MPOG DataDirect:
User Access & Demonstration

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MPOG
MULTICENTER PERIOPERATIVE
OUTCOMES GROUP

Outline

- How to Access

- Key Features

- Version 2.0 Demo

DataDirect Access

# DataDirect Access

- Pre-requisites:
  - Security Checklist & Authorization Form
  - Obtain Login

DataDirect Access

- Pre-requisites:
  - –Authoriza...

MPOG DataDirect Security Checklist and Authorization Form

DataDi...

- Pre-re...
  - Auth...

MPOG DataDirect
Security Checklist and Authorization Form

Thank you for your interest in using MPOGs DataDirect application for Quality Improvement and/or Research Projects at your institution. DataDirect contains 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.

Standard data security processes must be followed when using the application. These are detailed below.

The site's Anesthesiology Quality Champion and/or Practice Leader is responsible for all of the data that is downloaded for their institution from DataDirect. All individuals gaining access to MPOG DataDirect will need to complete and sign the affidavit below. This affidavit affirms that he/she understands the necessary processes and policies to ensure data security. Detailed descriptions of all items on the checklist can be found on the MPOG Security

Use of this data for Research
Anyone downloading data using Data Direct for the purpose of research should follow their institution review board policies.

Please do not hesitate to contact the MPOG with any questions/concerns.

Secure Computer
- Encrypt all mobile workstations (laptops): encrypt computer hard drive using approved tools (described on MPOG website)
- Ensure physical security or encryption of any desktop workstations
- Ensure physical security of servers: Institutional server room with near zero risk of physical theft

Downloads Events / News

Dashboard Login

Form

POG
CENTER PERIOPERATIVE
OUTCOMES GROUP
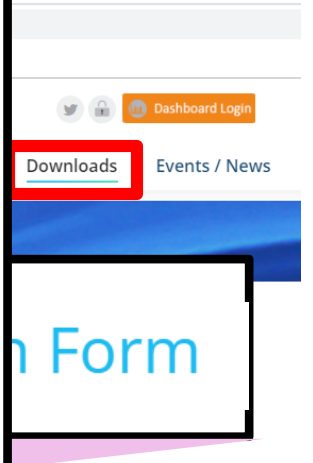
DataDirect Key Features

- User Guide

DataDirect

- User Guide

DataDirect
User Guide

For questions or comments, please contact:

Multicenter Perioperative Outcomes Group
support@mpog.zendesk.com
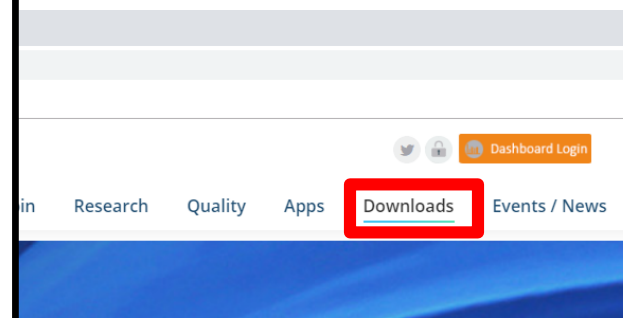
DataDirect Key Features

- Query Modes
  - **<u>Cohort Only</u>**
    - Goals:
      - Determine if a research/QI question is **<u>answerable</u>**
      - Sample size → roughly estimate **<u>statistical power</u>**
      - Ensure a **<u>satisfying experience</u>** doing MPOG research or QI
  - No prior approval
    - (except login)
  - **Multicenter** data (counts only)

DataDirect Key Features

- Query Modes
  - **<u>Single Center Research / Quality Report</u>**
    - Goal:
      - Review cases, processes of care, and outcomes for **<u>local research and QI</u>**
    - Approval from your site leadership
      - Implied with DataDirect login, but user re-attests at time of access
    - **Single center** data

DataDirect Key Features

- Query Modes
  - **<u>Multi-Center Research</u>**
    - Goal:
      - Execute **<u>high-impact multicenter research</u>** for manuscripts / grants
    - Approval from PCRC Committee
      - Formal submission/review process
    - **Multicenter** data

DataDirect Key Features

- Query Modes

	Access Requirements	Scope	Goal
Cohort Only	Login	Multicenter (counts)	Determine if question is answerable
Single Center Research / Quality Report			
Multicenter Research			

DataDirect Key Features

- Query Modes

	Access Requirements	Scope	Goal
Cohort Only	Login	Multicenter (counts)	Determine if question is answerable
Single Center Research / Quality Report	Login + Re-attest with download	Single Center	Local research / QI
Multicenter Research			

MPOG
MULTICENTER PERIOPERATIVE
OUTCOMES GROUP

DataDirect Key Features

- Query Modes

	Access Requirements	Scope	Goal
Cohort Only	Login	Multicenter (counts)	Determine if question is answerable
Single Center Research / Quality Report	Login + Re-attest with download	Single Center	Local research / QI
Multicenter Research	PCRC Approval	Multicenter	High-impact publications / grants

