



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.

MPOG Data Diagnostics

Institution: University of Michigan Health System

Module: (All)

By Priority

High (6)

Medium

Low (5)

Extraneous

Hospital Billing

Pro Fee Billing

Cases with Fluids

Billing

Cases

Fluids

Labs

Measures

Medications

Notes

Outcomes

Patients

Physiologic

Preop

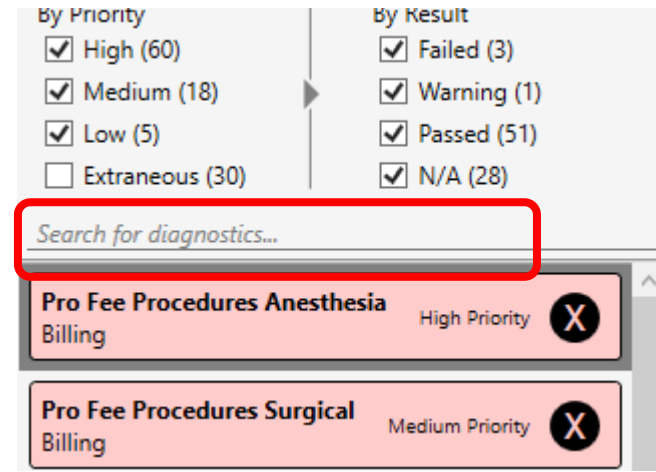
Staff

Use these settings to filter the list of diagnostics

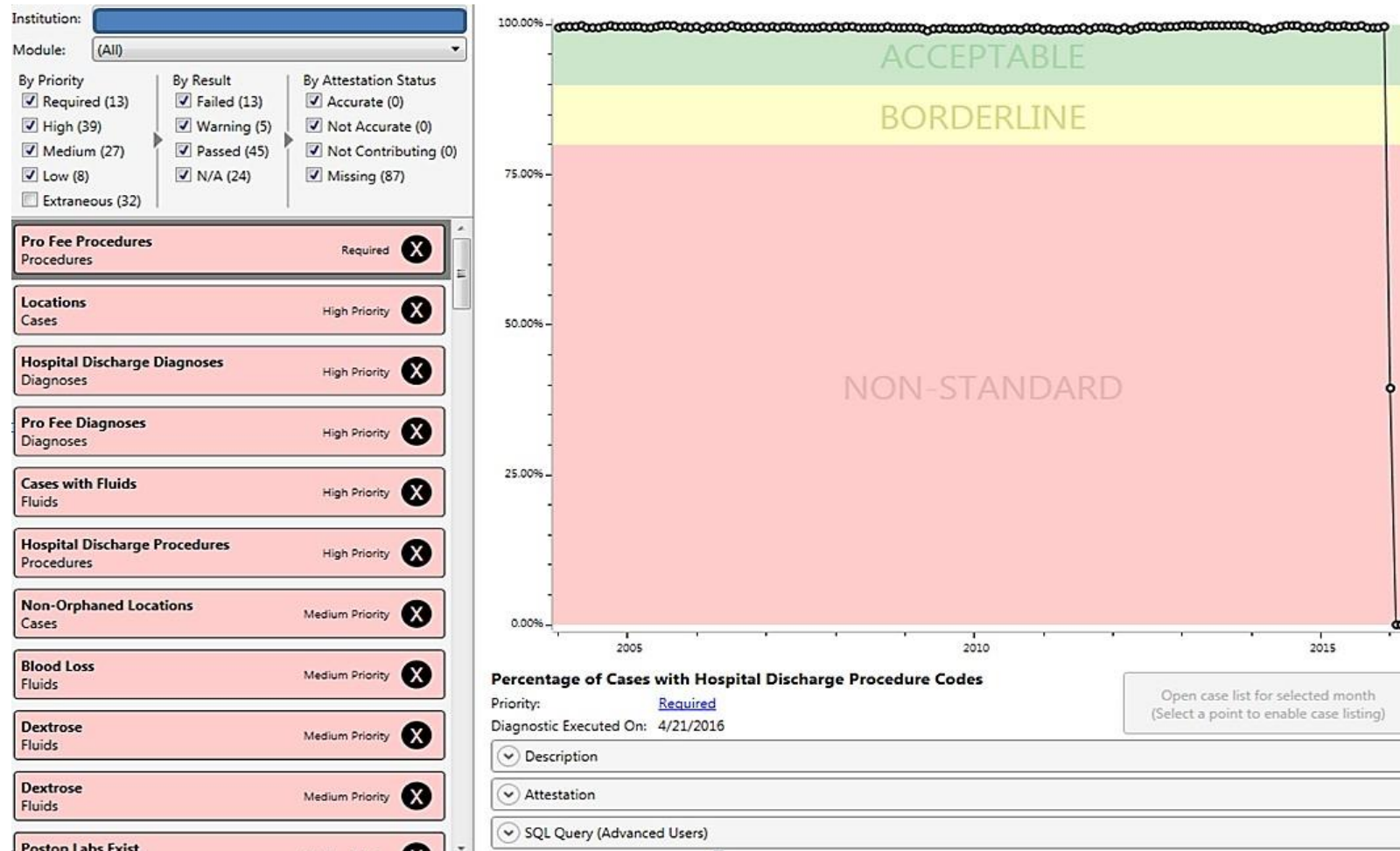
Click on a diagnostic to view its results

