



Data Review: Data Diagnostics



Data Diagnostics Overview

- MPOG sites may contribute information from various sections of an EHR: preoperative, intraoperative, and postoperative notes and physiologic data, demographic information, laboratory values, and procedure codes.

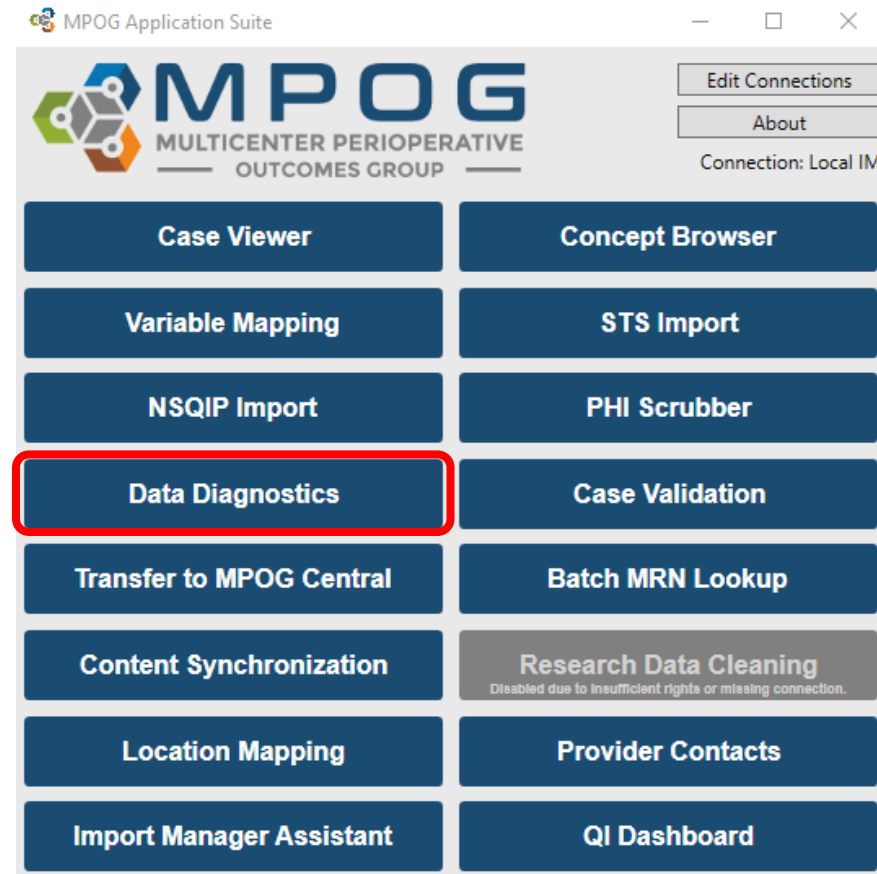
Data Diagnostics Overview

- Two separate strategies are employed to improve data quality and ensure data accuracy.
 - First, data diagnostics are used by technical and clinical staff to detect systematic errors with data extraction, transformation, or mappings. Diagnostic visualizations represent specific pass/failure thresholds to determine compliance at a macro level.
 - Second, clinicians at each site are required to manually validate between 5 and 10 cases per month to ensure that the data that have been extracted into MPOG matches the original EHR information utilizing the Case Validator utility (see Module: Data Review - Case Validation)

Data Diagnostics Requirements

- Data Diagnostic review and attestation are **required** for **all sites before uploading** to the Central MPOG database.
- All **funded** sites are required to conduct this attestation process on a **monthly** basis.
- **Non-funded sites** are required to **complete before each upload** to MPOG Central. If submission is on a monthly basis, then attestation should also occur on a monthly basis.

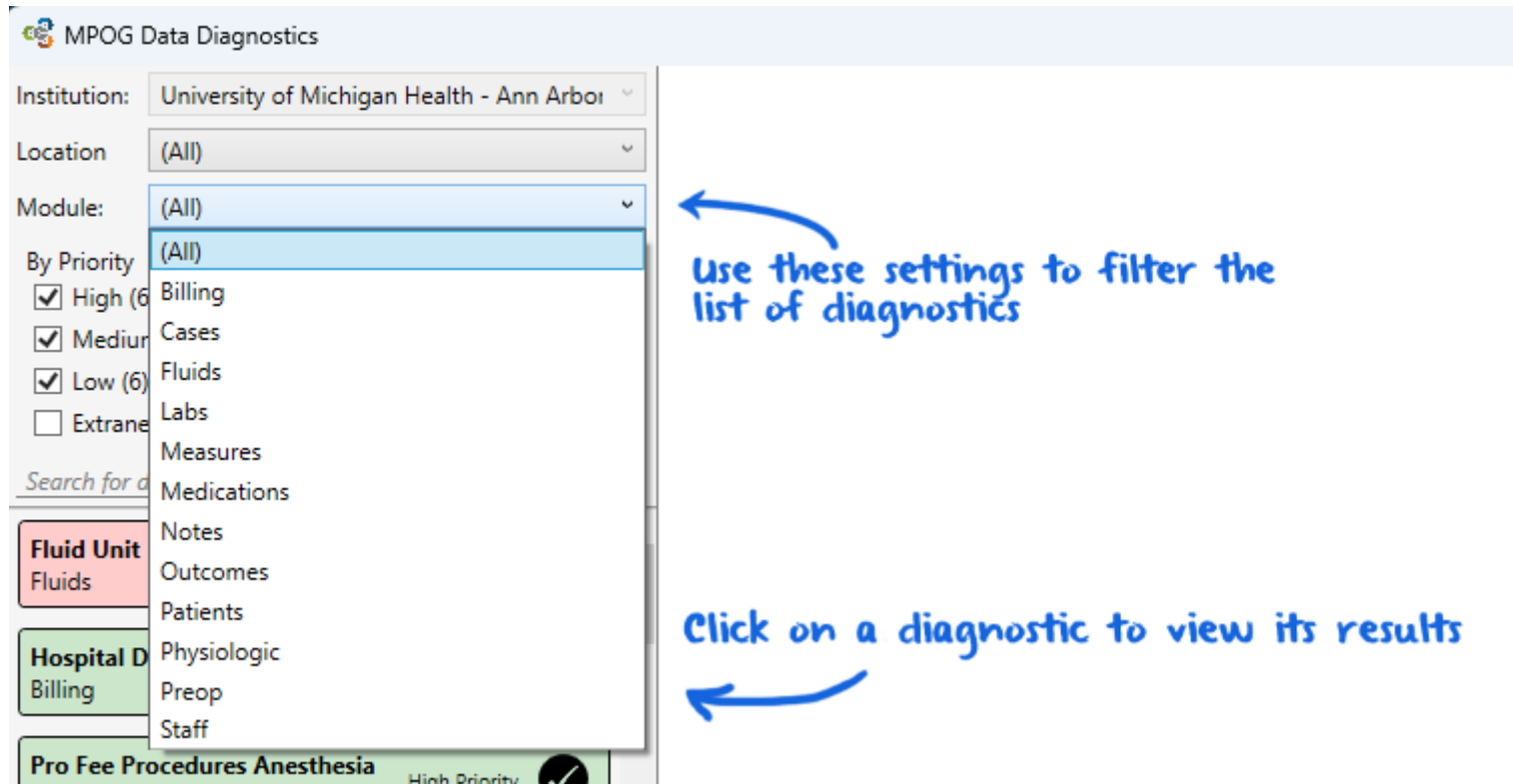
Accessing Data Diagnostics



- Your institution/site should be defaulted in the top field.
- The Location filter is defaulted to (All). This filter allows you to view location specific results down to the unit level as specified in Location Mapping.