DataDirect v2.0 Updates

DataDirect v2.0

- Major updates
  - **Intuitive** workflow
    - Step-wise process
    - Differentiation between <u>inclusion criteria</u> vs. <u>covariates/outcomes</u>
  - **Broader range** of data types
    - MPOG concepts, phenotypes, QI measures all accessible
  - Automated, downloadable **data summaries**
    - QI: Quality Report
    - Research: Data Query Spec

DataDirect v2.0

- Rollout plan

  – Closed beta testing - contact us to join:

  mpog-research@med.umich.edu

  - Open beta testing

  - Full release

DataDirect v2.0 Demo

datadirect.mpogresearch.org/TEST/Main

Bookmarks

MPOG DataDirect

Michael Mathis   **Logout**

Step 1: Define Project

Create New Project

Open Existing Project

Edit Current Project

Step 2: Filter

Step 3: Choose Output

Step 4: Finalize

Defining your project

Queries within DataDirect are organized into projects. You can choose to create a new project for you query or to open a project created previously.

Create New

Open Existing

Edit Current

Email Support/Feedback

	All cases	Intraop Standard		
Valid case times, age, sex, CPT, ASA class		X		
ICD-9/10 codes present, labs present				
Mortality, length of stay, discharge diagnoses				

MPOG DataDirect

Michael Mathis Logout

Step 1: Define Project

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Create a New Query

Name your project and set a few attributes.

Save & Next

Project Name

MPOG DataDirect Demo Query

Description (optional)

Demonstration for MPOG Retreat

Query Mode

○ Cohort Only ⓘ
○ Quality Report ⓘ
○ Single Center Research ⓘ
◉ Multi-Center Research ⓘ

Choose Starting Population

Intraoperative Research Standard
- Has valid Anesthesia Start and End
- Patient in room time should be valid if exists
- Has a valid institution id
- Case Duration must be at least 15 minutes if Anesthesia Techinique General is true
- Case Duration must be at least 5 minutes if Anesthesia Techinique General is false
- Actual or predicted anesthesia CPT code must be present
- Age must be present
- Sex must not be unknown
- ASA Class must not be Missing, Invalid, or Conflicting
- Baseline Blood Pressure Mean must be present
- At least one intraoperative medication was administered

2,081,081 patients
3,170,027 cases
29 institutions

	All cases	Intraop Standard	Periop Standard	Outcome Standard
Valid case times, age, sex, CPT, ASA class		X	X	X
ICD-9/10 codes present, labs present			X	X
Mortality, length of stay, discharge diagnoses				X

Email Support/Feedback

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Bookmarks

MPOG DataDirect

Michael Mathis **Logout**

Step 1: Define Project

Step 2: Filter

Demographics

Cases

Comorbidities

Diagnoses

Procedures

Notes

Medications

Physiologic

Labs

Outcomes

Step 3: Choose Output

Step 4: Finalize

Filtering Cases

Here you will apply filters to define your cohort and return only cases that you're interested in. The available filters are listed on the left sidebar while the size of your cohort will be dynamically updated on the right.

Next

Project

MPOG DataDirect Demo Query

Project ID: 2169

Query Mode: Cohort

Last updated on 10/14/2019

Cohort Size

| Start | 3,170,027 cases |
| Intraoperative | 29 institutions |

Email Support/Feedback

MPOG DataDirect

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Step 4: Finalize

Cases

Perioperative case characteristics from the clinical documentation and professional fee billing systems. Some patient characteristics (ASA status) may change from one case to another and reflect the information known at the time of that case.

Procedure Date ?	01/01/2000	to 10/14/2019
CPT Base Units ?	☐ 3 to 30	
Weekend Case ?	☑ Yes ☑ No	
Holiday Case ?	☑ Yes ☑ No	
ASA Status ?	☑ ASA 1 ☑ ASA 2 ☑ ASA 3 ☑ ASA 4 ☑ ASA 5 ☑ ASA 6	
Emergency Status ?	☑ Yes ☑ No ☑ Unspecified	
Admission Type ?	☑ Inpatient ☑ Outpatient ☑ Other ☑ Unknown	
Case Duration ? ? ?	Anesthesia time ▼ 1 minute(s) to 1440 minute(s)	
Cardiac Case ?	☑ Yes ☑ No	
Anesthesia Technique General ?	☑ Yes ☑ No	
Anesthesia Technique LMA	☑ Yes ☑ No	
Endotracheal Tube Used	☑ Yes ☑ No	
Anesthesia Technique Neuraxial ?	☑ Yes ☑ No	
Anesthesia Technique Block ?	☑ Yes ☑ No	

Add

Next

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

Start
Intraoperative

3,170,027 cases
29 institutions

Demographics
Age: 18 years - 150 years
BMI: 0.0 - 100.0
Race: American Indian or Alaska Native or Asian or Pacific Islander or Black, not of Hispanic Origin or Hispanic, Black or Hispanic, Color Unknown or Hispanic, White or Middle Eastern or White, not of Hispanic Origin or Bi or Multi Racial or Other Race Not Listed

2,465,118 cases
28 institutions

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Bookmarks

MPOG DataDirect

Michael Mathis **Logout**

Step 1: Define Project

Step 2: Filter

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Email Support/Feedback

Comorbidities

Elixhauser comorbidity measures are pre-defined collections of ICD-9 and ICD-10 codes which assess for 31 patient comorbidities, commonly used for correlation to a higher risk of in-hospital mortality. The comorbidities are only available for centers contributing Problem Summary List ICD9/10 or Discharge ICD9/10 data. ICD-10 coding was initially developed by the World Health Organization in 1992, and the United States began requiring the use of ICD-10 coding October 1, 2015.

