



# Module 6

## Data Diagnostics



# Data Diagnostics Overview

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

# 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 7: Case by Case Validation)

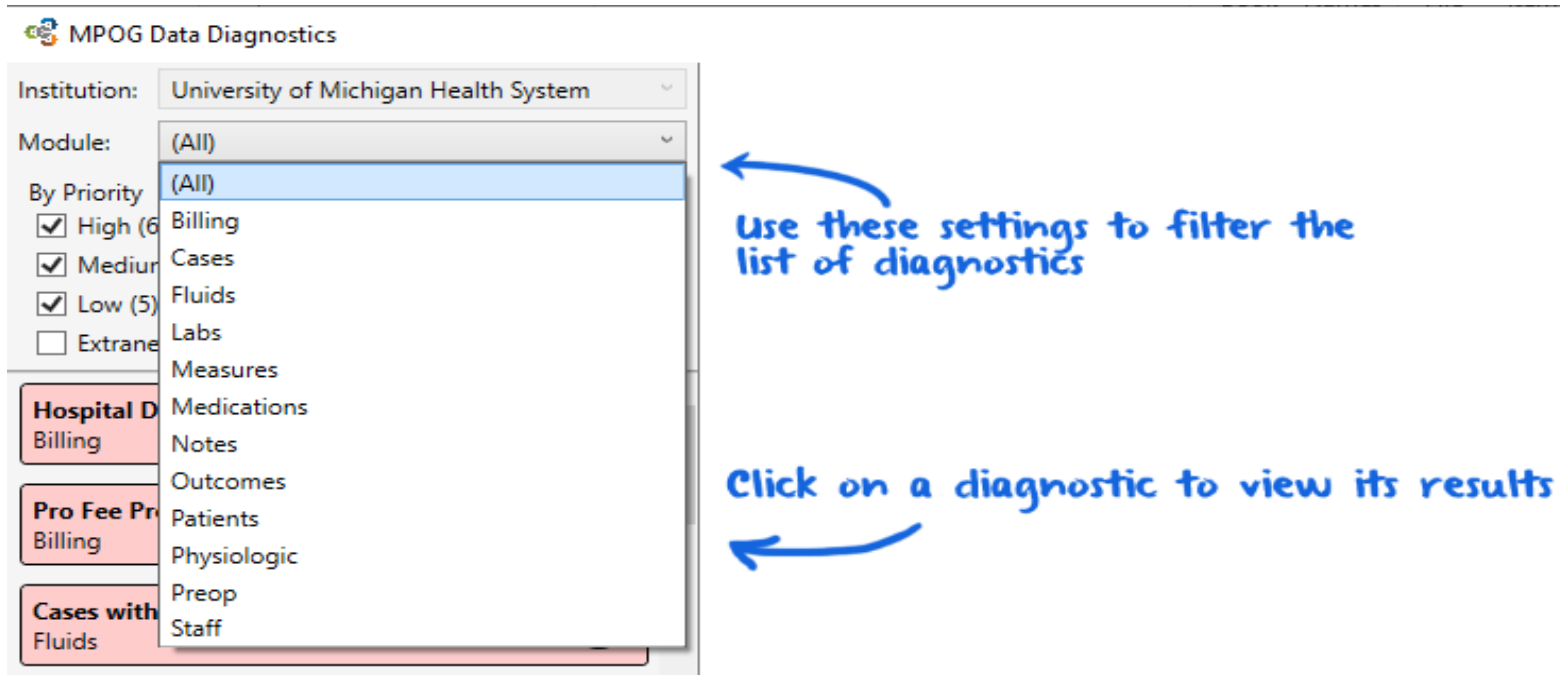
# Data Diagnostics Requirements

- 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



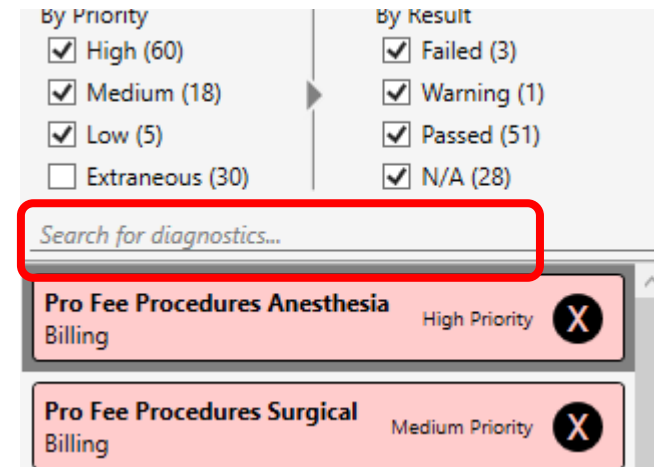
- Your institution/site should be defaulted in the top field.
- Select a module to filter the diagnostic list to accommodate the type of data to review. If planning to review all data diagnostics for the monthly attestation process, click “(All)” from the dropdown menu.