The screenshot shows the 'MPOG Data Diagnostics' interface. At the top, there are three dropdown menus: 'Institution' set to 'University of Michigan Health - Ann Arbor', 'Location' set to '(All)', and 'Module' set to '(All)'. Below these are checkboxes for 'By Priority' with options 'High (6)', 'Medium (6)', 'Low (6)', and 'Extraneous'. A search bar is labeled 'Search for d'. On the left side, there are four colored buttons: 'Fluid Unit Fluids' (pink), 'Hospital D Billing' (green), 'Pro Fee Pr Billing' (green), and 'Admission Cases' (green). A large list of diagnostics is displayed, including 'University of Michigan Health - East', 'Briarwood Medical Group', 'Brighton Health Center', 'East Ann Arbor Health and Geriatric Center', 'Kellogg Eye Center', 'Livonia Health Center', 'University of Michigan Medical Center', 'CS Mott Children's Hospital', 'Mott Cath Lab', 'Mott IR', 'Mott NORA', 'Mott ORs', 'Mott Radiology', 'Frankel Cardiovascular Center', 'CVC CATH LAB', and 'CVC NORA'. Two blue arrows with text annotations are present: one pointing to the filter dropdowns with the text 'Use these settings to filter the list of diagnostics', and another pointing to the list of diagnostics with the text 'Click on a diagnostic to view its results'.

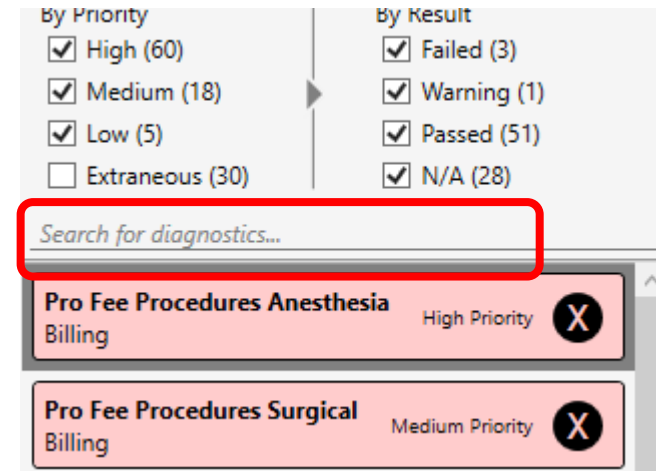
Select a module to filter the diagnostic list to accommodate the type of data to review. If planning to review all data diagnostics for the monthly attestation process, click “(All)” from the dropdown menu.



The screenshot shows the 'MPOG Data Diagnostics' interface. On the left, there are filters for 'Institution' (University of Michigan Health - Ann Arbor), 'Location' ((All)), and 'Module' ((All)). Below these are checkboxes for 'By Priority' (High (6), Medium (6), Low (6), Extraneous) and a search bar. On the right, a list of diagnostic categories is displayed: Billing, Cases, Fluids, Labs, Measures, Medications, Notes, Outcomes, Patients, Physiologic, Preop, and Staff. A blue arrow points to the 'Module' dropdown menu with the text 'Use these settings to filter the list of diagnostics'. Another blue arrow points to the list of diagnostic categories with the text 'Click on a diagnostic to view its results'.

Diagnostic Search

- If searching for a specific diagnostic, a free text search is available on the left-hand side



The screenshot displays a web interface for diagnostic search. It features two columns of filters: 'By Priority' and 'By Result'. The 'By Priority' column includes checkboxes for 'High (60)', 'Medium (18)', 'Low (5)', and 'Extraneous (30)'. The 'By Result' column includes checkboxes for 'Failed (3)', 'Warning (1)', 'Passed (51)', and 'N/A (28)'. Below these filters is a search bar with the placeholder text 'Search for diagnostics...'. Below the search bar are two red boxes containing the text 'Pro Fee Procedures Anesthesia Billing' and 'Pro Fee Procedures Surgical Billing', each with a 'High Priority' or 'Medium Priority' label and a red 'X' icon.

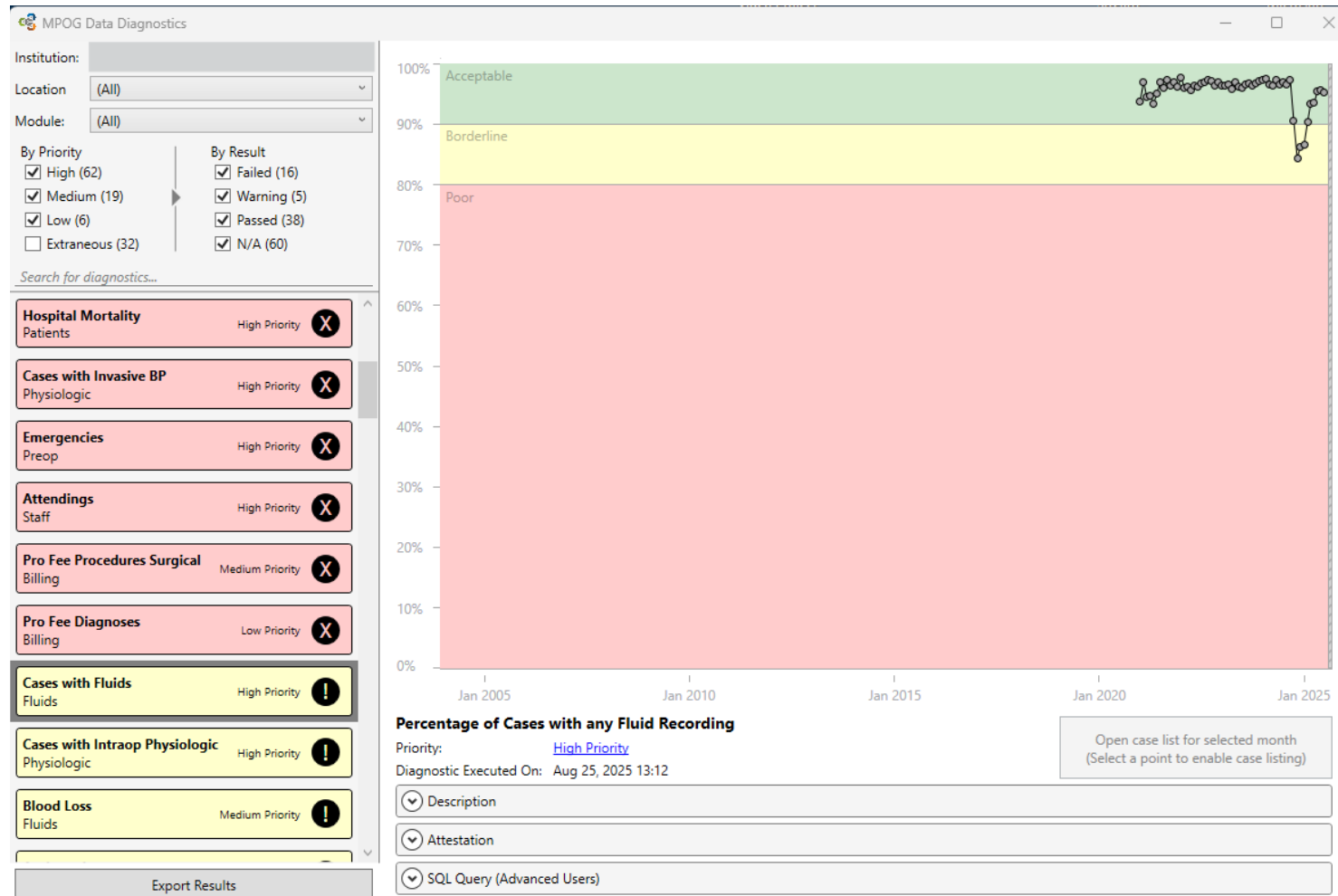
By Priority	By Result
<input checked="" type="checkbox"/> High (60)	<input checked="" type="checkbox"/> Failed (3)
<input checked="" type="checkbox"/> Medium (18)	<input checked="" type="checkbox"/> Warning (1)
<input checked="" type="checkbox"/> Low (5)	<input checked="" type="checkbox"/> Passed (51)
<input type="checkbox"/> Extraneous (30)	<input checked="" type="checkbox"/> N/A (28)