Add

Next

Elixhauser comorbidities ⑦ | 1 comorbidity selected   ▼ |

Mode   ● Keep only cases with these comorbidites
       ○ Remove cases with these comorbidites

Selection

Valvular Disease ✖

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

Start   3,170,027 cases
Intraoperative   29 institutions

Demographics
Age: 18 years - 150 years
BMI: 0.0 - 100.0
Race: American Indian or Alaska Native or Asian or Pacific Islander or Black, not of Hispanic Origin or Hispanic, Black or Hispanic, Color Unknown or Hispanic, White or Middle Eastern or White, not of Hispanic Origin or Bi or Multi Racial or Other Race Not Listed
                               2,465,118 cases
                                  28 institutions

Cases
Procedure Date: 01/01/2014 - 10/14/2019
ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes
                               28,367 cases
                                  25 institutions

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Bookmarks

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Step 1: Define Project

Step 2: Filter

Demographics
Cases
Comorbidities
Diagnoses
Procedures
Notes
Medications
Physiologic
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Outcomes

Step 3: Choose Output

Step 4: Finalize

Diagnoses

Perioperative patient diagnoses are derived from billing sources (administrative or professional billing) or the clinician-entered problem summary list. Clinician-entered problem lists use problems linked to ICD-9 and ICD-10 codes. ICD-10 coding was initially developed by the World Health Organization in 1992, and the United States began requiring the use of ICD-10 coding October 1, 2015.

Add

Next

Diagnosis Source   [Search all sources]

☑ ICD-9 ☑ ICD-10 ☑ Include related ICD-9/ICD10

Diagnosis code
or description

Present on admission   any ▾ ⓘ

Mode   ◉ Keep only cases with these diagnoses
        ○ Remove cases with these diagnoses

Selection

Atherosclerotic heart disease of native coronary artery with unspecified angina pectoris
    ICD-10
        <I25.119> Atherosclerotic heart disease of native coronary artery with unspecified angina pectoris
        <I25.110> Atherosclerotic heart disease of native coronary artery with unstable angina pectoris
        <I25.111> Atherosclerotic heart disease of native coronary artery with angina pectoris with documented spasm
        <I25.118> Atherosclerotic heart disease of native coronary artery with other forms of angina pectoris
Atherosclerotic heart disease of native coronary artery with unstable angina pectoris
Coronary atherosclerosis of native coronary artery
    ICD-9
        [414.01] Coronary atherosclerosis of native coronary artery
        [414.00] Coronary atherosclerosis of unspecified type of vessel, native or graft
        [414.02] Coronary atherosclerosis of autologous vein bypass graft
        [414.03] Coronary atherosclerosis of nonautologous biological bypass graft
        [414.04] Coronary atherosclerosis of artery bypass graft
        [414.05] Coronary atherosclerosis of unspecified bypass graft
        [414.06] Coronary atherosclerosis of native coronary artery of transplanted heart
        [414.07] Coronary atherosclerosis of bypass graft (artery) (vein) of transplanted heart
    ICD-10
        <I25.10> Atherosclerotic heart disease of native coronary artery without angina pectoris
        <I25.89> Other forms of chronic ischemic heart disease
        <I25.810> Atherosclerosis of coronary artery bypass graft(s) without angina pectoris
        <I25.799> Atherosclerosis of other coronary artery bypass graft(s) with unspecified angina pectoris
        <I25.811> Atherosclerosis of native coronary artery of transplanted heart without angina pectoris
        <I25.812> Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina pectoris
Atherosclerotic heart disease of native coronary artery without angina pectoris
    ICD-9
        [429.2] Cardiovascular disease, unspecified

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

Start   3,170,027 cases
Intraoperative   29 institutions

Demographics
Age: 18 years - 150 years
BMI: 0.0 - 100.0
Race: American Indian or Alaska Native or Asian or Pacific Islander or Black, not of Hispanic Origin or Hispanic, Black or Hispanic, Color Unknown or Hispanic, White or Middle Eastern or White, not of Hispanic Origin or Bi or Multi Racial or Other Race Not Listed
                                2,465,118 cases
                                28 institutions

Cases
Procedure Date: 01/01/2014 - 10/14/2019
ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes
                                28,367 cases
                                25 institutions

Comorbidities
keep: Valvular Disease   13,737 cases
                                22 institutions

Email Support/Feedback

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Bookmarks

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Step 1: Define Project

Step 2: Filter

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Step 3: Choose Output

Step 4: Finalize

Email Support/Feedback

Procedures

Perioperative procedures activity identified using Current Procedure Terminology (CPT) codes, professional fee charges, or using free text procedure descriptions.

