

Second Annual ACQR Retreat Ann Arbor, Michigan

September 21, 2018



General Housekeeping

- Please help yourself to breakfast and a beverage from Panera Bread
- Bathrooms are located down the hall:
 - Follow the signs
 - Please take a break when needed
- Coffee/tea will be provided throughout the day.
- Soda & Water is stocked in the refrigerator
- Lunch from Jerusalem Garden

Morning Agenda

- Introductions/Announcements
- 2019 P4P Cards for all Sites
- MPOG Application Suite Upgrades
- Data Cleaning Tools
- Quality Improvement Stories
 - Bronson Healthcare Group
 - Beaumont Grosse Pointe
 - Holland Hospital
 - SJ Oakland

INTRODUCTIONS

Hello
my name is



Announcements

➤ Welcome to our Newest ACQRs!

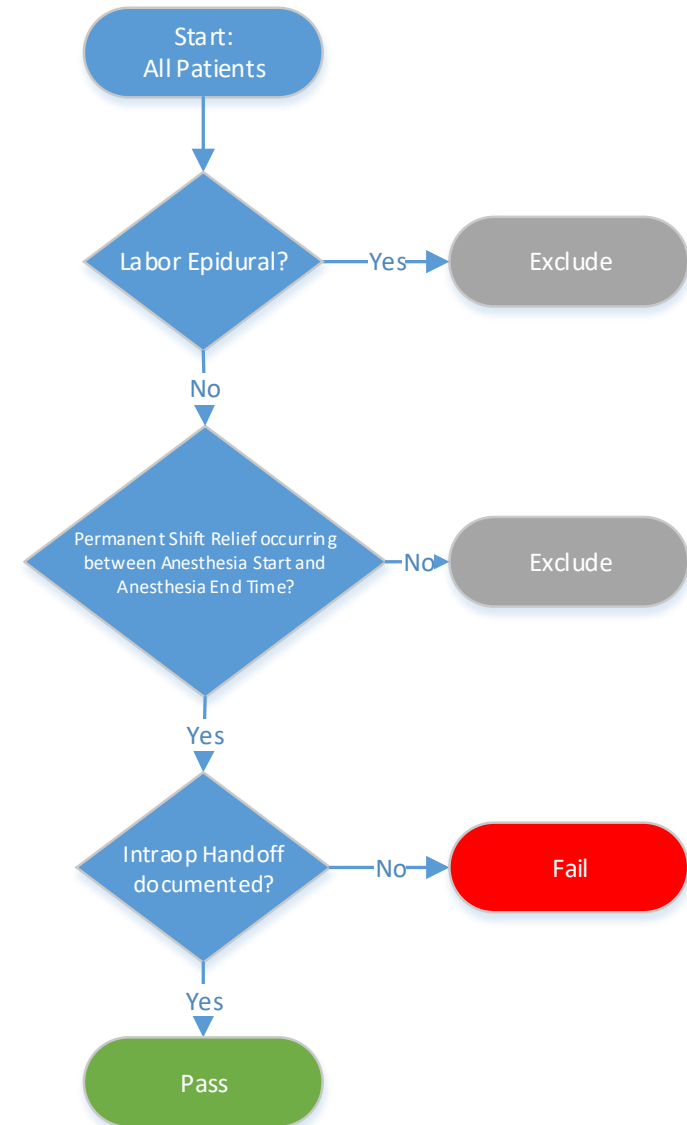
➤ Import Manager Conversion

➤ MPOG Retreat in October

- Achieving the Promise of Digital Health; Dr. Robert Wachter from University of California San Francisco;
- The Celebrated Call of the P Value: Time for a New paradigm; Dr. Elizabeth Whitlock from University of California San Francisco
- Best of MPOG Abstracts
- MPOG QI Update, Dr. Shah from ASPIRE

TOC – 01 Coming Soon!

- **Success:** Documentation of intraoperative transfer of care report in the electronic anesthesia record; 5 minutes before to 5 minutes after the staff change
- Only permanent relief (not lunch/coffee/bio breaks)
 - A permanent handoff is defined as:
 - Staff relief for >40 minutes between staff change and Anesthesia End or,
 - Staff change in which the original provider is relieved and does not sign back into the case.
- What do we measure?
 - Only in-room anesthesia provider handoffs (not supervising provider handoffs)
- Responsible provider
 - Both incoming and outgoing providers attributed



2019 P4P Scorecard

New this year:

- Cross Cohort Measure: PUL 02
- TOC 02 PACU Handoff Audits (MQUARK)
- Monthly ACQR/QI Champion Meeting removed

2019 ASPIRE Collaborative Quality Initiative Performance Index Scorecard			
Cohort 1 - 4			
Measurement Period: 01/01/2019 - 12/31/2019			
Measure #	Weight	Measure Description	Points
1	10%	Collaborative Meeting Participation: ASPIRE Quality Champion and Anesthesiology Clinical Quality Reviewer (ACQR)	
		Perfect or Nearly Perfect Attendance at Meetings	10
		Good Attendance at Meetings	5
		Attendance Needs Improvement at Meetings	0
2	5%	Attend Webex ASPIRE Quality Committee Meetings (6 Meetings)	
		6 Meetings	5
		5 or less Meetings	0
3	5%	ACQR/ASPIRE Quality Champion perform data validation, case validation and submit data by the third Wednesday of each month for January through November and by the second Wednesday of the month for December	
		10 - 11/12 Months	5
		9 or Less Months	0
4	10%	Site Based Quality Meetings: Sites to hold an onsite meeting following the ASPIRE Collaborative meetings to discuss the data and plans for quality improvement	
		3 Meetings	10
		2 Meetings	5
		1 or less Meetings	0
5	10%	Sites must perform 10 Transfer-of-Care (TOC) Audits on a Monthly Basis	
		11 or 12/12 Months	10
		8 - 10/12 Months	5
		7 or less Months	0
6	10%	Performance Measure: Cross Cohort Measure Pulmonary 02 (PUL 02) - percentage of patients with median tidal volumes less than or equal to 8 ml/kg (cumulative score January 1, 2019 through December 31, 2019)	
		90% of sites above 75%	10
		Collaborative Score Shows Improvement	5
		No Performance Improvement or Decline	0
7	25%	Performance Measure: Transfusion 02 (TRAN 02) - percentage of cases with a post transfusion hemoglobin or hematocrit value less than or equal to 10g/dL or 30% (cumulative score January 1, 2019 through December 31, 2019)	
		Performance is > 85%	25
		Performance is 75 - 85%	15
		Any Improvement	10
		No performance Improvement or Decline	0
8	25%	Site Directed Measure: Sites choose a measure they are performing below national ASPIRE threshold by December 15, 2018 (cumulative score January 1, 2019 through December 31, 2019)	
		Performance is > 90%	25
		Performance is 80 - 90%	15
		Any Improvement	10
		No performance improvement / Below 75%	0

MPOG Application Suite: Upgrades & Changes

➤ MPOG Case Viewer

- Measure case details are now included in the upper left corner of web version of Case Viewer

➤ Case Validation

- Ability to review previous case validations

➤ Data Diagnostics

- Can export all diagnostics as an HTML file

➤ Import Manager Variable Mapping

- Ability to search for concepts by ID number
- Can export all mappings as Excel file
- 'Room Type' and 'Unit of Measurement (Labs)' mapping types will be hidden

➤ Number of backend changes to fix bugs and improve performance

➤ Import Manager Assistant

➤ NSQIP Import modified to accept new file format



MPOG Case Viewer Enhancement

Failed Cases

View Case	Date of Service	Operating Room	Procedure	NMB-01 Result Reason	Attributable Attendings	Attributable CRNA/Resident	MPOG Case ID
View Case			RIGHT ORIF SUPRACONDYLAR/DISTAL FEMUR FRACTUR RIGHT BONE GRAFT	Train of Four Taken: Train of four not rechecked after last NMB administration			

▼ NMB01 Details

Valid Anesthesia Duration	Yes	Included
ASA Class	3	Included
Cardiac Case	No	Included
Extubation	Earliest extubation at 6:16 PM	Included
NMBs Administered	Yes	Included
Provider Signed in at Extubation	Yes	Included
Train of Four Taken	Train of four not rechecked after last NMB administration	Failed

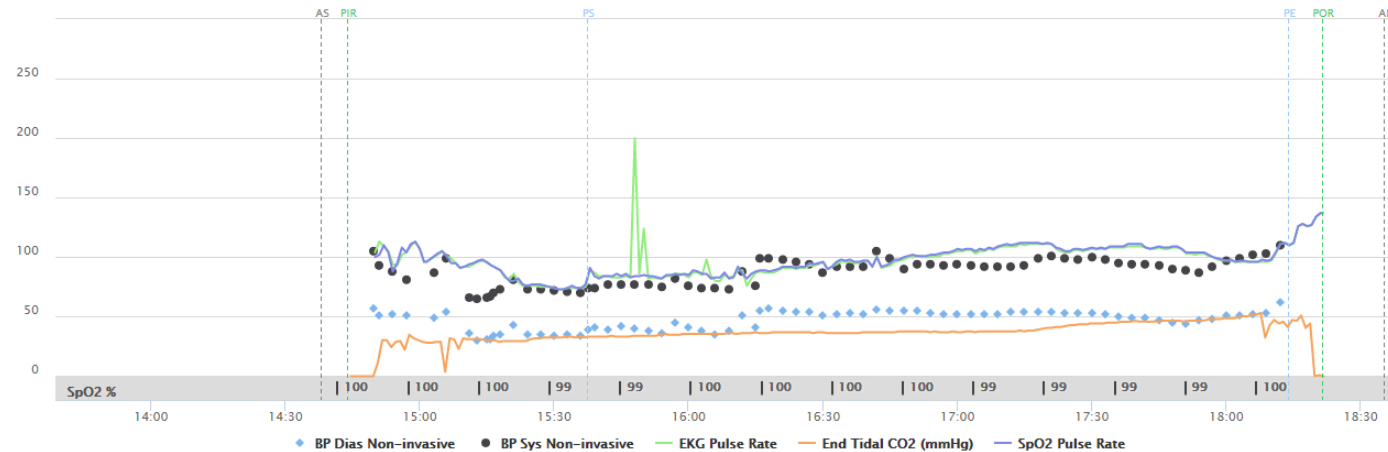
-- Additional Information --

NMB Administration	Cisatracurium administered at 2:51 PM
Train of Four	TOF of 4 at 3:30 PM
NMB Administration	Cisatracurium administered at 3:35 PM
NMB Administration	Cisatracurium administered at 4:25 PM

📄 Intraop Notes

Time	Note
01:16	Patient in Facility
13:42	Assigned PreOp

▼ Cardiovascular



➤ Ventilator

➤ Neuromuscular blockade

➤ Glucose management

➤ Prophylaxis

MPOG Application Suite Upgrade: Case Validation

- Case Validation: Ability to review previous validations

The screenshot shows the 'Case Valiation' application window. It features four radio button options for selecting cases: 'Pick case by MRN and date', 'Pick case by case ID', 'Pick random unreviewed case', and 'Pick already reviewed case'. The 'Pick case by MRN and date' option is selected. Below this, there are input fields for 'Patient MRN' and 'Date of Operation' (set to 9/20/2018). The 'Pick case by case ID' option has an input field for 'MPOG Case ID' containing a long alphanumeric string. The 'Pick random unreviewed case' option has dropdowns for 'Time Period' (09/01/2018) and 'Service Type' (Any). The 'Pick already reviewed case' option has a dropdown for 'Reviewed Cases'. A 'Validate Case' button is at the bottom left. A 'Review Saved Validation' button is at the bottom right, highlighted with a red rectangle. To the right of the form is a table of cases.

Year-Month	Count
2018-09	0 / 20
2018-08	20 / 20
2018-07	20 / 20
2018-06	20 / 20
2018-05	20 / 20
2018-04	20 / 20
2018-03	20 / 20
2018-02	20 / 20
2018-01	20 / 20
2017-12	20 / 20
2017-11	20 / 20
2017-10	20 / 20
2017-09	20 / 20
2017-08	20 / 20

MPOG Application Suite Upgrade: Case Validation

Validation for the month of 03-2018 Hide passing questions

Question	No / Missing	Comment	Date Reviewed	Question	Response	Comment	MPOG Case ID
Admission Type Mapping			04-06-2018 06:49	Was the ASA physical status of the patient 'ASA 2'?	Yes		c52a6c52-6627-e1
Anesthesia Technique: General			04-06-2018 06:52	Was the ASA physical status of the patient 'ASA 3'?	Yes		b2bbc7d3-782e-e1
Anesthesia Technique: Neuraxial			04-06-2018 06:55	Was the ASA physical status of the patient 'ASA 2'?	Yes		0a99a782-9d31-e1
Arterial Line			04-06-2018 06:59	Was the ASA physical status of the patient 'ASA 3E'?	Yes		86407428-0b30-e1
ASA Status			04-06-2018 07:01	Was the ASA physical status of the patient 'ASA 3'?	Yes		372f71da-c129-e1
BP Baseline			04-06-2018 07:04	Was the ASA physical status of the patient 'ASA 3'?	Yes		f0705afb-8023-e1
BP Systolic (Highest)			04-06-2018 07:06	Was the ASA physical status of the patient 'ASA 3'?	Yes		2faae868-2521-e1
BP Systolic (Lowest)			04-06-2018 07:09	Was the ASA physical status of the patient 'ASA 2'?	Yes		76d3c9c7-001e-e1
Fluid Total (intraop)			04-06-2018 07:11	Was the ASA physical status of the patient 'ASA 2'?	Yes		3f715afb-8023-e1
Inhalational Agents			04-06-2018 07:13	Was the ASA physical status of the patient 'ASA 2'?	Yes		fd705afb-8023-e1
Med Total			04-06-2018 07:17	Was the ASA physical status of the patient 'ASA 3'?	Yes		58388f40-4a24-e1
Med Total: Bolus 1			04-06-2018 07:19	Was the ASA physical status of the patient 'ASA 2'?	Yes		7ac844a9-6632-e1
Med Total: Bolus 2			04-06-2018 07:23	Was the ASA physical status of the patient 'ASA 1'?	Yes		6cf682b7-b722-e1
			04-06-2018 09:38	Was the ASA physical status of the patient 'ASA 3'?	Yes		8b515d60-1d2c-e1
			04-06-2018 09:42	Was the ASA physical status of the patient 'ASA 1'?	Yes		f89d7c81-e62c-e1
			04-06-2018 09:46	Was the ASA physical status of the patient 'ASA 3'?	Yes		0c388f40-4a24-e1
			04-06-2018 09:48	Was the ASA physical status of the patient 'ASA 3'?	Yes		94f682b7-b722-e1
			04-06-2018 09:50	Was the ASA physical status of the patient 'ASA 1'?	Yes		16ec4be2-af2d-e1
			04-06-2018 09:53	Was the ASA physical status of the patient 'ASA 2'?	Yes		e9e2f302-d425-e1
			04-06-2018 09:55	Was the ASA physical status of the patient 'ASA 2'?	Yes		85d18c35-9d26-e1

Previous Case Validations

Hide passing questions:

Validation for the month of 12-2017

Hide passing questions

Question	No / Missing	Comment
OR Type	1	
Patient Height	1	1
Preop Weight	1	
Time: Anes Start	1	1
Time: Surgical Incision	1	1

Hide passing questions

Date Reviewed	Question	Response	Comment	MPOG Case ID
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Validation for the month of 12-2017

Hide passing questions

Question	No / Missing	Comment
OR Type	1	
Patient Height	1	1
Preop Weight	1	
Time: Anes Start	1	1
Time: Surgical Incision	1	1

Hide passing questions

Date Reviewed	Question	Response	Comment	MPOG Case ID
01-05-2018 06:40	Was the patient's preoperative height NOT FOUND cm (rounded to the nearest cm)?	Missing	162.6cm	20da1e70-23df-e

Data Diagnostics: Export all diagnostics as HTML file

Institution: University of Michigan Health System

Module: (All)

By Priority

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

By Result

- Failed (8)
- Warning (2)
- Passed (51)
- N/A (21)

Medication Route Mapping Medications High Priority X

Medication Unit Mapping Medications High Priority X

Hospital Mortality Patients High Priority X

Postop Labs Exist Labs Medium Priority X

Postoperative Troponin Labs Medium Priority X

Preop Labs Exist Labs Medium Priority X

Preop/Postop Creatinine Labs Medium Priority X

Hospital Discharge Procedures Billing Low Priority X

Hospital Discharge Diagnoses Billing High Priority !

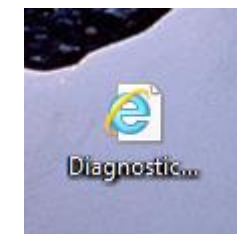
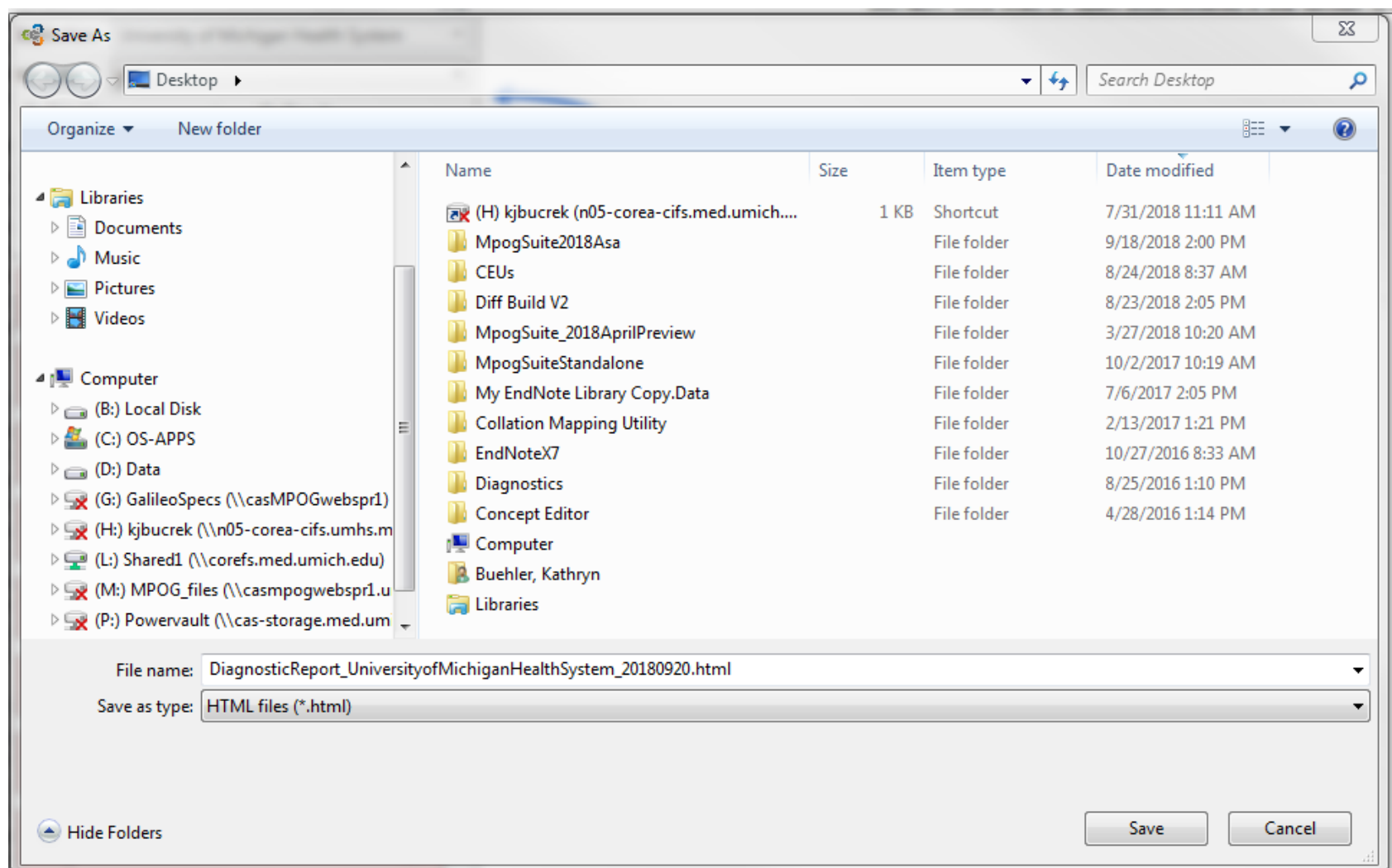
Blood Transfusions Measures High Priority !

Export Results

Use these settings to filter the list of diagnostics

Click on a diagnostic to view its results

Data Diagnostics: How to Export



Data Diagnostics: HTML File

University of Michigan Health System

Report generated on Thursday, September 20, 2018

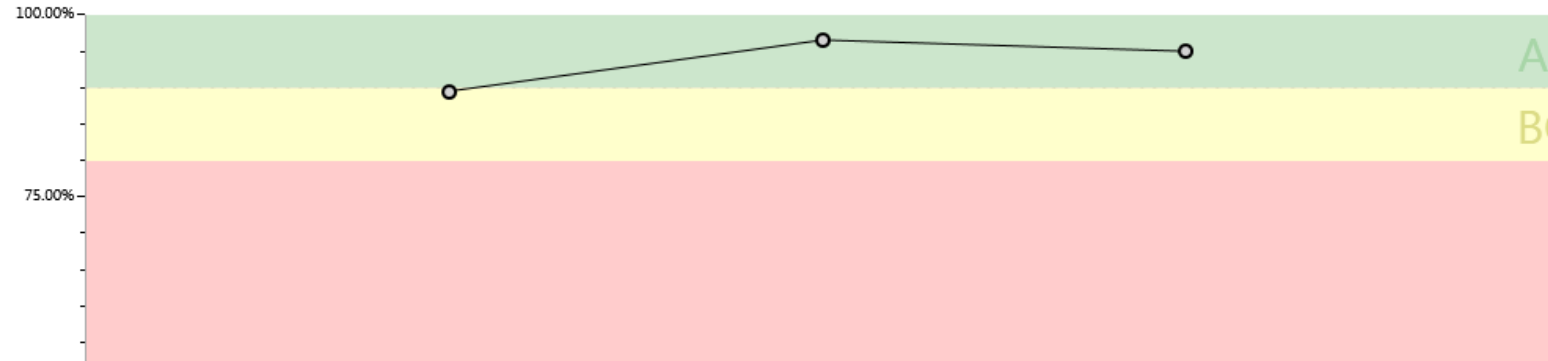
Jump to:

- [Billing](#)
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- [Labs](#)
- [Measures](#)
- [Medications](#)
- [Notes](#)
- [Outcomes](#)
- [Patients](#)
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- [Preop](#)
- [Staff](#)

Billing

Percentage of Cases with Hospital Discharge Diagnosis Codes

High Priority
Last run: 9/20/2018



Import Manager: Variable Mapping Changes

- Ability to search for concepts by ID# (id:_____- No space between : and the concept number
- Export Mappings as Excel file

The screenshot shows the MPOG Configuration application interface. On the left, there are configuration options: Mapping Type (Observation Type), Organization (University of Michigan Ann Arbor), Display Mode (All Variables), and a Search Filter field. Below these is a table of mappings. On the right, there are options for Direction (Normal), Auto Search On, Auto Select On, and a Search Filter field containing 'id:3050'. An 'Export' button is highlighted with a red box. Below the search filter are buttons for Map, Unmap, Exclude, and Examine. A small table on the right shows the selected mapping details.