Search for diagnostics...

Pro Fee Procedures Anesthesia Billing High Priority X

Pro Fee Procedures Surgical Billing Medium Priority X

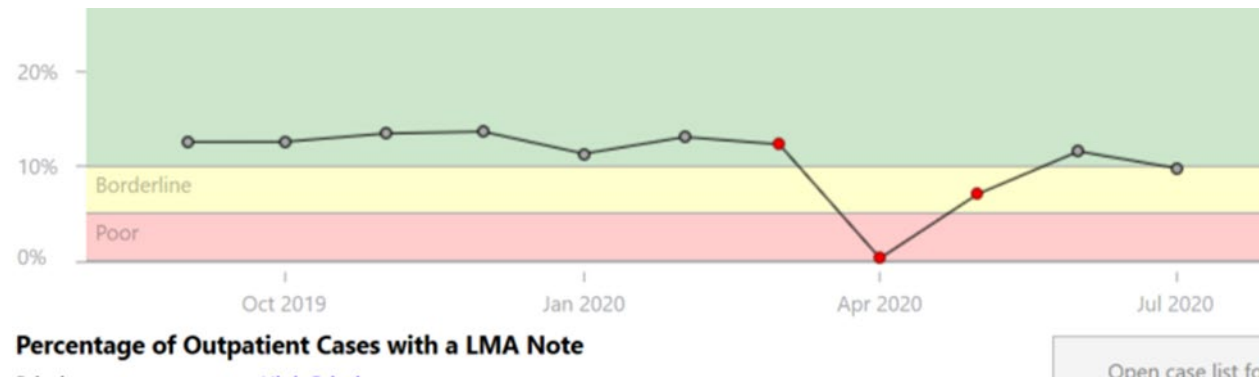
Click on the name of the Data Diagnostic in the left column to display the graphical results on the right.



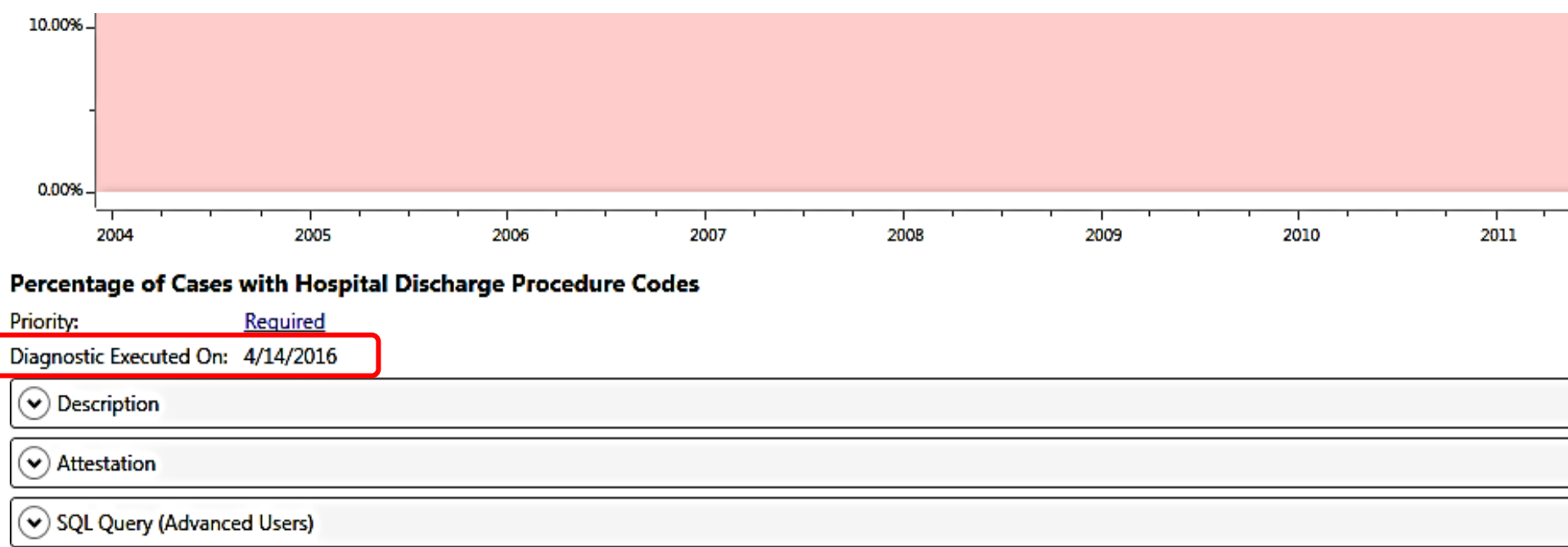
- The graph for 'Cases with Fluids' displays the percentage of cases with fluid inputs and outputs recorded, sorted by month.
- The data for this diagnostic should be in the green area. The months that dip into the yellow (or red) area should be reviewed for accuracy.
- The lower scores could be related to a practice change, new variables that need to be mapped (see Module: Getting Started – Variable Mapping), or consume/handoff errors (see Module: Data Review – IM assistant).

COVID-19 Adjustments

- For some diagnostics, the months of March/April/May 2020 are now excluded from diagnostic pass/fail consideration due to COVID-19's impact on case volume
- These months will appear as red data points on the graph



To understand when the Diagnostic was last updated, view the ‘Diagnostic Executed On: MM/DD/YYYY’ date listed beneath the graph.



- To seek further clarification for the diagnostic selected, click on the “Description” header beneath the graph.
- Clicking on the Description will expand the box to display the definition of the Data Diagnostic shown as well as the MPOG concept IDs that impact that diagnostic.

Percentage of Outpatient Cases with a LMA Note

Priority: [High Priority](#)

Diagnostic Executed On: 10/30/2019

Open case list for selected month
(Select a point to enable case listing)

⬆ Description

Percentage of outpatient cases with an LMA (laryngeal mask airway) note between anesthesia start and anesthesia end. Excludes inpatient cases. Check extract or mapping if inconsistent with your institution's practices.

