
CaseInfo	Sex	Sex
CaseInfo	Height (cm)	Height (cm)
CaseInfo	Weight (kg)	Weight (kg)
CaseInfo	ASA Class	ASA Class
CaseInfo	Emergency Status (ASA Class) Yes/No	Emergency Status (ASA Class) Yes/No
CaseInfo	Airway: Arrived Intubated	Airway: Arrived Intubated
CaseInfo	Arterial Line Used	Arterial Line Used
CaseInfo	BMI	BMI
CaseInfo	WHO BMI Classification	WHO BMI Classification
CaseInfo	BMI Classification (Pediatric)	BMI Classification (Pediatric)
CaseInfo	BMI Percentile (Pediatric)	BMI Percentile (Pediatric)
CaseInfo	Body Region	Body Region
CaseInfo	Ideal Body Weight (kg)	Ideal Body Weight (kg)
CaseInfo	Preop Blood Presssure - Mean	Preop Blood Presssure - Mean
CaseInfo	First In Room Blood Pressure - Mean	First In Room Blood Pressure - Mean
CaseInfo	AKI - Risk of Progression to CKD	AKI - Risk of Progression to CKD
CaseInfo	Smoking Tobacco Classification	Smoking Tobacco Classification
CaseInfo	Mortality (In Hospital 30-day)	Mortality (In Hospital 30-day)
CaseInfo	Date of Death	Date of Death (no link)
CaseInfo	Last Known Alive	Last Known Alive
CaseInfo	Procedure Text	Procedure Text
CaseInfo	Anesthesia CPT (Primary)	Anesthesia CPT (Primary)

CaseInfo	Anesthesia CPT - Base Unit Value	Anesthesia CPT - Base Unit Value
CaseInfo	Anesthesia Technique: General	Anesthesia Technique: General
CaseInfo	Anesthesia Technique: Neuraxial	Anesthesia Technique: Neuraxial
CaseInfo	Anesthesia Technique: Peripheral Nerve Block	Anesthesia Technique: Peripheral Nerve Block
CaseInfo	Anesthesia Technique: Sedation	Anesthesia Technique: Sedation
CaseInfo	Obstetric Anesthesia Type	Obstetric Anesthesia Type
CaseInfo	Procedure Type: Adenotonsillectomy	Procedure Type: Adenotonsillectomy
CaseInfo	Procedure Type: Bronchoscopy	Procedure Type: Bronchoscopy
CaseInfo	Procedure Type: Cardiac	Procedure Type: Cardiac
CaseInfo	Procedure Type: Cystoscopy	Procedure Type: Cystoscopy
CaseInfo	Procedure Type: Diagnostic Imaging	Procedure Type: Diagnostic Imaging
CaseInfo	Procedure Type: ECT	Procedure Type: ECT
CaseInfo	Procedure Type: Endoscopy	Procedure Type: Endoscopy
CaseInfo	Procedure Type: Intubation Only	Procedure Type: Intubation Only
CaseInfo	Procedure Type: IVF	Procedure Type: IVF
CaseInfo	Procedure Type: Liver Transplant	Procedure Type: Liver Transplant
CaseInfo	Procedure Type: Lung Transplant	Procedure Type: Lung Transplant
CaseInfo	Procedure Type: MRI	Procedure Type: MRI
CaseInfo	Procedure Type: Strabismus	Procedure Type: Strabismus
CaseInfo	Procedure Type: TEE/Cardioversion	Procedure Type: TEE/Cardioversion
CaseInfo	Procedure Type: Tympanoplasty	Procedure Type: Tympanoplasty
CaseInfo	Antiemetics Given	Antiemetics Given
CaseInfo	Paralytics Used (All)	Paralytics Used (All)
CaseInfo	Paralytics Used (Non-depolarizing NMBs only)	Paralytics Used (Non-depolarizing NMBs only)
CaseInfo	Nitrous Oxide Used	Nitrous Oxide Used
CaseInfo	Halogenated Anesthetic Gases (Yes/No)	Halogenated Anesthetic Gases (Yes/No)
CaseInfo	Propofol Infusion	Propofol Infusion
CaseInfo	Oral Morphine Equivalent	Oral Morphine Equivalent
CaseInfo	Oral Morphine Equivalent (Normalized)	Oral Morphine Equivalent (Normalized)
CaseInfo	Non-Opioid Analgesics	Non-Opioid Analgesics
CaseInfo	Blood Product Total - Cryoprecipitate (ml)	Blood Product Total - Cryoprecipitate (ml)
CaseInfo	Blood Product Total - FFP (ml)	Blood Product Total - FFP (ml)
CaseInfo	Blood Product Total - Platelets (ml)	Blood Product Total - Platelets (ml)
CaseInfo	Blood Product Total - PRBCs (ml)	Blood Product Total - PRBCs (ml)
CaseInfo	Total Colloid Administered	Total Colloid Administered
CaseInfo	Total Crystalloid Administered	Total Crystalloid Administered
CaseInfo	Total Estimated Blood Loss	Total Estimated Blood Loss
CaseInfo	Total Urine Output	Total Urine Output
CaseInfo	Complication - Acute Kidney Injury	Complication - Acute Kidney Injury
CaseInfo	Complication - Pulmonary	Complication - Pulmonary
CaseInfo	Postoperative Destination	Postoperative Destination
CaseInfo	Highest Postop Troponin	Highest Postop Troponin
CaseInfo	Highest Postop Troponin Days After	Highest Postop Troponin Days After
CaseInfo	Anesthesia Start	Anesthesia Start