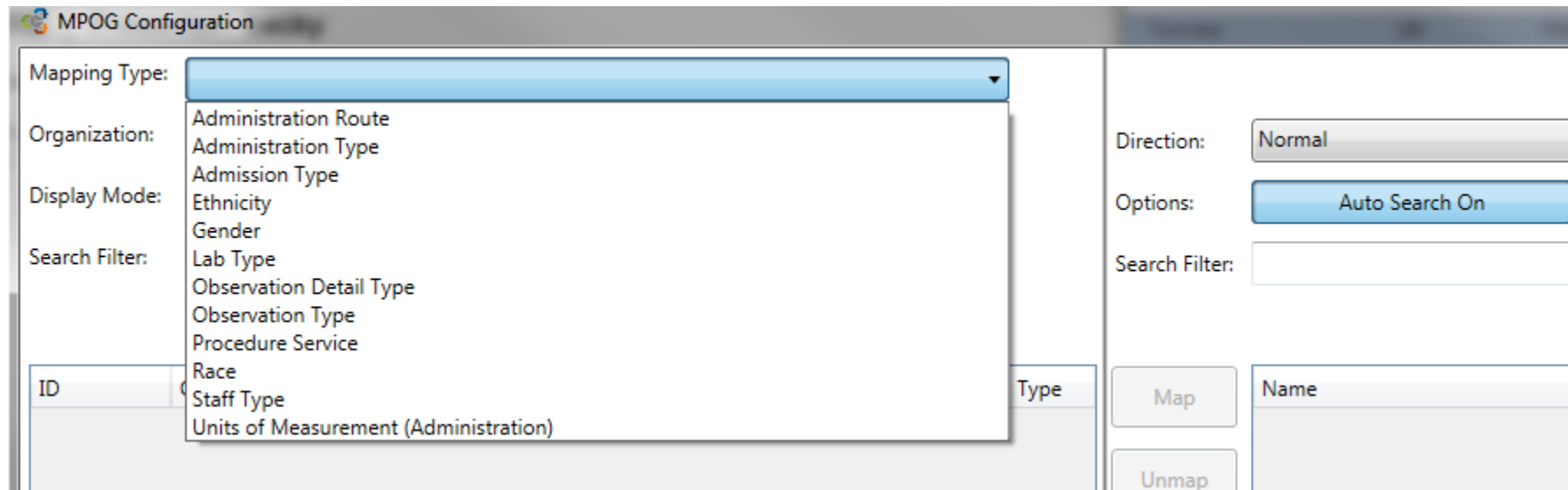
ID	Org	Name	Times Used	Mapped As	Type
201424	University of	Monitor ETCO2 Resp	949,189	Respiratory Rate Actual from Etc	Physiolog
201408	University of	Monitor Oxygen Insp	948,929	Oxygen Insp %	Physiolog
1448	University of	NFF- End Tidal CO2	948,240	End Tidal CO2 (mmHg)	Physiolog
201405	University of	Monitor Nitrous Insp	944,072	Nitrous Insp %	Physiolog
201407	University of	Monitor Oxygen Exp	943,557	Oxygen Exp %	Physiolog
201404	University of	Monitor Nitrous Exp	941,283	Nitrous Exp %	Physiolog
42603	University of	Vent Flows O2	918,321	Flows Oxygen (L/Min)	Physiolog
15	University of	NFF-CV Pulse	908,477	EKG Pulse Rate	Physiolog
308	University of	NFF-CV SpO2	904,017	SpO2 %	Physiolog
9066	University of	CBD - SpO2 HR	894,813	SpO2 Pulse Rate	Physiolog
450	University of	NFF-Pul FiO2 %	886,864	Ventilator FiO2 % Measured	Physiolog
457	University of	NFF-Pul Vent PIP	884,712	Peak inspiratory pressure	Physiolog
651	University of	NFF-Pul Vent PEEP	882,105	Positive End Expiratory Pressure	Physiolog
201020	University of	Vent Mean Airway pressu	868,590	Mean Inspiratory Pressure	Physiolog
201028	University of	Vent Rate Setting	861,569	Ventilator Respiratory Rate Set	Physiolog
201032	University of	Vent vent mode	860,404	Ventilator Mode	Physiolog
7686	University of	NFF-Pul Inspired CO2	838,969	Inspired CO2 %	Physiolog
504	University of	NFF- RR	695,978	Ventilator Respiratory Rate Act	Physiolog
201015	University of	Vent Minute volume /l/m	696,202	Minute ventilation	Physiolog

Name	ID	Type
Temp 1 - Unspecified Site	3050	Physiologic

Import Manager: Variable Mapping Changes

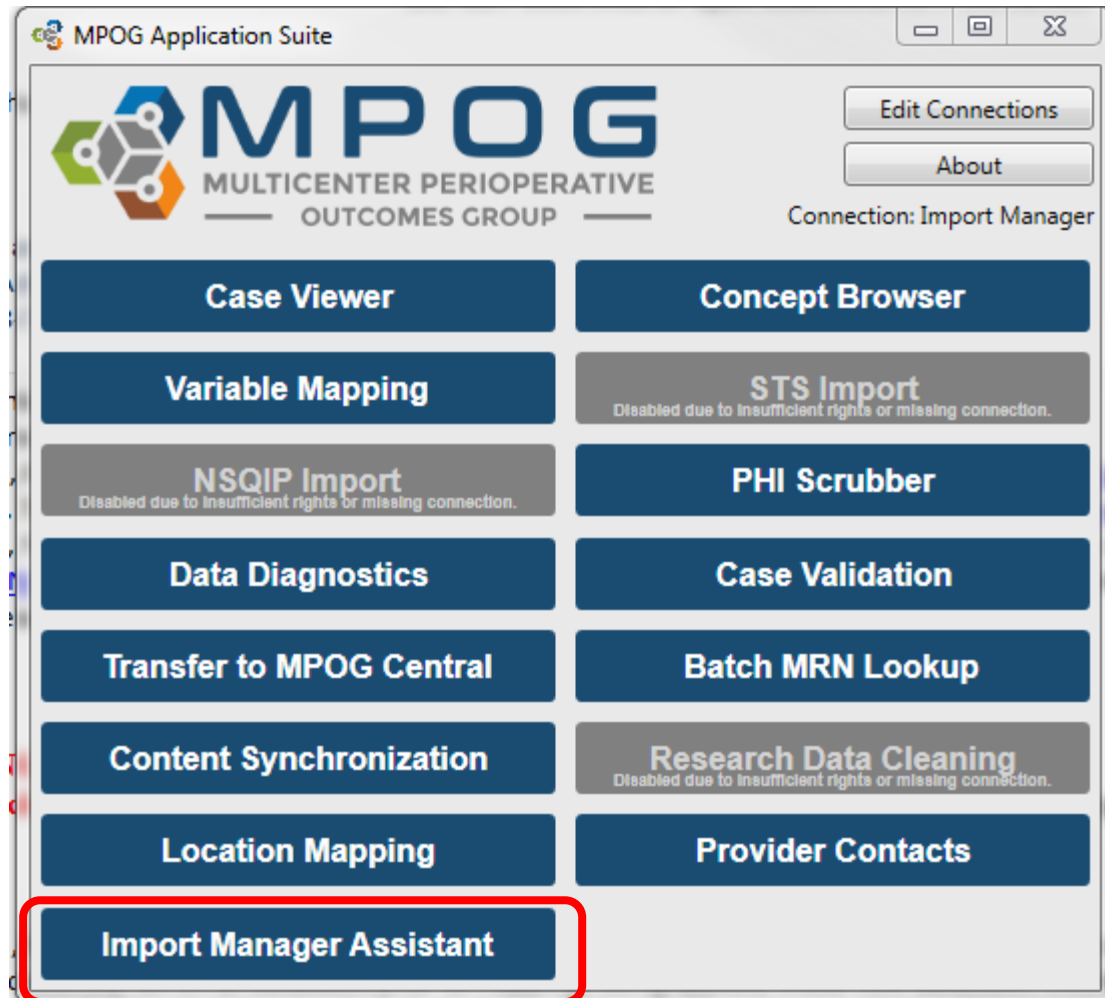
Units of Measurement (lab) and Room Type now hidden under Mapping Type

- Not currently mapping Units of Measurement (lab)
- Room Type is now handled 100% within location mapping



The screenshot displays the MPOG Configuration window. The 'Mapping Type' dropdown menu is open, showing a list of options: Administration Route, Administration Type, Admission Type, Ethnicity, Gender, Lab Type, Observation Detail Type, Observation Type, Procedure Service, Race, Staff Type, and Units of Measurement (Administration). The 'Units of Measurement (Administration)' option is highlighted. Below the dropdown, there are fields for 'Organization:', 'Display Mode:', and 'Search Filter:'. To the right, there are controls for 'Direction:' (Normal), 'Options:' (Auto Search On), and 'Search Filter:'. At the bottom, there are 'Map' and 'Unmap' buttons, and a 'Name' field.

Import Manager Assistant



Import Manager Assistant: Consume Log

Import Manager Assistant

Log Viewer Module: All Target Date Range: Select a date [15] to Select a date [15] Had Error Yes No Execution Date Range: Select a date [15] to Select a date [15]

Check File Columns Parse File Data Handoff Settings

Log Entry ID	Instance	File Name	Start	End	Module	Target Date	Error	File Size
583	MPOG_MAS	Procedures_V1_Centricity_20171106_20180614.csv	6/17/2018 7:41:51 AM	6/17/2018 7:42:09 AM	Procedures	11/6/2017	(none)	11210331
582	MPOG_MAS	PeriopObservations_V1_RDW_201711201_20180615.csv	6/17/2018 7:41:29 AM	6/17/2018 7:41:51 AM	PeriopObservations	12/1/2017	(none)	7359241
581	MPOG_MAS	PeriopObservations_V1_RDW_20171130_20180615.csv	6/17/2018 7:41:08 AM	6/17/2018 7:41:29 AM	PeriopObservations	11/30/2017	(none)	7029398
580	MPOG_MAS	PeriopObservations_V1_RDW_20171129_20180615.csv	6/17/2018 7:40:46 AM	6/17/2018 7:41:08 AM	PeriopObservations	11/29/2017	(none)	7490250
579	MPOG_MAS	PeriopObservations_V1_RDW_20171128_20180615.csv	6/17/2018 7:40:20 AM	6/17/2018 7:40:46 AM	PeriopObservations	11/28/2017	(none)	8745988
578	MPOG_MAS	PeriopObservations_V1_RDW_20171127_20180615.csv	6/17/2018 7:39:52 AM	6/17/2018 7:40:20 AM	PeriopObservations	11/27/2017	(none)	9781884
577	MPOG_MAS	PeriopObservations_V1_RDW_20171126_20180615.csv	6/17/2018 7:39:45 AM	6/17/2018 7:39:52 AM	PeriopObservations	11/26/2017	(none)	1379114
576	MPOG_MAS	PeriopObservations_V1_RDW_20171125_20180615.csv	6/17/2018 7:39:39 AM	6/17/2018 7:39:45 AM	PeriopObservations	11/25/2017	(none)	1379256
575	MPOG_MAS	PeriopObservations_V1_RDW_20171124_20180615.csv	6/17/2018 7:39:31 AM	6/17/2018 7:39:39 AM	PeriopObservations	11/24/2017	(none)	2018138
574	MPOG_MAS	PeriopObservations_V1_RDW_20171123_20180615.csv	6/17/2018 7:39:23 AM	6/17/2018 7:39:31 AM	PeriopObservations	11/23/2017	(none)	1704247
573	MPOG_MAS	PeriopObservations_V1_RDW_20171122_20180615.csv	6/17/2018 7:39:00 AM	6/17/2018 7:39:23 AM	PeriopObservations	11/22/2017	(none)	7778560
572	MPOG_MAS	PeriopObservations_V1_RDW_20171121_20180615.csv	6/17/2018 7:38:35 AM	6/17/2018 7:39:00 AM	PeriopObservations	11/21/2017	(none)	8824633
571	MPOG_MAS	PeriopObservations_V1_RDW_20171120_20180615.csv	6/17/2018 7:38:08 AM	6/17/2018 7:38:35 AM	PeriopObservations	11/20/2017	(none)	10025158
570	MPOG_MAS	PeriopObservations_V1_RDW_20171119_20180615.csv	6/17/2018 7:38:01 AM	6/17/2018 7:38:08 AM	PeriopObservations	11/19/2017	(none)	1462935
569	MPOG_MAS	PeriopObservations_V1_RDW_20171118_20180615.csv	6/17/2018 7:37:53 AM	6/17/2018 7:38:01 AM	PeriopObservations	11/18/2017	(none)	1683334
568	MPOG_MAS	PeriopObservations_V1_RDW_20171117_20180615.csv	6/17/2018 7:37:29 AM	6/17/2018 7:37:53 AM	PeriopObservations	11/17/2017	(none)	8587898
567	MPOG_MAS	PeriopObservations_V1_RDW_20171116_20180615.csv	6/17/2018 7:37:05 AM	6/17/2018 7:37:29 AM	PeriopObservations	11/16/2017	(none)	8124660
566	MPOG_MAS	PeriopObservations_V1_RDW_20171115_20180615.csv	6/17/2018 7:36:46 AM	6/17/2018 7:37:05 AM	PeriopObservations	11/15/2017	(none)	6576349
565	MPOG_MAS	PeriopObservations_V1_RDW_20171114_20180615.csv	6/17/2018 7:36:22 AM	6/17/2018 7:36:46 AM	PeriopObservations	11/14/2017	(none)	8232085
564	MPOG_MAS	PeriopObservations_V1_RDW_20171113_20180615.csv	6/17/2018 7:35:55 AM	6/17/2018 7:36:22 AM	PeriopObservations	11/13/2017	(none)	9646082
563	MPOG_MAS	PeriopObservations_V1_RDW_20171112_20180615.csv	6/17/2018 7:35:48 AM	6/17/2018 7:35:55 AM	PeriopObservations	11/12/2017	(none)	1716412
562	MPOG_MAS	PeriopObservations_V1_RDW_20171111_20180615.csv	6/17/2018 7:35:40 AM	6/17/2018 7:35:48 AM	PeriopObservations	11/11/2017	(none)	1546334
561	MPOG_MAS	PeriopObservations_V1_RDW_20171110_20180615.csv	6/17/2018 7:35:20 AM	6/17/2018 7:35:40 AM	PeriopObservations	11/10/2017	(none)	6502618
560	MPOG_MAS	PeriopObservations_V1_RDW_20171109_20180615.csv	6/17/2018 7:34:56 AM	6/17/2018 7:35:20 AM	PeriopObservations	11/9/2017	(none)	7343835
559	MPOG_MAS	PeriopObservations_V1_RDW_20171108_20180615.csv	6/17/2018 7:34:34 AM	6/17/2018 7:34:56 AM	PeriopObservations	11/8/2017	(none)	7554204
558	MPOG_MAS	PeriopObservations_V1_RDW_20171107_20180615.csv	6/17/2018 7:34:11 AM	6/17/2018 7:34:34 AM	PeriopObservations	11/7/2017	(none)	7649374
557	MPOG_MAS	PeriopObservations_V1_RDW_20171106_20180615.csv	6/17/2018 7:33:42 AM	6/17/2018 7:34:11 AM	PeriopObservations	11/6/2017	(none)	9745052
556	MPOG_MAS	PeriopObservations_V1_RDW_20171105_20180615.csv	6/17/2018 7:33:15 AM	6/17/2018 7:33:42 AM	PeriopObservations	11/5/2017	(none)	1637565
555	MPOG_MAS	PeriopAdministrations_V1_RDW_20171201_20180617.csv	6/17/2018 7:33:13 AM	6/17/2018 7:33:15 AM	PeriopAdministrations	12/1/2017	(none)	1135877
554	MPOG_MAS	PeriopAdministrations_V1_RDW_20171130_20180617.csv	6/17/2018 7:33:11 AM	6/17/2018 7:33:13 AM	PeriopAdministrations	11/30/2017	(none)	806954
553	MPOG_MAS	PeriopAdministrations_V1_RDW_20171129_20180617.csv	6/17/2018 7:33:08 AM	6/17/2018 7:33:11 AM	PeriopAdministrations	11/29/2017	(none)	1004654
552	MPOG_MAS	PeriopAdministrations_V1_RDW_20171128_20180617.csv	6/17/2018 7:33:05 AM	6/17/2018 7:33:08 AM	PeriopAdministrations	11/28/2017	(none)	1097684
551	MPOG_MAS	PeriopAdministrations_V1_RDW_20171127_20180617.csv	6/17/2018 7:33:02 AM	6/17/2018 7:33:05 AM	PeriopAdministrations	11/27/2017	(none)	1096901
550	MPOG_MAS	PeriopAdministrations_V1_RDW_20171126_20180617.csv	6/17/2018 7:33:01 AM	6/17/2018 7:33:02 AM	PeriopAdministrations	11/26/2017	(none)	317174

Export to xlsx



Import Manager Assistant: Handoff Log

Import Manager Assistant

Log Viewer Module: All Target Date Range: Select a date 15 to Select a date 15 Had Error: Yes No Execution Date Range: Select a date 15 to Select a date 15

Check File Columns Parse File Data Handoff Settings

Import Log Consume Log Handoff Log

Log Entry ID	Destination Database	Module	Target Date	Start	End	Error
8263	MPOG_MAS	PeriopObservations	10/31/2017	9/20/2018 11:50:02 AM	(none)	(none)
8262	MPOG_MAS	PeriopObservations	11/1/2017	9/20/2018 11:21:36 AM	9/20/2018 11:50:02 AM	(none)
8261	MPOG_MAS	PeriopObservations	11/2/2017	9/20/2018 10:53:13 AM	9/20/2018 11:21:36 AM	(none)
8260	MPOG_MAS	PeriopObservations	11/3/2017	9/20/2018 10:25:31 AM	9/20/2018 10:53:13 AM	(none)
8259	MPOG_MAS	PeriopObservations	11/6/2017	9/20/2018 9:57:39 AM	9/20/2018 10:25:31 AM	(none)
8258	MPOG_MAS	PeriopObservations	11/7/2017	9/20/2018 9:28:53 AM	9/20/2018 9:57:39 AM	(none)
8257	MPOG_MAS	PeriopObservations	11/8/2017	9/20/2018 9:00:18 AM	9/20/2018 9:28:53 AM	(none)
8256	MPOG_MAS	PeriopObservations	11/9/2017	9/20/2018 8:31:50 AM	9/20/2018 9:00:18 AM	(none)
8255	MPOG_MAS	PeriopObservations	11/10/2017	9/20/2018 8:04:18 AM	9/20/2018 8:31:50 AM	(none)
8254	MPOG_MAS	PeriopObservations	11/12/2017	9/20/2018 7:38:13 AM	9/20/2018 8:04:18 AM	(none)
8253	MPOG_MAS	PeriopObservations	11/13/2017	9/20/2018 7:10:25 AM	9/20/2018 7:38:13 AM	(none)
8252	MPOG_MAS	PeriopObservations	11/14/2017	9/20/2018 6:41:55 AM	9/20/2018 7:10:25 AM	(none)
8251	MPOG_MAS	PeriopObservations	11/15/2017	9/20/2018 6:15:15 AM	9/20/2018 6:41:55 AM	(none)
8250	MPOG_MAS	Cases	11/15/2017	9/20/2018 6:15:05 AM	9/20/2018 6:15:15 AM	(none)
8249	MPOG_MAS	Patients	11/15/2017	9/20/2018 6:15:04 AM	9/20/2018 6:15:05 AM	(none)
8248	MPOG_MAS	PeriopObservations	11/16/2017	9/20/2018 5:45:55 AM	9/20/2018 6:15:04 AM	(none)
8247	MPOG_MAS	PeriopObservations	11/17/2017	9/20/2018 5:16:36 AM	9/20/2018 5:45:55 AM	(none)
8246	MPOG_MAS	PeriopObservations	11/19/2017	9/20/2018 4:50:42 AM	9/20/2018 5:16:36 AM	(none)
8245	MPOG_MAS	PeriopObservations	11/20/2017	9/20/2018 4:21:15 AM	9/20/2018 4:50:42 AM	(none)
8244	MPOG_MAS	PeriopObservations	11/21/2017	9/20/2018 3:52:22 AM	9/20/2018 4:21:15 AM	(none)
8243	MPOG_MAS	Cases	11/21/2017	9/20/2018 3:52:12 AM	9/20/2018 3:52:22 AM	(none)
8242	MPOG_MAS	Patients	11/21/2017	9/20/2018 3:52:08 AM	9/20/2018 3:52:12 AM	(none)
8241	MPOG_MAS	PeriopObservations	11/22/2017	9/20/2018 3:23:47 AM	9/20/2018 3:52:08 AM	(none)
8240	MPOG_MAS	PeriopObservations	11/24/2017	9/20/2018 2:57:34 AM	9/20/2018 3:23:47 AM	(none)
8239	MPOG_MAS	Cases	11/24/2017	9/20/2018 2:57:24 AM	9/20/2018 2:57:34 AM	(none)
8238	MPOG_MAS	Patients	11/24/2017	9/20/2018 2:57:22 AM	9/20/2018 2:57:24 AM	(none)
8237	MPOG_MAS	PeriopObservations	11/28/2017	9/20/2018 2:27:53 AM	9/20/2018 2:57:22 AM	(none)
8236	MPOG_MAS	PeriopObservations	11/29/2017	9/20/2018 1:59:06 AM	9/20/2018 2:27:53 AM	(none)
8235	MPOG_MAS	PeriopObservations	11/30/2017	9/20/2018 1:30:39 AM	9/20/2018 1:59:06 AM	(none)
8234	MPOG_MAS	PeriopObservations	12/1/2017	9/20/2018 1:02:42 AM	9/20/2018 1:30:39 AM	(none)
8233	MPOG_MAS	Payers	11/15/2017	9/19/2018 3:14:57 AM	9/19/2018 3:14:57 AM	(none)
8232	MPOG_MAS	StaffTracking	11/15/2017	9/19/2018 3:14:56 AM	9/19/2018 3:14:57 AM	(none)
8231	MPOG_MAS	Procedures	11/15/2017	9/19/2018 3:14:52 AM	9/19/2018 3:14:56 AM	(none)
8230	MPOG_MAS	PeriopObservations	11/15/2017	9/19/2018 2:48:36 AM	9/19/2018 3:14:52 AM	(none)

Export to xlsx

Import Manager Assistant: File Checker

Import Manager Assistant

Instance: MPOG_MAS (I) File Name: Cases_V1_Centricity_20171103_20180527.csv Check Columns

Line	Actual Columns	Expected Columns
[REDACTED]	15	17
,INDUCTION OF LABOR#13#10,INDUCTION OF LABOR#13#10	3	17
[REDACTED]	15	17
,VAGINAL DELIVERY#13#10,VAGINAL DELIVERY#13#10	3	17

Log Viewer

Check File Columns

Parse File Data

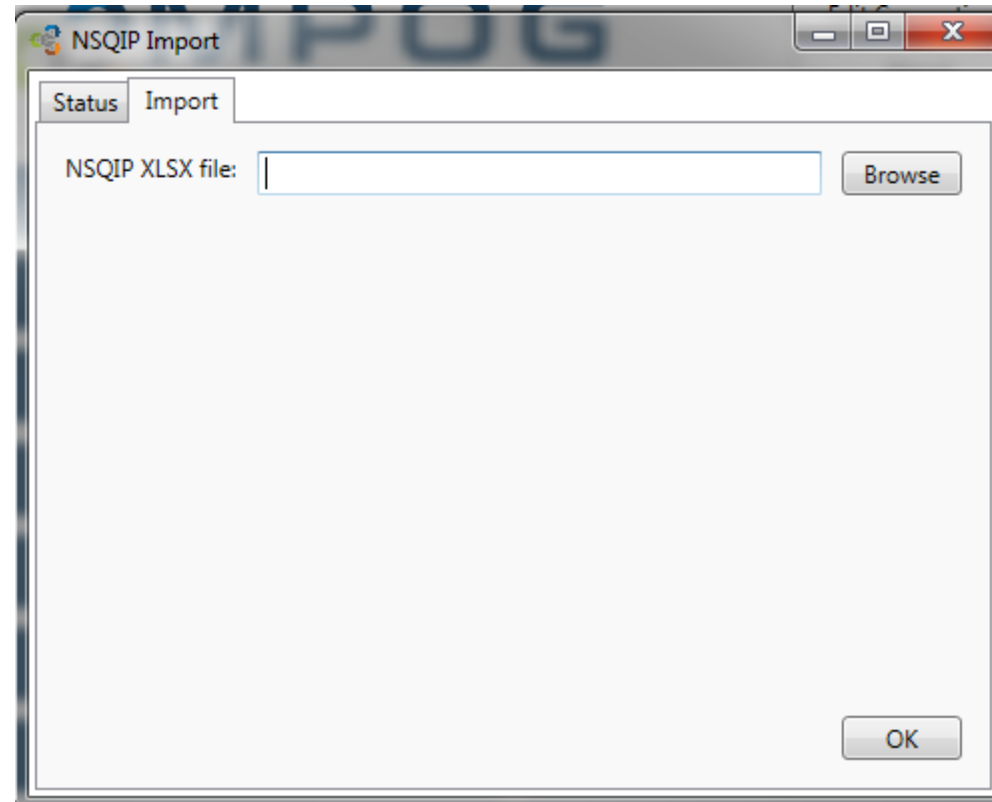
Import Manager Assistant: File Parser

Instance: MPOG_MAS (I) File Name: Cases_V1_Centricity_20171127_20180614.csv

CaseID	PatientID	EncounterID	OrganizationID	OrganizationName	RoomID	RoomName	RoomType_ID	RoomType_Name	AdmissionType_ID	AdmissionType_Name	ProceduralService_ID
			A	University of Michigan Ann Arbor					502	P	ORTH
			A	University of Michigan Ann Arbor					501	O	
			A	University of Michigan Ann Arbor					502	P	GYN
			A	University of Michigan Ann Arbor					501	O	
			A	University of Michigan Ann Arbor					501	O	
			A	University of Michigan Ann Arbor					501	O	OPHT
			A	University of Michigan Ann Arbor					501	O	ORTH
			A	University of Michigan Ann Arbor					502	P	ORTH
			A	University of Michigan Ann Arbor					502	P	ORTH
			A	University of Michigan Ann Arbor					502	P	ORTH
			A	University of Michigan Ann Arbor					501	O	
			A	University of Michigan Ann Arbor					501	O	
			A	University of Michigan Ann Arbor					501	O	OPHT
			A	University of Michigan Ann Arbor					502	P	NSA
			A	University of Michigan Ann Arbor					501	O	OPHT
			A	University of Michigan Ann Arbor					501	O	OPHT
			A	University of Michigan Ann Arbor					501	O	RAD
			A	University of Michigan Ann Arbor					502	P	MIS
			A	University of Michigan Ann Arbor					501	O	
			A	University of Michigan Ann Arbor					501	O	ORTH
			A	University of Michigan Ann Arbor					502	P	ORTH
			A	University of Michigan Ann Arbor					502	P	IMCA
			A	University of Michigan Ann Arbor					502	P	PLA
			A	University of Michigan Ann Arbor					501	O	ORTH
			A	University of Michigan Ann Arbor					501	O	PLA
			A	University of Michigan Ann Arbor					501	O	ORTH
			A	University of Michigan Ann Arbor					501	O	
			A	University of Michigan Ann Arbor					501	O	PLA
			A	University of Michigan Ann Arbor					501	O	GYN
			A	University of Michigan Ann Arbor					502	P	GYN
			A	University of Michigan Ann Arbor					501	O	
			A	University of Michigan Ann Arbor					501	O	OPHT
			A	University of Michigan Ann Arbor					501	O	OPHT
			A	University of Michigan Ann Arbor					501	O	OPHT
			A	University of Michigan Ann Arbor					502	P	IMCA
			A	University of Michigan Ann Arbor					501	O	NSA
			A	University of Michigan Ann Arbor					502	P	NSA
			A	University of Michigan Ann Arbor					501	O	PLA

NSQIP Import Tool

- Modified to accept NSQIP file in the new format:



Questions?