Concepts Used:

▲ LMA Notes

50141	Airway - Laryngeal Mask airway type
50142	Airway - Laryngeal Mask airway size
50143	Airway - Laryngeal mask airway placement difficulty
50144	Airway - Laryngeal mask airway placement technique

Attestation

- In the Attestation section, the site Anesthesia Clinical Quality Reviewer (ACQR) or Quality Champion can review the diagnostic and determine if the data accurately represents the documentation present at the site (either in the EHR or billing software).
- You can attest to the accuracy of your data multiple times throughout the month, but **Attestation is required to be completed at least once per month prior to upload to MPOG Central.**

Attestation

- Beneath the description is an Attestation section. Click on the dropdown arrow next to 'Attestation' to open.

⬆ Description

Use this chart to verify that professional fee procedure codes have been successfully imported. If this percentage is low, check your extract.

⬆ Attestation

Current Attestation

☐ **Data Accurately Represented**
The results of this diagnostic accurately represents the data from our documentation systems.

☐ **Data Not Accurately Represented**
The results of this diagnostic are not representative of data from our documentation and needs to be

☐ **Not Contributing Data**
We are unable to contribute data for this content area.

Comment

Previous Attestations

04/11/16 Data Accurately Represented

03/02/16 Data Accurately Represented

02/19/16 Data Not Accurately Represented

01/18/16 Data Not Accurately Represented

12/14/15 Data Not Accurately Represented

10/21/15 Data Accurately Represented

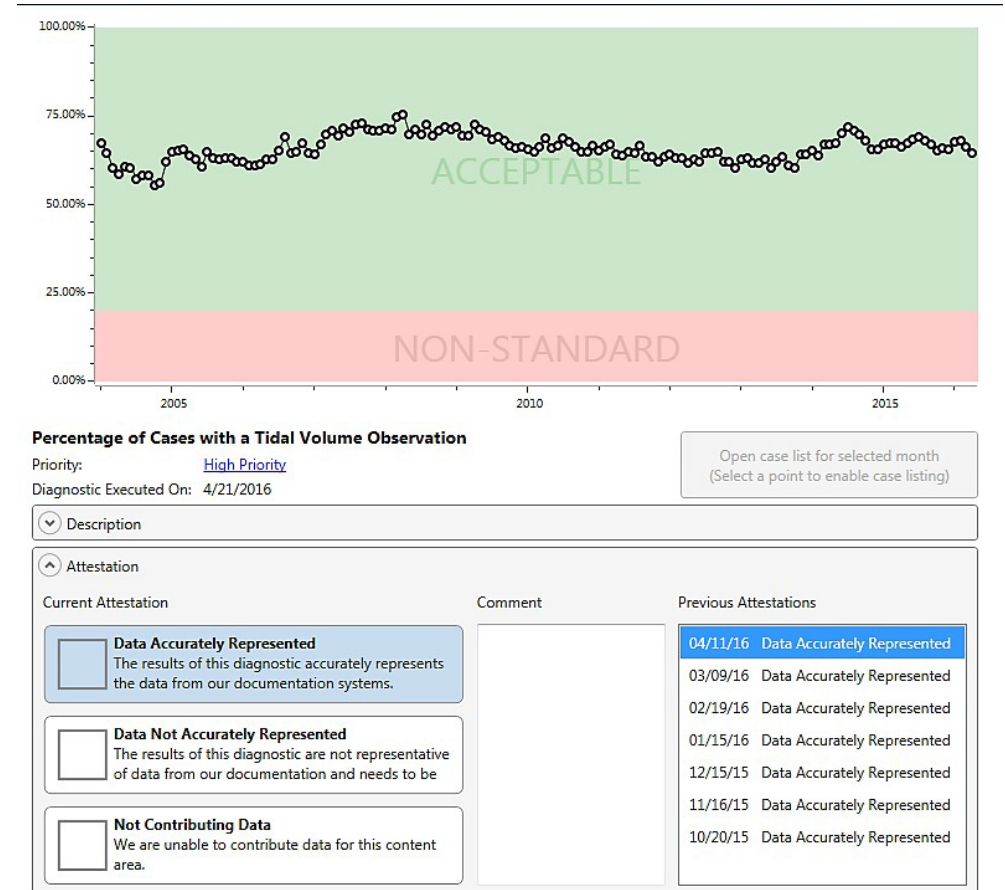
09/23/15 Data Not Accurately Represented

Attestation

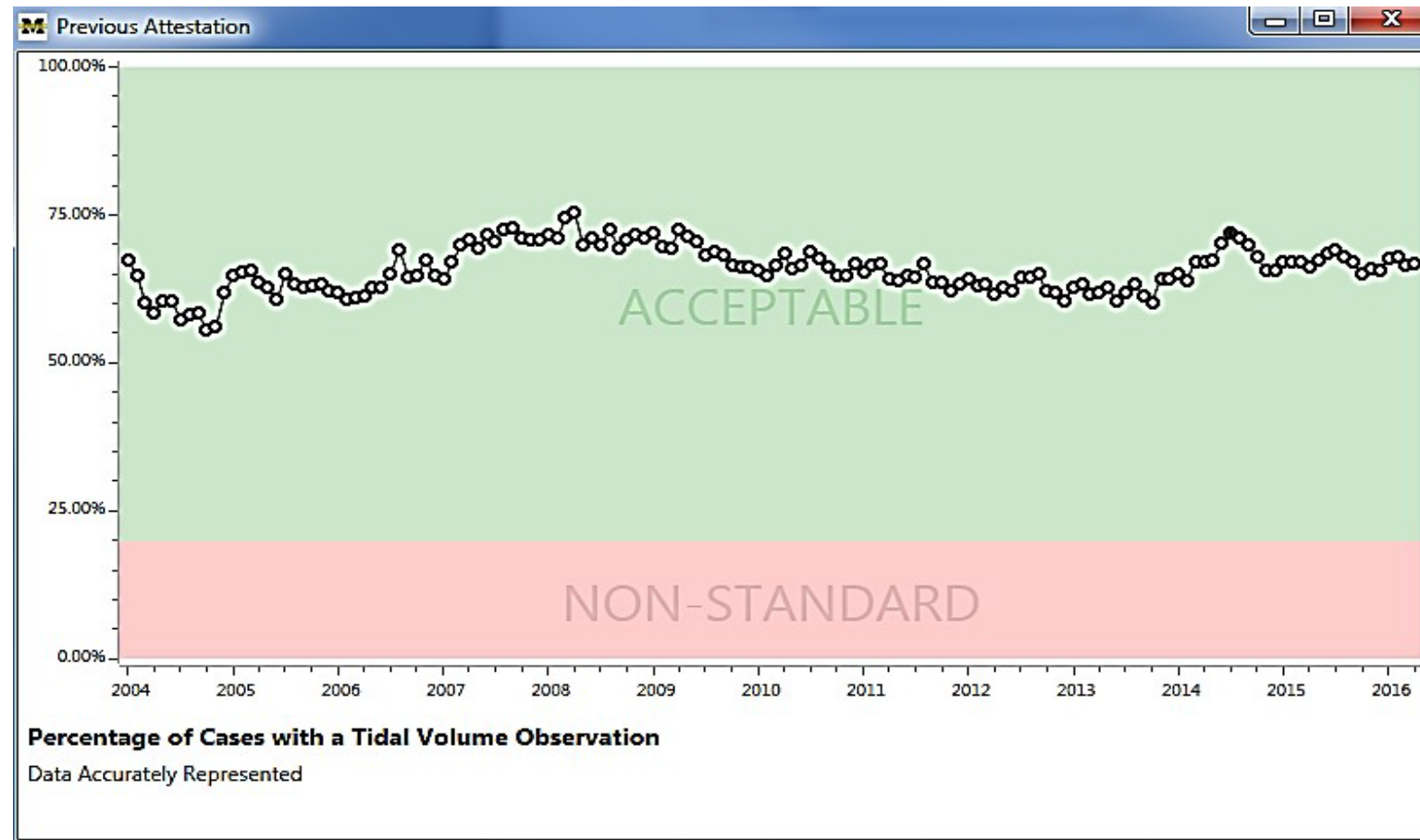
- If the site is not submitting data for the content area measured in the diagnostic (i.e., billing data), the option of “Not Contributing Data” should be selected.
- Click the box next to the attestation selection that most represents the analysis conducted on the Data Diagnostic under review. When the Data Diagnostic application is updated (typically scheduled to run overnight), the current attestation will move to the ‘Previous Attestation’ box on right side of the screen with an associated date.