The screenshot shows the 'MPOG Data Diagnostics' window. The 'Institution' dropdown is set to 'University of Michigan Health System'. The 'Module' dropdown is open, showing '(All)' as the selected option. Below the dropdown, there are checkboxes for 'By Priority': 'High (6)', 'Medium (5)', 'Low (5)', and 'Extraneous'. To the right of these checkboxes is a list of diagnostic categories: Billing, Cases, Fluids, Labs, Measures, Medications, Notes, Outcomes, Patients, Physiologic, Preop, and Staff. On the left side of the window, there are three red-bordered boxes: 'Hospital Discharge', 'Pro Fee Pro', and 'Cases with Fluids'. Two blue arrows with text annotations are present: one points to the 'Module' dropdown with the text 'Use these settings to filter the list of diagnostics', and another 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'. Below these filters is a search bar labeled 'Search for diagnostics...'. Under the search bar, there are two results listed: 'Pro Fee Procedures Anesthesia Billing' with 'High Priority' and 'Pro Fee Procedures Surgical Billing' with 'Medium Priority'. Each result has a red 'X' icon next to it.

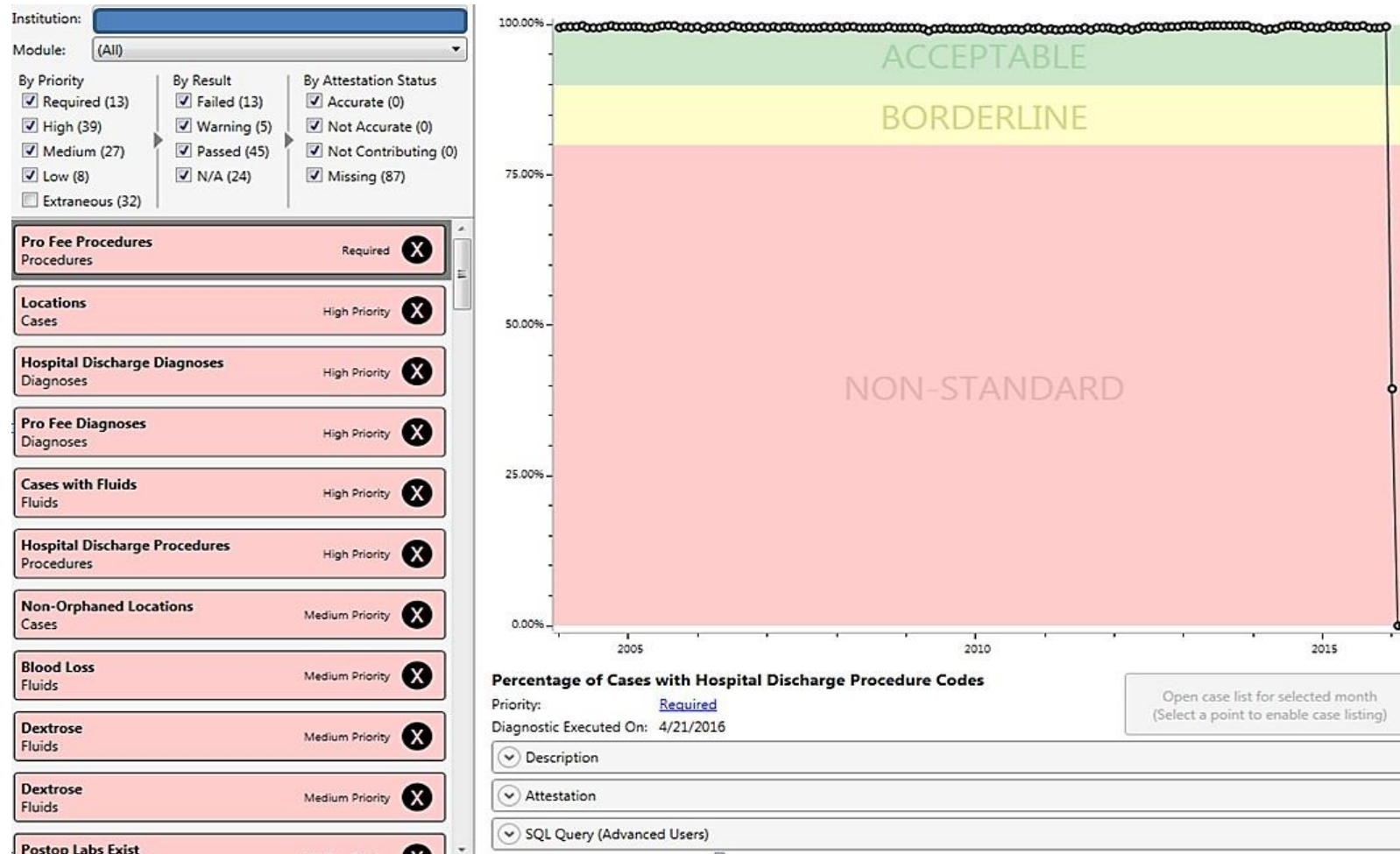
By Priority	By Result
<input checked="" type="checkbox"/> High (60)	<input checked="" type="checkbox"/> Failed (3)
<input checked="" type="checkbox"/> Medium (18)	<input checked="" type="checkbox"/> Warning (1)
<input checked="" type="checkbox"/> Low (5)	<input checked="" type="checkbox"/> Passed (51)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