MPOG Data Cleaning Tools

Michael Mathis, MD

Assistant Professor of Anesthesiology

Director, Cardiothoracic Anesthesiology Research

University of Michigan Medical School



Outline

- Identify challenges associated with using ‘big data’
- Describe tools to refine MPOG data
 - QI
 - Research
- Examine the roles of stakeholders in data cleaning process
 - ACQRs
 - QI Champions
 - Researchers
 - MPOG Coordinating Center

Data Use Challenges

- Data quality not a priority for busy clinicians ¹
- Data are non-standardized ²
- Average anesthesia record has 2,000 physiologic observations from 40 parameters ^{3,4}
- Data can be “locked” in text ⁵

1. Cook JA, Collins GS. The rise of big clinical databases. *The British journal of surgery*. 2015;102(2):e93-e101

2. Mandel JC, Kreda DA, Mandl KD, Kohane IS, Ramoni RB. SMART on FHIR: a standards-based, interoperable apps platform for electronic health records. *Journal of the American Medical Informatics Association : JAMIA*. 2016;23(5):899-908.

3. Kheterpal S, Shanks A, Tremper KK. Impact of a Novel Multiparameter Decision Support System on Intraoperative Processes of Care and Postoperative Outcomes. *Anesthesiology*. 2018;128(2):272-282.

4. The Multicenter Perioperative Outcomes Group. <https://mpog.org>. Accessed March 6 2018, 2018.

5. Hripcsak G, Albers DJ. Next-generation phenotyping of electronic health records. *Journal of the American Medical Informatics Association : JAMIA*. 2013;20(1):117-121.

Specific Example: PONV 01

Risk Factor for PONV 01: History of PONV

- **Site A**

- Maps “**History of PONV**” variable → MPOG concept **70338 General- PONV Risk Factors**

- **Site B**

- Maps “**History of PONV**” variable → MPOG concept: **70080 General- Previous Anesthetic Problem**

If either concept shows up → mark as ‘Yes’ for “**History of PONV**”, right?

Actual values associated with PONV concepts:

General - Previous Anesthetic Problem	Brother with nausea/vomiting associated with anesthesia
General - Previous Anesthetic Problem	mother- PONV, father-requires larger doses of anesthesia than normal
General - Previous Anesthetic Problem	Last GA: 7/10/15- IV induction, LMA 2.5- easy mask; Mother reports x1 incidence of PONV during 5 previous eye surgeries
General - Previous Anesthetic Problem	pt had PONV with hysterectomy, none since. Mother PONV and "multiple allergies"
General - Previous Anesthetic Problem	Last GA 2008, did well, no PONV. Mother with strong history of PONV
General - Previous Anesthetic Problem	PONV x1 with last tympanoplasty
General - Previous Anesthetic Problem	+ motion sickness and vomits in the car
General - Previous Anesthetic Problem	Pt has severe PONV except for last surgery

General - PONV Risk Factors	Yes, treated in PACU.
General - PONV Risk Factors	Yes after receiving morphine
General - PONV Risk Factors	last surgery had no PONV
General - PONV Risk Factors	last time she had no problems
General - PONV Risk Factors	Yes, unknown
General - PONV Risk Factors	Yes Treated in PACU, has been admitted in the past for pain/nausea
General - PONV Risk Factors	Yes--related to pain meds
General - PONV Risk Factors	required over night hospitalization
General - PONV Risk Factors	Unable to determine.

Further cleaning needed...mapping gets us close but not quite there yet.

MPOG Tools for Data Cleaning

1. Concept Browser:

- Map AIMS variables to standard MPOG concepts (Variable Mapping)

2. Collation Mapping:

- Sort 'answers' mapped to specific concepts

3. Phenotype Browser:

- Intelligent characterizations of data usable for QI/Research
- Derived through synthesizing multiple concepts and using deductive/inductive reasoning

Step 1: Mapping Variables to Standardized MPOG Concepts

Configuration Tool

File Edit

Mapping Groups: Preop Refresh Current Save All

Double-Click selected AIMS concepts to assign selected MPOG concept in other window. (Hold CTRL if mutiple)

Right-Click to copy textfield to concept window searchbox.

Unmapped Concepts | Mapped Concepts

AIMS ID	AIMS Desc	Row Count	Form	Case Linked?	Preoperative Days Limit	Exclude From Extract?	MPOG ID	MPOG Desc
13254	Anes LOC PE	230100	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70318	Physical exam - Level of Conscio
12150	Anes Malignacy Metastasis	47461	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70101	Misc - Solid Organ Malignancy M
17024	Anes Motion Sickness	1345204	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70102	Misc - Motion Sickness
17025	Anes Nausea Car	1328250	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70103	Misc - Nausea Car
11089	ANES Neck circumference (cm)	48584	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70010	Airway - Neck circumference (cm
18650	ANES Neck circumference inche	38885	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70011	Airway - Neck circumference (in)
35883	Anes Peds CP Spasticity	84741	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70107	Pediatrics - CP Spasticity
17034	ANES PONV Risk Total Score	266472	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70339	General - PONV Risk Total Score
36329	Anes Preop Evaluation Complete	1154592	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70310	Assessment and Plan - Evaluatio
4303	Anesth Family Hx of Anesth Prot	7157111	160000	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	70050	General - Family History of Anest

MPOG Concept Lookup

MPOG Concepts

Use Default Filter

Filter by MPOG Concept Type

(All Concepts)

Select next unmapped concept after assignment

Automatically search for next concept

Double-Click to assign selected MPOG concept to selected AIMS

MPOG ID	MPOG Desc
70338	General - PONV Risk Factors
70339	General - PONV Risk Total Score

Step 1: Mapping Variables to Standardized MPOG Concepts

- MPOG Concept Browser: [Click here for demo](#)

Concept type [All concept types]

Query string ponv

Institutions 81 selected

Count Mode Concept occurrences

Hide inactive concepts

[Submit](#)

ID	Concept Name	Concept Type	# of Occurrences
50046	Medical Performance Exclusion- PONV	Intraoperative Events, Interventions, and Observations	0
50644 ▶	Misc - PONV prophylaxis administered	Intraoperative Events, Interventions, and Observations	29,821
70338 ◀	General - PONV Risk Factors	Preoperative Observations	1,192,781
	B Beaumont Dearborn		36,277
	B Beaumont Dearborn and Taylor		60,247
	B Beaumont Farmington Hills		3,501
	B Beaumont Grosse Pointe		3,755

MPOG Concept Browser

MPOG Application Suite

MPOG
MULTICENTER PERIOPERATIVE
OUTCOMES GROUP

Edit Connections
About
Connection: MPOG Local

Case Viewer **Concept Browser**

Variable Mapping **STS Import**
Disabled due to insufficient rights or missing connection.

NSQIP Import **PHI Scrubber**
Disabled due to insufficient rights or missing connection.

Data Diagnostics **Case Validation**

Transfer to MPOG Central **Batch MRN Lookup**

Content Synchronization **Research Data Cleaning**
Disabled due to insufficient rights or missing connection.

Location Mapping **Provider Contacts**

RATIVE

About Join Research Quality **Apps** Downloads Events / News

Apps Menu
ASPIRE Dashboard
Basecamp
Case Reports
Concept Browser
DataDirect
Data Explorer
MQUARK
Phenotype Browser
Provider Contacts
QCDR Measure Audit

Please select a concept type and query string

Concept type [All concept types]

Query string e.g. id:concept ID# or any text

Count Mode Concept occurrences

Hide inactive concepts

Submit

If you have an MPOG website login and would like to access the counts by institution for each individual concept ID, [please login into the MPOG website.](#)

Step 2: Sort data using Collation Mapping

PreopPONVHistoryNotes

Institution Distinct Values Remaining: 0 / 11,784
 Mapping Filter Rows Remaining: 0 / 787,865
 Time Filter Percent Mapped: 100.0 %
 Value Filter [\(What's This?\)](#)

MPOG Concept	Source Value	Count	Mapped As
General - PONV Risk Factors	Yes	201,513	History of PONV
Assessment and Plan - Comments	Post-Op Nausea and Vomiting	65,494	History of PONV
General - Past Medical History ICD-10 Code	PONV (postoperative nausea and vomiting)	102,121	History of PONV
Assessment and Plan - Special Anesthesia Technique	PONV RISK SCORE	35,553	History of PONV
General - Previous Anesthetic Problem	Postoperative Nausea and Vomiting	51,925	History of PONV
General - PONV Risk Factors	PONV Present	25,812	History of PONV
General - Previous Anesthetic Problem	Postoperative Nausea and Vomiting Treated in PACU	21,795	History of PONV
General - Previous Anesthetic Problem	PONV	34,537	History of PONV
General - Past Medical History ICD-10 Code	Postoperative nausea and vomiting	30,871	History of PONV
General - PONV Risk Factors	Yes Treated in PACU	17,111	History of PONV
General - Family History of Anesthetic Problems	Postoperative Nausea and Vomiting	15,935	History of PONV
General - PONV Risk Factors	MEDIUM 3-5	14,991	History of PONV
General - Family History of Anesthetic Problems	PONV	10,666	History of PONV
General - Previous Anesthetic Problem	Postoperative Nausea and/or Vomiting	8,716	History of PONV
Assessment and Plan - Anesthetic Consideration	Postoperative Nausea and Vomiting	7,926	History of PONV
General - PONV Risk Factors	History of PONV/Motion Sickness	6,417	History of PONV
General - Previous Anesthetic Problem	Postoperative Nausea and Vomiting	6,063	History of PONV
General - Past Medical History ICD-9 Code	PONV (postoperative nausea and vomiting)	20,857	History of PONV
General - Past Medical History ICD-10 Code	Post-operative nausea and vomiting	21,577	History of PONV
Assessment and Plan - Anesthetic Consideration	Postoperative Nausea and Vomiting, Postoperative		

Missing or Unknown
(Description not provided)

Invalid Value
This note is irrelevant or incorrect

No History of PONV
(Description not provided)

History of PONV
(Description not provided)

History of PONV - Relatives Only
There is no history of PONV for the patient, but documentation mentions PON

Some measures are not as 'easy' as PONV...

TRAN 01: *Exclude* transfusions between:

Cardiopulmonary bypass start and cardiopulmonary bypass end

What concepts should we use?

Assume we find 2 concepts that directly reflect bypass start and end times.

Do most sites who perform bypass have variables mapped to these two concepts?

Assume again that yes, majority of sites are using these concepts.

Do providers consistently use the variables that are mapped to these concepts?

No assumptions here 😊

What concepts to use / are sites mapping?

ID	Concept Name	Concept Type	# of Occurrences
3001 ▶	Perfusion- Cardiopulmonary Flow (ml/min)	Physiologic Observations	1,356,183
3002 ▶	Perfusion- Cardiopulmonary Line Pressure (mmHg)	Physiologic Observations	1,610,004
3003 ▶	Perfusion- Cardiopulmonary volume (ml)	Physiologic Observations	354,523
3036 ▶	Perfusion - Cardiopulmonary byp 50406 ▶	Cardiopulmonary bypass rewarm temperature - detail	Intraoperative Events, Interventions, and Observations 15,972
3037 ▶	Perfusion - Cardiopulmonary byp		
3038 ▶	Perfusion - Cardiopulmonary byp 50407 ▶	Cardiopulmonary bypass systemic cooling initiated	Intraoperative Events, Interventions, and Observations 29,786
3039 ▶	Perfusion - Cardiopulmonary byp 50408 ▶	Cardiopulmonary bypass systemic cooling temperature - detail	Intraoperative Events, Interventions, and Observations 16,381
3044 ▶	Perfusion - Cardiopulmonary byp		
3049 ▶	Perfusion - Cardiopulmonary byp 50409 ▶	Cardiopulmonary bypass (full/partial/left-heart) terminated	Intraoperative Events, Interventions, and Observations 55,958
3067 ▶	Perfusion - Cardiopulmonary byp (mL/min/m2) 50410 ▶	Cardiopulmonary bypass initiated (full/partial/left-heart)	Intraoperative Events, Interventions, and Observations 66,310
10604 ▶	CARDIOPULMONARY BYPASS CIR		
10677 ▶	Cardiopulmonary bypass pump f 50411 ▶	Cardiopulmonary bypass -- ventilator turned off	Intraoperative Events, Interventions, and Observations 35,106
40003 ▶	Modifier - Monitored anesthesia history of severe cardiopulmonar 50412 ▶	Cardiopulmonary bypass -- perfusion start	Intraoperative Events, Interventions, and Observations 33,513
50399 ▶	Cardiopulmonary bypass -- aortic 50413 ▶	Cardiopulmonary bypass -- perfusion end	Intraoperative Events, Interventions, and Observations 41,693
50401 ▶	Cardiopulmonary bypass vent on 50415 ▶	Cardiopulmonary bypass -- aortic crossclamp off	Intraoperative Events, Interventions, and Observations 73,789
50402 ▶	Cardiopulmonary bypass vent of 50416 ▶	Cardiopulmonary bypass -- crossclamp and circulatory arrest time totals	Intraoperative Events, Interventions, and Observations 47,855
50403 ▶	Cardiopulmonary bypass vent on 50417 ▶	Cardiopulmonary bypass -- Access cannula removed note	Intraoperative Events, Interventions, and Observations 70,799
50404 ▶	Cardiopulmonary bypass vent of 50418 ▶	Cardiopulmonary bypass -- Access cannula removed location detail	Intraoperative Events, Interventions, and Observations 0
50405 ▶	Cardiopulmonary bypass rewarm 50419 ▶	Cardiopulmonary bypass -- Aortic crossclamp removal requiring therapy	Intraoperative Events, Interventions, and Observations 4,546
	50420 ▶	Cardiopulmonary bypass -- Isoflurane vaporizer turned on	Intraoperative Events, Interventions, and Observations 18,369
	50421 ▶	Cardiopulmonary bypass -- Arterial cannula inserted note	Intraoperative Events, Interventions, and Observations 92,858
	50422 ▶	Cardiopulmonary bypass -- Arterial cannula insertion site detail	Intraoperative Events, Interventions, and Observations 7,472
	50423 ▶	Cardiopulmonary bypass -- Arterial cannula insertion flow detail	Intraoperative Events, Interventions, and Observations 0
	50424 ▶	Cardiopulmonary bypass -- Blood pressure lowered note	Intraoperative Events, Interventions, and Observations 6,546

These are approximately half of the cardiopulmonary bypass MPOG Concepts in use.

Several Concepts used to determine start and stop times.

But, this still only covers 90% of the “true” instances of cardiopulmonary bypass.

How do we get the other 10%?

Step 3: Build Phenotypes

- MPOG Phenotype Browser
 - Multiple observations from multiple parameters:

Standard MPOG Concepts

Fluids	Labs	Vitals
Meds	Times	Diagnoses
Outputs	Events	Outcomes

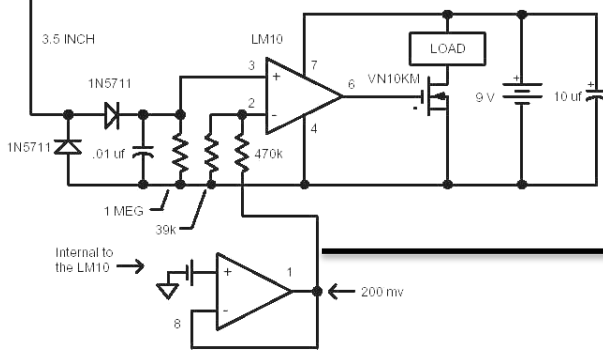
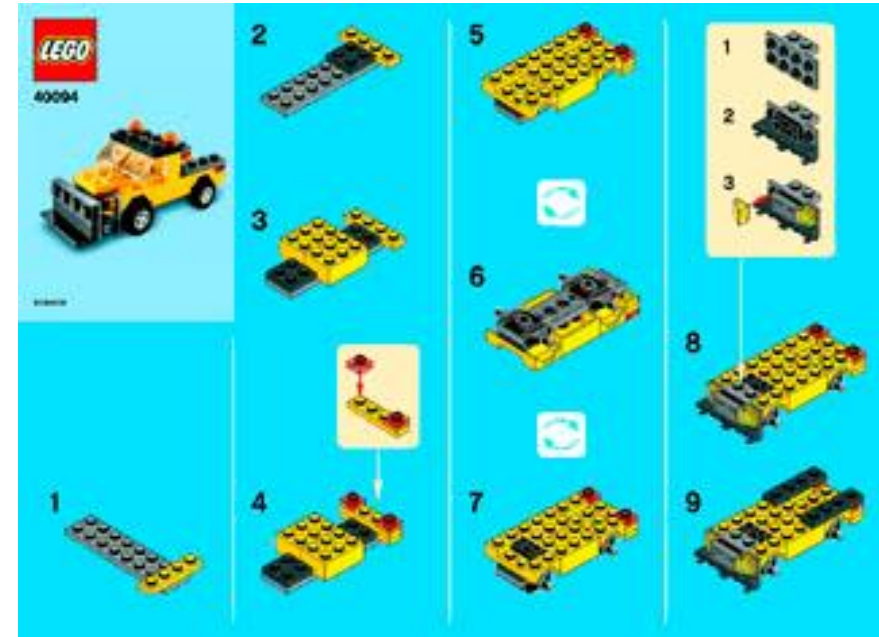


Figure 1: Cellular phone activity detector.



MPOG Phenotypes

On Cardiopulmonary Bypass
Patient under General Anesthesia
Low tidal volume ventilation achieved
Total opioid analgesia, morphine equivalents

....

Phenotype Browser

- MPOG Phenotype Browser: [Click here for demo](#)



[Phenotype List](#)

[Admin Login](#)

Section

Description

Limitation

Value Type

Return Columns

Granularity

Logic

Dependency

Cardiopulmonary Bypass Start

Description

This group returns the first date/time and last date/time of cardiopulmonary bypass specific concepts for each case, along with the duration (max-min) returned in minutes.

First looks for instances of notes mapped with the concepts below, and then for physiologic data that meets the following criteria:

SBP-DBP<20 (MPOG Concept: 3030)

or

HR <=5 (MPOG Concept: 3005)

---AND---

RR<=2 (MPOG Concept: 3580)

or

EtCO2<=5 (MPOG Concepts: 3235, 3236)

For intraoperative notes, the following concepts are used:

50418 Cardiopulmonary bypass -- Access cannula removed location detail

50423 Cardiopulmonary bypass -- Arterial cannula insertion flow detail

50647 Cardiopulmonary bypass - Aprotinin test dose performed

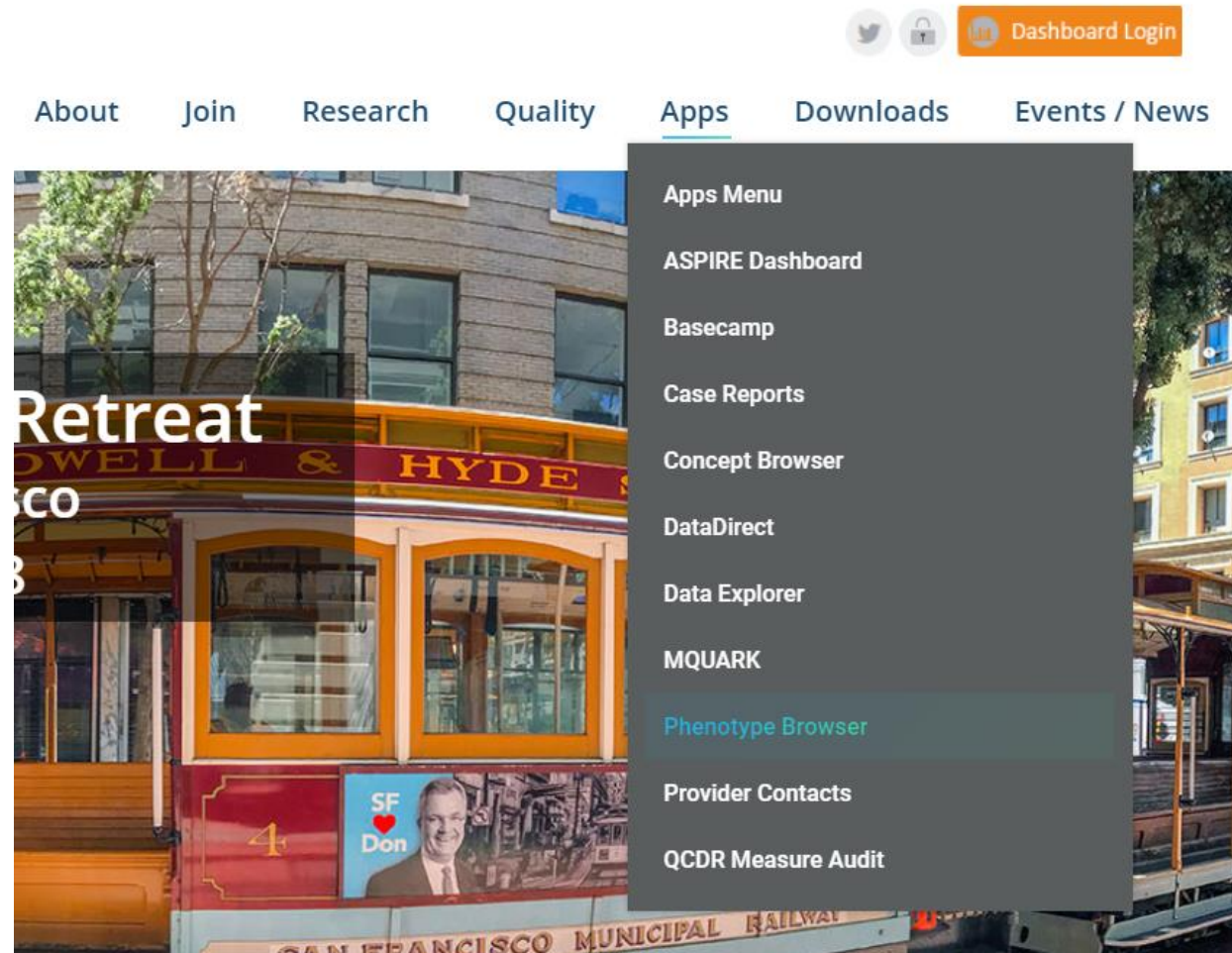
50766 Cardiopulmonary bypass -- Circulatory arrest start

50427 Cardiopulmonary bypass -- Ice on head

50412 Cardiopulmonary bypass -- perfusion start

50425 Cardiopulmonary bypass -- Blood pressure lowered therapy detail

MPOG Phenotype Browser



Roles and Responsibilities

- ACQRs map to the best MPOG concept available: this is most important!
- Quality Champions communicate to providers the importance of standardized documentation
 - Avoid free text when possible
 - Use the standard variables available in Epic/Cerner
- Coordinating Center performs collation mapping and creates phenotypes to enable measure build and research projects

Thank you

Bronson Health Care Group – Denise Coons

Working with Epic to Improve TOC 02 & TEMP 01



UTILIZING RESOURCES TOC-02 & TEMP-02

**September 21, 2018
Denise Coons, RN
ACQR**

FOR EPIC USERS



KNOW YOUR RESOURCES

- Bronson IT analysts (Op-Time)
 - Concept build, Mapping
- EPIC TS
 - Technical support



TOC-02

Bronson IT Analysts

- Enter request ticket to IT helpdesk
- Build per request
 - Simple request: IT can build
 - Complicated request: EPIC involved
- Test in Epic Playground
- Provide and communicate education
- IT management approval
- Move to production



The Final Product

Hyperspace - BMH ANESTHESIA - PLY Training Playground - ALEX-ANMD A.