CaseInfo	Anesthesia End	Anesthesia End
CaseInfo	Anesthesia Duration	Anesthesia Duration
CaseInfo	Induction Start	Induction Start
CaseInfo	Induction End	Induction End
CaseInfo	Patient In Room	Patient In Room
CaseInfo	Patient Out of Room	Patient Out of Room
CaseInfo	Procedure Room Duration	Procedure Room Duration
CaseInfo	Surgery Start	Surgery Start
CaseInfo	Surgery End	Surgery End
CaseInfo	Waiting For Transport Duration	Waiting For Transport Duration
CaseInfo	Cardiopulmonary Bypass Start	Cardiopulmonary Bypass Start
CaseInfo	Cardiopulmonary Bypass End	Cardiopulmonary Bypass End
CaseInfo	Cardiopulmonary Bypass Duration	Cardiopulmonary Bypass Duration
CaseInfo	Primary Provider - Attending	Primary Provider - Attending
CaseInfo	Primary Provider - Resident	Primary Provider - Resident
CaseInfo	Primary Provider - CRNA	Primary Provider - CRNA
CaseInfo	Primary Provider - Fellow	Primary Provider - Fellow
CaseInfo	Anesthesia Attending Minutes	Anesthesia Attending Minutes
CaseInfo	CRNA Minutes	CRNA Minutes
CaseInfo	Anesthesia Resident Minutes	Anesthesia Resident Minutes
CaseInfo	Minutes of MAP < 55	Minutes of MAP < 55 (no link)
CaseInfo	Minutes of MAP < 65	Minutes of MAP < 65
CaseInfo	PIP Actual (median)	PIP Actual (median) (no link)
CaseInfo	PEEP Actual (median)	PEEP Actual (median)
CaseInfo	PEEP Set (median)	PEEP Set (median)
CaseInfo	Tidal Volume Actual (median)	Tidal Volume Actual (median)
CaseInfo	Tidal Volume Set (median)	Tidal Volume Set (median)
CaseInfo	Vent Respiratory Rate Actual (median)	Vent Respiratory Rate Actual (median) (no link)
CaseInfo	Vent Respiratory Rate Set (median)	Vent Respiratory Rate Set (median) (no link)
CaseInfo	Preop Albumin	Preop Albumin
CaseInfo	Preop Albumin Days Prior	Preop Albumin Days Prior
CaseInfo	Preop Alk Phosphatase	Preop Alk Phosphatase
CaseInfo	Preop Alk Phosphatase Days Prior	Preop Alk Phosphatase Days Prior
CaseInfo	Preop ALT	Preop ALT
CaseInfo	Preop ALT Days Prior	Preop ALT Days Prior
CaseInfo	Preop Arterial Lactate	Preop Arterial Lactate
CaseInfo	Preop Arterial Lactate Days Prior	Preop Arterial Lactate Days Prior
CaseInfo	Preop AST	Preop AST
CaseInfo	Preop AST Days Prior	Preop AST Days Prior
CaseInfo	Preop BUN	Preop BUN
CaseInfo	Preop BUN Days Prior	Preop BUN Days Prior
CaseInfo	Preop Calcium Ionized	Preop Calcium Ionized
CaseInfo	Preop Calcium Ionized Days Prior	Preop Calcium Ionized Days Prior
CaseInfo	Preop Calcium Total	Preop Calcium Total