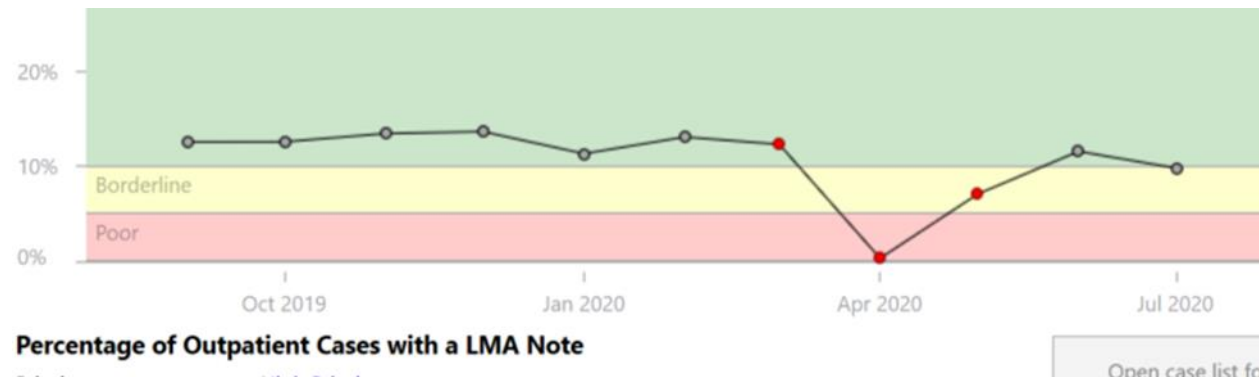




- For the example on the previous slide, Pro Fee Procedures are highlighted in the left column, and the diagnostic displays the percentage of cases with hospital discharge procedure codes by month.
- If your site does not submit billing data, the graph will display 0% of cases have Pro Fee Procedure codes.

# 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



Institution:

Module: (All)

By Priority

☒ Required (13)

☒ High (39)

☒ Medium (27)

☒ Low (8)

☐ Extraneous (32)

By Result

☒ Failed (13)

☒ Warning (5)

☒ Passed (45)

☒ N/A (24)

By Attestation Status

☒ Accurate (0)

☒ Not Accurate (0)

☒ Not Contributing (0)

☒ Missing (87)

Pro Fee Procedures Procedures Required ☒

Locations Cases High Priority ☒

Hospital Discharge Diagnoses Diagnoses High Priority ☒

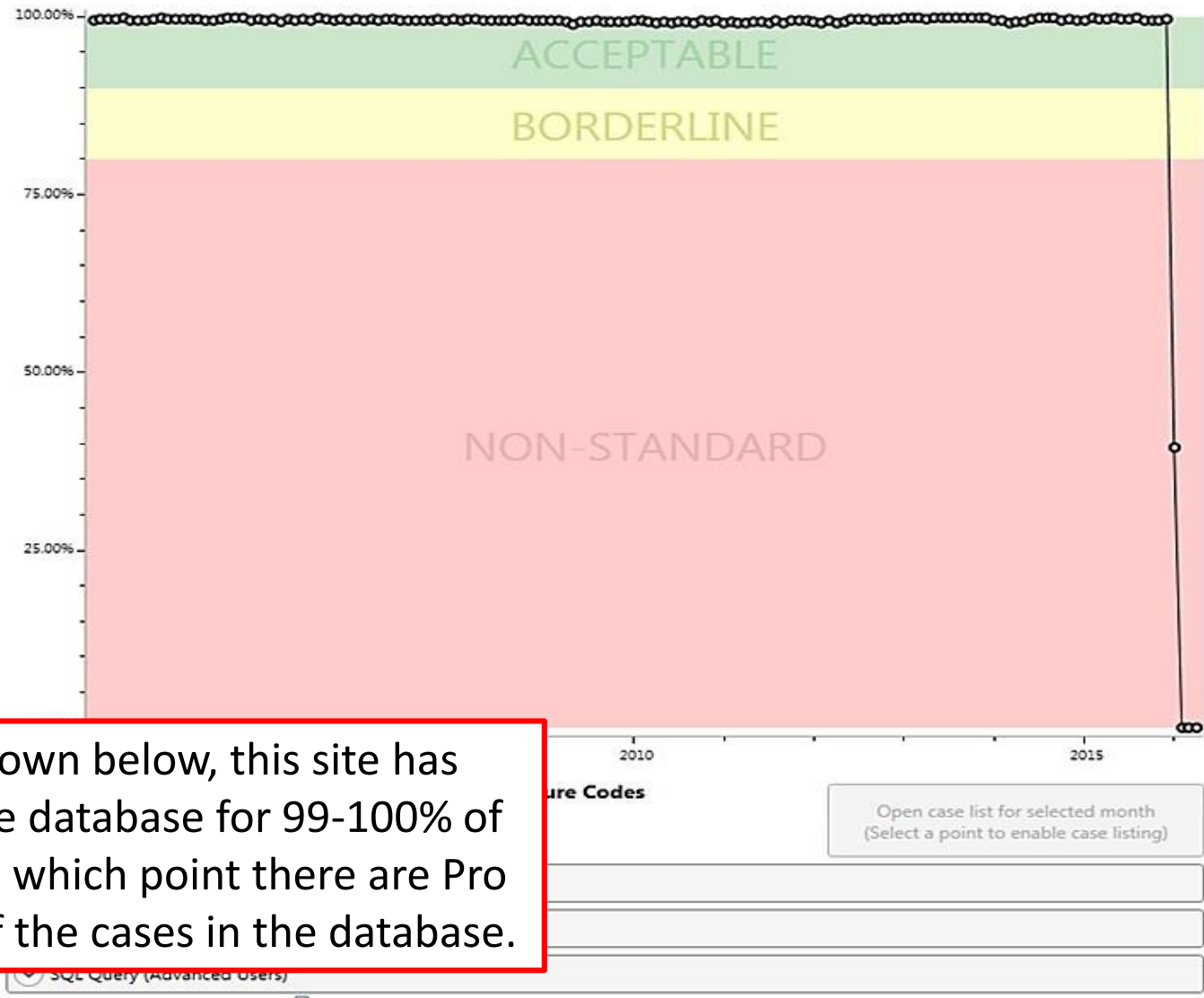
Pro Fee Diagnoses Diagnoses High Priority ☒