Diagnostic Search

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



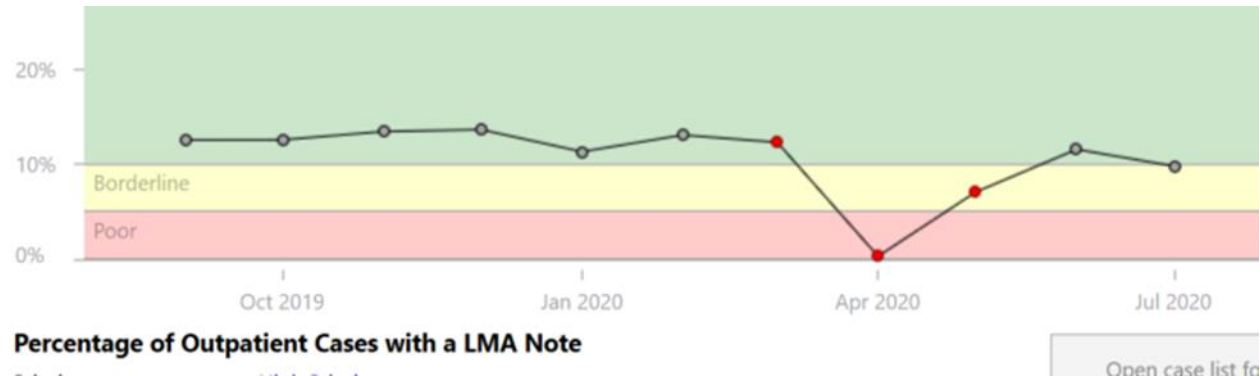
Click on the name of the Data Diagnostic in the left column to display the graphical results on the right.