CaseInfo	Preop Calcium Total Days Prior	Preop Calcium Total Days Prior
CaseInfo	Preop Chloride	Preop Chloride
CaseInfo	Preop Chloride Days Prior	Preop Chloride Days Prior
CaseInfo	Preop CO2 Arterial	Preop CO2 Arterial
CaseInfo	Preop CO2 Arterial Days Prior	Preop CO2 Arterial Days Prior
CaseInfo	Preop CO2 Mixed Venous	Preop CO2 Mixed Venous
CaseInfo	Preop CO2 Mixed Venous Days Prior	Preop CO2 Mixed Venous Days Prior
CaseInfo	Preop CO2 Serum	Preop CO2 Serum (no link)
CaseInfo	Preop CO2 Serum Days Prior	Preop CO2 Serum Days Prior (no link)
CaseInfo	Preop CO2 Venous	Preop CO2 Venous
CaseInfo	Preop CO2 Venous Days Prior	Preop CO2 Venous Days Prior
CaseInfo	Preop Creatinine	Preop Creatinine
CaseInfo	Preop Creatinine Days Prior	Preop Creatinine Days Prior
CaseInfo	Preop eGFR (Lowest Within 60 Days)	Preop eGFR (Lowest Within 60 Days)
CaseInfo	Preop Glucose	Preop Glucose
CaseInfo	Preop Glucose Days Prior	Preop Glucose Days Prior
CaseInfo	Preop HCG	Preop HCG
CaseInfo	Preop HCG Days Prior	Preop HCG Days Prior
CaseInfo	Preop Hematocrit	Preop Hematocrit
CaseInfo	Preop Hematocrit Days Prior	Preop Hematocrit Days Prior
CaseInfo	Preop Hemoglobin	Preop Hemoglobin
CaseInfo	Preop Hemoglobin Days Prior	Preop Hemoglobin Days Prior
CaseInfo	Preop HgbA1c	Preop HgbA1c
CaseInfo	Preop HgbA1c Days Prior	Preop HgbA1c Days Prior
CaseInfo	Preop INR	Preop INR
CaseInfo	Preop INR Days Prior	Preop INR Days Prior
CaseInfo	Preop Platelet Count	Preop Platelet Count
CaseInfo	Preop Platelet Count Days Prior	Preop Platelet Count Days Prior
CaseInfo	Preop Potassium	Preop Potassium
CaseInfo	Preop Potassium Days Prior	Preop Potassium Days Prior
CaseInfo	Preop Protein	Preop Protein
CaseInfo	Preop Protein Days Prior	Preop Protein Days Prior
CaseInfo	Preop PT	Preop PT
CaseInfo	Preop PT Days Prior	Preop PT Days Prior
CaseInfo	Preop PTT	Preop PTT
CaseInfo	Preop PTT Days Prior	Preop PTT Days Prior
CaseInfo	Preop Sodium	Preop Sodium
CaseInfo	Preop Sodium Days Prior	Preop Sodium Days Prior
CaseInfo	Preop Total Bilirubin	Preop Total Bilirubin
CaseInfo	Preop Total Bilirubin Days Prior	Preop Total Bilirubin Days Prior
CaseInfo	Preop Troponin Highest	Preop Troponin Highest
CaseInfo	Preop Troponin Highest Days Prior	Preop Troponin Highest Days Prior
CaseInfo	Preop Troponin Most Recent	Preop Troponin Most Recent
CaseInfo	Preop Troponin Most Recent Days Prior	Preop Troponin Most Recent Days Prior