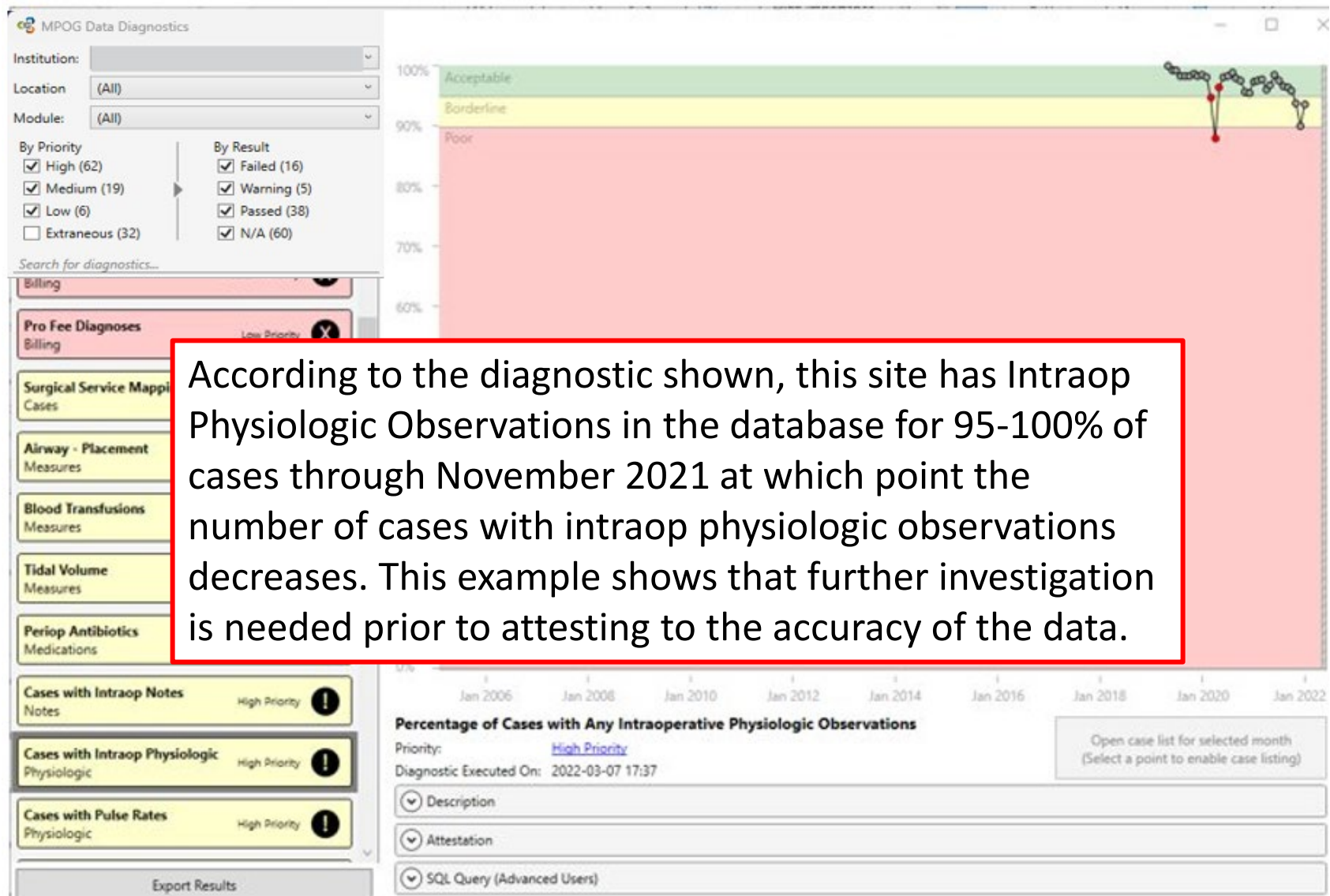
Viewing Previous Diagnostics

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



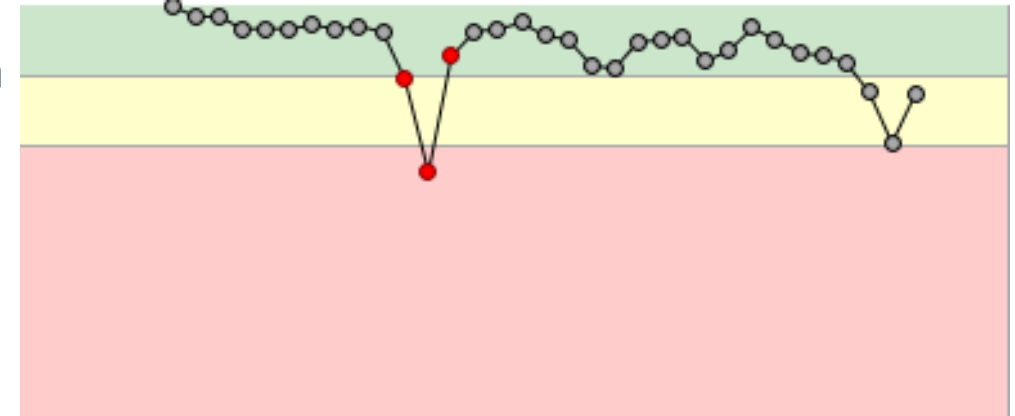
- Previous attestation graph will display in a new window