Aeneas, Luke-ANPROV
Male, 20 y.o., 09/12/1998
ASA: None
Case #: 1279

MRN: 010124... HT: 1.803 m (5' 11")
CSN: 204691... BMI: 26.78 kg/m²
Refresh: [refresh icon] Allergies: **Penicillins**
WT: 87.1 kg Infection: None

Isolation: None
Code: [blank]
Periop Code: None
Pref Language: None

Need Interp: None
Treatment Team: Hunter Tl...
Pre-Proc Cmp, 0255
Procedures: Exploratory La...

Timely, Hunter, MD
Bed: None
Room: OR 10
Patient FYIs: None

Morse Fall Score: None
Decisions: None
Difficult Intubation?: None
Cytotoxic Precaution: None

Precautions:...

Post

Chart Review: Pre, Intra, Post, Orders

Summary: Post, Anesthesia Stop, ICU / Handoff

Results Revi...: Anesthesia Stop, ICU / Handoff

Notes: Handoff Acknowle...

Flowsheets: Vitals

MAR: I/O, PADSS

Order Mgmt: Post Evaluations

Procedure Pa...: Active LDAs, LDA Removal

Demographics: DOCUMENTATION COMPLETE, Sign Record

Orders

Intraprocedure

Pre

Post

Follow-Up

Customize

More

Anesthesia Stop

✓ Anesthesia Stop

ICU / Handoff

+ Create Note See All Notes Refresh

No notes of this type filed.

Handoff Acknowledgment - Handoff Acknowledgment

Time taken: 0858 9/12/2018

+ Add Row + Add Group + Add LDA Values By

Handoff completed Yes No

Restore Close Cancel

Previous Next

Vitals

+ New Reading

09/12/18 0237

Vitals

Temperature	36.8 (98.2)
Temp src	Oral
Heart Rate	120
Heart Rate Source	Left; Radial
Resp Rate	18
Blood Pressure	85/50 †
SpO2	96 %
Pain Score	

Flowsheets

ALEX-ANMD A. 9:01 AM



Validation & Performance

- Monthly data for TOC-02 in Galileo
- Began at “zero” Jan. 2018
- Increases monthly
- Minimal failed cases
 - Review in Case Viewer
- Present to providers monthly



Collaboration TEMP-02

- A work in progress!
- Sources not matching
- OR monitors and Epic interface problem
- Bronson analyst reached out to Epic TS
- Initial “fix” unsuccessful
- Contacted Epic TS- Sherlock ticket created
 - Provide support documentation/information
 - Work with Bronson analysts



Validation, Performance & Education

- Track progress using dashboard
- Review failed cases
- Analyst creates Tip-Sheet for provider education
- Providers educated at monthly meetings and via emails.



Thank you!

[bronsonhealth.com](https://www.bronsonhealth.com)

 **BRONSON**

Beaumont Grosse Pointe – Nicole Pardo

Transfusion



TRAN 02

QI Story

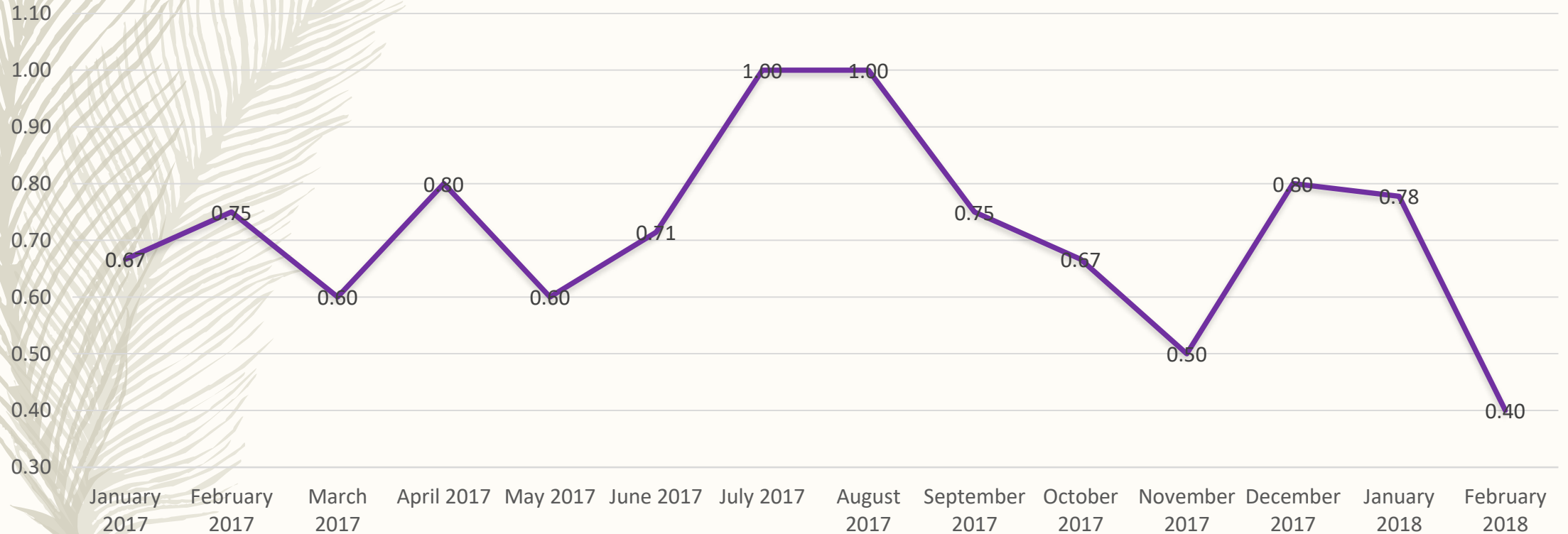
Nichole Pardo

Beaumont Grosse Pointe

TRAN 02

Data review

Percentage Passed



Percentage Passed



The Beginning...

- Monthly Meetings with QI Physician Champion
 - Focus on TRAN measures
- Start Measure of the Month Newsletter
 - Post in CRNA Lounge
 - April 2018 newsletter focus was on TRAN measures
- Lead CRNA to review measures with staff at monthly staff meetings
- ACQR review every failed case with QI Physician Champion
- Q&A Session with CRNA's

- SVP & Chief Quality Officer requesting data
 - Who is ordering the transfusions
 - Why another small site was meeting threshold in this measure
 - *Majority of cases with no post lab draw and most of others drawn in PACU*
 - Time study on duration of post lab draw

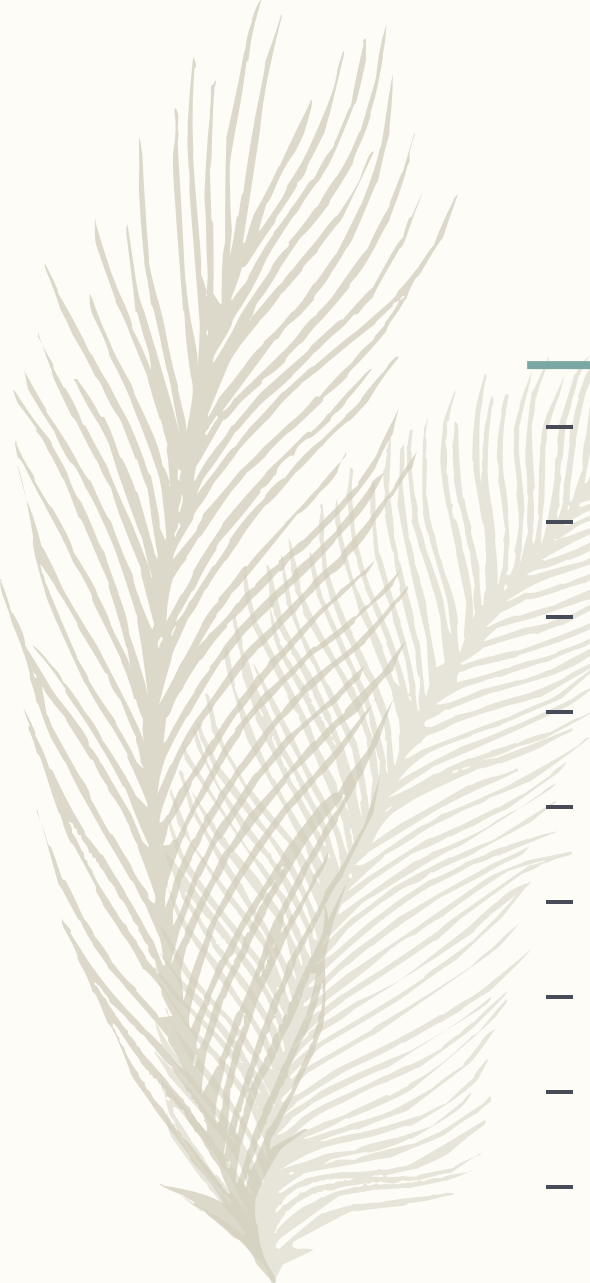
Who?

- Surgeon ordering transfusion 100% of the time
- CRNA to notify MDA of order to transfuse
- Increase of notes in chart stating that both the surgeon and MDA agree to transfusion
- With the increase in communication, will it increase compliance with the measure?

Case Study

Improved Communication

Exploratory Lap, Total Hysterectomy, Ureteral Stent insertion, Right Colectomy

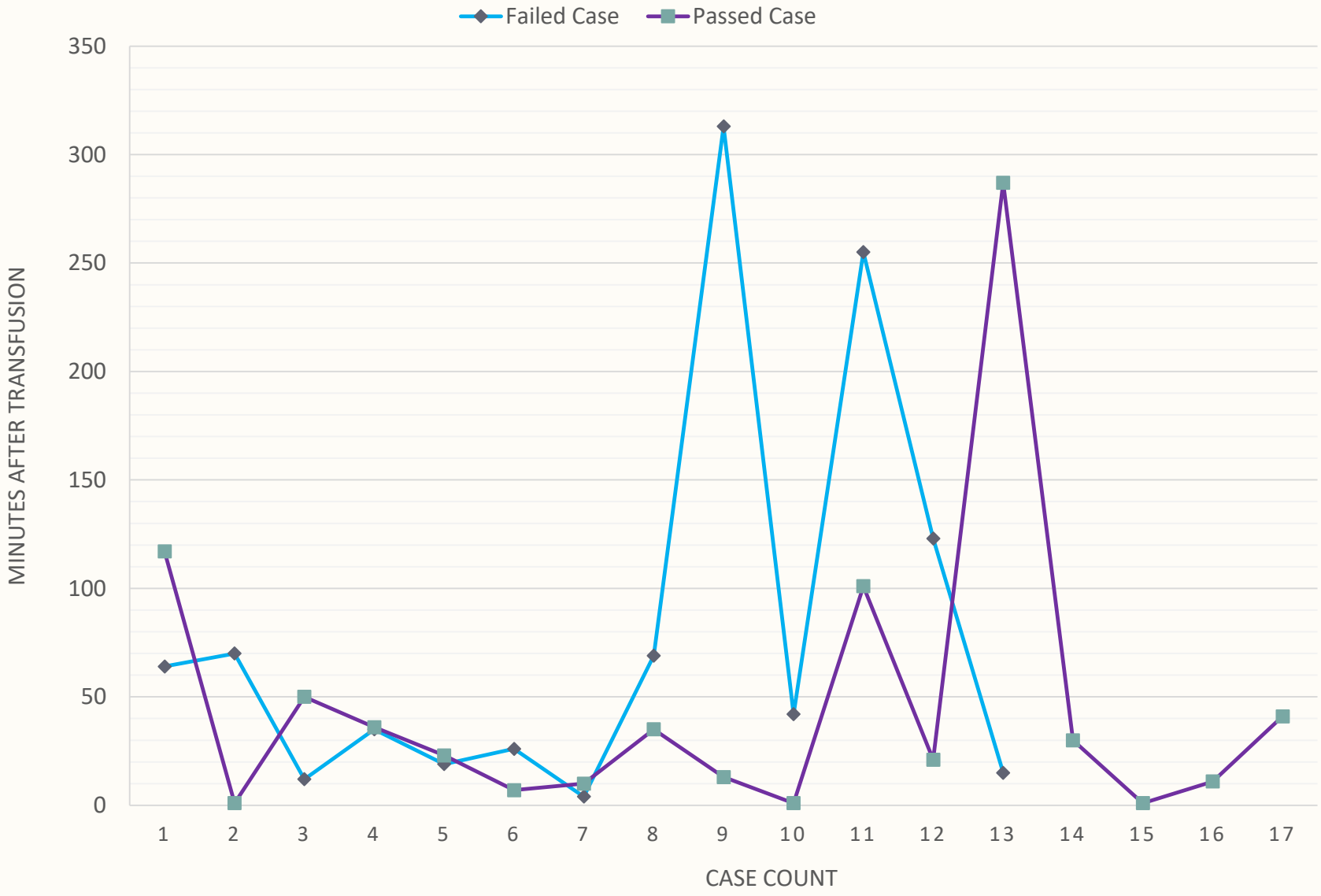


– Anesthesia start 0733	0819	Mark Now incision
– Anesthesia end 1330	0933	Anesthesiologist Visit Replacing EBL with crystalloid 3:1; will recheck Hgb
– 0902 Hgb 9.5	0956	Anesthesiologist Visit
– 1022 Hgb 6.5	1035	Quick Note MDA and surgeon notified of 6.5 Hgb. PRBC 1unit ordered. Will recheck Hcg after transfusion
– 1048 1 Unit PRBC	1048	Quick Note PRBC unit W036318904101 infusing
– 1053 Hgb 7.7	1100	Quick Note Dr. [REDACTED] requests Hgb greater than 8.0
– 1124 1 Unit PRBC	1153	Quick Note Surgeon aware of 9.9 hgb
– 1140 Hgb 9.9	1210	Anesthesiologist Visit
– Total EBL 1400	1220	Agent Off
	1220	Quick Note 3mL Bupivacaine with epi 1:100 given via epidural

TRAN 02 TIME TRIAL

TIME DURATION IN MINUTES FROM END OF TRANSFUSION TILL LAB DRAW

Time Trial



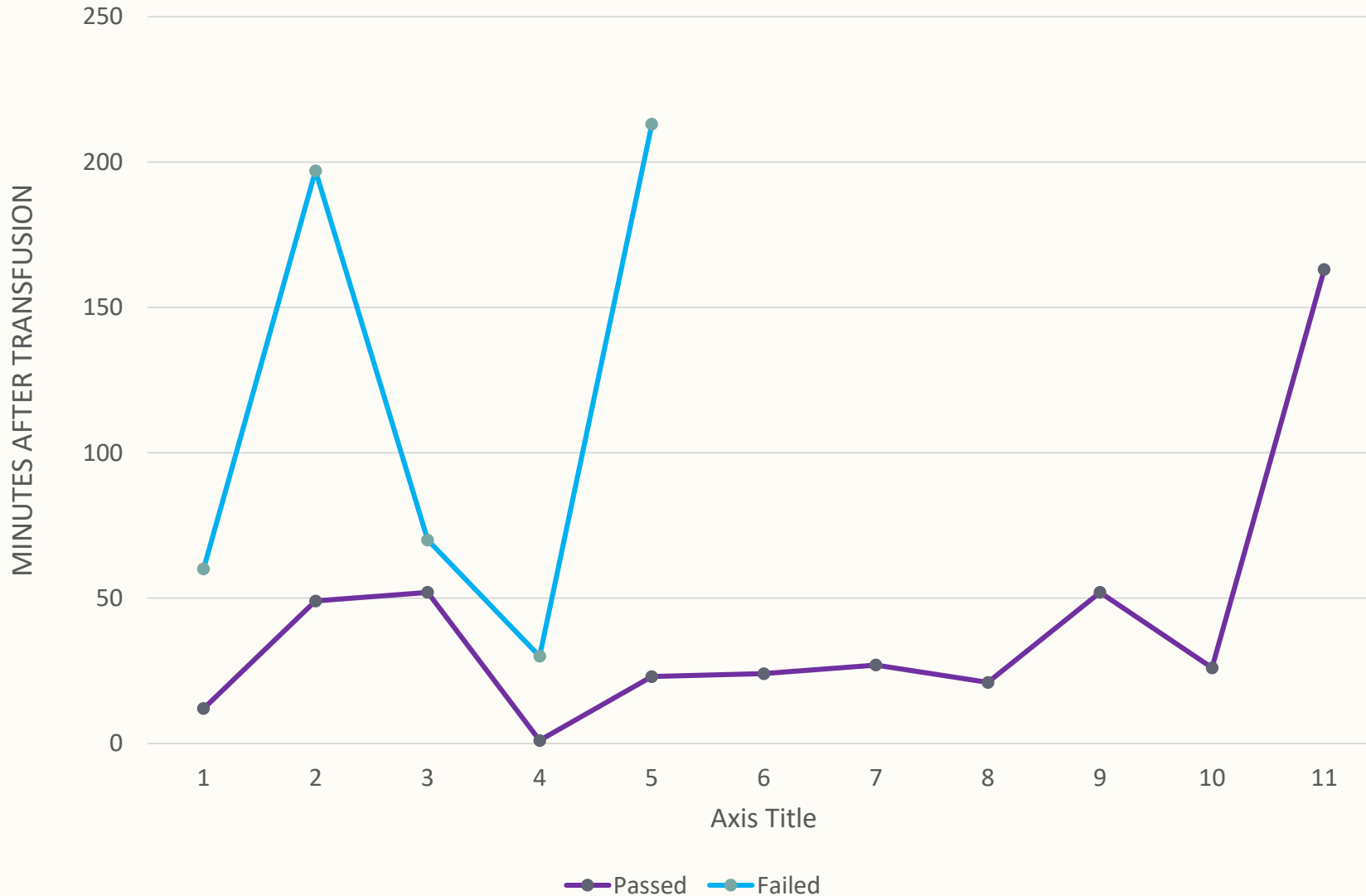
- **1 year time period Feb '17-Feb '18**
- **13 Failed Cases**
 - Excluded documentation errors
- **43 Passed Cases**
 - Looked at 27 cases
 - 10 with no post lab draw

Results: Inconclusive

CRNA's stated that they would continue to draw post labs immediately after transfusion due to their policies. This may prove to show a decrease in failed cases due to majority of passed cases are below the 1 hour mark as opposed to failed cases with almost half greater than 1hour.

TRAN 02 Time Trial

Time duration in minutes from end of transfusion till lab draw

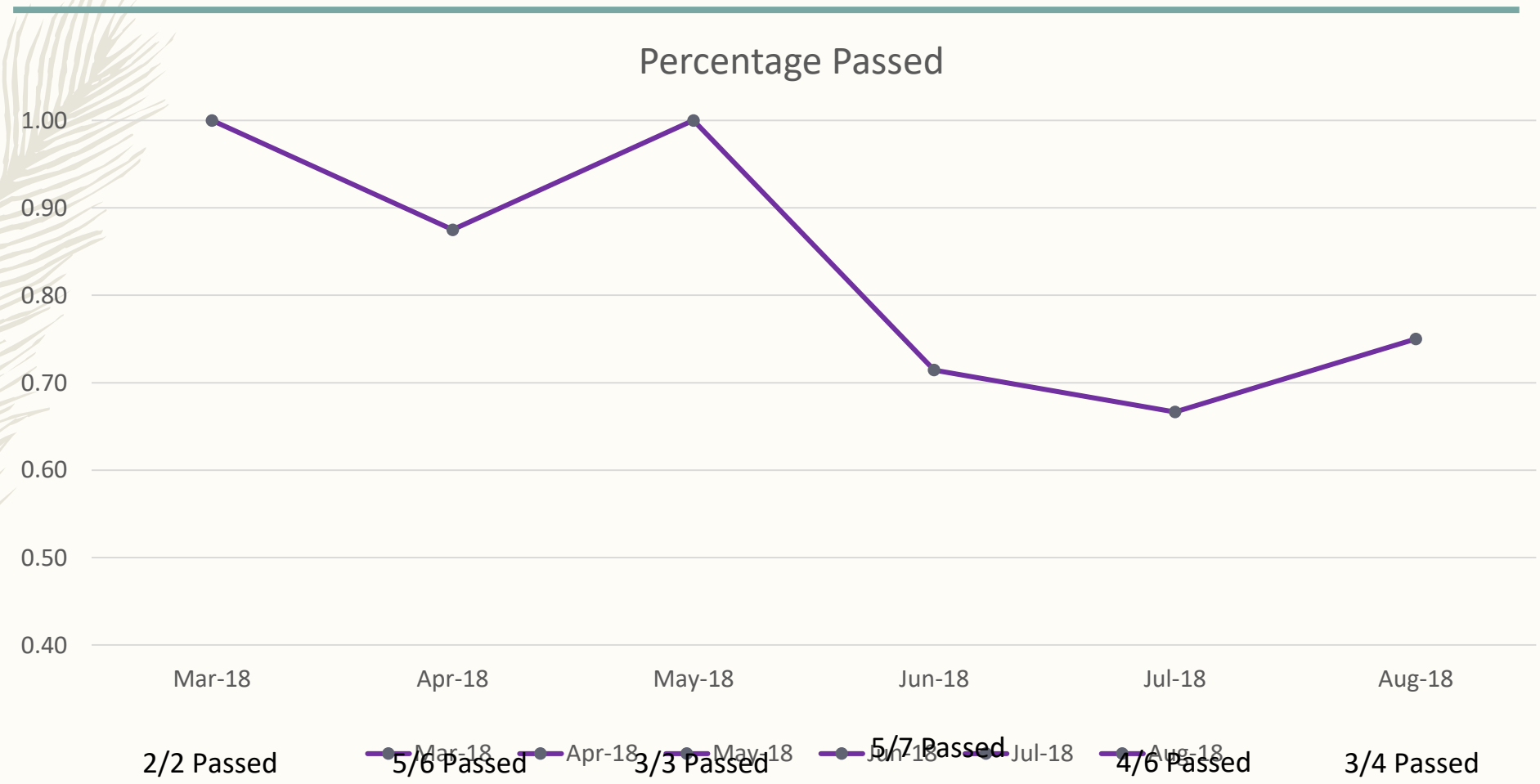
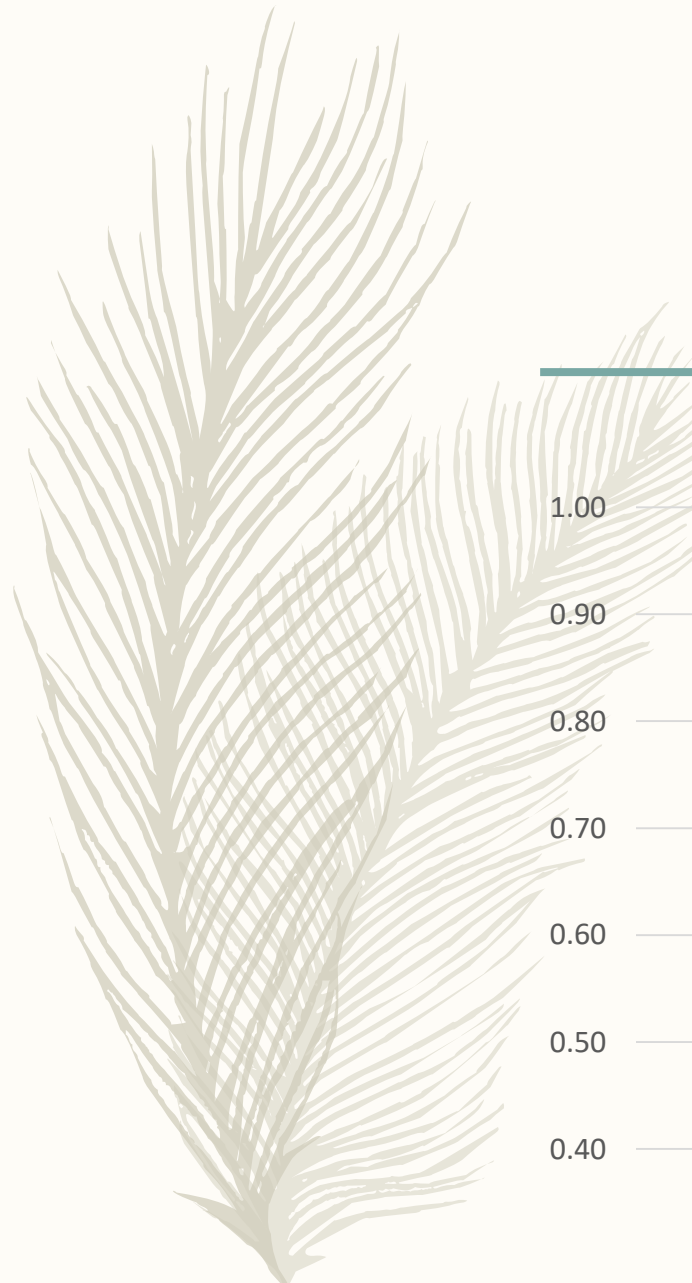


Post Education Time Trial

- Time Period April '18 – July '18
- 5 Failed Cases
- 17 Passed Cases
 - 6 with no post lab draw

Results: Majority of Lab draw <1 hr post transfusion passed the measure

TRAN 02 – Current Data





Future...