Add

Next

CPT search ❓   Type a CPT code or a procedure name   ℹ️

Actual or Scheduled   Type a procedure name to search, and hit 'Enter' or click 'Add' button to add   Add   ℹ️
Procedure Text

Mode   ⦿ Keep only cases with these procedures
             ○ Remove cases with these procedures

Selection   [Actual or Scheduled Procedure] mitral   ✖

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

Start   3,170,027 cases
Intraoperative   29 institutions

Demographics
Age: 18 years - 150 years
BMI: 0.0 - 100.0
Race: American Indian or Alaska Native or Asian or
Pacific Islander or Black, not of Hispanic Origin or
Hispanic, Black or Hispanic, Color Unknown or
Hispanic, White or Middle Eastern or White, not of
Hispanic Origin or Bi or Multi Racial or Other Race
Not Listed
                                2,465,118 cases
                                  28 institutions

Cases
Procedure Date: 01/01/2014 - 10/14/2019
ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or
ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes
                                28,367 cases
                                  25 institutions

Comorbidities   13,737 cases
keep: Valvular Disease   22 institutions

Diagnoses
diagnosis category: Clinical Problem Summary List,
Professional Billing, Administrative Discharge
Billing
present on admission: any
diagnosis type: none specified
psl status: none specified
keep codes: I25.119 or I25.110 or I25.111 or
I25.118 or I25.10 or I25.89 or I25.810 or I25.799 or
I25.811 or I25.812 or 414.01 or 414.00 or 414.02
or 414.03 or 414.04 or 414.05 or 414.06 or 414.07
or 429.2
                                4,988 cases
                                  18 institutions

MPOG DataDirect

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Step 1: Define Project

Step 2: Filter

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Step 3: Choose Output

Step 4: Finalize

Email Support/Feedback

Intraoperative Notes

Enforce inclusion or exclusion of patients with documentation of specific MPOG concepts in the intraoperative notes, such as cardiopulmonary bypass, thoracic surgery, specific blocks, etc.

Add

Next

Search Note Concept

MPOG Intraoperative Note Concept Name, ID, or Group Name ⓘ

Mode

- ● Keep only cases with these intraoperative notes
- ○ Remove cases with these intraoperative notes

Selection

[50122] Intubation Endotracheal Tube Size
[50115] Intubation Laryngoscopy Blade Type and Size
[50118] Intubation Number of Attempts
[50119] Intubation Direct Laryngoscopy View
[50123] Intubation Endotracheal Tube Type
[50334] Intubation - cricoid pressure applied
[50120] Intubation Bougie Introducer Used
[50117] Intubation - ETT Placed
[50197] Intubation - atraumatic
[50695] Categorized note - Intubation
[50205] Intubation Tube Note
[50207] Intubation device and adjunct note
[50688] Intubation - comment
[50101] Intubation - Observed to be difficult

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

Start   3,170,027 cases
Intraoperative   29 institutions

Demographics
Age: 18 years - 150 years
BMI: 0.0 - 100.0
Race: American Indian or Alaska Native or Asian
or Pacific Islander or Black, not of Hispanic
Origin or Hispanic, Black or Hispanic, Color
Unknown or Hispanic, White or Middle Eastern
or White, not of Hispanic Origin or Bi or Multi
Racial or Other Race Not Listed
                                  2,465,118 cases
                                  28 institutions

Cases
Procedure Date: 01/01/2014 - 10/14/2019
ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or
ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes
                                  28,367 cases
                                  25 institutions

Comorbidities   13,737 cases
keep: Valvular Disease   22 institutions

Diagnoses
diagnosis category: Clinical Problem Summary
List, Professional Billing, Administrative
Discharge Billing
present on admission: any
diagnosis type: none specified
psl status: none specified
keep codes: I25.119 or I25.110 or I25.111 or
I25.118 or I25.10 or I25.89 or I25.810 or I25.799
or I25.811 or I25.812 or 414.01 or 414.00 or
414.02 or 414.03 or 414.04 or 414.05 or 414.06
or 414.07 or 429.2
                                  4,988 cases
                                  18 institutions

Procedures   1,035 cases
keep: mitral or mv   14 institutions

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Bookmarks

MPOG DataDirect

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Step 1: Define Project

Step 2: Filter

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Step 3: Choose Output

Step 4: Finalize

Medication Administration

Perioperative medications that were administered. Medication data is at the case-level. Medications are searchable by drug name (generic only, MPOG concept name) or drug ID (MPOG concept ID). Bolus or infusion administrations can be identified distinctly.