- 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

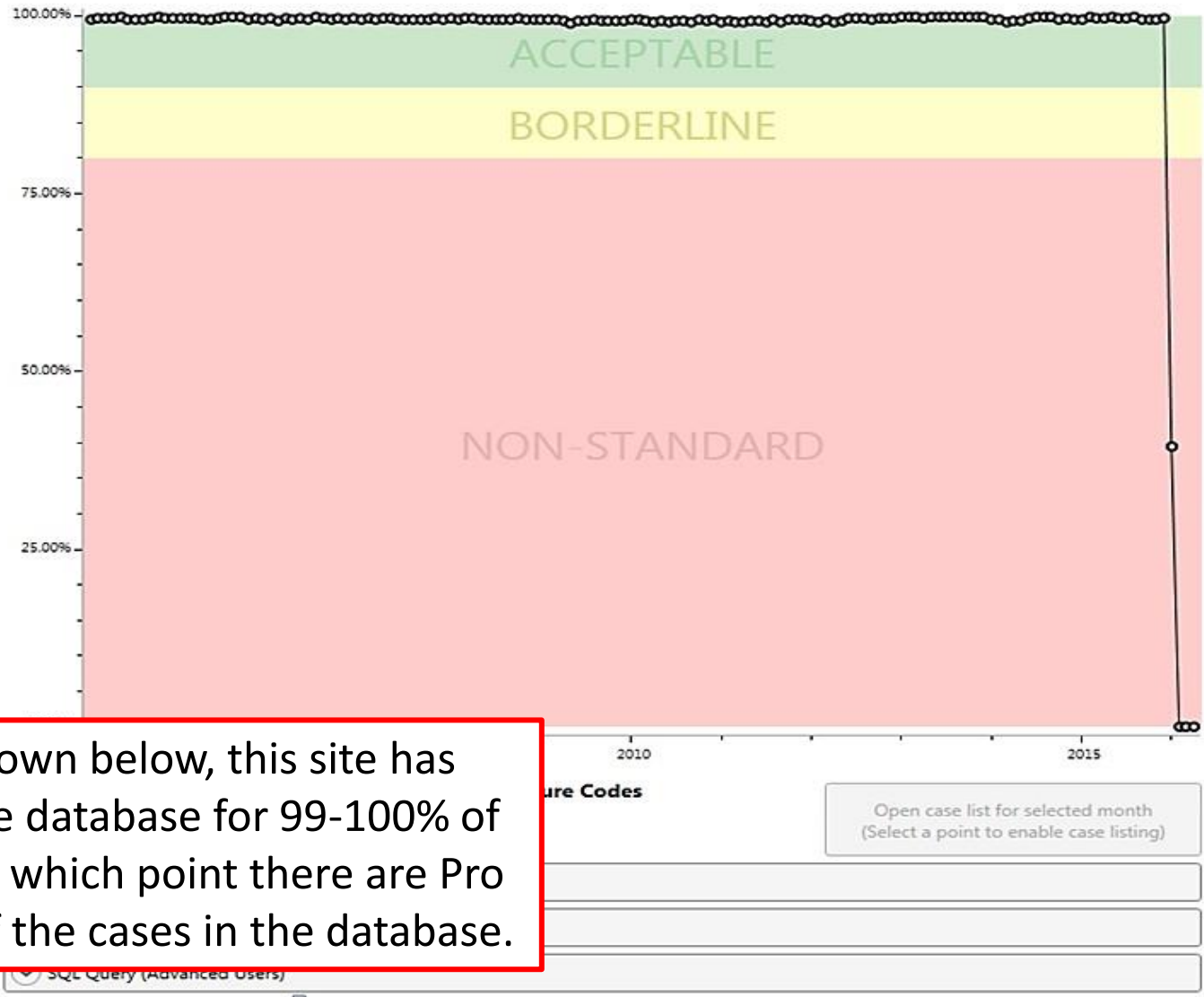
Pro Fee Diagnoses Diagnoses High Priority