- Continue to review each case
 - Staff states they continue to treat the patient not the measure
- Continue to educate
- Look for trends
- ???

Holland Hospital – Amy Poindexter

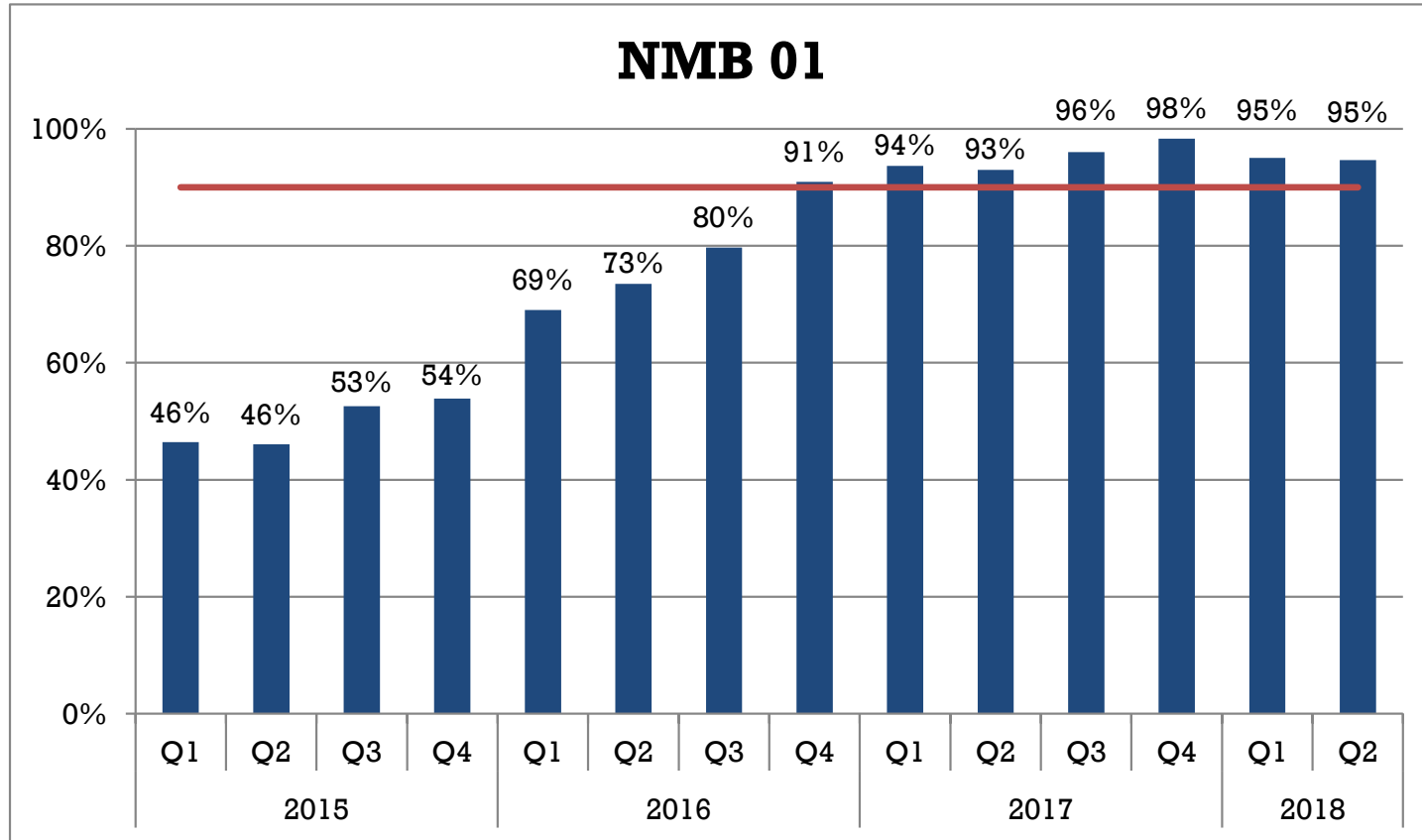
Improving NMB 01 & TEMP 02



ASPIRE

September 21, 2018





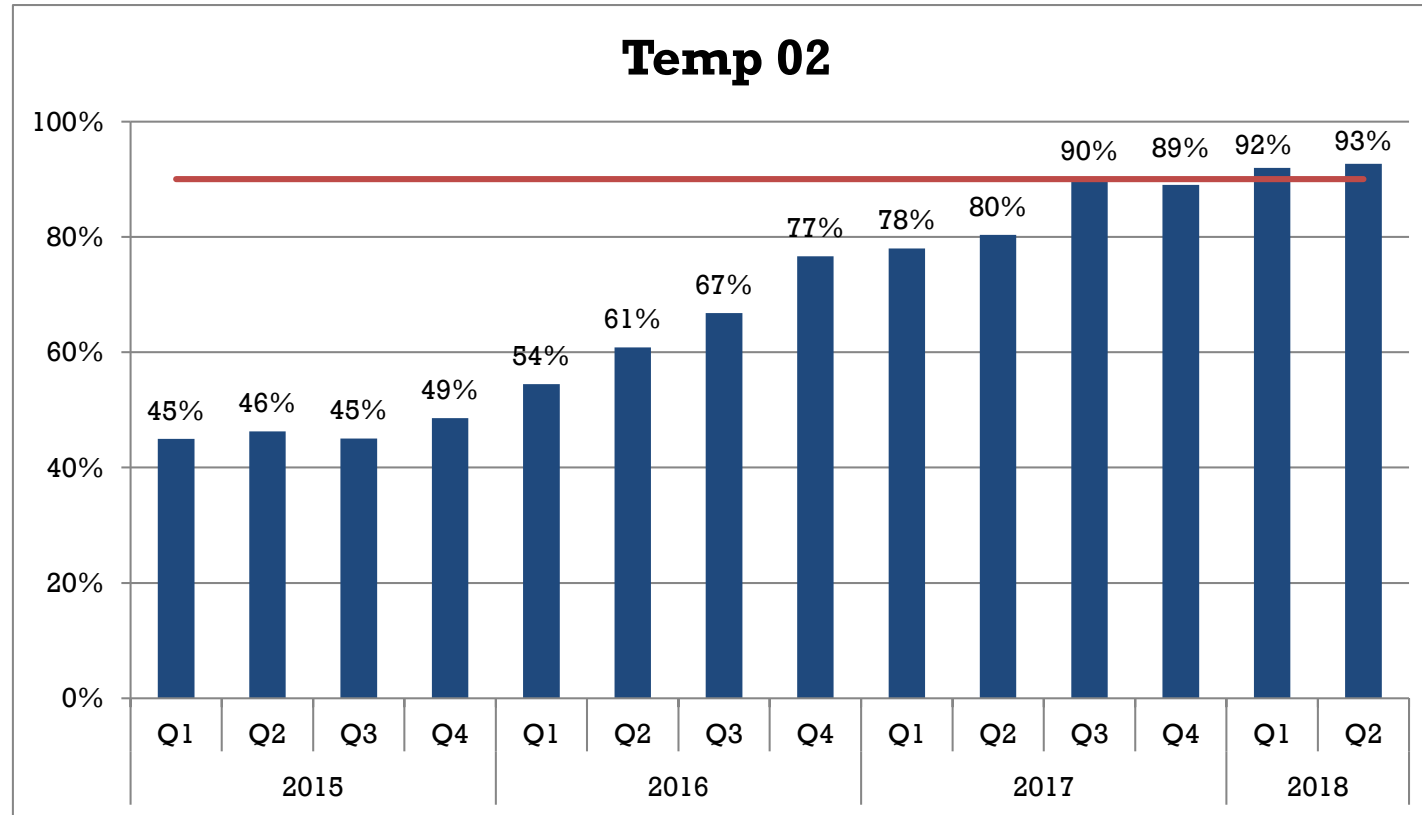
Numerator: Cases with Documentation of TOF after last dose of NMB and before extubation.

Denominator: All patients who have received NMB and were extubated post op or in PACU.

Holland Hospital

- TOF monitoring used infrequently prior to Aspire participation
- Quality monitoring focused on complications that occurred infrequently
- Dr. Wedeven presented data to Anesthesia Journal Club early in 2016 and made sure each anesthesia cart had a monitor
- Education to all staff on TOF use
- Placed measure descriptions on each anesthesia cart
- Presentation of data to anesthesia group regularly showing goal and current performance
- Provider emails helped boost performance

ASPIRE Data



*Numerator: Cases with at least one **core** temperature documented between anesthesia start and end time*

Denominator: General Anesthesia cases > 30 minutes in length

Holland Hospital

- Infrequent documentation of core temp prior to Aspire participation
- Placed measure descriptions on each anesthesia cart
- Failed case review revealed that most fails were for lack of source documentation
- Temp source Task added to Cerner

Holland Hospital

Amy Poindexter, BSN, RN

Holland Hospital Quality Department

616-395-4462

apoindexter@hollandhospital.org

Cheryl Quinn – St. Joe Oakland

Onboarding a New QI Champion

New QI Champion

The Good Times

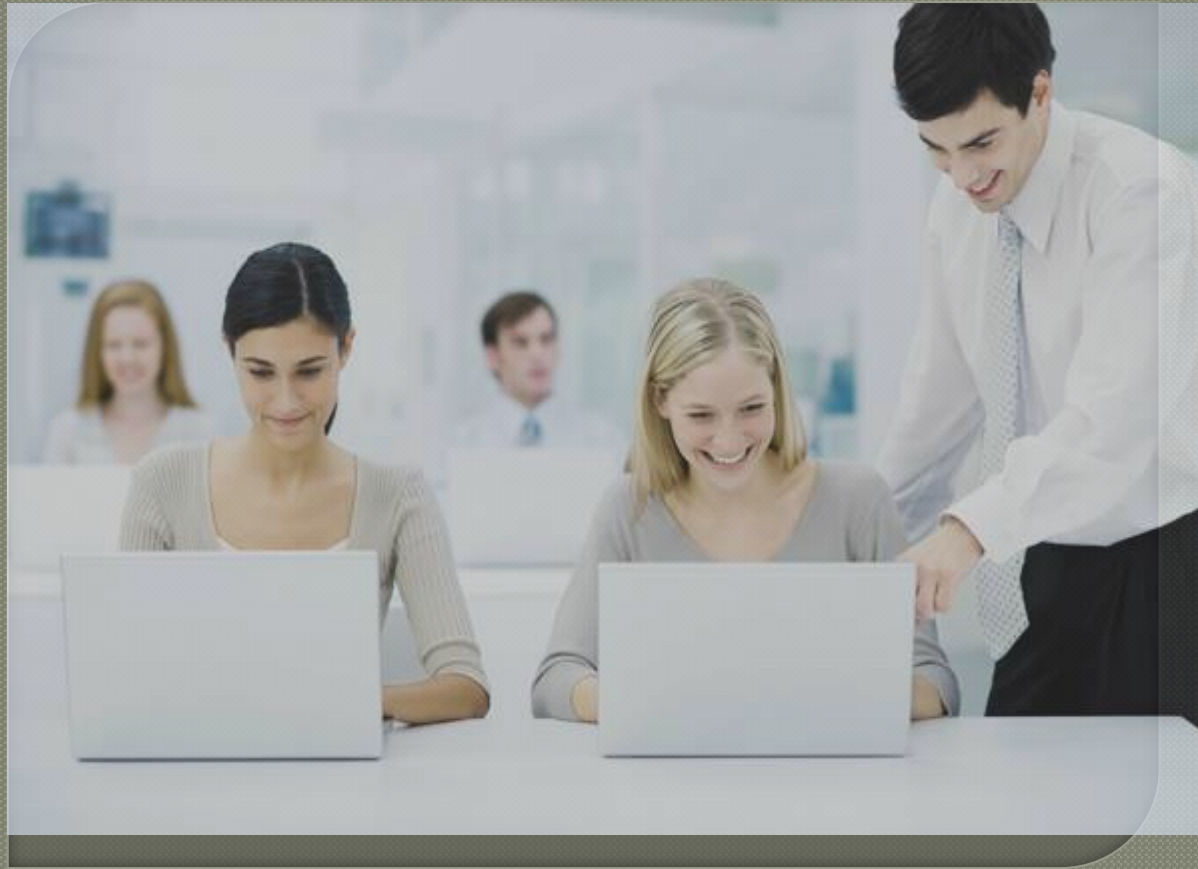
- Presented By: Cheryl Quinn
- Date: September 21, 2018



BeRemarkable.



Pick your champion. If at all possible ask someone you think will do a good job.



**You need your IT
department and your
manager.**

Your manager will have to request access to the MPOG suite .
The IT team wants a ticket put in. You need to get your Champion
on the phone with the IT department to give permission to
download the MPOG suite.



Profile Name: Local

Main Connection (Required)

Server: [Red Box]

Database: MPOG_MAS

Trusted Authentication (Uses your Windows credentials)

Username: []

Password: []

Config Connection (Optional)

Choose your configuration type:

Import Manager (Recommended for new hospitals)

Legacy Epic

Legacy

Server: [Red Box]

Database: MPOG_Import_Manager

Trusted Authentication (Uses your Windows credentials)

Username: []

Password: []

Research Connection (Optional)

Server: []

Database: MPOG_Research

Trusted Authentication (Uses your Windows credentials)

Username: []

Password: []

OK Cancel

- Know your Edit Connection Profile information.
- You may need a new computer.
- Your champion needs this information.
- MPOG Training Manual step by step instructions.

Show them the suite

MPOG Application Suite



MPOG

MULTICENTER PERIOPERATIVE
OUTCOMES GROUP

Edit Connections
About
Connection: Oakland

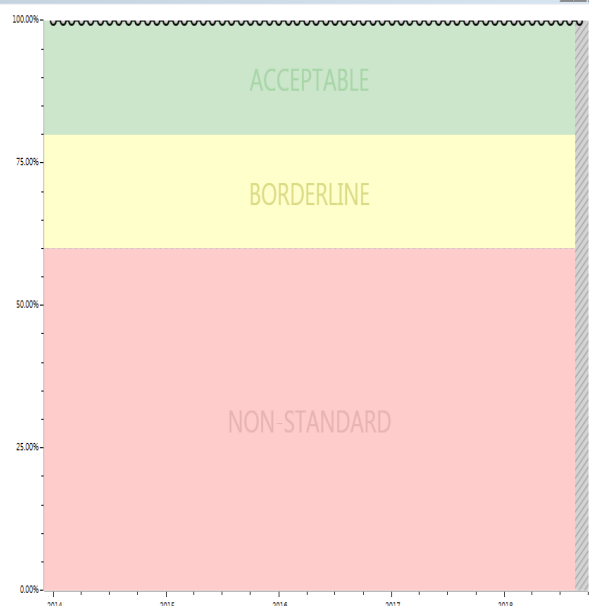
Case Viewer	Concept Browser
Variable Mapping	STS Import
NSQIP Import	PHI Scrubber
Data Diagnostics	Case Validation
Transfer to MPOG Central	Batch MRN Lookup
Content Synchronization	Research Data Cleaning <small>Disabled due to insufficient rights or missing connection.</small>
Location Mapping	Provider Contacts

MPOG Data Diagnostics

Institution: Trinity - St. Joseph Oakland
Module: (All)

By Priority: High (56) Medium (22) Low (4) Extraneous (25)
By Result: Failed (5) Warning (7) Passed (49) N/A (21)

PEEP Measures	High Priority	X
Antibiotics Medications	High Priority	X
Pro Fee Procedures Surgical Billing	Medium Priority	X
Postoperative Troponin Labs	Medium Priority	X
Hospital Discharge Procedures Billing	Low Priority	X
Hospital Discharge Diagnoses Billing	High Priority	!
Blood Transfusions Measures	High Priority	!
Cases with Patient Height Preop	High Priority	!
Preop Mapping Preop	High Priority	!
Lab Type Mapping Labs	Medium Priority	!
Staff Role Mapping Staff	Medium Priority	!



Percentage of Cases with a Meaningful Admission Type Mapping

Priority: [High Priority](#)
Diagnostic Executed On: 9/20/2018

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

- Description
- Attestation
- SQL Query (Advanced Users)

Pay-for-performance Program (P4P)

2018 Anesthesiology Performance Improvement and Reporting Exchange (ASPIRE) Collaborative Quality Initiative Performance Index Scorecard Cohort 1 & 2			
Measure #	Weight	Measure Description	Points
1	10%	Collaborative Meeting Participation: ASPIRE Quality Champion and Anesthesiology Clinical Quality Reviewer (ACQR)	
		Perfect or Nearly Perfect Attendance at Meetings	10
		Good Attendance at Meetings	5
		Attendance Needs Improvement at Meetings	0
2	10%	Attend monthly Webex ASPIRE Quality Committee Meetings	
		9 - 10 Meetings	10
		7 - 8 Meetings	5
		6 or less Meetings	0
3	5%	ACQR/ASPIRE Quality Champion perform data validation, case validation and submit data monthly by the 17th of each month	
		10-11/12 Months	5
		9 or Less Months	0
4	10%	ASPIRE Quality Champion and ACQR monthly meetings	
		12/12 Months	10
		11/12 Months	5
		10/12 Months or Less	0
5	10%	Site Based Quality Meetings: Sites to hold an onsite meeting following the ASPIRE Collaborative meetings to discuss the data and plans for quality improvement	
		3/3 Meeting	10
		2/3 Meeting	5
		1 or less Meetings	0
6	10%	Quality Initiative project presentation at ASPIRE Monthly Quality Committee Meeting or ASPIRE Collaborative Meeting	
		Yes	10
		No	0
7	15%	Performance Measure: Pulmonary 01 (PUL 01) - percentage of cases with median tidal volumes less than 10 ml/kg (cumulative score through December 2018)	
		Performance is > 97.5%	15
		Performance is 95.0 - 97.5%	10
		Any improvement	5
		No performance improvement or decline	0

2018 Anesthesiology Performance Improvement and Reporting Exchange (ASPIRE) Collaborative Quality Initiative Performance Index Scorecard Cohort 1 & 2			
Measure #	Weight	Measure Description	Points
8	15%	Performance Measure: Transfusion 02 (TRAN 02) - percentage of cases with a post transfusion hemoglobin or hematocrit value less than or equal to 10 g/dL or 30% (cumulative score through December 2018)	
		Performance is > 85%	15
		Performance is 80 - 85%	10
		Any improvement	5
		No performance improvement or decline	0
9	15%	Site Directed Measure: Sites choose a measure they are performing below national ASPIRE threshold by December 15, 2017 (cumulative score through December 2018)	
		Performance is > 90%	15
		Performance is 85 - 90%	10
		Any improvement	5
		No performance improvement or decline	0

Now it's time to learn Galileo

- They love the data....



How I keep myself organized

ACQR Maintenance Schedule Check List

Week 1

- o Case by Case Validation (20 cases)
- o Mapping of Missing Concepts
- o Update Location Mapping

Week 2

- o Data Diagnostics & Attestation
- o Check Data Diagnostics (open case list)
- o PHI scrubbing
- o Look for Billing Data on the 11th

Week 3

- o Failed Case Review (PUL-01 >97.5%, TRAN-02 >85%, PONV >90%) 2018 Measures
- o Mapping of Missing Concepts
- o Upload to MPOG Central (3rd Wednesday) past 3 months of data
- o After Wednesday transfer all historic data

Week 4

- o Content Synchronization
- o Update Provider Contacts
- o Provider Feedback Emails Sent (4th Wednesday)
- o Send ACQR/QI Report

Monthly QI Champion / ACQR Meeting

Monthly Quality Committee

Site Based Quarterly Meeting: May, August, October, November

Collaborative Meetings 2018 – April 20th, July 20th, September 21st, October 12th

Month of Data		Date of Data			
Percent	Measure	Looking For	Example Findings	Results to be Reviewed	Failed Cases Count
%	AKI-01	^ CREAT > 0.3 POST			
%	BP-01	MEAN BP < 55 / 20 MINS			
%	BP-02	> 10 MIN GAP			
%	CARD-02	TROPONIN (> 0.60)			
%	GLUC-01	HIGH BS RECHECK 90 MINS			
%	GLUC-02	LOW BS RECHECK 90 MINS			
%	MED-01	NALOXONE/FLUMAZENIL ADMINISTERED			
%	NMB-01	NO TOF			
%	NMB-02	NO REVERSAL NEOSTI or SUGAM			
%	PONV-01	2 ANTIEMETICS ADMINISTERED	NEED 90%		
%	PONV-02	Ages 3-17			
%	PUL-01	WT < 10ML/KG	NEED 97.5%		
%	PUL-02	WT < 8ML/KG			
%	TEMP-01	WARMING USED			
%	TEMP-02	CORE TEMP			
%	TEMP-03	30 MINS PRIOR CASE END or 15 MINS POST			
%	TOC-02	HANDOFF			
%	TRAN-01	HGB CHECKED PRIOR TO			
%	TRAN-02	POST 10 HGB/30 HCT	NEED 85%		

ASPIRE/ MPOG

MONTHLY CALLS 10am : September 24th (your office) **Review 2019 P4P TOC-03**

October 22nd

November 26th QI story presentation (Trello) PowerPoint

ON SITE MEETING: After ASA

October 12th MPOG Retreat / ASA Dr Ellis will have to report to staff after attending:

Pick a date Oct 17th / Nov 2nd, 21st / Dec 7th, 19th

Schedule time at date selected. _____.

TRAN-02 84% (we need 85% to get the points)

PUL-01 99% (we need 97.5% to get the points)

PONV-01 88% (we need 90% to get the points)

Surgical quality meetings: January and July 2019

2019 ASPIRE MEETINGS : April 5th, July 26, Oct 18th in Orlando (ASA meeting).

On site meeting after each ASPIRE meeting. With all staff.

POSSIBLE Measures for 2019: PUL-03.

LUNCH BREAK



Afternoon Agenda

- Discussion Panel: ACQR/MPOG Programmer Q & A
- QI Stories
 - St. Mary Mercy Livonia
 - Mercy Health Muskegon
- Coordinating Center Feedback
- Opioid Equivalency Dashboard
- Reminders & Wrap-up

Discussion Panel: ACQR/MPOG Programmer Q & A

- Automatic transfer of monthly data?
- What new tools do you see being released over the next year?
- What information is most helpful to you when trouble shooting an issue in local?
- Dashboard display?
- Provider Contacts tool?
- Import Manager Conversion?