Investigating Diagnostics

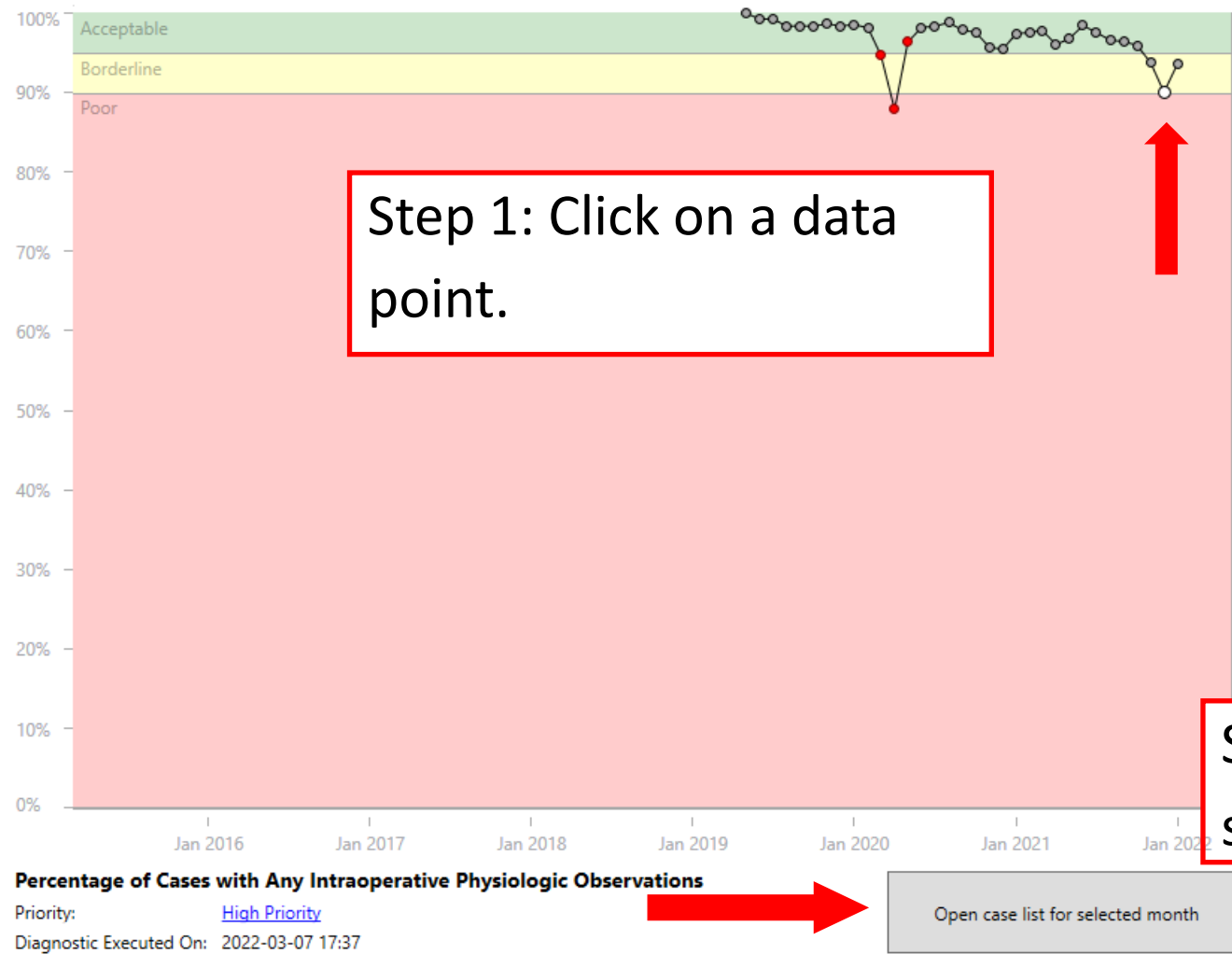
- When data is not accurately represented (gaps in the data or values are higher or lower than expected), further investigation is needed.
- Thresholds for many of the diagnostics are reflective of common practice across many sites
 - Acceptable (green)
 - Borderline (yellow)
 - Non-standard (red)



Diagnostics Investigation

- If you are below the threshold, with data in the 'Borderline' or 'Non-standard' areas of the graph, please verify the accuracy of the data.
- If not accurate, investigate further with the site technical team to identify if extract or mapping issues exist.

Click on the data point associated with the time period in question and select 'Open case list for selected month' to display a list of cases for that time period.



Step 2: Click on "Open case list for selected month"

- A case list will open showing a random sampling of cases from the selected month
- Open cases as needed in case viewer for further investigation
- Clicking on the column names will allow you to sort based on Procedure, date, location, and Pass diagnostic Yes/No
 - Hold Shift key and click on a column name to sort by multiple columns

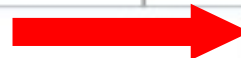
Percentage of Cases with Any Intraoperative Physiologic Observations

The selection has 1,474 cases available, with 1,380 cases meeting the diagnostics criteria.

Procedure	Date	Location	Has Intraop Physiologic?
ESOPHAGOGASTRODUODENOSCOPY (N/A); COLONOSCOPY (N/A)			Yes
CYSTOSCOPY, LEFT RETROGRADE PYELOGRAM, LEFT STENT INSERTION (Left Ureter)			Yes
Emergent Intubation			No
COVID 19 ICU Care			No
IM nailing femoral shaft retrograde (Left Leg Upper)			Yes
CYSTOSCOPY WITH INSERTION STENT URETER (Bilateral Bladder)			Yes
CYSTOSCOPY WITH EVACUATION CLOTS, fulguration (N/A Bladder)			Yes
BYPASS GRAFT CORONARY ARTERY X 4 LITA TO LAD SVG TO PDA SEQ TO DIAG SVG TO RAMUS INTERMEDIATE EVH LEFT LEG, TFW (N/A)			Yes
Lumbar Puncture			No
Laparoscopic cholecystectomy, possible open, intraoperative cholangiogram and all other indicated procedures (N/A Abdomen)			Yes
CESAREAN SECTION (N/A Abdomen)			Yes
Unscheduled Blood Patch			No
Central line and arterial line			No
Labor Epidural			Yes
ROBOT-ASSISTED CORONARY ARTERY BYPASS GRAFT X 1 LITA			Yes

Step 1: Highlight row for case to review.

Step 2: Select “Open Case” to open in Case Viewer or double click



Open Case

Cancel

- A date column also allows users to quickly see any trends to missing data by date on which the cases occurred
- The Location column allows users to quickly see any trends in specific rooms based on Location Mapping (see Module: Getting Started – Location Mapping).
- By reviewing individual cases, it may be possible to determine if a mapping issue exists.
- Contact your MPOG contact for guidance regarding next steps to improve data quality.

Percentage of Cases with Any Intraoperative Physiologic Observations

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BYPASS GRAFT CORONARY ARTERY X 4 LITA TO LAD SVG TO PCA SEQ TO DIAG SVG TO RAMUS INTERMEDIATE EVH LEFT LEG, TPV (N/A)			Yes
Lumbar Puncture			No
Laparoscopic cholecystectomy, possible open, intraoperative cholangiogram and all other indicated procedures (N/A Abdomen)			Yes
CESAREAN SECTION (N/A Abdomen)			Yes
Unscheduled Blood Patch			No
Central line and arterial line			No
Labor Epidural			Yes
ROBOT-ASSISTED CORONARY ARTERY BYPASS GRAFT X 1 LITA			Yes

Attestation

- For the purpose of this example (slide 20), “Data Accurately Represented” would be chosen since the data reflects the documentation for the cases that have been loaded to date.
- Comments can be added to the middle column as needed

⤴ Attestation

Current Attestation

☒ **Data Accurately Represented**
The results of this diagnostic accurately represents the data from our documentation systems.

☐ **Data Not Accurately Represented**
The results of this diagnostic are not representative of data from our documentation and needs to be

☐ **Not Contributing Data**
We are unable to contribute data for this content area.