Cases with Fluids Fluids High Priority

Hospital Discharge Procedures Procedures High Priority

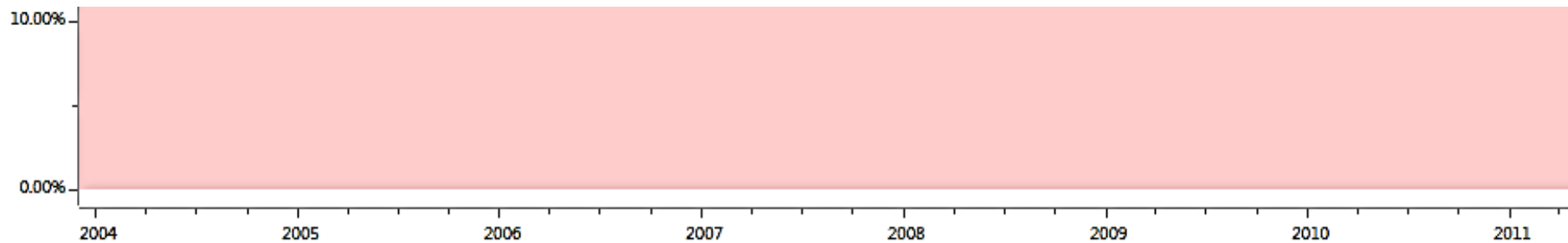
Non-Orphaned Locations Medium Priority

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 | Comment | Previous Attestations |
|---|---------|--|
| <input type="checkbox"/> Data Accurately Represented The results of this diagnostic accurately represents the data from our documentation systems. | | 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 |
| <input type="checkbox"/> Data Not Accurately Represented The results of this diagnostic are not representative of data from our documentation and needs to be | | |
| <input type="checkbox"/> Not Contributing Data We are unable to contribute data for this content area. | | |

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 (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.

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

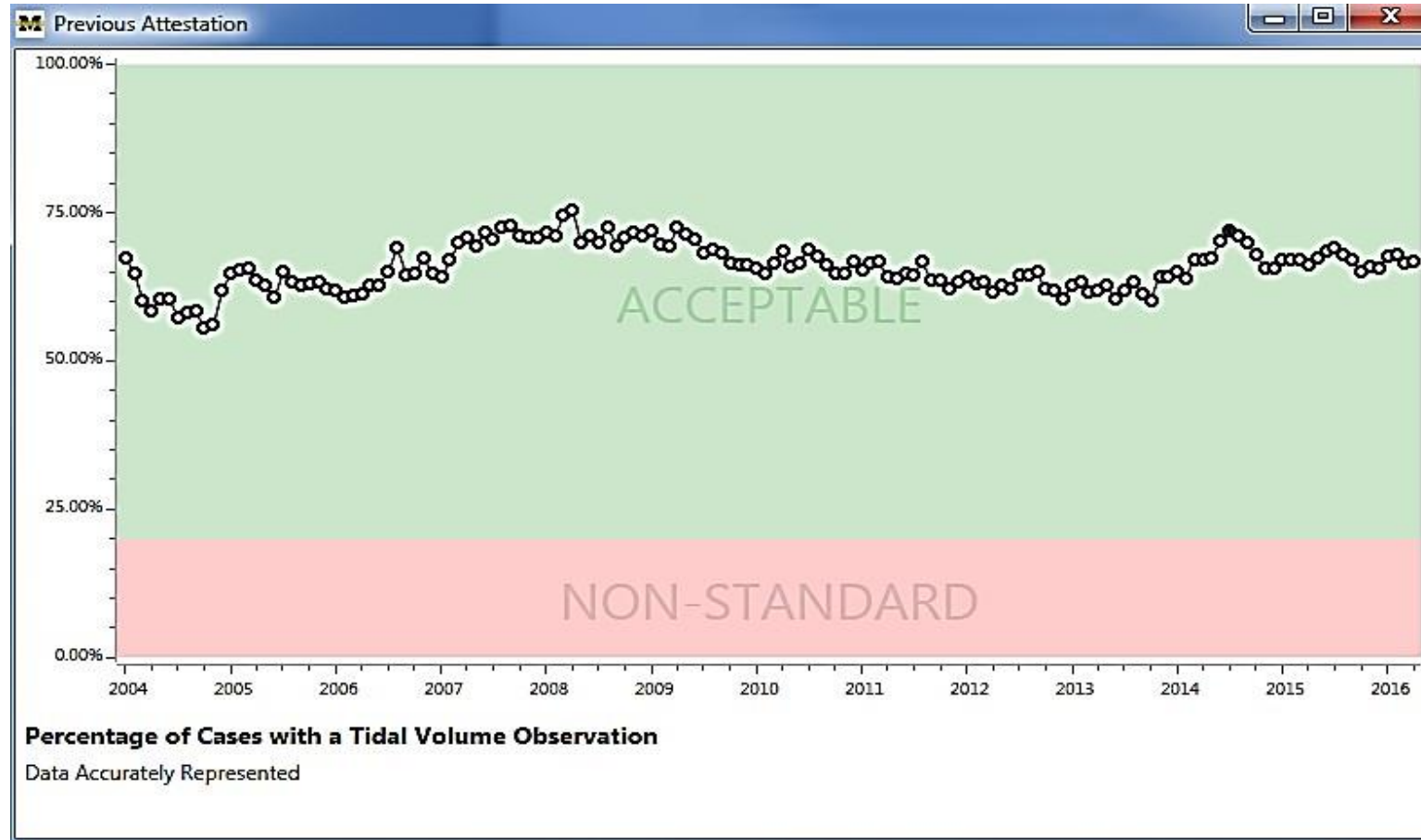
| Current Attestation | Comment | Previous Attestations |
|---|---------|--|
| <input checked="" type="checkbox"/> Data Accurately Represented The results of this diagnostic accurately represents the data from our documentation systems. | | 04/11/16 Data Accurately Represented 03/02/16 Data Accurately 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 |
| <input type="checkbox"/> Data Not Accurately Represented The results of this diagnostic are not representative of data from our documentation and needs to be | | |
| <input type="checkbox"/> Not Contributing Data We are unable to contribute data for this content area. | | |