St. Mary Mercy Livonia – Kathleen Collins

Handoff Tool

TRANSFER OF CARE

Using ASPIRE Criteria to Improve
Communication and Patient Safety

Kathleen L. Collins, CRNA, MS, ACQR
St. Mary Mercy Hospital, Livonia

MPOG ~ ASPIRE Rationale for TOC Measures (Quoted from MIPS 426):

- ▣ *Hand-offs are a vulnerable moment for patient safety*, but required in any 24/7 healthcare system. Anesthesia providers routinely transfer patients from the operating room (OR) to the PACU, and are responsible for transmitting knowledge about patient history, a summary of intraoperative events, and future plans for hemodynamic and pain management to the new care team. *Evidence demonstrates that this process can be facilitated by use of a standardized checklist* to ensure completion of all key components of the transfer, and is seen as an emerging best practice in anesthesia care.¹⁻³

- ❑ The Agency for Healthcare Research and Quality found that *current sign-out mechanisms are generally ad-hoc, varying from hospital to hospital and unit to unit*. According to data published by the Joint Commission, *communication errors were indicated in 59% of reported sentinel events in 2012 and in 54% of operative/post-operative complications between 2004 and 2012*.
- ❑ A 2006 survey among residents at Massachusetts General Hospital found that 59% of respondents reported one or more patients experiencing harm as a result of ineffective patient handoff practices during their most recent clinical rotation.

Handoffs Causing Patient Harm: A Survey of Medical and Surgical House Staff

- 2006 survey of all residents in internal medicine and general surgery at Massachusetts General Hospital re: quality and effects of handoffs during recent inpatient rotations
- 161 participants
 - 59% reported one or more patients had been harmed because of problematic handoffs
 - 12% reported this harm had been major
- Handoffs often marked by missing, incomplete, or inaccurate information

[The Joint Commission Journal on Quality and Patient Safety](#)
[Volume 34, Issue 10, October 2008, Pages 563-570, 570a-570d](#)

Original SJAA/A4 Handoff Form, AKA “The Blue Sheet”

- Brought to SMML by A4 (Anesthesia Associates of Ann Arbor)

SAINT JOSEPH MERCY HEALTH SYSTEM
St. Joseph Mercy Ann Arbor
5301 East Huron River Drive • P.O. Box 995 • Ann Arbor, MI 48106-0995

PACU Handoff

Anesthesiologist: _____ CRNA: _____
Report given to: _____

Identify Patient
Primary Service: _____
Surgery: _____ Allergies: _____
PMH: _____

Type of Anesthesia: MAC _____ General _____ Nerve Block _____ Epidural _____ Spinal _____

IV access / Lines: _____
Antibiotic(s): _____ Time: _____

Anti-emetics:
Decadron _____ Benadryl _____ Zofran _____ Scopolamine Patch _____
Other: _____

Other Medications:
Metoprolol _____ Phenylephrine _____ Ephedrine _____

Intake:
Crystalloid _____ Colloid _____

Glucose _____

Issues / Concerns with case: _____
Expectations / Plans: _____

“The thing I’m most concerned about with this patient is . . .” Provide opportunity for questions from receiving nurse.

28001-024 N 6/15 (M)

Not Part of Permanent Record

Blue Sheet Issues

- ▣ Too small to read
- ▣ No room to write
- ▣ Outdated, not reflective of current practice
- ▣ Not complete (missing info needed in handoff and TOC)
- ▣ Allgeries. Really??

First Draft

12-25-2017

St. Joseph Mercy LOGO/Address

PACU HANDOFF

Anesthesiologist: _____ CRNA: _____

Report Given To: _____

Identify Patient

Primary Service: _____ Allergies: _____

Surgery: _____ Contact Precautions: **Y / N**

PMH: _____

PSxH: _____

OSA: Y / N CPAP? Y / N STOP/BANG Score: _____

Anesthetic: MAC _____ General: **ET _____ LMA _____** Nerve Block _____ Epidural _____ Spinal _____

IV access/lines: _____ **B-Blocker Y / N**

Antibiotics: _____ Time: _____ **Re-dose? _____**

PONV Score: _____ Decadron _____ Benadryl _____ Zofran _____ Scopolamine patch _____

Pre-op IV meds: _____

Pain Medications / Anxiolytics:

Other Rx:

Midazolam _____ Valium _____ Fentanyl _____

Metoprolol _____ Phenylephrine _____

Toradol _____ Dilaudid _____ Morphine _____

Ephedrine _____ Other: _____

Ketamine _____ **Other: _____**

Muscle relaxants: None _____ Drug / Time of Last Dose: _____

Reversed? Y / N Reversal / Time: _____

Glucose: _____ Treatment: _____ Intraop labs: _____

Intake: Crystalloid _____ Colloid _____

Output: EBL _____ UOP _____ Other _____

Anesthesia concerns: _____

Pain Management Plan: _____ **Anesthesia complications: Y / N**

Comments: _____

Draft #6

Shared With SJAA/A4, February 2018

St. Joseph Mercy/SMML LOGO/Address

ANESTHESIA TRANSFER OF CARE FORM

Anesthesiologist: _____ CRNA: _____

Identify Patient: _____ Report from (POHA): _____ Given To (PACU): _____

Primary Service: _____ Allergies: _____

PMH: _____ PSxH _____

Surgery: _____

OSA: Y / N CPAP: Y / N STOP/BANG Score: _____ B-Blocker: Y / N Contact Precautions: Y / N Preg: Y / N

PONV Score: _____ Pre-op PO meds: Decadron _____ Benadryl _____ Zofran _____ Scopolamine _____

Celebrex _____ Gabapentin _____ Acetaminophen _____ Other _____

Pre-op IV meds: _____ Prewarmed: Y / N

Anesthetic: MAC _____ GA/ET _____ GA/LMA _____ Glidescope _____ Epidural _____ Spinal _____

Nerve Block _____ Local Anes. Total: _____

IV access/lines: _____

Antibiotics: _____ Time: _____ Re-dose: _____

Anes. Rx: Midazolam _____ Fentanyl _____ Dilaudid _____ Toradol _____ Morphine _____ Ketamine _____

Valium _____ Reversal _____

Other Rx: Ephedrine _____ Phenylephrine _____ Metoprolol _____ Other _____

Muscle relaxants: None _____ Reversed: Y / N Sugammadex: Y / N

Glucose: _____ @ _____ Treatment: _____ Labs: _____

Intake: Crystalloid _____ Colloid _____

IV Infusions/Pressors: _____

Output: EBL _____ UOP _____ Other _____

Vent Settings: VT _____ RR _____ FIO2 _____ PEEP _____ Size: _____ Secured@ _____ BBS Equal: Y / N

Anesthesia concerns: _____

Pain Management Plan: _____ Anesthesia complications: Y / N

Comments: _____

SJAA/A4 First Draft

3-01-2018

ANESTHESIA TRANSFER OF CARE FORM

Allergies: _____

Surgical Procedure: _____

PSxH _____

PMH: _____

PLU Sticker

PONV Score: _____

STOP BANG Score: _____

Anesthesia MD/DO: _____

CRNA: _____

Surgeon: _____

OME _____

Pre-warmed: Y/N OSA: Y/N CPAP: Y/N Contact Precautions: Y/N Preg: Y/N

PRE-OP

Meds

- Tylenol
- Entereg
- Gabapentin
- Lyrica
- Oxycodone
- Celebrex
- Scopolamine Patch
- IV Meds: _____
- Other: _____

Regional

- Nerve Block
- Epidural
- Local _____
- Total Dose: _____

Primary Anesthetic _____

INTRA-OP

Meds

Antibiotic: _____
Redose: _____

- Midazolam
- Fentanyl
- Dilaudid
- Toradol
- Morphine
- Ketamine
- Valium
- Neostigmanie
- Sugammadex
- IV infusions
- /Pressers: _____

Input

- Fluids: _____
- Blood Products: _____

Output

EBL: _____
UO: _____

Airway

Glidescope: _____
Yes
No

Spinal:

- Duramorph: _____
 - Y
 - N

Relevant Labs:

HCT: _____
Glucose: _____

Questions: _____

Plan of Care: _____

TOC 02 (MIPS 426)

- ▣ Description: Percentage of patients, regardless of age, who are under the care of an anesthesia practitioner and are admitted to a PACU in which a post-anesthetic formal transfer of care protocol or checklist which includes the key transfer of care elements is utilized.

MPOG PACU Audit Tool Elements:

Background
Introduction (Provider names and roles: PACU RN and anesthesia team members)
Identification of patient*
Pertinent PMH/PSH
Discussion of surgical/procedure course
Allergies
Contact Precautions
Anesthetic Management
Airway management (ETT/ LMA)
Type of anesthetic
Anesthetic Complications
Medications
Preoperative Meds
Sedations medications & amount administered. Reversal administered?
Muscle relaxants: Time/Amount administered. Reversal administered?
Pain Management Plan
PONV Risk & Meds Administered
Fluids
Vascular access
Total Intraoperative Fluids/Blood Products Administered
Intraoperative labs
Expectations/Plans
Identify primary anesthesia concerns for this patient.
Allow opportunity for questions/acknowledgement of understanding of report from receiving PACU team

TOC 03 (MIPS 427)

- ▣ Description: Percentage of patients, regardless of age, who undergo a procedure under anesthesia and are admitted to an Intensive Care Unit (ICU) directly from the anesthetizing location, who have a documented use of a checklist or protocol for the transfer of care from the responsible anesthesia practitioner to the responsible ICU team or team member

TOC 03 Supplement:

MPOG sites interested in auditing the transfer of care process can utilize the ICU Handoff Form available through the MQUARK application. More information regarding the MQUARK audit application is available on the MPOG website: <https://mpog.org/apps/>

MPOG ICU Audit Tool Elements:

Background
Introduction (Provider names and roles: ICU RN and anesthesia team members)
Identification of patient**, key family member(s)
Identification of responsible practitioner (primary service)
Pertinent PMH/PSH
Discussion of surgical/procedure course
Allergies
Contact Precautions
Anesthetic Management
Airway management (ETT size, device used, difficulty)
Type of anesthetic
Anesthetic Complications
Medications
Preoperative Meds
Sedations medications & amount administered. Reversal administered?
Muscle relaxants: Patient's current status. Time/Amount administered. Reversal administered?
Pain Management Plan
Fluids
Vascular access
Total Intraoperative Fluids/Blood Products Administered
Intraoperative labs
Expectations/Plans
Identify primary anesthesia concerns for this patient.
Allow opportunity for questions/acknowledgement of understanding of report from receiving ICU team

ASPIRE CRITERIA Addressed

- ASPIRE requires that the PACU RN/responsible professional be identified; we included the POHA nurse for continuity of care, so that we would know who to contact with questions re: pt prep, meds, etc., and also to allow us to ID which RNs were prewarming patients (**ASPIRE TEMP - 03**, and **Enhanced Recovery criteria**). (There is method in the madness).

- **ASPIRE Measures GLU 01 and GLU 02** require intervention within 90 minutes of the result, with subsequent 90 minute recheck, which is why we require a time (**Glucose:**
_____@_____ Treatment: _____)
 - ○ https://mpog.org/files/quality/measures/GLU-01_spec.pdf
 - ○ https://mpog.org/files/quality/measures/GLU-02_spec.pdf

- Administration of **Beta Blocker** is critical info for **SCIP QI**, is included in the surgical Time-out and needed to be added back

- ▣ **IV access** is also part of ASPIRE required TOC (added back)
- ▣ Intraop needs to include **whether muscle relaxants were used, and if they were reversed (Sugammadex)**
- ▣ The airway should also specify whether an **LMA, ETT, &/or Glidescope** were used
- ▣ There needs to be a TOTAL Local Anesthetic dose that includes LA given in the OR (not just the block in POHA)
- ▣ Include **Vent settings and ETT placement** for patients who remain intubated, formatted in any way you think best
(VT_____ RR_____ FIO2_____
PEEP_____ Size:_____ Secured@_____ BBS Equal: Y / N)

Final TOC Combined Draft #7:

Are you ready?

ANESTHESIA TRANSFER OF CARE FORM

PLU Sticker

Allergies: _____ Surgical Procedure: _____

Anesthesia MD/DO: _____ CRNA: _____

Surgeon: _____ PSHx: _____

PMHx: _____

Pregnant: Y / N DNAR: Y / N OSA: Y / N CPAP: Y / N Contact Precautions: Y / N

Pacemaker Y/N AICD Y/N MME: _____ PONV score: _____ STOP BANG score: _____

Pre-Op Hand Off from: _____

Pre-OP Meds

- Tylenol
- Diazepam
- Entereg
- Gabapentin
- Oxycodone
- Celebrex
- Scop patch
- Beta Blocker
- IV Meds: _____
- _____
- _____

Regional

- Nerve Block _____
- Epidural _____
- Local _____
- Intra-op Local _____
- Total Dose: _____
- _____

Primary Anesthetic

- GA
- LMA
- ETT
- Glidescope
- MAC
- SAB/Epidural
- Duramorph

IV Access/Lines: _____

Antibiotic: _____ Redose: _____

Intra-Op Meds

- Midazolam _____
- Fentanyl _____
- Dilaudid _____
- Toradol _____
- Morphine _____
- Ketamine _____
- Diazepam _____
- Propofol _____
- Sed. Rev. _____
- NMB Rev. _____
- IV Infusion/Pressors _____
- _____

Input

Fluids: _____
Blood Products: _____

Output

EBL: _____
UO: _____

PONV

- Decadron
- Zofran
- Benadryl

LABS: _____

Questions/Concerns: _____

Anesth. Complx: _____

Pain Mgmt POC: _____

PACU Handoff to: _____

ICU Handoff To: _____

ETT Size _____ secured @ _____ and primary service _____

Anesthesia Transfer of Care Form

- ▣ Started as a badly needed, ASPIRE-influenced update for St. Mary Mercy Hospital, Livonia
- ▣ Initial drafts tested by SMML CRNA staff
- ▣ Sixth draft shared with St. Joe's Ann Arbor and A4
- ▣ With input and collaboration from Ann Arbor, Chelsea, Livingston and Brighton anesthesia staff, 7 drafts were developed and modified



St. Joseph Mercy Ann Arbor
 5301 East Huron River Drive
 P.O. Box 995
 Ann Arbor, MI 48106-0995

PLUE Sticker

Anesthesia Transfer of Care Form

Allergies: _____ Surgical Procedure: _____
 Anesthesia MD / DO: _____ CRNA: _____
 Surgeon: _____ PSHx: _____
 PMHx: _____

Pregnant: Y / N DNAR: Y / N OSA: Y / N CPAP: Y / N Contact Precautions: Y / N
 Pacemaker: Y / N AICD: Y / N MME: _____ PONV Score: _____ STOP BANG Score: _____

Pre-Op Hand Off From: _____

PRE-OP MEDS

- Tylenol _____
- Diazepam _____
- Entereg _____
- Gabapentin _____
- Oxycodone _____
- Celebrex _____
- Scop Patch _____
- Beta Blocker _____
- IV Meds: _____

REGIONAL

- Nerve Block _____
- Epidural _____
- Local _____
- Intra-op Local _____
- Total Dose: _____

PRIMARY ANESTHETIC

- GA _____
- LMA _____
- ETT _____
- Glidescope _____
- MAC _____
- SAB / Epidural _____
- Duramorph _____

IV Access / Lines: _____

Antibiotic: _____ Redose: _____

INTRA-OP MEDS

- Midazolam _____
- Fentanyl _____
- Dilaudid _____
- Toradol _____
- Morphine _____
- Ketamine _____
- Diazepam _____
- Propofol _____
- Sed. Rev. _____
- NMB Rev. _____
- IV Infusion / Pressors _____

INPUT

Fluids: _____

 Blood Products: _____

OUTPUT

EBL: _____
 UO: _____

PONV

- Decadron _____
- Zofran _____
- Benadryl _____

Labs: _____

Questions / Concerns: _____

Anesth. Complx: _____

Pain Mgmt POC: _____

PACU Handoff to: _____

ICU Handoff to: _____

ETT Size _____ secured @ _____ and primary service _____

STOP/BANG Review:

- ▣ Snoring
- ▣ Tired
- ▣ Observed Obstruction
- ▣ Pressure (HTN)
- ▣ BMI > 35
- ▣ Age > 50
- ▣ Neck > 17 in. Male; > 16 in. Female
- ▣ Gender (Male)
 - 0-2 = Low risk; 3-4 = Mod. risk; 5-8 = High risk
 - or High risk if Yes to 2 of STOP questions AND
 - ▣ Male; or BMI >35; or Neck Size > 16-17 in.

13th Time's a Charm!

- ❑ This TOC tool is now available for use throughout the St. Joseph Mercy Health System. It can be modified in future as practice changes
- ❑ It is NOT a part of the permanent record, is filled out during each case, and can be adapted for each patient and provider
- ❑ All requirements for safe, consistent TOC are provided
- ❑ You can lead a horse to water...

Different systems have different routines, preferences and needs

- ❑ Whether electronic or printed, it is essential that the TOC be consistent and thorough
- ❑ We just happen to prefer the hand-off checklist
 - ❑ All the info in one place
 - ❑ Don't have to fight over the computer to retrieve info
- ❑ If you have questions or would like more info, please contact me any time
 - ❑ Kathleen.Collins@stjoeshealth.org
 - ❑ 734-655-2369
- ❑ Many thanks to Chris Ladd, Dr. Susan Molina, Dr. Traci Coffman, and Brandy Horton for their input and feedback. This was a TEAM effort.

Mercy Health Muskegon – Joan Crawford

New Provider Orientation





MERCY HEALTH

ASPIRE/MPOG ACQR RETREAT

Mercy Health Muskegon

Get On-Board

Dr. John LaGorio, Physician Champion
Joan Crawford, ACQR

About our facilities:

- Trinity Health with 2 Muskegon campuses, Hackley and Mercy
- New facility under construction, 19 ORs
- Trinity will change to Epic EMR over the next 4 years

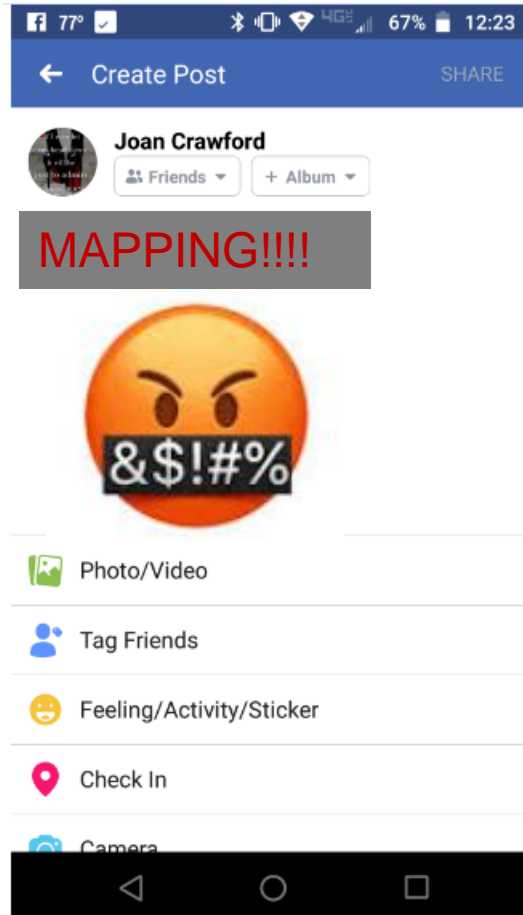
About our providers:

- American Anesthesiology of Michigan-Lakeshore (AAMU)
- 32 anesthesiologists and 23 CRNAs
- Perform over 2200 cases/month between Hackley and Mercy

About MPOG/ASPIRE:

- Cohort 1 (2015)
 - 4 ACQRs
 - 23 providers left
 - 38 new providers

About the biggest change...



About all that change...

- Using the Provider list in Galileo we determined

- PUL 01: new staff comprised 44% of all of providers in this measure and were responsible for 51% of the measure fails
- TRAN 02: new staff comprised 43% of all providers in this measure and were responsible for 55% of the measure fails
- TEMP 01: new staff comprised 45% of all providers in this measure and were responsible for 36% of the measure fails
 - Using this Galileo tool we were able to drill down and determine one long-term provider had 23% of the institutional fails
 - The provider did not document Bair huggers in the anesthesia record although the peri-op nursing record contained this information

About improvements...

- In April 2018 (borrowing Jerri's template) we updated the pocket measure card and distributed it to both new-hires and long term providers.
- The card is a tri-fold measuring approximately 5"x5"
- Contained all the measures current at that time
 - Inclusions
 - Exclusions
 - Compliance
- Included a link to the MPOG site for full specifications