CaseInfo	Preop White Blood Cell Count	Preop White Blood Cell Count
CaseInfo	Preop White Blood Cell Count Days Prior	Preop White Blood Cell Count Days Prior
CaseInfo	Elixhauser: AIDS/HIV	Elixhauser: AIDS/HIV
CaseInfo	Elixhauser: Alcohol Abuse	Elixhauser: Alcohol Abuse
CaseInfo	Elixhauser: Blood Loss Anemia	Elixhauser: Blood Loss Anemia
CaseInfo	Elixhauser: Cardiac Arrhythmia	Elixhauser: Cardiac Arrhythmia
CaseInfo	Elixhauser: Chronic Pulmonary Disease	Elixhauser: Chronic Pulmonary Disease
CaseInfo	Elixhauser: Coagulopathy	Elixhauser: Coagulopathy
CaseInfo	Elixhauser: Congestive Heart Failure	Elixhauser: Congestive Heart Failure
CaseInfo	Elixhauser: Deficiency Anemia	Elixhauser: Deficiency Anemia
CaseInfo	Elixhauser: Depression	Elixhauser: Depression
CaseInfo	Elixhauser: Diabetes (Complicated)	Elixhauser: Diabetes (Complicated)
CaseInfo	Elixhauser: Diabetes (Uncomplicated)	Elixhauser: Diabetes (Uncomplicated)
CaseInfo	Elixhauser: Drug Abuse	Elixhauser: Drug Abuse
CaseInfo	Elixhauser: Fluid and Electrolyte Disorders	Elixhauser: Fluid and Electrolyte Disorders
CaseInfo	Elixhauser: Hypertension (Complicated)	Elixhauser: Hypertension (Complicated)
CaseInfo	Elixhauser: Hypertension (Uncomplicated)	Elixhauser: Hypertension (Uncomplicated)
CaseInfo	Elixhauser: Hypothyroidism	Elixhauser: Hypothyroidism
CaseInfo	Elixhauser: Liver Disease	Elixhauser: Liver Disease
CaseInfo	Elixhauser: Lymphoma	Elixhauser: Lymphoma
CaseInfo	Elixhauser: Metastatic Cancer	Elixhauser: Metastatic Cancer
CaseInfo	Elixhauser: Obesity	Elixhauser: Obesity
CaseInfo	Elixhauser: Other Neurological Disorders	Elixhauser: Other Neurological Disorders
CaseInfo	Elixhauser: Paralysis	Elixhauser: Paralysis
CaseInfo	Elixhauser: Peptic Ulcer Disease excluding Bleeding	Elixhauser: Peptic Ulcer Disease excluding Bleeding
CaseInfo	Elixhauser: Peripheral Vascular Disorders	Elixhauser: Peripheral Vascular Disorders
CaseInfo	Elixhauser: Psychoses	Elixhauser: Psychoses
CaseInfo	Elixhauser: Pulmonary Circulation Disorders	Elixhauser: Pulmonary Circulation Disorders
CaseInfo	Elixhauser: Renal Failure	Elixhauser: Renal Failure
CaseInfo	Elixhauser: Rheumatoid Arthritis/Collagen	Elixhauser: Rheumatoid Arthritis/Collagen
CaseInfo	Elixhauser: Solid Tumor without Metastasis	Elixhauser: Solid Tumor without Metastasis
CaseInfo	Elixhauser: Valvular Disease	Elixhauser: Valvular Disease
CaseInfo	Elixhauser: Weight Loss	Elixhauser: Weight Loss
CaseInfo	Comorbidity: Cerebrovascular Disease	Comorbidity: Cerebrovascular Disease
CaseInfo	Comorbidity: Coronary Artery Disease	Comorbidity: Coronary Artery Disease
CPTCodes	MPOG_Case_ID	MPOG_Case_ID (no link)
CPTCodes	MPOG_Patient_ID	MPOG_Patient_ID
CPTCodes	Primary Anes CPT Code	Primary Anes CPT Code
CPTCodes	Primary Anes CPTCode BaseUnitVal	Primary Anes CPTCode BaseUnitVal
CPTCodes	All Anes CPT Codes	All Anes CPT Codes (no link)
CPTCodes	Predicted Anes CPT Code 1	Predicted Anes CPT Code 1 (no link)
CPTCodes	Predicted Anes CPT Code 1 Score	Predicted Anes CPT Code 1 Score (no link)
CPTCodes	Predicted Anes CPT Code 2	Predicted Anes CPT Code 2 (no link)