Cases with Fluids Fluids High Priority ☒

Hospital Discharge Procedures Procedures High Priority ☒

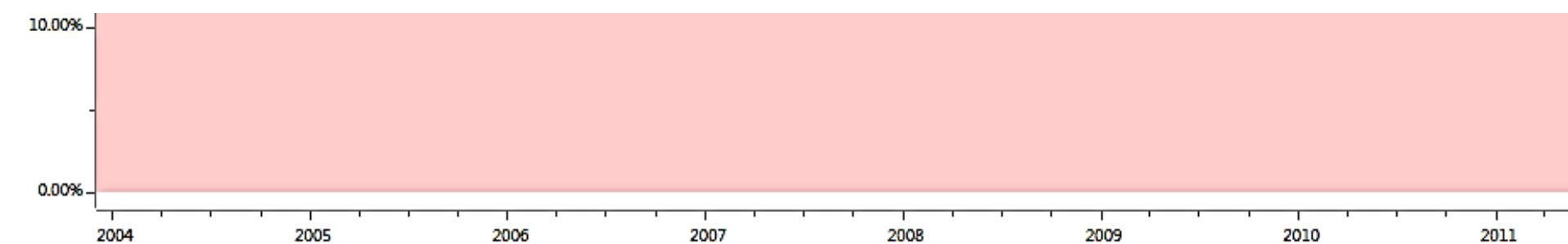
Non-Orphaned Locations Medium Priority ☒

Postop Labs Exist ☒



According to the diagnostic shown below, this site has Pro Fee Procedure codes in the database for 99-100% of cases through January 2016 at which point there are Pro Fee Procedure codes for 0% of the cases in the database.

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



**Percentage of Cases with Hospital Discharge Procedure Codes**

Priority: [Required](#)  
Diagnostic Executed On: 4/14/2016

☒ Description

☐ Attestation

☐ SQL Query (Advanced Users)

- 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

- 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

- In the Attestation section, the site Anesthesia Clinical Quality Reviewer (ACQR) or Quality Champion has the opportunity to review the diagnostic and determine if the data accurately represents the documentation present at the site (either in the EHR or billing software).

# 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 the following weekend, the current attestation will move to the Previous Attestation box on right side of the screen with an associated date



# Attestation

- For the purpose of this example (slide 9), “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

03/02/16 Data Accurately Represented

02/19/16 Data Not Accurately Represented

01/18/16 Data Not Accurately Represented

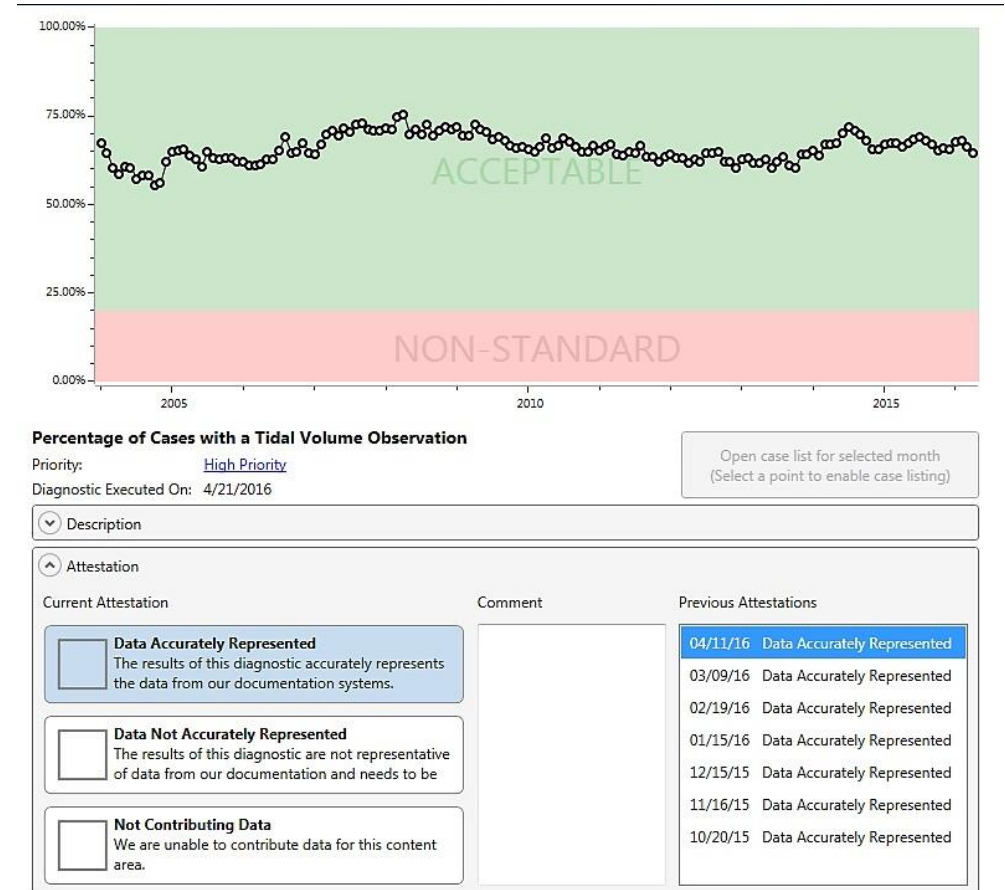
12/14/15 Data Not Accurately Represented