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

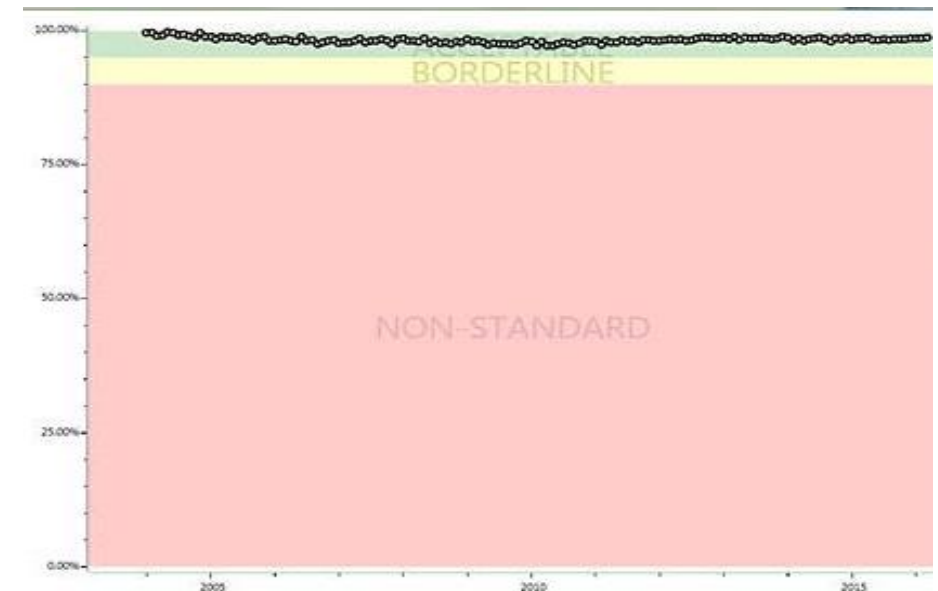


- Previous attestation graph will display in a new window



Investigating Diagnostics

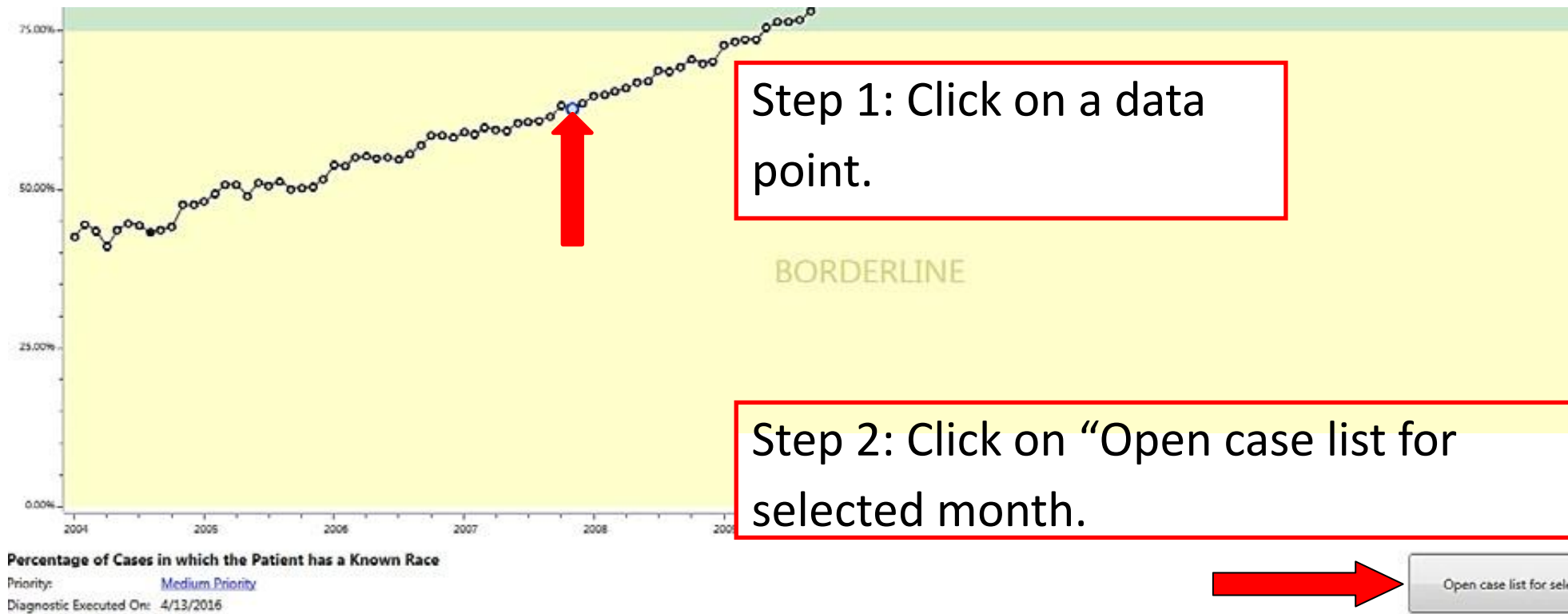
- If data is not accurately represented (gaps in the data or values are higher or lower than expected)
- Thresholds for many of the diagnostics are reflective of common practice across man sites
 - Acceptable (green)
 - Borderline (yellow)
 - Non-standard (red)



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 |
| | No |
| | Yes |
| | Yes |
| | Yes |

Open Case Cancel

Step 1: Highlight row for case to review.

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



- 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 | 05-01-2014 08:30 | Yes | |
| THYROIDECTOMY, TOTAL THYROIDECTOMY POSSIBLE PARTIAL STERNOTOMY WITH RLN MONITORING | 05-01-2014 08:30 | Yes | |
| LAPAROSCOPIC PROSTATECTOMY WITH DAVINCI, POSSIBLE RADICAL RETROPUBIC PROSTATECTOMY | 05-01-2014 08:30 | Yes | |
| RADICAL RETROPUBIC PROSTATECTOMY, POSSIBLE RADICAL RETROPUBIC PROSTATECTOMY | 05-01-2014 08:30 | Yes | |
| IR NEUROLOGICAL EMBOLIZATION, IR NEURO Left ICA aneurysm Endovascular occlusion | 05-01-2014 08:30 | Yes | |
| 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 URETERAL STENT PLACEMENT, CYSTOSCOPY - RETROGRADE PG | 05-01-2014 10:30 | No | |
| 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 | 05-01-2014 10:30 | Yes | |