Add

Next

Name of Medication

Mode
- ● Keep only cases with these medications that were administered
- ○ Remove cases with these medications that were administered

Selection

[10301] MIDAZOLAM (Bolus or Infusion)

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

Demographics
Age: 18 years - 150 years
BMI: 0.0 - 100.0
Race: American Indian or Alaska Native or Asian or Pacific Islander or Black, not of Hispanic Origin or Hispanic, Black or Hispanic, Color Unknown or Hispanic, White or Middle Eastern or White, not of Hispanic Origin or Bi or Multi Racial or Other Race Not Listed

2,465,118 cases
28 institutions

Cases
Procedure Date: 01/01/2014 - 10/14/2019
ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes

28,367 cases
25 institutions

Comorbidities   13,737 cases
keep: Valvular Disease   22 institutions

Diagnoses
diagnosis category: Clinical Problem Summary List, Professional Billing, Administrative Discharge Billing
present on admission: any
diagnosis type: none specified
psl status: none specified
keep codes: I25.119 or I25.110 or I25.111 or I25.118 or I25.10 or I25.89 or I25.810 or I25.799 or I25.811 or I25.812 or 414.01 or 414.00 or 414.02 or 414.03 or 414.04 or 414.05 or 414.06 or 414.07 or 429.2

4,988 cases
18 institutions

Procedures   1,035 cases
keep: mitral or mv   14 institutions

Intraoperative Notes
keep: 50122 or 50115 or 50118 or 50119 or 50123 or 50334 or 50120 or 50117 or 50197 or 50695 or 50205 or 50207 or 50688 or 50101

1,035 cases
14 institutions

Email Support/Feedback

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Bookmarks

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Step 1: Define Project

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Step 3: Choose Output

Step 4: Finalize

Email Support/Feedback

Physiologic

Intraoperative physiologic data acquired from automated device interfaces (blood pressure, SpO2) or manually entered (Train-of-four ratio, EKG rhythm). Search by MPOG concept ID or concept name.

| Add |
| Next |

Name of Physiologic Data ⓘ

Mode
◉ Keep only cases with these physiologic data
◯ Remove cases with these physiologic data

Selection
[3080] Central Venous Pressure ✖

Minimum number of values per case   1

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size
BMI: 0.0 - 100.0
Race: American Indian or Alaska Native or Asian or Pacific Islander or Black, not of Hispanic Origin or Hispanic, Black or Hispanic, Color Unknown or Hispanic, White or Middle Eastern or White, not of Hispanic Origin or Bi or Multi Racial or Other Race Not Listed
2,465,118 cases
28 institutions

Cases
Procedure Date: 01/01/2014 - 10/14/2019
ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes
28,367 cases
25 institutions

Comorbidities   13,737 cases
keep: Valvular Disease   22 institutions

Diagnoses
diagnosis category: Clinical Problem Summary List, Professional Billing, Administrative Discharge Billing
present on admission: any
diagnosis type: none specified
psl status: none specified
keep codes: I25.119 or I25.110 or I25.111 or I25.118 or I25.10 or I25.89 or I25.810 or I25.799 or I25.811 or I25.812 or 414.01 or 414.00 or 414.02 or 414.03 or 414.04 or 414.05 or 414.06 or 414.07 or 429.2
4,988 cases
18 institutions

Procedures   1,035 cases
keep: mitral or mv   14 institutions

Intraoperative Notes
keep: 50122 or 50115 or 50118 or 50119 or 50123 or 50334 or 50120 or 50117 or 50197 or 50695 or 50205 or 50207 or 50688 or 50101
1,035 cases
14 institutions

Medication Administration   940 cases
keep: 10301   14 institutions

MPOG DataDirect

Michael Mathis **Logout**

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Email Support/Feedback

Laboratory

Perioperative laboratory cohort identification criteria which includes lab results. This is patient-level data, but can be connected to specific cases using result dates and case time linkages.

Add

Next

Name of Laboratory Value ⓘ

Mode
- ⦿ Keep only cases with these laboratory values
- ○ Remove cases with these laboratory values

Selection
[5002] Formal lab - Creatinine, Serum/Plasma ⊗

Date of Lab Test
- ⦿ Any time
- ○ _____ days [before Anesthesia Start ▾]
- ○ During Intraoperative Period (Anesthesia Start to End)

Project
MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size
Unknown or Hispanic, White or Middle Eastern or White, not of Hispanic Origin or Bi or Multi Racial or Other Race Not Listed
2,465,118 cases
28 institutions

Cases
Procedure Date: 01/01/2014 - 10/14/2019
ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes
28,367 cases
25 institutions

Comorbidities
keep: Valvular Disease
13,737 cases
22 institutions

Diagnoses
diagnosis category: Clinical Problem Summary List, Professional Billing, Administrative Discharge Billing
present on admission: any
diagnosis type: none specified
psl status: none specified
keep codes: I25.119 or I25.110 or I25.111 or I25.118 or I25.10 or I25.89 or I25.810 or I25.799 or I25.811 or I25.812 or 414.01 or 414.00 or 414.02 or 414.03 or 414.04 or 414.05 or 414.06 or 414.07 or 429.2
4,988 cases
18 institutions

Procedures
keep: mitral or mv
1,035 cases
14 institutions

Intraoperative Notes
keep: 50122 or 50115 or 50118 or 50119 or 50123 or 50334 or 50120 or 50117 or 50197 or 50695 or 50205 or 50207 or 50688 or 50101
1,035 cases
14 institutions

Medication Administration
keep: 10301
940 cases
14 institutions

Physiologic
keep: 3080
Min.# of values per case: 1
885 cases
13 institutions

MPOG DataDirect

Michael Mathis   Logout

Step 1: Define Project

Step 2: Filter

Demographics

Cases

Comorbidities

Diagnoses

Procedures

Notes

Medications

Physiologic

Labs

Outcomes

Step 3: Choose Output

Step 4: Finalize

Email Support/Feedback

Outcomes

Clinical outcomes derived from Electronic Health Record and Administrative Data.