10/21/15 Data Accurately Represented

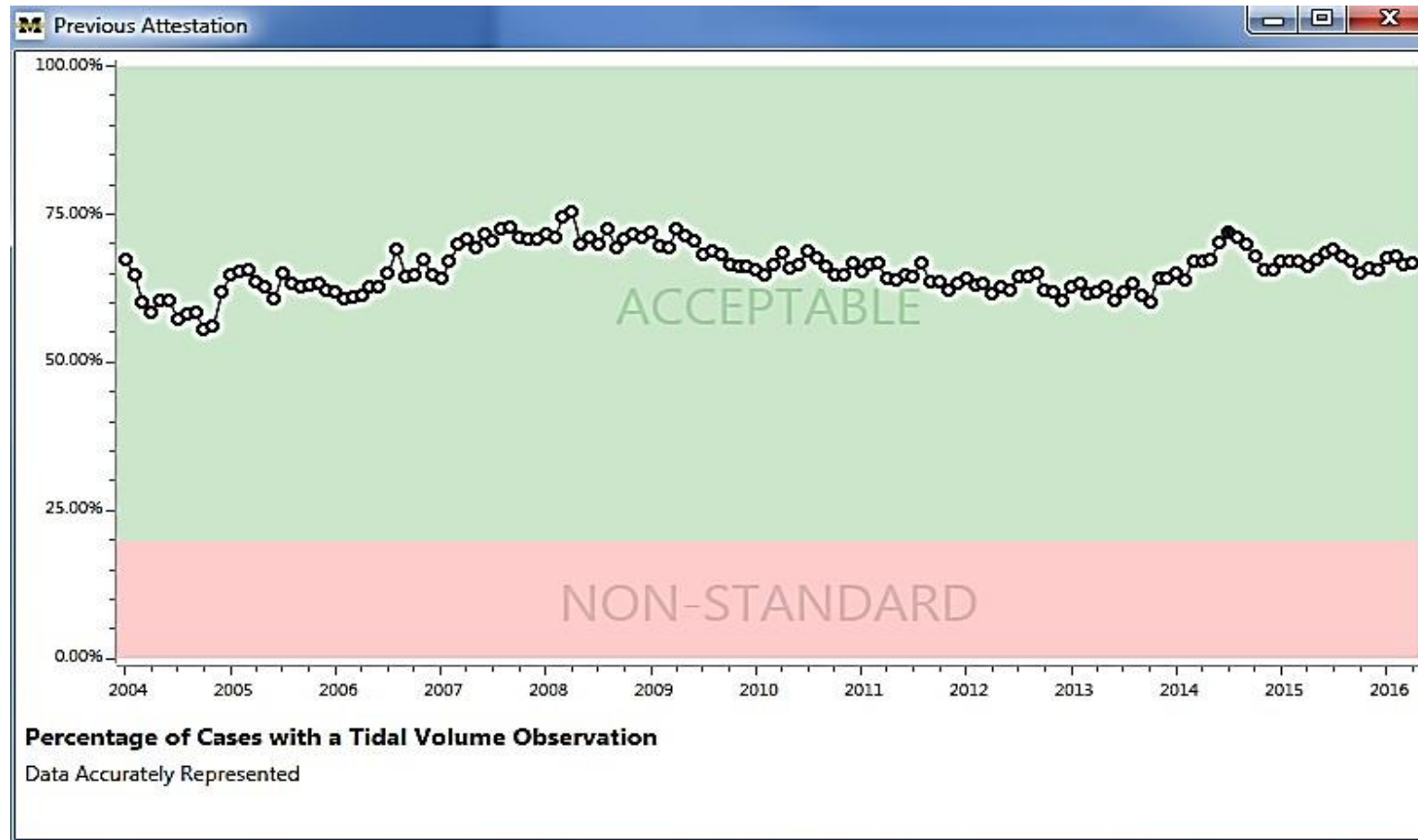
09/23/15 Data Not Accurately Represented