Comment

Previous Attestations

04/11/16 Data Accurately Represented

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12/14/15 Data Not Accurately Represented

10/21/15 Data Accurately Represented

09/23/15 Data Not Accurately Represented

Billing

Required Billing Diagnostics	Optional Billing Diagnostics	Epic Sites Only
Pro Fee Procedures Anesthesia	Discharge Procedure Codes	Cases with PMH Code (ICD-9/10)
Pro Fee Procedures Surgical	Hospital Discharge Procedures	
Pro Fee Procedures	Pro Fee Diagnoses	
Hospital Discharge Diagnoses	Hospital Discharge Multi-Day	

Billing



- Since there can be a delay in completing billing, we allow a 3-month grace period for the billing diagnostics.
- The gray section to the right of the graph represents the 3-month delay period
- Dips into the yellow or red areas are expected during this time frame, but should be investigated

Diagnostics Priorities

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

Percentage of Cases with Hemoglobin or Potassium Labs - 30 Days Post

Priority: [Medium Priority](#)

Diagnostic Executed On: 4/20/2016

Step 1: Click on the Priority type for definition.

Percentage of Cases with Hemoglobin or Potassium Labs - 30 Days Post

Priority: [Medium Priority](#)

Diagnostic Executed On:

▼ Description

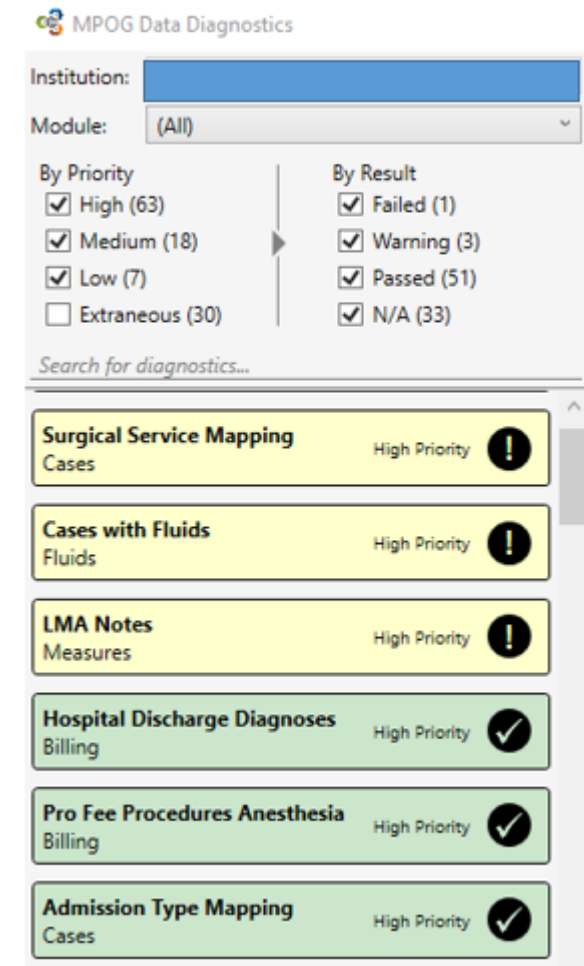
▲ Attestation

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

Step 2: A definition window will present with the priority definition.

Diagnostics Priorities

- * **High Priority:** High priority diagnostics must be attested to and it is strongly recommended that any detected issues are fixed prior to submission. Failure to pass these diagnostics can severely impact the quality assessment and research capabilities of your institution.
- * **Medium Priority:** Medium priority diagnostics must be attested to and generally should pass. Failure to pass these diagnostics is acceptable but usually not recommended if otherwise possible.



MPOG Data Diagnostics

Institution:

Module: (All)

By Priority

- ☒ High (63)
- ☒ Medium (18)
- ☒ Low (7)
- ☐ Extraneous (30)

By Result

- ☒ Failed (1)
- ☒ Warning (3)
- ☒ Passed (51)
- ☒ N/A (33)

Search for diagnostics...

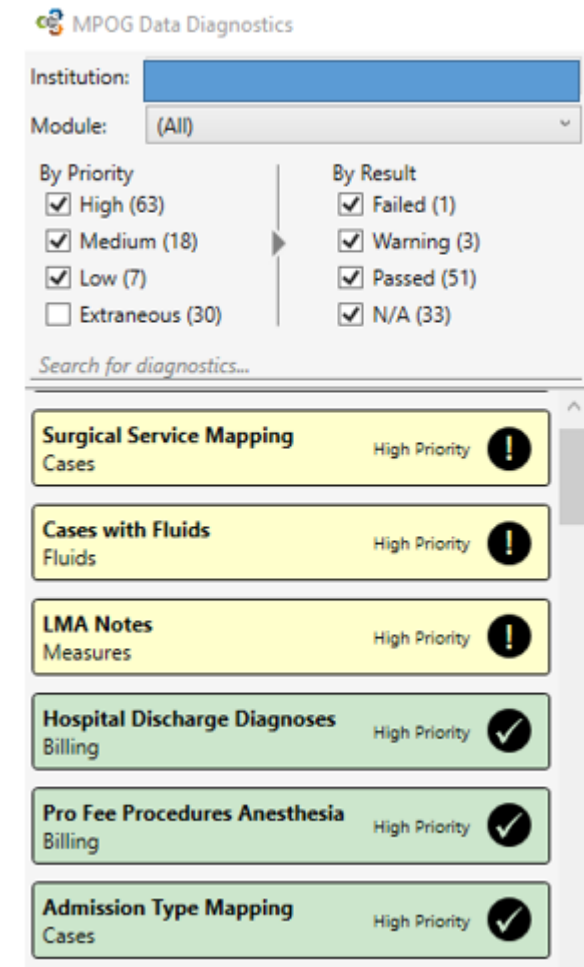
Surgical Service Mapping Cases	High Priority	!
Cases with Fluids Fluids	High Priority	!
LMA Notes Measures	High Priority	!
Hospital Discharge Diagnoses Billing	High Priority	✓
Pro Fee Procedures Anesthesia Billing	High Priority	✓
Admission Type Mapping Cases	High Priority	✓

Diagnostics Pories

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

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

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

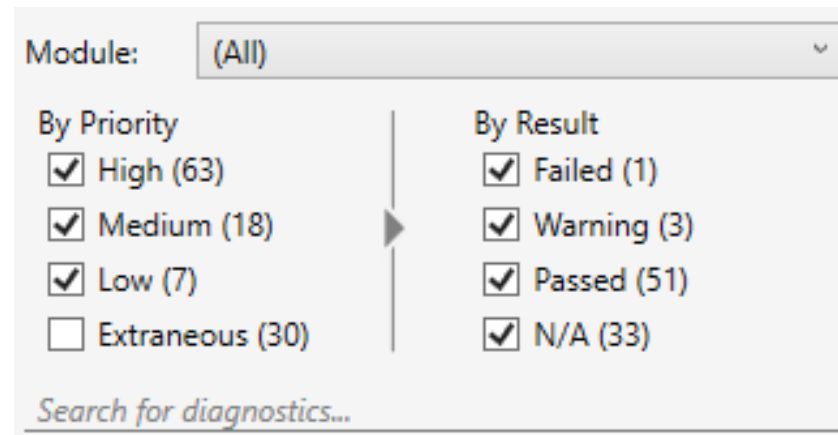


The screenshot shows the 'MPOG Data Diagnostics' interface. At the top, there are filters for 'Institution' (a text input field) and 'Module' (a dropdown menu set to '(All)'). Below these are two columns of checkboxes for filtering results: 'By Priority' and 'By Result'. The 'By Priority' column has checkboxes for 'High (63)', 'Medium (18)', 'Low (7)', and 'Extraneous (30)'. The 'By Result' column has checkboxes for 'Failed (1)', 'Warning (3)', 'Passed (51)', and 'N/A (33)'. A search bar labeled 'Search for diagnostics...' is located below the filters. The main area displays a list of diagnostics, each with a title, a subtitle, a priority level, and a status icon. The first three diagnostics are highlighted in yellow and have a red exclamation mark icon, indicating they are high priority and require attention. The remaining three are highlighted in green and have a green checkmark icon, indicating they are high priority but do not require attention.