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

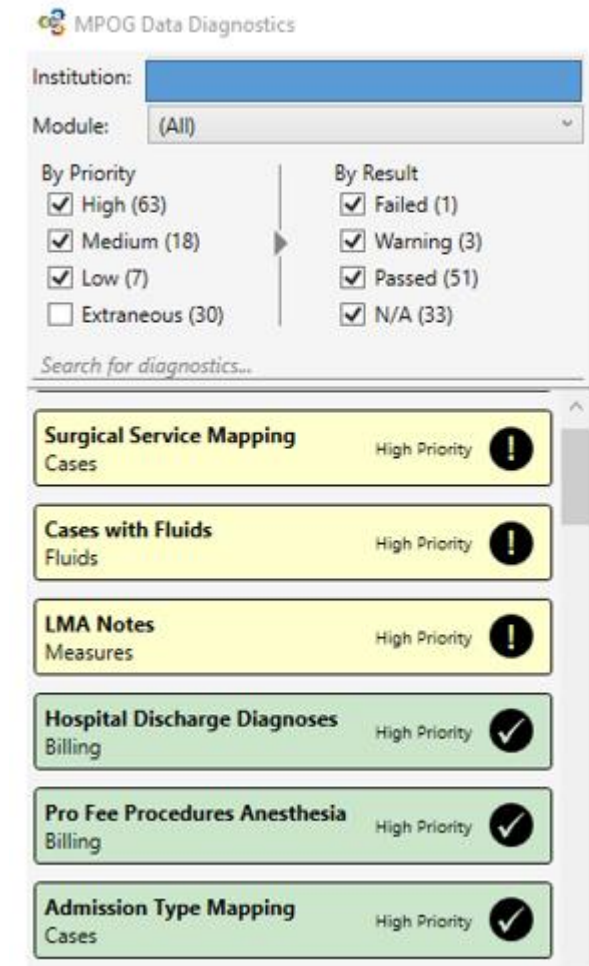
▲ Attestation

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: [Redacted]
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 blue input field) and 'Module' (a dropdown menu set to '(All)'). Below these are two columns of checkboxes for filtering: '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)'. Below the filters is a search bar labeled 'Search for diagnostics...'. The main area displays a list of diagnostics, each with a title, a priority level, and an icon. The first three items are highlighted in yellow and have an exclamation mark icon: 'Surgical Service Mapping Cases' (High Priority), 'Cases with Fluids Fluids' (High Priority), and 'LMA Notes Measures' (High Priority). The next three items are highlighted in green and have a checkmark icon: 'Hospital Discharge Diagnoses Billing' (High Priority), 'Pro Fee Procedures Anesthesia Billing' (High Priority), and 'Admission Type Mapping Cases' (High Priority).

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.