Pocket Measure Card

<p>AKI 01 (QCDR Measure ID: ASPIRE 19) INCLUSIONS All anesthetic cases EXCLUSIONS *ASA 5 & 6 *Pre-existing renal (Stage IV or V) failure *Procedures affecting kidneys *Patients with no baseline creatinine 60 days pre-op or 7 days post-op *Case duration < 45 minutes COMPLIANT 1) Creatinine does not go above 1.5x the baseline within 7 days post-op 2) Creatinine does not increase by ≥ 0.3 mg/dL within 48 hours post-op</p> <p>BP 01 INCLUSIONS All patients requiring general anesthesia or MAC EXCLUSIONS *Age < 18 years *ASA 5 & 6 *Baseline MAP < 60 mmHG *Labor Epidurals *Cardiac procedures with pump COMPLIANT Periods of Low MAP (< 55 mmHG) is < 20 cumulative minutes</p> <p>BP 02 INCLUSIONS All patients receiving anesthesia care by an Anesthesiology Provider, regardless of primary anesthesia technique EXCLUSIONS *ASA 5 & 6 *Labor epidurals *MRI cases COMPLIANT Blood pressure monitoring with ≤ 10 minute measurement interval</p> <p>CARD 01 (Avoiding MI) INCLUSIONS All patient undergoing anesthesia under the care of an Anesthesia Provider EXCLUSIONS *Troponin I > 0.01 within 42 days prior to Anesthesia Start *ASA 5 & 6 *Outpatients COMPLIANT Troponin I is ≤ 1.00 within 72 hours of Anesthesia End OR no Troponin is measured</p>	<p>FLUID 01 – Non-Cardiac INCLUSIONS All patients undergoing general, spinal, epidural anesthesia EXCLUSIONS *Cardiac cases *ASA 5 & 6 *EBL ≥ 2000 ml *Transfusion $\geq 4u$ PRBC COMPLIANT No colloids were administered</p> <p>FLUID 01 – Cardiac INCLUSIONS All patients undergoing general, spinal, epidural anesthesia EXCLUSIONS *Non-cardiac cases *ASA 5 & 6 *EBL ≥ 2000 ml *Transfusion > 4u PRBC COMPLIANT No colloids were administered</p> <p>GLU 01 INCLUSIONS Patients with/without diabetes with glucose >200 between Anesthesia Start and Anesthesia End EXCLUSIONS *Outpt cases with Anesthesia Start to Anesthesia End time < 4 hours *Glucose > 200 less than 90 minutes before Anesthesia End *ASA 5 & 6 COMPLIANT Administration of insulin within 90 minutes (IV or sub Q) OR recheck glucose level within 90 minutes</p> <p>GLU 02 INCLUSIONS Patients with/without diabetes with glucose < 60 between Anesthesia Start and Anesthesia End. EXCLUSIONS *Glucose < 60 less than 90 minutes before Anesthesia End *ASA 5 & 6 COMPLIANT IV administration of dextrose containing solution within 90 minutes OR recheck of glucose level within 90 minutes</p>	<p>MED 01 (Medication Overdose) INCLUSIONS All cases in which opioids or benzodiazepines were administered intraop EXCLUSIONS *Patients NOT given opioids or benzodiazepines intraoperatively *ASA 5 & 6 *Patients still intubated at Anesthesia End COMPLIANT Naloxone and flumazenil are NOT administered</p> <p>NMB 01 (QCDR Measure ID: ASPIRE2) INCLUSIONS All patients that received, either by bolus or infusion, a non-depolarizing neuromuscular blocker (NMB) AND extubated post-op or in PACU. EXCLUSIONS *Patients not extubated in the immediate post-op period *ASA 5 & 6 *Patients not given NMBs *Cardiac surgeries on/off pump COMPLIANT Documentation of TOF (1, 2, 3, or 4) or sustained tetany, or TOF ratio after last dose/stopping infusion of NMB & before earliest extubation. TOF value of zero (0) is accepted if Sugammadex is given).</p> <p>NMB 02 INCLUSIONS All patients that have received, either by bolus or infusion, a non-depolarizing neuromuscular blocker (NMB) AND were extubated post-op or in PACU. EXCLUSIONS *Patients not extubated in immediate post op period *ASA 5 & 6 *Patients not given NMBs *Cardiac Bypass *Patients age > 12 who received defasciculating doses of : Vecuronium ≤ 1mg/Cisatracurium ≤ 2mg/Rocuronium ≤ 10 mg COMPLIANT Neostigmine, edrophonium, or Sugammadex BEFORE extubation OR >3 hrs between last dose of NMB & extubation for patients ≥ 12 years OR >2 hrs between last dose of NMB & extubation for patients <12 years</p>
<p>PONV 01 (MIPS 430) INCLUSIONS All patients ≥ 18 years of age, any procedure under an inhalational general anesthetic and have 3 or more risk factors for PONV <ul style="list-style-type: none"> Female Hx of PONV Hx of motion sickness Non-smoker Intended use of opioids intra or post-op EXCLUSIONS *<18 years of age *Labor epidurals *OB non operative procedures COMPLIANT Patient receives combination n of at least 2 prophylactic anti-emetic agents of different classes pre- or intra-op</p> <p>PUL 01 (Tidal Volume < 10) INCLUSIONS Patients undergoing endotracheal intubation EXCLUSIONS *ASA 5 & 6 *Patients without endotracheal intubation during procedure *Patients < 12 years of age *Patients < 20 kg COMPLIANT Median tidal volume < 10 ml/kg Ideal Body Weight</p> <p>PUL 02 (Tidal Volume ≤ 8) INCLUSIONS Patients undergoing endotracheal intubation EXCLUSIONS *ASA 5 & 6 *Patients without endotracheal intubation during procedure *Patients < 12 years of age *Patients < 20 kg COMPLIANT Median tidal volume ≤ 8 ml/kg Ideal Body Weight</p>	<p>TEMP 01 (Active Warming) INCLUSIONS Cases with general or neuraxial anesthesia technique EXCLUSIONS *Cases < 60 minutes *Obstetric Non-Operative Procedures *ASA 5 & 6 *MRI cases COMPLIANT Cases with documentation of active warming device applied OR without device, one temp $\geq 36^{\circ}\text{C}$ (96.8F) 30 min. before extubation (Fluid warmer accepted for c-secs)</p> <p>TEMP 02 (Core Temp) INCLUSIONS All surgical patients receiving general anesthesia EXCLUSIONS *Neuraxial as primary technique *ASA 5 & 6 *Cases ≤ 30 minutes *MRI COMPLIANT One core temp between Anesthesia Start and Anesthesia End</p> <p>TEMP 03 (MIPS 424) INCLUSIONS All patients under general or neuraxial anesthesia ≥ 60 minutes EXCLUSIONS *MAC *Peripheral nerve block only *Cardiac *OB operative procedures *Emergency procedures COMPLIANT ≥ 35.5 30 minutes before or 15 minutes after Anesthesia End time</p> <p>*To pass all three temperature measures for general/neuraxial cases</p> <ul style="list-style-type: none"> Include cases ≥ 30 minutes Use active warming Use a core temp source Document PACU temp in anesthesia notes (SAM) 	<p>TOC 02 (MIPS 426) INCLUSIONS All patients cared for by an anesthesia practitioner & directly transferred to PACU or other non-ICU location EXCLUSIONS *Cardiac surgery *OB operative procedures *Labor epidurals COMPLIANT A Transfer of Care protocol or handoff tool/checklist with key handoff elements is used/documented</p> <p>TOC 03 (MIPS 427) INCLUSIONS All patients who undergo anesthesia and are admitted directly to ICU EXCLUSIONS *Anesthesia for diagnostic or therapeutic nerve blocks/injections COMPLIANT A Transfer of Care protocol or handoff tool/checklist with key handoff</p> <p>TRAN 01 INCLUSIONS All surgical pts receiving anesthetics who receive PRBCs /whole blood EXCLUSION *Transfusion of ≥ 4 units of blood during case *EBL ≥ 2000 mL *Age < 2 years *c-sec with EBL > 1500 *c-sec with HR >110, SBP <85, DBP <45, O2 <95 *post-partum hemorrhage *ASA 5 & 6 COMPLIANT Documentation of hgb and/or hct prior to each blood transfusion</p> <p>TRAN 02 INCLUSIONS Any patient that receives PRBC or whole blood EXCLUSIONS *Same as TRAN 01 *No hgb or hct checked within 6 hours of Anesthesia End time COMPLIANT Hgb ≤ 10 or hct ≤ 30 up to 6 hours after Anesthesia End</p> <p>For full specifications, please go to https://mpog.org/quality/our-measures/</p>

About Improvements (cont)

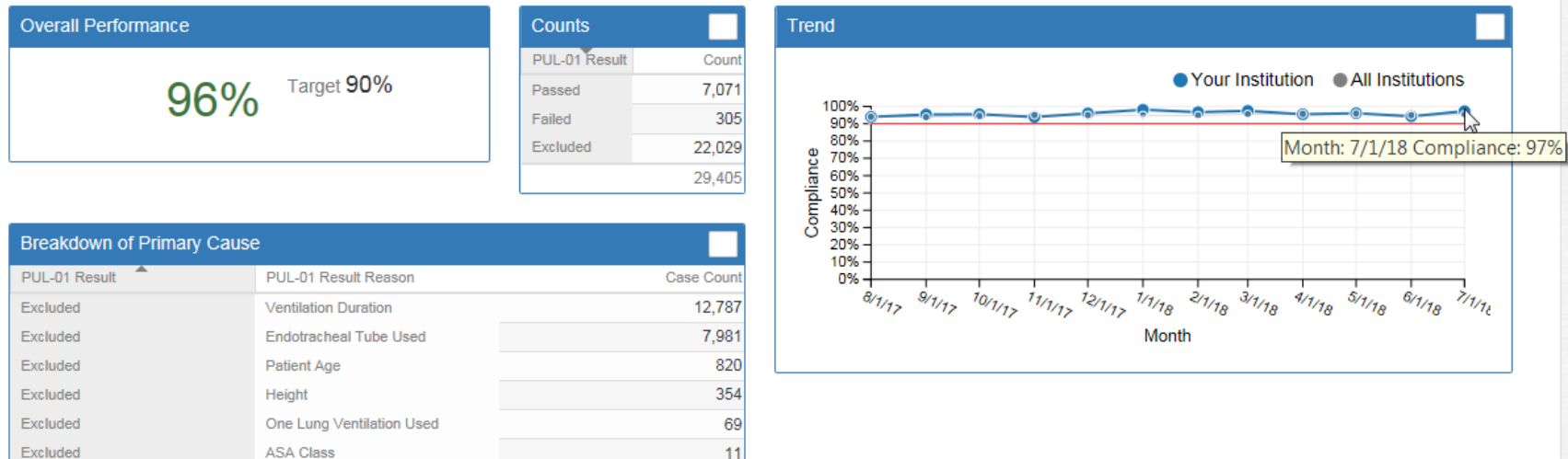
- In July 2018 each new provider received a welcome letter from the anesthesia practice's QA Manager outlining her role in the practice's compliance, risk metrics and MPOG
- The one-pagers for the 3 MPOG measures (PUL 01, TRAN 02 and TEMP 01) were included
- A monthly score card goes out as well

Score Card

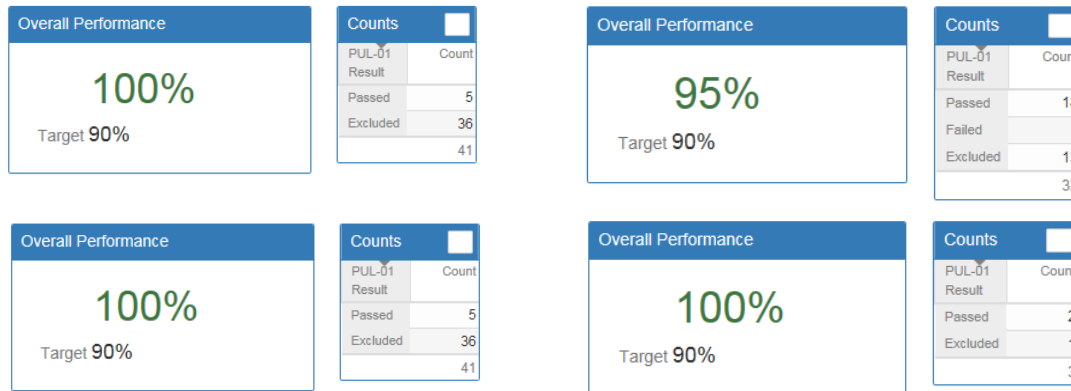
July-18					Jul 2017-Jun 2018					ICD 10 MODULE	
PROVIDER	POSTOP NOTES	ANESTHESIA CONSENT			SAM ISSUES		NARC LOG	ASPIRE PASS 12 MO Rolling RATE			Incomplete ICD 10 Module
NAME	# Incomplete Charts Including Wrong Encounter	Sign	Date	Time	# Charts Incomplete DOS	# Charts Incomplete 2 WKS	# Narcotics Issues Pharmacy	Pul-01 goal 97.5%	Temp-01 goal 90%	Tran-02 goal 90%	
	0	0	0	0	0	0	0	98%	96%	100%	
	0	1	1	1	3	0	2	93%	90%	60%	
	0	0	0	0	1	0	0	99%	89%	33%	
	0	0	0	0	2	1	0	NA	NA	NA	
	1	0	0	0	4	0	4	98%	95%	70%	
	0	0	0	0	0	0	0	NA	NA	NA	
	0	0	0	1	0	0	0	96%	95%	75%	
	1	0	0	0	0	0	0	93%	98%	100%	
	0	0	0	1	0	0	1	96%	95%	NA	
	0	0	0	0	0	0	0	96%	77%	NA	
	1	0	0	0	0	0	3	95%	87%	100%	
	0	0	0	0	0	0	0	93%	42%	NA	
	0	0	0	0	0	0	0	99%	81%	0%	
	1	0	0	2	0	0	0	95%	97%	100%	
	0	0	0	0	0	0	0	100%	100%	NA	
	1	0	0	0	1	1	0	97%	97%	58%	
	1	0	0	0	2	0	0	92%	94%	0%	
	0	0	0	2	3	3	0	94%	92%	100%	
	0	0	0	0	0	0	0	85%	95%	NA	
	0	0	0	0	0	0	0	95%	97%	100%	
	0	0	0	0	5	5	1	92%	98%	80%	
	0	0	0	0	1	1	1	99%	95%	100%	
	0	0	0	0	0	0	2	98%	98%	91%	
	0	0	0	0	0	0	0	94%	88%	100%	
	0	0	0	0	0	0	0	97%	81%	100%	
	0	0	0	0	0	0	0	99%	96%	100%	
	1	0	0	0	0	0	0	97%	97%	100%	
	0	0	0	0	0	0	1	100%	98%	100%	
	0	0	0	0	1	0	0	79%	93%	100%	
	2	0	0	0	1	0	0	95%	82%	100%	
	1	0	0	1	1	0	1	95%	81%	67%	
	0	0	0	0	1	0	1	97%	94%	67%	
	0	1	1	1	0	0	0	98%	97%	100%	
	0	1	1	1	1	0	0	93%	94%	80%	
	0	0	0	0	0	0	3	93%	29%	25%	
	0	0	0	0	0	0	0	97%	97%	100%	
TOTAL FALLOUT	10	3	3	10	27	11	24				0
# REVIEWED CHARTS	288	300	300	300							
% FALLOUT	3%	1%	1%	3%							

PUL 01: Low Tidal Volume <10 mL/kg

Our institutional compliance for the past 12 months:

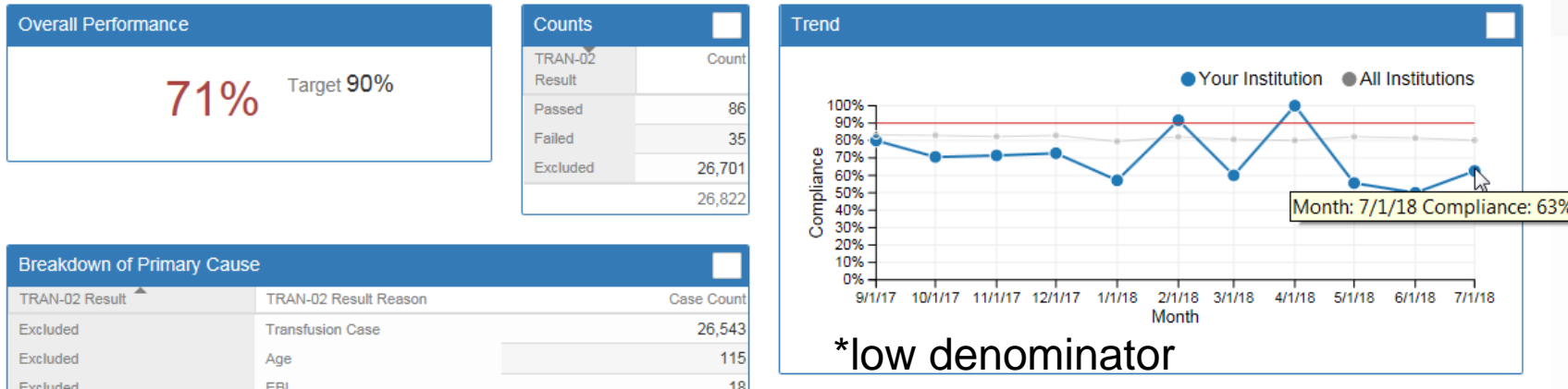


The four new providers:



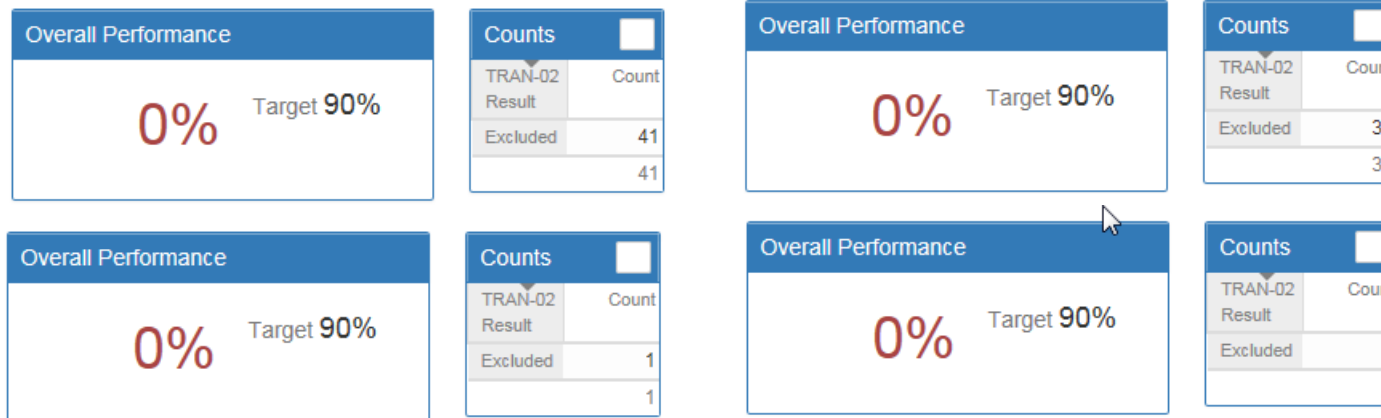
TRAN 02: Post transfusion monitoring

Our institutional compliance for the past 12 months:



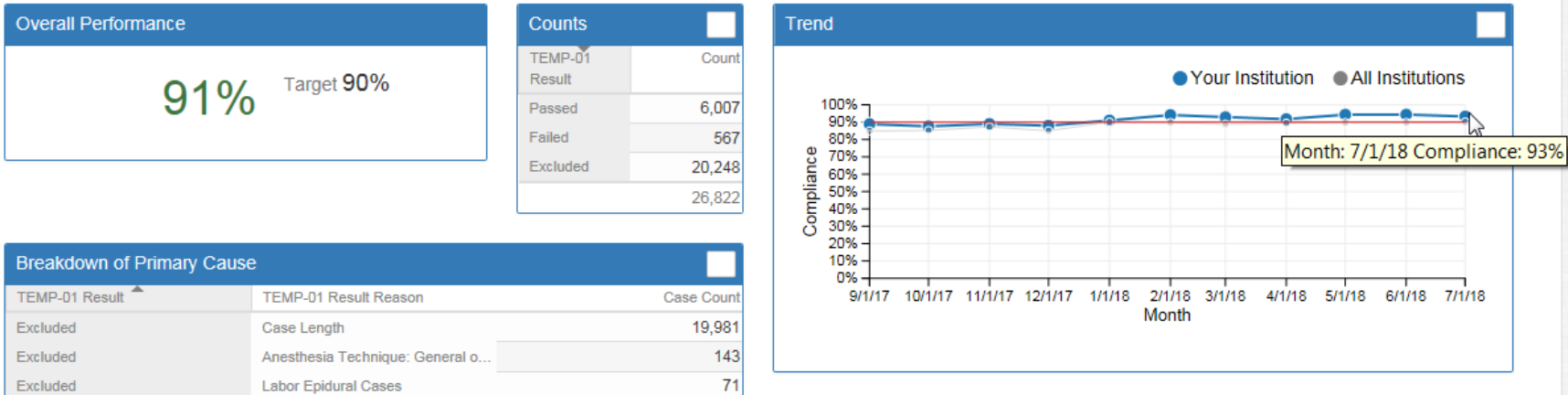
*low denominator

The four new providers (no included cases):

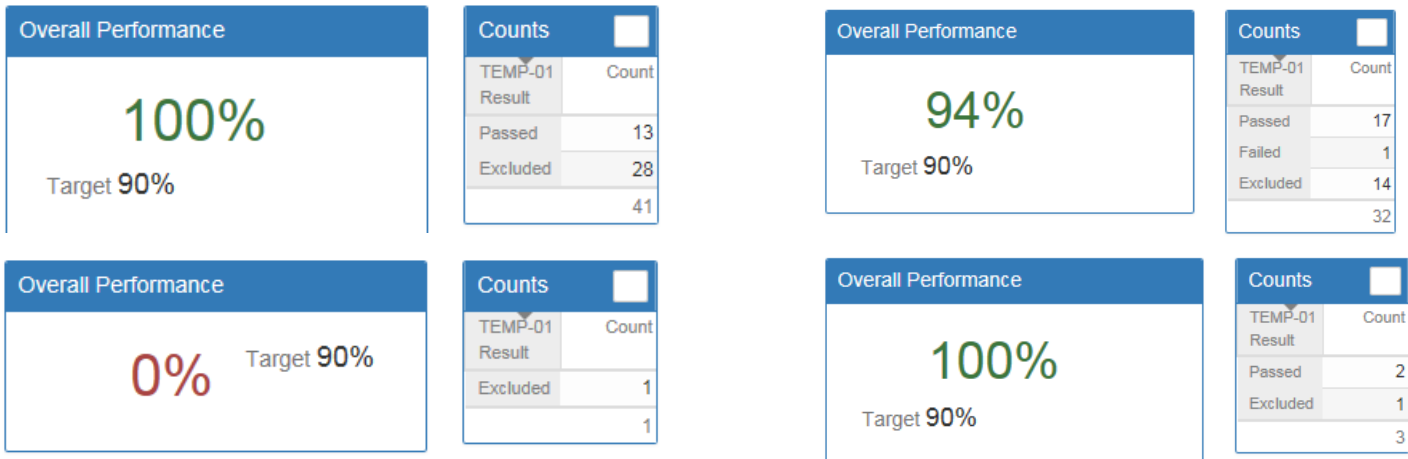


TEMP 01: Active Warming

Our institutional compliance for the past 12 months:



The four new providers:



About the future...

- Surgical Review Committee – ACQR to begin presenting at these staff meetings, first presentation in December
- Revise Welcome Letter to include
 - links to MPOG
 - sign up for provider emails
 - link to MOCA4 participation

THANK YOU!

QUESTIONS?

Coordinating Center Feedback

- How can the CC assist sites in QI work?

Perioperative Oral Morphine Equivalence Phenotype for Anesthesia Procedures

Michael L Burns, PhD MD

Clinical Lecturer

Department of Anesthesiology

University of Michigan

DISCLOSURE:

I have no financial relationships with commercial support to disclose.



Background

- Two decades of rapid increase in the use of opioid medications in the United States
- Use within the hospital setting is often a focus: nursing and discharge opioid prescribing
- Little to no quantitative analysis of intraoperative opioid use and potential consequences

Goal: Gain an understanding of opioid administration intraoperatively

Rationale: By identifying provider and institutional variabilities in opioid consumption, researchers, educators, and quality innovators can be empowered to understand strategies to reduce opioid use.

Challenge: Quantifying opioid use is challenging as potencies vary across routes and agents

Method & Approach

- Created a system for assessing intraoperative/perioperative OME
- Implemented this system across the entire MPOG registry
- This work offers a method for understanding variation in intraoperative opioid administration and may allow the examination of relationships between intraoperative and postoperative opioid utilization.
- This approach is important in understanding effectiveness of opioid reduction interventions for example in enhanced recovery after surgery (ERAS) protocols

Opioid	Route	Measure Table
Morphine ^{1,2}	Oral	30.00
MS Contin (controlled release)	Oral	30.00
Codeine ^{1,2}	Oral	200.00
Hydromorphone (Dilaudid) ^{1,2}	Oral	7.50
Hydrocodone ²	Oral	30.00
Oxycodone ^{1,2}	Oral	20.00
Oxymorphone ^{1,2}	Oral	10.00
Meperidine ¹	Oral	300.00
Levorphanol ¹	Oral	2.00
Tramadol ¹	Oral	120.00
Tapentadol ¹	Oral	100.00
Methadone ⁸	Oral	6.00
Fentanyl ²	transdermal	12.50
Buprenorphine (Suboxone) ³	Sublingual	0.40
Morphine ¹	IV	10.00
Codeine ¹	IV	100.00
Fentanyl ¹	IV	0.10
Hydromorphone (Dilaudid) ¹	IV	1.50
Oxymorphone ¹	IV	1.00
Meperidine ¹	IV	100.00
Tramadol ¹	IV	100.00
Buprenorphine (Suboxone) ¹	IV	0.40
Nalbuphine ¹	IV	10.00
Butorphanol ¹	IV	2.00
Alfentanil ⁷	IV	0.50
Sufentanil ⁵	IV	0.01
Remifentanyl	IV	0.00
Methadone ³	IV	5.00
Hydromorphone ⁶	epidural	0.30
Morphine ⁴	epidural	1.00
Fentanyl ⁶	epidural	0.03
Fentanyl ⁶	IT	0.01
Morphine ⁴	IT	0.10
Hydromorphone ⁶	IT	0.06

Equianalgesic dose ratios are approximations to compare opioids - estimating oral morphine equivalents (OME)

Institutional Dashboard

CARDIAC

Average administration: Based on a 6.7 hour case and 70kg patient (mg morphine IV)

94 Average (all sites) 94

SPINE

Average administration: Based on a 3.3 hour case and 70kg patient (mg morphine IV)

21 Average (all sites) 21

UPPER ABDOMEN

Average administration: Based on a 3.1 hour case and 70kg patient (mg morphine IV)

25 Average (all sites) 25

LOWER ABDOMEN

Average administration: Based on a 2.7 hour case and 70kg patient (mg morphine IV)

23 Average (all sites) 23

HYSTERECTOMY

Average administration: Based on a 3.7 hour case and 70kg patient (mg morphine IV)

25 Average (all sites) 25

KNEE/POPLITEAL

Average administration: Based on a 2.5 hour case and 70kg patient (mg morphine IV)

13 Average (all sites) 13

HIP

Average administration: Based on a 2.5 hour case and 70kg patient (mg morphine IV)

15 Average (all sites) 15

Created an **institutional dashboard** comparing opioid administration for several case groups, accounting for both patient weight and case length.

Informational measure for analysis.