Acute Kidney Injury
- ☐ No AKI
- ☐ Stage 1 AKI
- ☐ Stage 2 AKI
- ☐ Stage 3 AKI
- ☐ No preoperative creatinine
- ☐ Preoperative renal failure
- ☐ No postoperative creatinine
- ☐ Missing or invalid

30-day Hospital Mortality   ☑ Yes   ☑ No   ☐ ASA6   ☐ Missing   ☐ Conflicting

Add

Next

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

28 institutions

Cases
Procedure Date: 01/01/2014 - 10/14/2019
ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes

28,367 cases
25 institutions

Comorbidities   13,737 cases
keep: Valvular Disease   22 institutions

Diagnoses
diagnosis category: Clinical Problem Summary List, Professional Billing, Administrative Discharge Billing
present on admission: any
diagnosis type: none specified
psl status: none specified
keep codes: I25.119 or I25.110 or I25.111 or I25.118 or I25.10 or I25.89 or I25.810 or I25.799 or I25.811 or I25.812 or 414.01 or 414.00 or 414.02 or 414.03 or 414.04 or 414.05 or 414.06 or 414.07 or 429.2

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1,035 cases
14 institutions

Medication Administration   940 cases
keep: 10301   14 institutions

Physiologic   885 cases
keep: 3080   13 institutions
Min.# of values per case: 1

Laboratory   882 cases
keep: 5002   12 institutions
Range: any time

MPOG DataDirect

Michael Mathis   Logout

Step 1: Define Project

Step 2: Filter

Demographics

Cases

Comorbidities

Diagnoses

Procedures

Notes

Medications

Physiologic

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Outcomes

Step 3: Choose Output

Email Support/Feedback

Outcomes

Clinical outcomes derived from Electronic Health Record and Administrative Data.

Acute Kidney Injury
- ☐ No AKI
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- ☐ Stage 2 AKI
- ☐ Stage 3 AKI
- ☐ No preoperative creatinine
- ☐ Preoperative renal failure
- ☐ No postoperative creatinine
- ☐ Missing or invalid

30-day Hospital Mortality   ☑ Yes   ☑ No   ☐ ASA6   ☐ Missing   ☐ Conflicting

Update

Next

Disable this filter

Delete this filter

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
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Cardiac Case: Yes
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28,367 cases
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keep: 3080   13 institutions
Min.# of values per case: 1

Laboratory   **882 cases**
keep: 5002   12 institutions
Range: any time

Outcomes   **879 cases**
Acute Kidney Injury: any   12 institutions
30-day Mortality: Yes or No

MPOG DataDirect

Michael Mathis   Logout

Step 1: Define Project

Step 2: Filter

Step 3: Choose Output

Step 4: Finalize

Choose Output Items

Now that you've chosen which cases will be included, you will need to define which data elements will be returned in the result set.

Save

Search Output Items

All ▼

Available Output Items

Anesthesia Technique Used: Neuraxial
Neuraxial block attempted perioperatively   +

Arrived Intubated
Patient already intubated prior to entering the OR   +

Arterial Line Placed
Arterial line placed or recorded perioperatively   +

ASA Status
ASA Physical Status Classification System Status   +

Body Region of Primary Procedure
Classification of body region for the procedure   +

Days Since Last Case
Duration in days since the patient's last case   +

Emergency Status
ASA "E" physical status classification   +

Endotracheal Tube Used
Endotracheal tube attempted during the case   +

Hospital Length of Stay
Patient hospital length of stay in days   +

Institution
Institution where the case was documented   +

Intentional Hypothermia
Intentional hypothermia documented in the case   +

Intubated Awake
Documented intubation (awake, asleep, unknown)   +

Intubated Fiberoptic
Attempted fiberoptic intubation (not glidescope)   +

Patient Last Known Alive Date
Time/date of last documented clinical observation   +

Postop Destination
Destination for the patient following the case   +

Procedure Location Classifications   +

Selected Output Items

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes

	28,367 cases
	25 institutions

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	4,988 cases
	18 institutions

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Laboratory   **882 cases**
keep: 5002   12 institutions
Range: any time

Outcomes   **879 cases**
Acute Kidney Injury: any   12 institutions
30-day Mortality: Yes or No

datadirect.mpogresearch.org/TEST/Main

Bookmarks

MPOG DataDirect

Michael Mathis **Logout**

Step 1: Define Project

Step 2: Filter

Step 3: Choose Output

Step 4: Finalize

Choose Output Items

Now that you've chosen which cases will be included, you will need to define which data elements will be returned in the result set.