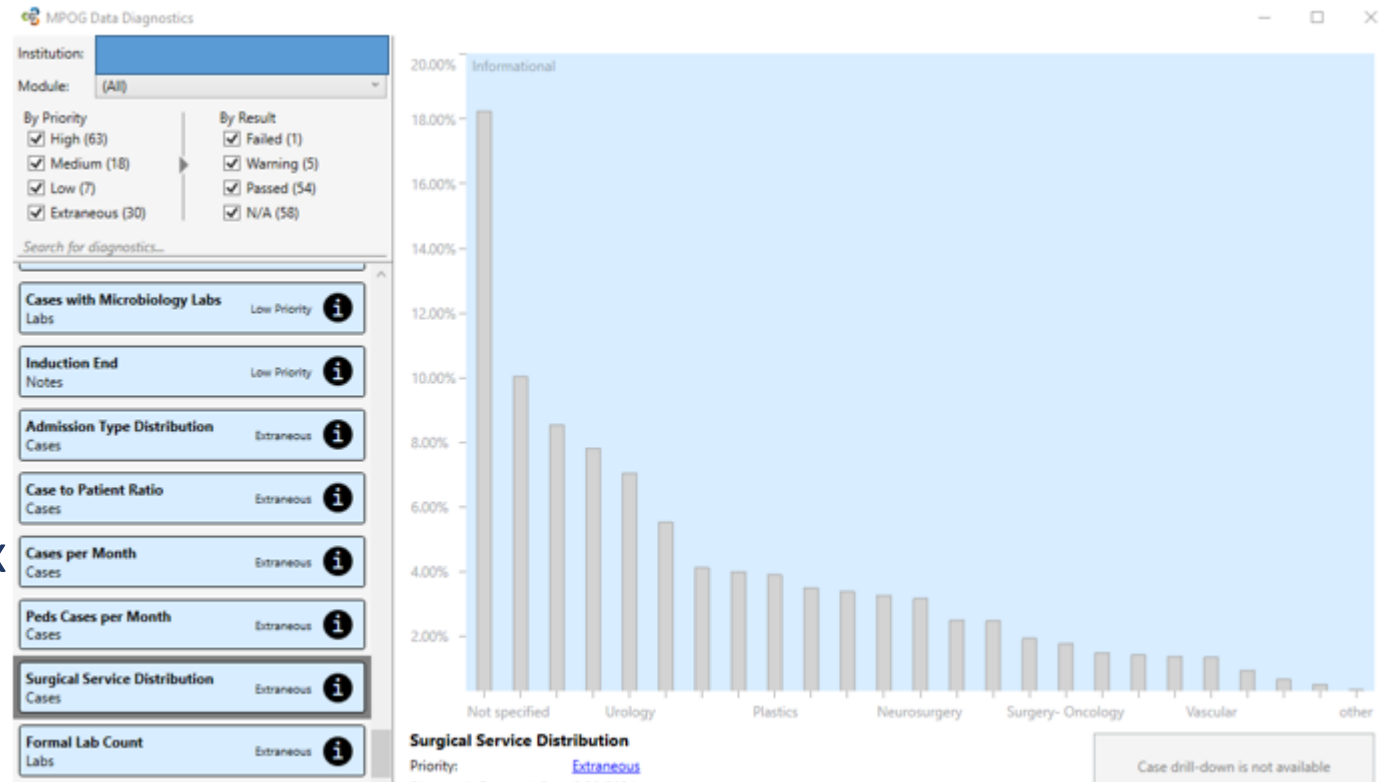
Module: (All) ▾

| By Priority | By Result |
|---|---|
| <input checked="" type="checkbox"/> High (63) | <input checked="" type="checkbox"/> Failed (1) |
| <input checked="" type="checkbox"/> Medium (18) | <input checked="" type="checkbox"/> Warning (3) |
| <input checked="" type="checkbox"/> Low (7) | <input checked="" type="checkbox"/> Passed (51) |
| <input type="checkbox"/> Extraneous (30) | <input checked="" type="checkbox"/> N/A (33) |

Search for diagnostics...

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

Institution: [Redacted]
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** Billing High Priority X
- Hospital Discharge Multi-Day** Billing High Priority X
- Pro Fee Diagnoses** Billing High Priority X
- Cases with Fluids** Fluids High Priority X
- PEEP** Measures High Priority X
- Blood Loss** Fluids Medium Priority X
- Postoperative Troponin** Labs Medium Priority X
- Hospital Discharge Procedures** Billing Low Priority X
- Surgical Service Mapping** Cases High Priority !
- Known Patient Race** Patients Medium Priority !

Export Results

Exporting Diagnostics

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