# 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

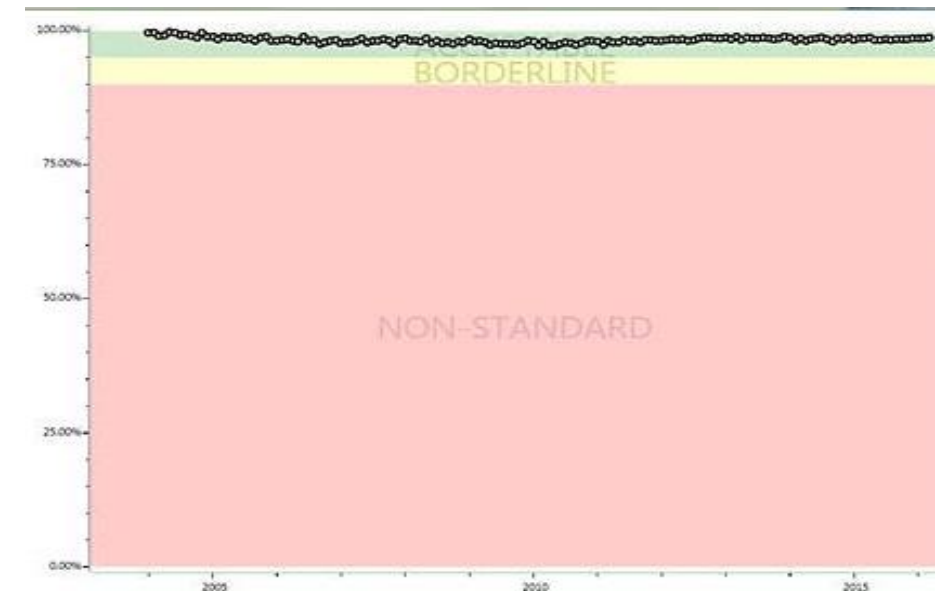


- Previous attestation graph will display in a new window



# Investigating Diagnostics

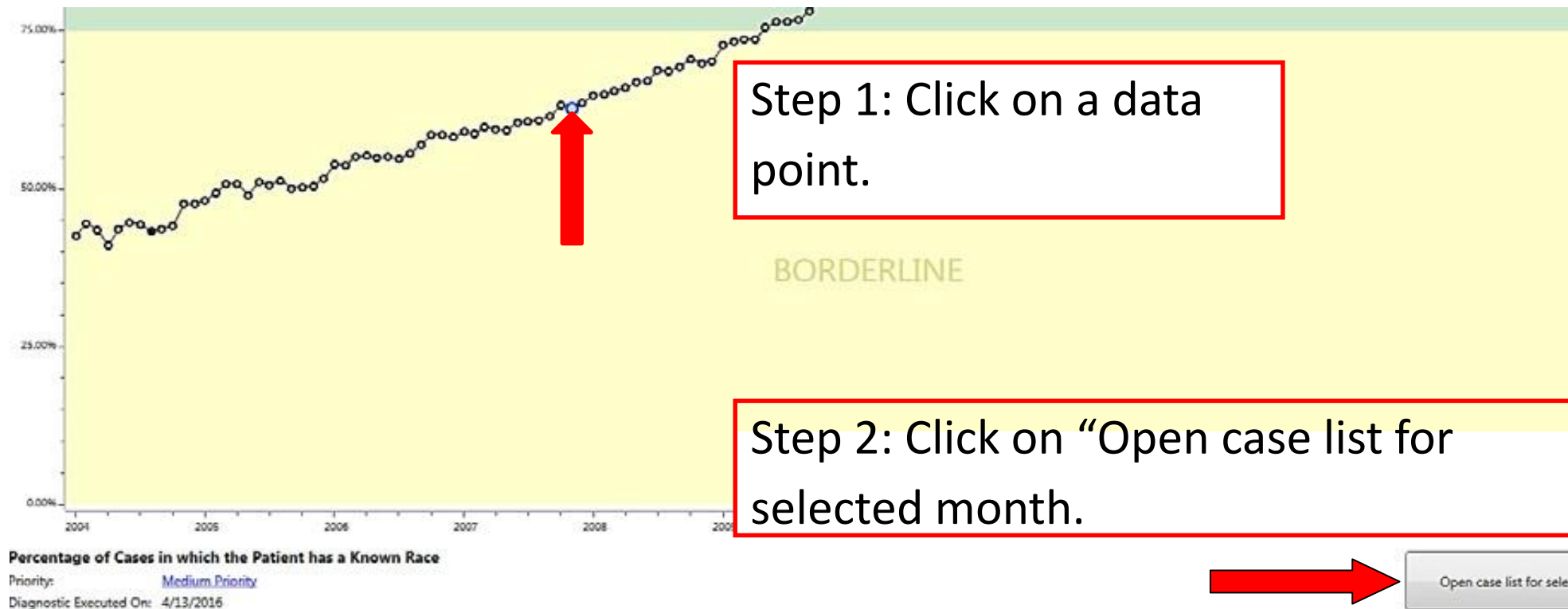
- If data is not accurately represented (gaps in the data or values are higher or lower than expected)
- Thresholds for many of the diagnostics are reflective of common practice across many sites
  - Acceptable (green)
  - Borderline (yellow)
  - Non-standard (red)



# 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.



- 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

### Percentage of Cases in which the Patient has a Known Race

The selection has 4,082 cases available

MPOG Case ID	Has Race?
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	No
	Yes
	Yes
	Yes
	No
	Yes
	Yes
	Yes
	No
	Yes
	Yes
	Yes

Step 1: Highlight the row for case to review

Step 2: Select "Open Case" to open in Case Viewer

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
- By drilling down in to cases, it may be possible to determine if a mapping issue exists.
- Contact the QI Coordinators to identify next steps to improving the data quality.