CPTCodes	Predicted Anes CPT Code 2 Score	Predicted Anes CPT Code 2 Score (no link)
CPTCodes	Predicted Anes CPT Code 3	Predicted Anes CPT Code 3 (no link)
CPTCodes	Predicted Anes CPT Code 3 Score	Predicted Anes CPT Code 3 Score (no link)
CPTCodes	Surgical CPT Codes	Surgical CPT Codes
ICDCodes	MPOG_Case_ID	MPOG_Case_ID (no link)
ICDCodes	MPOG_Patient_ID	MPOG_Patient_ID
ICDCodes	ICD Code	ICD Code (no link)
ICDCodes	Case Date	Case Date (no link)
ICDCodes	Days from Case	Days from Case (no link)
ICDCodes	Admit Date	Admit Date (no link)
ICDCodes	Discharge Date	Discharge Date (no link)
Qmeasures	MPOG_Case_ID	MPOG_Case_ID (no link)
Qmeasures	ABX-01-OB	ABX-01-OB
Qmeasures	AKI-01	AKI-01
Qmeasures	BP-01	BP-01
Qmeasures	BP-02	BP-02
Qmeasures	BP-03	BP-03
Qmeasures	BP-04-OB	BP-04-OB
Qmeasures	BP-05	BP-05
Qmeasures	BP-06	BP-06
Qmeasures	CARD-02	CARD-02
Qmeasures	CARD-03	CARD-03
Qmeasures	FLUID-01-C	FLUID-01-C
Qmeasures	FLUID-01-NC	FLUID-01-NC
Qmeasures	FLUID-02-C-PEDS	FLUID-02-C-PEDS
Qmeasures	FLUID-02-NC-PEDS	FLUID-02-NC-PEDS
Qmeasures	GA-01-OB	GA-01-OB
Qmeasures	GA-02-OB	GA-02-OB
Qmeasures	GA-03-OB	GA-03-OB
Qmeasures	GLU-01	GLU-01
Qmeasures	GLU-02	GLU-02
Qmeasures	GLU-03	GLU-03
Qmeasures	GLU-04	GLU-04
Qmeasures	GLU-05	GLU-05
Qmeasures	GLU-06-CARD	GLU-06-CARD
Qmeasures	GLU-07-CARD	GLU-07-CARD
Qmeasures	GLU-08-CARD	GLU-08-CARD
Qmeasures	GLU-09	GLU-09
Qmeasures	GLU-10	GLU-10
Qmeasures	GLU-11	GLU-11
Qmeasures	GLU-12	GLU-12
Qmeasures	GLU-13	GLU-13