Save

Next

Search Output Items

All ▾

Available Output Items

Anesthesia Technique Used: Block
Peripheral block attempted perioperatively   +

Anesthesia Technique Used: General
General anesthetic attempted operatively   +

Anesthesia Technique Used: Neuraxial
Neuraxial block attempted perioperatively   +

Arrived Intubated
Patient already intubated prior to entering the OR   +

Arterial Line Placed
Arterial line placed or recorded perioperatively   +

Body Region of Primary Procedure
Classification of body region for the procedure   +

Days Since Last Case
Duration in days since the patient's last case   +

Emergency Status
ASA "E" physical status classification   +

Endotracheal Tube Used
Endotracheal tube attempted during the case   +

Hospital Length of Stay
Patient hospital length of stay in days   +

Institution
Institution where the case was documented   +

Intentional Hypothermia
Intentional hypothermia documented in the case   +

Intubated Awake
Documented intubation (awake, asleep, unknown)   +

Intubated Fiberoptic
Attempted fiberoptic intubation (not glidescope)   +

Patient Last Known Alive Date
Time/date of last documented clinical observation   +

Postop Destination
Destination for the patient following the case   +

Selected Output Items

ASA Status
ASA Physical Status Classification System Status   Options ✕

Age
Patient age in years   ✕

Height
Patient height in centimeters   ✕

Sex
Categorical patient sex   ✕

Weight
Patient weight in kilograms   ✕

Estimated Blood Loss
Estimated blood loss recorded for the case   ✕

Fresh Frozen Plasma
Total intraop fresh frozen plasma administered   Options ✕

Packed Red Blood Cells
Total intraoperative PRBCs adminstered   Options ✕

Platelets
Total intraoperative platelets administered   Options ✕

MIDAZOLAM
Unprocessed raw data for medication midazolam   ✕

Postop Creatinine
First lab value documented after Case End   ✕

Cardiopulmonary Bypass Duration
Difference of (Bypass End - Bypass Start)   ✕

Baseline Blood Pressure
First recorded non-artifact mean blood pressure   ✕

Train of Four Measurements
Perioperative train of four readings   ✕

Email Support/Feedback

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Cohort
Last updated on 10/14/2019

Cohort Size

ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes

28,367 cases
25 institutions

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4,988 cases
18 institutions

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1,035 cases
14 institutions

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keep: 10301   14 institutions

Physiologic   885 cases
keep: 3080   13 institutions
Min.# of values per case: 1

Laboratory   882 cases
keep: 5002   12 institutions
Range: any time

Outcomes   879 cases
Acute Kidney Injury: any   12 institutions
30-day Mortality: Yes or No

MPOG DataDirect

Michael Mathis Logout

Step 1: Define Project

Step 2: Filter

Step 3: Choose Output

Step 4: Finalize

Review and Finalize

Here you can review your choices in detail and save documents relevant to your proposal.

Cohort Details

Project ID: 2169 Query Mode: multiCenterResearch Last updated on 10/14/2019

Filter	Cases	Patients	Institutions
Start	3,170,027	2,081,081	29
Demographics	2,465,118	1,589,653	28
Cases	28,367	26,888	25
Comorbidities	13,737	13,174	22
Diagnoses	4,988	4,768	18
Procedures	1,035	1,021	14
Intraoperative Notes	1,035	1,021	14
Medication Administration	940	929	14
Physiologic	885	874	13
Laboratory	882	871	12
Outcomes	879	868	12

Query Output Specification

Table 1 - Main Case List		
This table contains a single row for each case in the research cohort.		
Display Name	**Source**	**Data Direct Category**
MPOG_Case_ID	Collation Group: MPOG Case ID	Basic Elements
Institution	Institution Randomizer	Basic Elements
ASA Status	Collation Group: ASA Status Classification	Case Characteristics
Age	Collation Group: Age in Years	Demographics
Height	Collation Group: Height	Demographics
Sex	Collation Group: Sex	Demographics
Weight	Collation Group: Weight	Demographics

Download Docs

Download Data

(Unavailable in Cohort Mode)

Project

MPOG DataDirect Demo Query
Project ID: 2169
Query Mode: Multi-Center Research
Last updated on 10/14/2019

Cohort Size

ASA Status: ASA 1 or ASA 2 or ASA 3 or ASA 4 or ASA 5
Emergency Status: Yes or No
Anesthesia time: 60 minutes - 1440 minutes
Cardiac Case: Yes
AnesTech General: Yes
Endotracheal Tube: Yes

28,367 cases
25 institutions

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4,988 cases
18 institutions

Procedures   1,035 cases
keep: mitral or mv   14 institutions

Intraoperative Notes
keep: 50122 or 50115 or 50118 or 50119 or 50123 or 50334 or 50120 or 50117 or 50197 or 50695 or 50205 or 50207 or 50688 or 50101

1,035 cases
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Laboratory   882 cases
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Outcomes   879 cases
Acute Kidney Injury: any   12 institutions
30-day Mortality: Yes or No