### Percentage of Cases with a PEEP Observation

The selection has 226 cases available

Procedure	Date	Has PEEP?	
THYROIDECTOMY, TOTAL THYROIDECTOMY POSSIBLE PARTIAL STERNOTOMY WITH RLN MONITORING	05-01-2014 08:30	Yes	
THYROIDECTOMY, TOTAL THYROIDECTOMY POSSIBLE PARTIAL STERNOTOMY WITH RLN MONITORING			
THYROIDECTOMY, TOTAL THYROIDECTOMY POSSIBLE PARTIAL STERNOTOMY WITH RLN MONITORING			
THY			
LAPAROSCOPIC PROSTATECTOMY WITH DAVINCI, POSSIBLE RADICAL RETROPUBIC PROSTATECTOMY	05-01-2014 08:30	Yes	
RADICAL RETROPUBIC PROSTATECTOMY, POSSIBLE RADICAL RETROPUBIC PROSTATECTOMY			
IR NEUROLOGICAL EMBOLIZATION, IR NEURO Left ICA aneurysm	05-01-2014 08:30	Yes	
Endovascular occlusion			
AAA ENDO, EVAR	05-01-2014 08:30	Yes	
COLONOSCOPY, POSSIBLE BIOPSY, COLONOSCOPY, POSSIBLE BIOPSY	05-01-2014 09:30	No	
CYSTOSCOPY - RETROGRADE, CYSTOSCOPY - RETROGRADE PG	05-01-2014 10:30	No	
URETERAL STENT PLACEMENT, CYSTOSCOPY - RETROGRADE PG			
ECCE IOL, RIGHT POSSIBLE PARS PLANA CAPSULOTOMY- HAVE OCUTOME LEAVE UNOPENED	05-01-2014 10:30	Yes	
POSTERIOR CAPSULOTOMY, RIGHT POSSIBLE PARS PLANA CAPSULOTOMY- HAVE OCUTOME LEAVE UNOPENED			

Open Case

Cancel



# 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 Pories

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

The screenshot displays the 'MPOG Data Diagnostics' interface. At the top, there are dropdown menus for 'Institution' and 'Module' (set to '(All)'). Below these are three columns of checkboxes for filtering diagnostics: 'By Priority' (Required (13), High (39), Medium (24), Low (8), Extraneous (32)), 'By Result' (Failed (18), Warning (7), Passed (40), N/A (51)), and 'By Attestation Status' (Accurate (0), Not Accurate (0), Not Contributing (0), Missing (116)). The main section lists several diagnostics with their priority and status:

Diagnostics	Priority	Status
Medication Route Mapping Medications	High Priority	! (Warning)
Known Patient Race Patients	Medium Priority	! (Warning)
Diagnosis Text Fill Rate Cases	Low Priority	! (Warning)
Fluid Route Mapping Fluids	Low Priority	! (Warning)
Cases with Bolus Meds Medications	Required	✓ (Passed)
Cases with Notes Notes	Required	✓ (Passed)

# 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' window. At the top, there are dropdowns for 'Institution' and 'Module' (set to '(All)'). Below these are three filter sections: 'By Priority' (with checkboxes for Required (13), High (39), Medium (24), Low (8), and Extraneous (32)), 'By Result' (with checkboxes for Failed (18), Warning (7), Passed (40), and N/A (51)), and 'By Attestation Status' (with checkboxes for Accurate (0), Not Accurate (0), Not Contributing (0), and Missing (116)). The main area displays a list of diagnostics, each with a title, a description, a priority level, and a status icon. The first four diagnostics (Medication Route Mapping, Known Patient Race, Diagnosis Text Fill Rate, and Fluid Route Mapping) are yellow and marked as 'High Priority', 'Medium Priority', 'Low Priority', and 'Low Priority' respectively, with exclamation mark icons. The last two (Cases with Bolus Meds and Cases with Notes) are green and marked as 'Required', with checkmark icons.

Diagnostic Title	Description	Priority	Status
Medication Route Mapping	Medications	High Priority	Warning
Known Patient Race	Patients	Medium Priority	Warning
Diagnosis Text Fill Rate	Cases	Low Priority	Warning
Fluid Route Mapping	Fluids	Low Priority	Warning
Cases with Bolus Meds	Medications	Required	Complete
Cases with Notes	Notes	Required	Complete