Diagnostics	Priority	Status
Surgical Service Mapping Cases	High Priority	Warning
Cases with Fluids Fluids	High Priority	Warning
LMA Notes Measures	High Priority	Warning
Hospital Discharge Diagnoses Billing	High Priority	Success
Pro Fee Procedures Anesthesia Billing	High Priority	Success
Admission Type Mapping Cases	High Priority	Success

Filtering Diagnostics

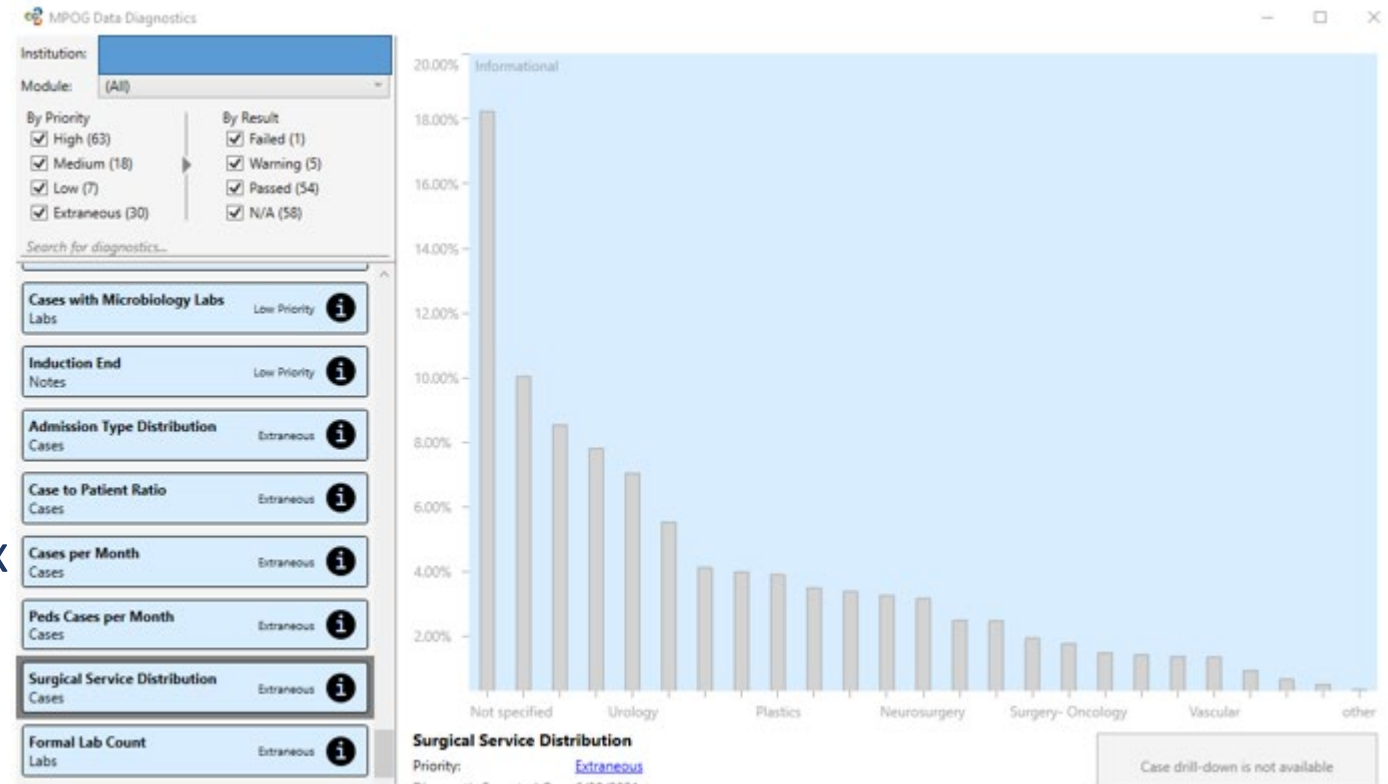
- Filters can be applied by Priority or by Result. Filtering allows the user to limit the number of diagnostics listed and improve the selection process for tailored and purposeful review of the data.



The screenshot shows a user interface for filtering diagnostics. At the top, there is a 'Module:' dropdown menu currently set to '(All)'. Below this, there are two columns of filter options. The left column is titled 'By Priority' and contains four items: 'High (63)' with a checked checkbox, 'Medium (18)' with a checked checkbox, 'Low (7)' with a checked checkbox, and 'Extraneous (30)' with an unchecked checkbox. The right column is titled 'By Result' and contains four items: 'Failed (1)' with a checked checkbox, 'Warning (3)' with a checked checkbox, 'Passed (51)' with a checked checkbox, and 'N/A (33)' with a checked checkbox. A vertical line separates the two columns, with a right-pointing arrow in the middle. At the bottom of the interface is a search bar with the placeholder text 'Search for diagnostics...'. The entire interface is enclosed in a light gray border.

Extraneous

- All 'Extraneous' diagnostics are highlighted blue. (Note: There are blue diagnostics that are also low, medium, or high priority.)
- Blue coding is used to indicate that thresholds do not exist because every site differs in terms of case mix and patient population.
- It is important to verify that the diagnostic reflects your organization's case mix, population, practice, and distribution.



Exporting Diagnostics

- Click on the “Export Results” button at the bottom of the Diagnostic listings
- Will export ALL diagnostics at once
- Save file to a location you can easily retrieve from
- If the Coordinating Center requests a copy of recent Diagnostics, simply attach the file to an email and send to your contact person at the Coordinating Center. This report does not contain PHI and can be sent through email.

The screenshot shows the 'MPOG Data Diagnostics' interface. At the top, there are dropdown menus for 'Institution:', 'Location: (All)', and 'Module: (All)'. Below these are two columns of checkboxes for filtering results: 'By Priority' (High (62), Medium (19), Low (6), Extraneous (32)) and 'By Result' (Failed (16), Warning (5), Passed (38), N/A (60)). A search bar labeled 'Search for diagnostics...' is positioned above a list of diagnostic categories. The list includes: 'Pro Fee Procedures Anesthesia Billing' (High Priority), 'Lab Type Mapping Labs' (High Priority), 'Airway - Placement Measures' (High Priority), 'Blood Transfusions Measures' (High Priority), 'Extubation Notes Measures' (High Priority), 'Non-Depolarizing NMB Measures' (High Priority), 'Tidal Volume Measures' (High Priority), 'Train of Four Measures' (High Priority), and 'Hospital Mortality Patients' (High Priority). At the bottom of the list, an 'Export Results' button is highlighted with a red rectangular box, and a red arrow points to it from the left.

Exporting Diagnostics

- Helpful when comparing local diagnostics to MPOG Central Diagnostics
- Local Diagnostics refresh each night