Email Support/Feedback

DataDirect v2.0

- Outputs
  - Single vs. Repeated Measures

	Example	Values Returned
Single Measures (One value per case)		
Repeated Measures (Many values per case)		

MPOG
MULTICENTER PERIOPERATIVE
OUTCOMES GROUP

DataDirect v2.0

- Outputs
  - Single vs. Repeated Measures

	Example	Values Returned
Single Measures (One value per case)	Age	MPOG Case ID, MPOG Patient ID, Date of Procedure, Value
Repeated Measures (Many values per case)		

DataDirect v2.0

- Outputs
  - Single vs. Repeated Measures

	Example	Values Returned
Single Measures (One value per case)	Age	MPOG Case ID, MPOG Patient ID, Date of Procedure, Value
Repeated Measures (Many values per case)	Blood pressure	MPOG Case ID, MPOG Patient ID, BP Source, Dates/Times of Measurements, Values

MPOG
MULTICENTER PERIOPERATIVE
OUTCOMES GROUP

… some parting thoughts on data wrangling in MPOG

MPOG Data Wrangling

- Commonly **structured**, or with **cleanable artifact**:
    - Demographics – height, weight, gender, age, etc.
    - Simple case details – ASA class, Anesthesia CPT, duration
    - Simple anesthetic details – GA, ETT/LMA attempted
    - *Elixhauser* comorbidities, ICD-9/10 diagnosis codes
    - *Intraoperative* medications
    - *Standard* physiologic monitors
    - Laboratory values

MPOG Data Wrangling

- Sometimes **unstructured**, or with **complex artifact**:
  - Surgical diagnosis and/or procedure text
  - Nuanced intraoperative interventions
    - e.g. positioning, awake/deep extubation, jet ventilation, partial CPB
  - *Anesthesia H&P* comorbidities
  - *Non-intraoperative* medications (e.g. home, preop, postop)
  - *Advanced* physiologic monitors (e.g. CVP, cerebral oximetry)

MPOG Data Wrangling

Usually Structured, Cleanable	Sometimes Unstructured, Cleaning is Challenging or Intractable
Demographics, Labs	

MPOG
MULTICENTER PERIOPERATIVE
OUTCOMES GROUP

MPOG Data Wrangling

Usually Structured, Cleanable	Sometimes Unstructured, Cleaning is Challenging or Intractable
Demographics, Labs	
Simple Case Details (e.g. Anes CPT)	Diagnosis/Procedure Text

MPOG Data Wrangling

Usually Structured, Cleanable	Sometimes Unstructured, Cleaning is Challenging or Intractable
Demographics, Labs	
Simple Case Details (e.g. Anes CPT)	Diagnosis/Procedure Text
Simple Anesthetic Details (e.g. ETT)	Nuanced Interventions (e.g. jet vent)

MPOG Data Wrangling

Usually Structured, Cleanable	Sometimes Unstructured, Cleaning is Challenging or Intractable
Demographics, Labs	
Simple Case Details (e.g. Anes CPT)	Diagnosis/Procedure Text
Simple Anesthetic Details (e.g. ETT)	Nuanced Interventions (e.g. jet vent)
Comorbidities – *Elixhauser*	Comorbidities – *Anesthesia H&P*

MPOG
MULTICENTER PERIOPERATIVE OUTCOMES GROUP

MPOG Data Wrangling

Usually Structured, Cleanable	Sometimes Unstructured, Cleaning is Challenging or Intractable
Demographics, Labs	
Simple Case Details (e.g. Anes CPT)	Diagnosis/Procedure Text
Simple Anesthetic Details (e.g. ETT)	Nuanced Interventions (e.g. jet vent)
Comorbidities – *Elixhauser*	Comorbidities – *Anesthesia H&P*
Medications – *Intraoperative*	Medications – *Home, Preop, Postop*

MPOG Data Wrangling

Usually Structured, Cleanable	Sometimes Unstructured, Cleaning is Challenging or Intractable
Demographics, Labs	
Simple Case Details (e.g. Anes CPT)	Diagnosis/Procedure Text
Simple Anesthetic Details (e.g. ETT)	Nuanced Interventions (e.g. jet vent)
Comorbidities – *Elixhauser*	Comorbidities – *Anesthesia H&P*
Medications – *Intraoperative*	Medications – *Home, Preop, Postop*
Standard Monitors (e.g. BP)	Advanced Monitors (e.g. CVP)

MPOG
MULTICENTER PERIOPERATIVE
OUTCOMES GROUP

Take-Home Points

- DataDirect can catalyze research/QI, without needing:

  … to be a computer programmer

  … to be a 1st-degree relative of your hospital's CMIO

- DataDirect **query modes** can be tailored to use-case:

  – Cohort ID mode → Research/QI "speed dating"

  – Single Center Research/QI → Improve care at your hospital

  – Multicenter Research → High-impact science

Next Steps

- DataDirect
    - Access: Downloads → DataDirect Security Checklist & Authorization
    - v2.0 beta testing: e-mail mpog-research@med.umich.edu

Thank You