# Filtering Diagnostics

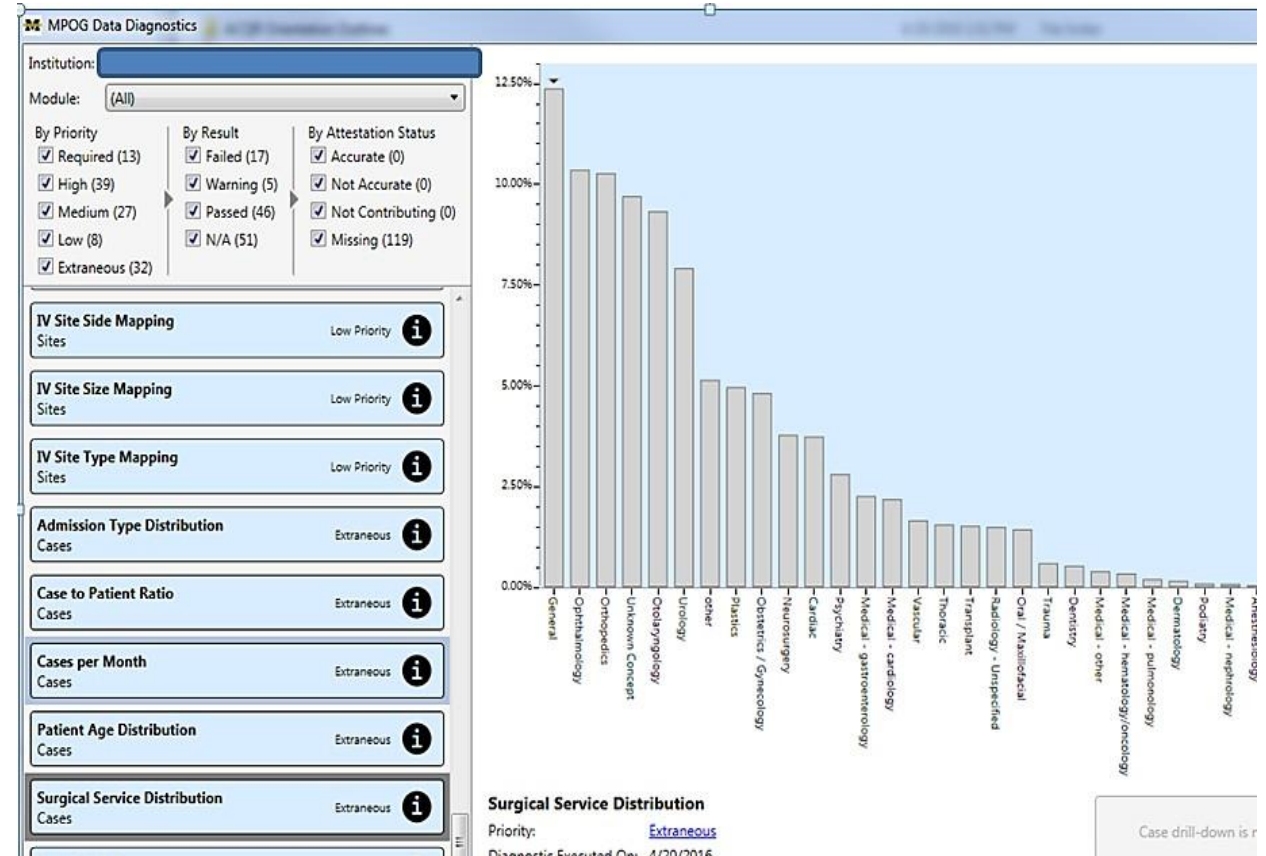
- Filters can be applied by Priority, Result, or Attestation Type. Filtering allows the user to limit the number of diagnostics listed and improve the selection process for tailored and purposeful review of the data.

Module: (All) ▼

By Priority	By Result	By Attestation Status
<input checked="" type="checkbox"/> Required (13)	<input checked="" type="checkbox"/> Failed (6)	<input checked="" type="checkbox"/> Accurate (0)
<input checked="" type="checkbox"/> High (39)	<input checked="" type="checkbox"/> Warning (2)	<input checked="" type="checkbox"/> Not Accurate (0)
<input type="checkbox"/> Medium (27)	<input checked="" type="checkbox"/> Passed (34)	<input checked="" type="checkbox"/> Not Contributing (0)
<input type="checkbox"/> Low (8)	<input checked="" type="checkbox"/> N/A (10)	<input checked="" type="checkbox"/> Missing (52)
<input type="checkbox"/> Extraneous (32)		

# Extraneous

- Extraneous diagnostics are blue diagnostics and indicate that thresholds do not exist because every site differs in terms of case mix and patient population.
- It is important to verify that the diagnostic reflects your site case mix, population, practice, and distribution.



# 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 one of the QI Coordinators. This report does not contain PHI, and can be sent through email.

Institution:

Module: (All)

By Priority

- ☒ High (56)
- ☒ Medium (22)
- ☒ Low (4)
- ☐ Extraneous (25)

By Result

- ☒ Failed (8)
- ☒ Warning (4)
- ☒ Passed (49)
- ☒ N/A (21)

**Hospital Discharge Diagnoses** High Priority X

Billing

**Hospital Discharge Multi-Day** High Priority X

Billing

**Pro Fee Diagnoses** High Priority X

Billing

**Cases with Fluids** High Priority X

Fluids

**PEEP** High Priority X

Measures

**Blood Loss** Medium Priority X

Fluids

**Postoperative Troponin** Medium Priority X

Labs

**Hospital Discharge Procedures** Low Priority X

Billing

**Surgical Service Mapping** High Priority !

Cases

**Known Patient Race** Medium Priority !

Patients

**Export Results**



# Exporting Diagnostics

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