Qmeasures	MED-01	MED-01
Qmeasures	MORT-01	MORT-01
Qmeasures	NMB-01	NMB-01
Qmeasures	NMB-02	NMB-02
Qmeasures	NMB-03-PEDS	NMB-03-PEDS
Qmeasures	NMB-04	NMB-04
Qmeasures	PAIN-01-PEDS	PAIN-01-PEDS
Qmeasures	PAIN-02	PAIN-02
Qmeasures	PAIN-03	PAIN-03
Qmeasures	PONV-01	PONV-01
Qmeasures	PONV-02-PEDS	PONV-02-PEDS
Qmeasures	PONV-03	PONV-03
Qmeasures	PONV-04-PEDS	PONV-04-PEDS
Qmeasures	PONV-05	PONV-05
Qmeasures	PUL-01	PUL-01
Qmeasures	PUL-02	PUL-02
Qmeasures	PUL-03	PUL-03
Qmeasures	SMOK-01	SMOK-01
Qmeasures	SMOK-02	SMOK-02
Qmeasures	SUS-01	SUS-01
Qmeasures	SUS-02	SUS-02
Qmeasures	SUS-03	SUS-03
Qmeasures	SUS-04	SUS-04
Qmeasures	SUS-05-PEDS	SUS-05-PEDS
Qmeasures	SUS-06-PEDS	SUS-06-PEDS
Qmeasures	SUS-07	SUS-07
Qmeasures	TEMP-01	TEMP-01
Qmeasures	TEMP-02	TEMP-02
Qmeasures	TEMP-03	TEMP-03
Qmeasures	TEMP-04-PEDS	TEMP-04-PEDS
Qmeasures	TEMP-05-OB	TEMP-05-OB
Qmeasures	TEMP-06-CARD	TEMP-06-CARD
Qmeasures	TEMP-07-CARD	TEMP-07-CARD
Qmeasures	TOC-01	TOC-01
Qmeasures	TOC-02	TOC-02
Qmeasures	TOC-03	TOC-03
Qmeasures	TRAN-01	TRAN-01
Qmeasures	TRAN-02	TRAN-02
Qmeasures	TRAN-03-PEDS	TRAN-03-PEDS
Qmeasures	TRAN-04-PEDS	TRAN-04-PEDS

Appendix B. Frequently Asked Questions

Q: How does the CPT prediction tool work?

A: The CPT prediction tool predicts the likely CPT codes for a case by using procedure text and a weighted scoring method. The top three CPTs predicted by the model are returned with the following exceptions:
- If the top CPTs include both codes for C-Section and labor epidural, return only those for C-Section.
- If the top scoring code is weighted 1.6 times the next highest scoring code, return only the first code.
- If the top scoring code is weighted 1.6 times the third highest scoring code, return only the first two codes.
- If the predicted codes are for OB cases and the patient's age makes that prediction unlikely (age less than 10 or greater than 55), those codes are not returned.

Q: How should a researcher merge the case-level table with the ICD 9/10 administrative data table?

A: The ICD 9/10 administrative data table contains all patient-linked ICD 9/10 codes from 365 days before to 365 days after the date of service along with case date and the admit and discharge dates associated with those codes. Therefore, each researcher will need to decide per project, what relevant timeframe to look for associated ICD 9/10 codes. For example, if a researcher is trying to define a comorbidity using ICD 9/10 codes, then they may look for relevant codes 90 days prior to 7 days after the date of surgery. In contrast, if a researcher is attempting to define an outcome based on ICD 9/10 codes, then they may only look for relevant codes occurring on or after the date of surgery.

Q: Can phenotype definitions change over time?

A: Yes, phenotypes are continuously refined and adapted as new institutions join MPOG with unique electronic health record systems. If the data you have does not seem to match with the phenotype spec available in the Phenotype Browser, please contact the MPOG research team for clarification and previous versions of specs.

Q: How should a researcher utilize the physiologic parameters that have both a set and actual value (for example: median positive end-expiratory pressure (PEEP) set and actual, and median tidal volume set and actual)?

A: Each research team will need to determine the most appropriate way to utilize these covariates in their analysis. In some instances, at the discretion of the research team, it may be useful to combine the actual and set parameters to have more complete data.