Build Details

- All cases <1 hour were assumed to be 1 hour
- Case groups are based on CPT codes
- Opioid administration was calculated from anes start to anes end
- Preoperative and PACU opioids were not included
- IV, oral, spinal, epidural, and transdermal routes were included

- Remifentanyl was not included in equivalency calculations; but noted as administered

- Opioids included in the anesthetic record without a dose were not included in the calculation, but noted as “unknown”

- Average administration doses are displayed as IV (intravenous) route. For conversion to oral multiply by 3

- Average administration doses are based on average case times and patient weights

Institutional Dashboard - Overview

Overview **Provider** Case List

Lower Abdomen case group includes:

- Procedures in lower abdomen including laparoscopy; not otherwise specified (CPT: 00840)
- Procedures in lower abdomen including laparoscopy; abdominoperineal resection (CPT: 00844)
- Procedures in lower abdomen including laparoscopy; pelvic exenteration (CPT: 00848)

LOWER ABDOMEN

Average administration: Based on a 2.7 hour case and 70kg patient (mg morphine IV)

19 Average (all sites) **23**

Average administration: Based on a 2.7 hour case and 70kg patient (mcg fentanyl IV)

195

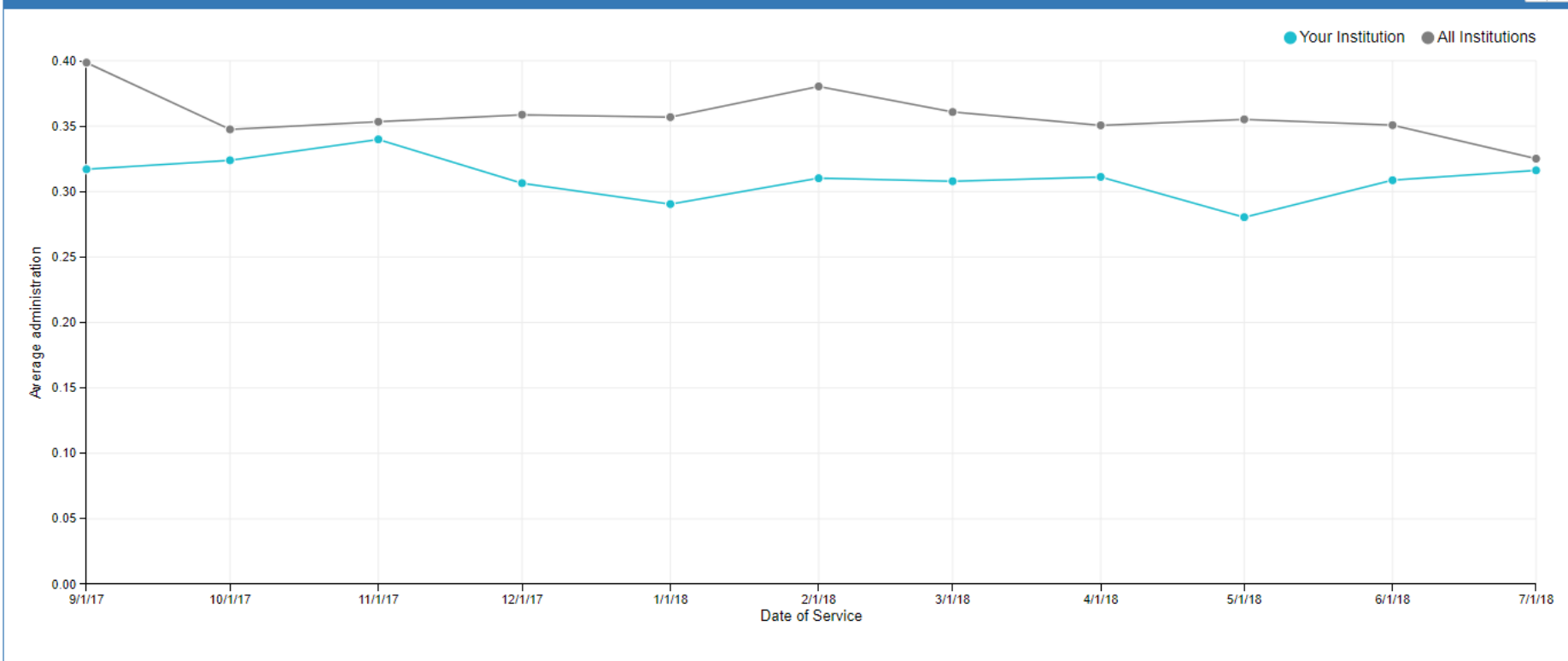
Average administration: Based on a 2.7 hour case and 70kg patient (mg morphine PO)

58

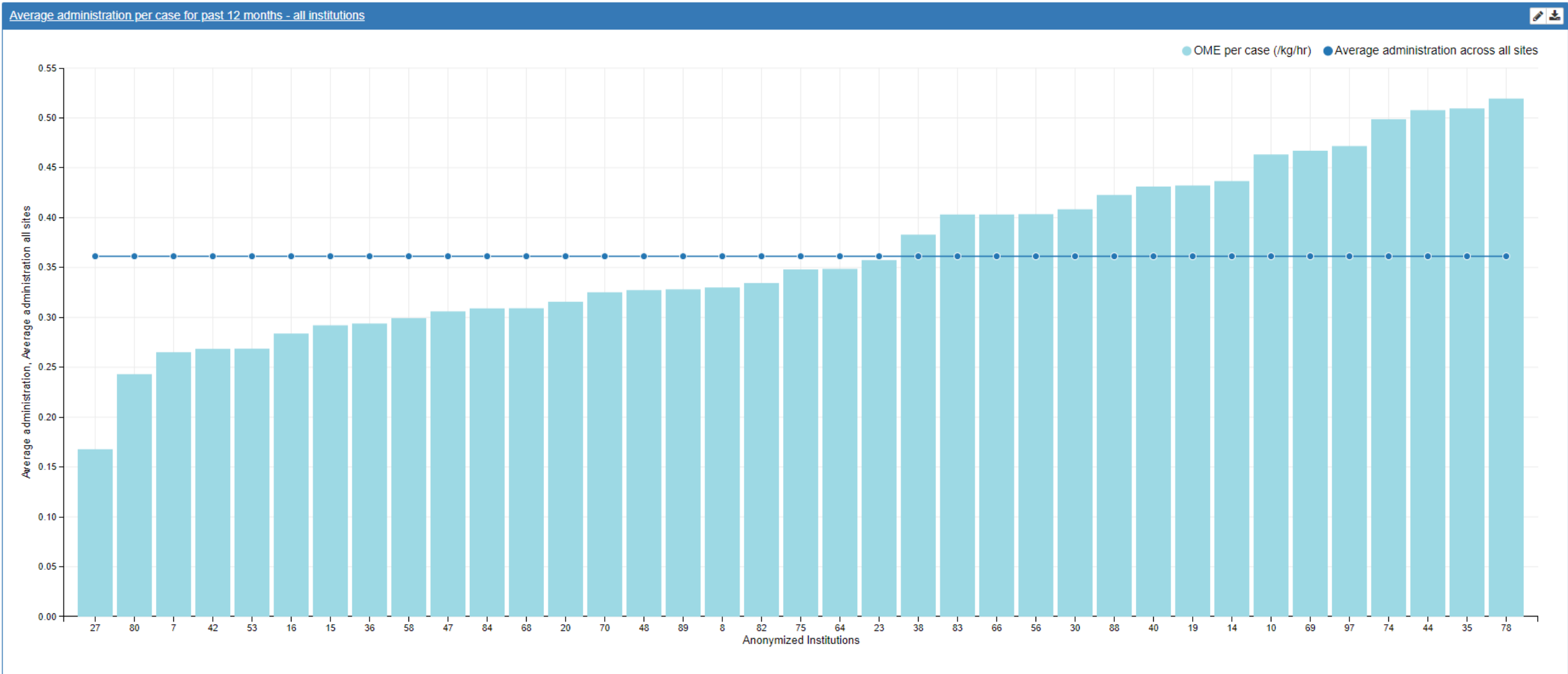
Average administration by weight and case length (mg/kg/hr PO)

0.31

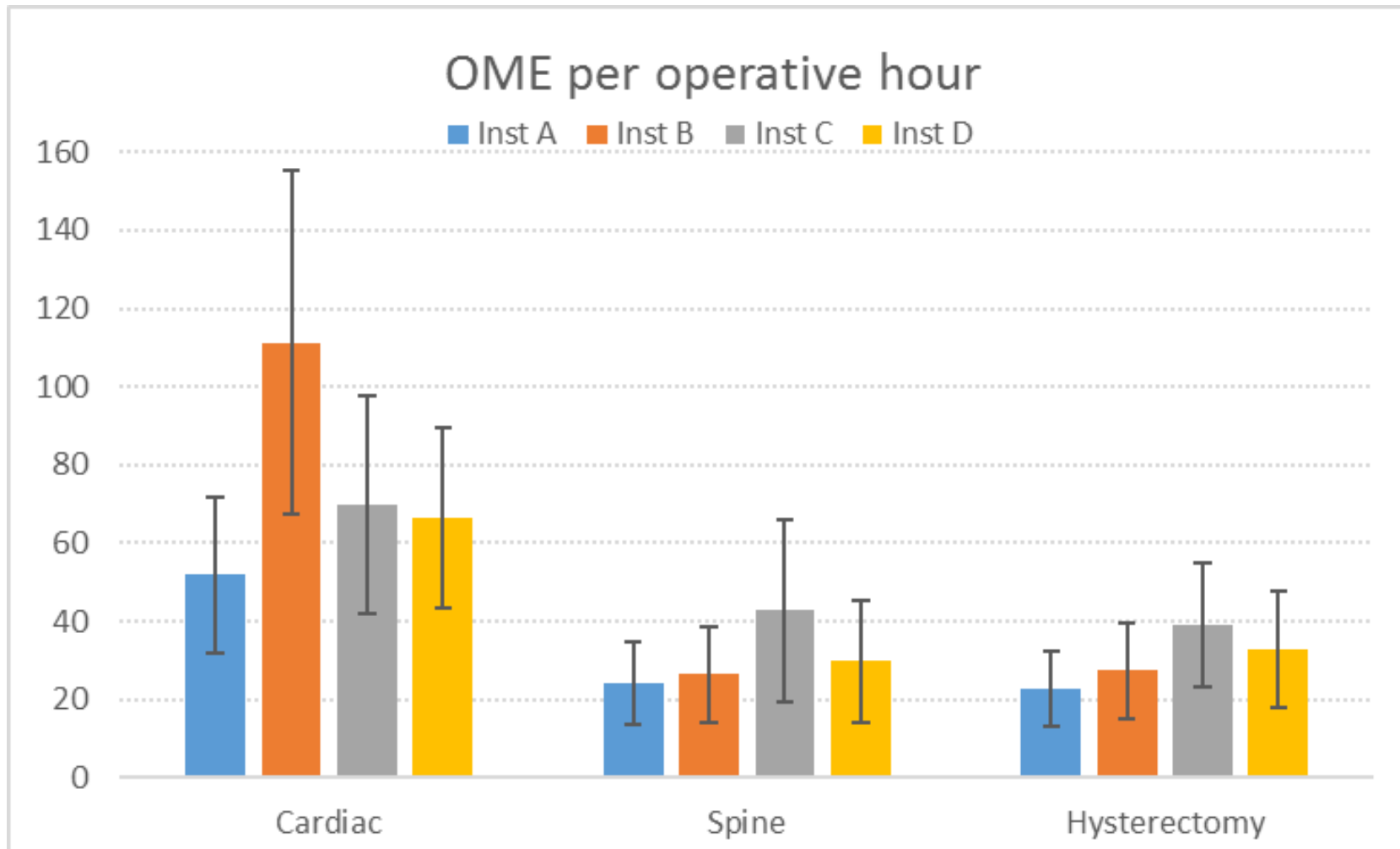
Average administration per case per month



Average OME by institution



Variation in Practice



Provider Tab

Overview

Provider

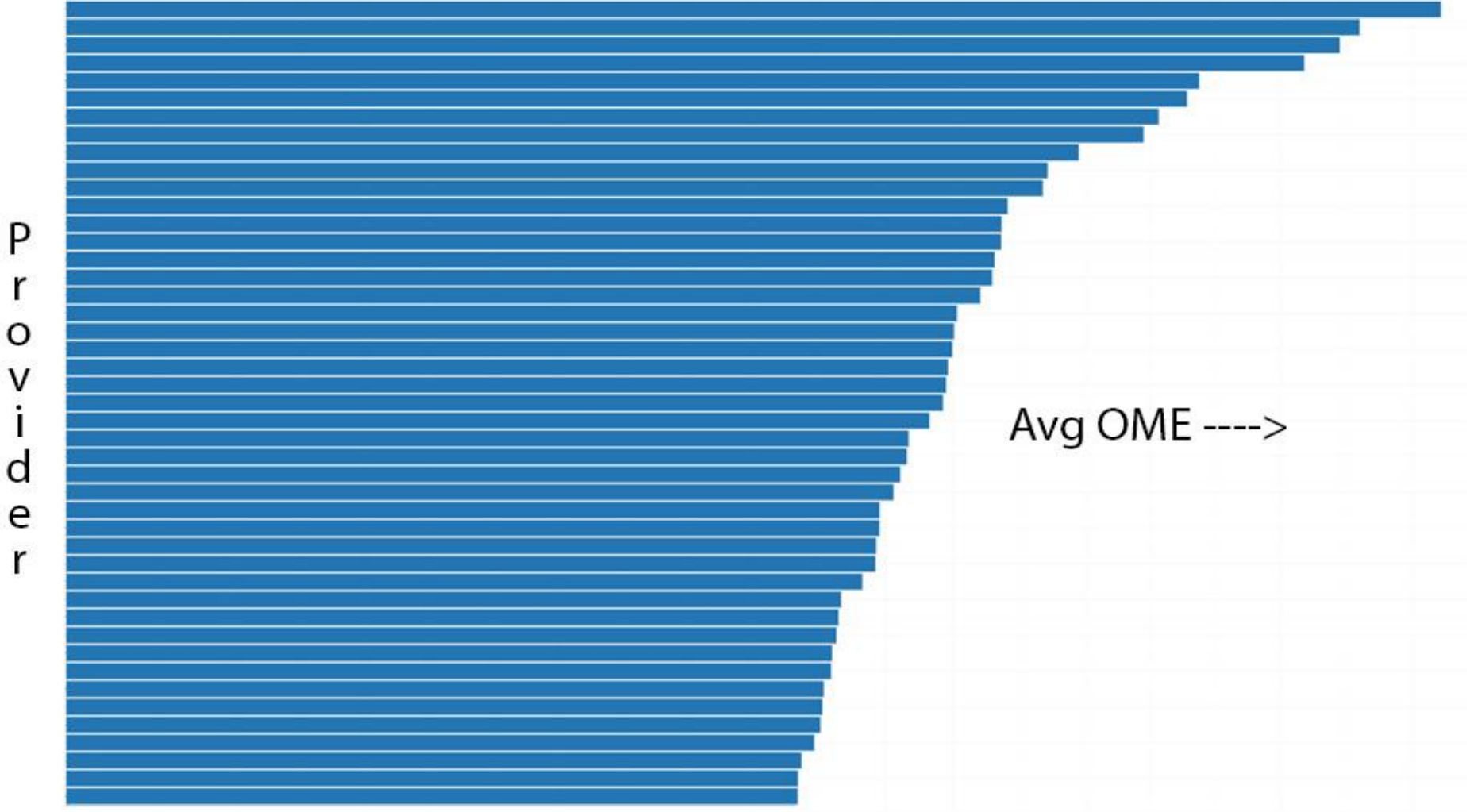
Case List

Attending

CRNA/Resident

This dashboard displays the intraoperative OME per case normalized on patient weight (kg) and case duration (hr) and organized by attending. The default settings display cases without remifentanyl ("No Remi) and those cases with a known opioid dose ("0" Unknown Dose). This dashboard represents cardiac cases at your institution within past 12 months. Click "View Details" for more provider information.

Individual Provider Distributions



Provider Administration Details

Remi	Unknown Dose	MPOG.Cases	Average administration	Standard Deviation	Average Case Time	ViewButton
No remi	No Unknown Dose	1	0.38	0.00	1.8	View Details
No remi	No Unknown Dose	16	0.30	0.18	4.1	View Details
No remi	No Unknown Dose	12	0.41	0.18	3.3	View Details
No remi	No Unknown Dose	24	0.33	0.10	2.7	View Details
No remi	No Unknown Dose	9	0.35	0.15	2.8	View Details
No remi	No Unknown Dose	27	0.42	0.36	3.6	View Details
No remi	No Unknown Dose	1	0.41	0.00	2.5	View Details
No remi	No Unknown Dose	4	0.28	0.21	4.6	View Details
No remi	No Unknown Dose	7	0.21	0.07	4.2	View Details
No remi	No Unknown Dose	7	0.43	0.19	2.6	View Details
No remi	No Unknown Dose	19	0.29	0.15	4.0	View Details
No remi	No Unknown Dose	2	0.42	0.13	1.6	View Details
No remi	No Unknown Dose	16	0.30	0.13	3.4	View Details
No remi	No Unknown Dose	9	0.42	0.18	2.5	View Details
No remi	No Unknown Dose	12	0.40	0.22	3.5	View Details
Showing 1 to 15 of 127						Next >
		1,664	0.34	0.17	3.0	View Details

Case List Tab

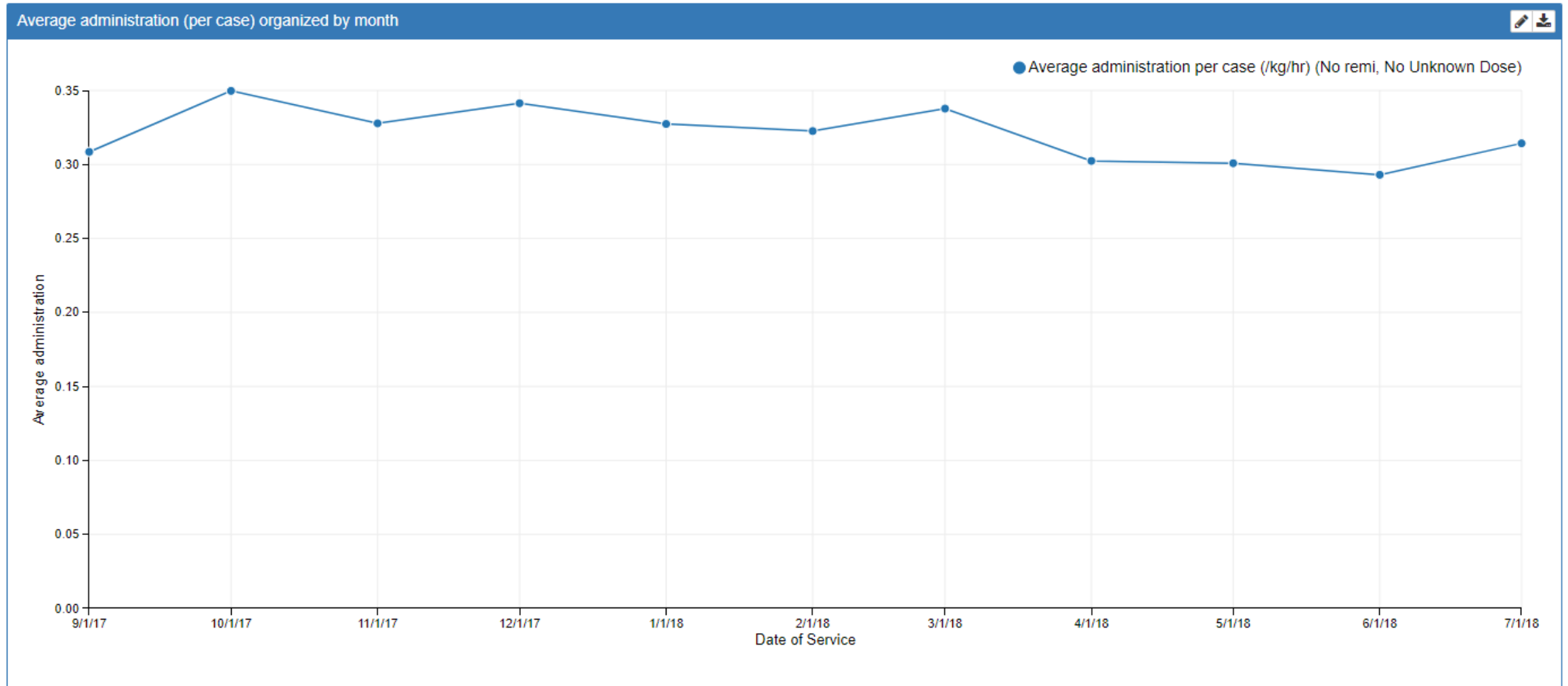
Overview

Provider

Case List

This dashboard displays the intraoperative OME (per patient weight in kg and per case duration in hr) phenotype (average per case) organized by month. The default settings only show cases without remifentanyl ("No" Remi) and without an opioid given without a known dose ("0" Unknown Dose). This dashboard is for Upper Abdomen cases at your institution within past 12 months. Click "View Details" for more specific information within each month.

Institution Case Average – by month



Institutional Case Average – by month (table)

Average administration (per case) organized by month							ViewButton
Date of Service	Remi	Unknown Dose	MPOG.Cases	Average administration	Standard Deviation	Average Case Time	
9/1/17	No remi	No Unknown Dose	181	0.31	0.18	3.5	View Details
10/1/17	No remi	No Unknown Dose	215	0.35	0.21	3.2	View Details
11/1/17	No remi	No Unknown Dose	176	0.33	0.19	3.2	View Details
12/1/17	No remi	No Unknown Dose	201	0.34	0.19	3.2	View Details
1/1/18	No remi	No Unknown Dose	200	0.33	0.18	3.3	View Details
2/1/18	No remi	No Unknown Dose	178	0.32	0.20	3.3	View Details
3/1/18	No remi	No Unknown Dose	184	0.34	0.18	3.1	View Details
4/1/18	No remi	No Unknown Dose	195	0.30	0.19	3.3	View Details
5/1/18	No remi	No Unknown Dose	181	0.30	0.15	3.3	View Details
6/1/18	No remi	No Unknown Dose	220	0.29	0.16	3.3	View Details
7/1/18	No remi	No Unknown Dose	104	0.31	0.15	3.3	View Details
			2,035	0.32	0.18	3.3	View Details

View Details – List of Cases by Month

Administration (/kg/hr) by case														
MPOGCaseKey	Attending	CRNA/Resident	Date of Service	Procedure	Operating Room	Anes Duration	CPT	OME	Remi	Unknown Dose	Spinal	Epidural	Neuraxial	View Case
				MIDLINE CORONARY ARTERY BYPASS GRAFT	CVC-OR 02	10.6	00567	0.19	No remi	No Unknown Dose	0	0	0	View Case
				ASCENDING ANEURYSM REPAIR WITH HYPOTHERMIC...	CVC-OR 03	13.2	00562	0.34	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE AORTIC VALVE REPLACEMENT OR REPAIR	CVC-OR 03	11.1	00562	0.22	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE AORTIC VALVE REPLACEMENT OR REPAI MID...	CVC-OR 04	7.7	00562	0.30	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE MITRAL VALVE REPAIR OR REPLACEMEN MID...	CVC-OR 04	6.6	00562	0.49	No remi	No Unknown Dose	0	0	0	View Case
				RIGHT MAZE PROCEDURE	CVC-OR 04	8.4	00562	0.53	No remi	No Unknown Dose	0	0	0	View Case
				RIGHT MITRAL VALVE REPAIR OR REPLACEMENT - MI...	CVC-OR 04	5.9	00562	0.97	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE AORTIC VALVE REPLACEMENT OR REPAI MID...	CVC-OR 01	12.1	00562	0.26	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE HEARTMATE II MIDLINE AORTIC VALVE REPL...	CVC-OR 02	8.5	00562	0.17	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE AORTIC ROOT REPAIR WITH OR WITHOUT HY...	CVC-OR 03	9.4	00562	0.20	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE AORTIC VALVE REPLACEMENT OR REPAIR	CVC-OR 03	10.8	00562	0.38	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE AORTIC ROOT REPAIR OR REPLACEMENT	CVC-OR 04	11.8	00562	0.21	No remi	No Unknown Dose	0	0	0	View Case
				MIDLINE AORTIC VALVE REPLACEMENT OR REPAIR	CVC-OR 03	7.1	00562	0.31	No remi	No Unknown Dose	0	0	0	View Case

View Case – individual case level

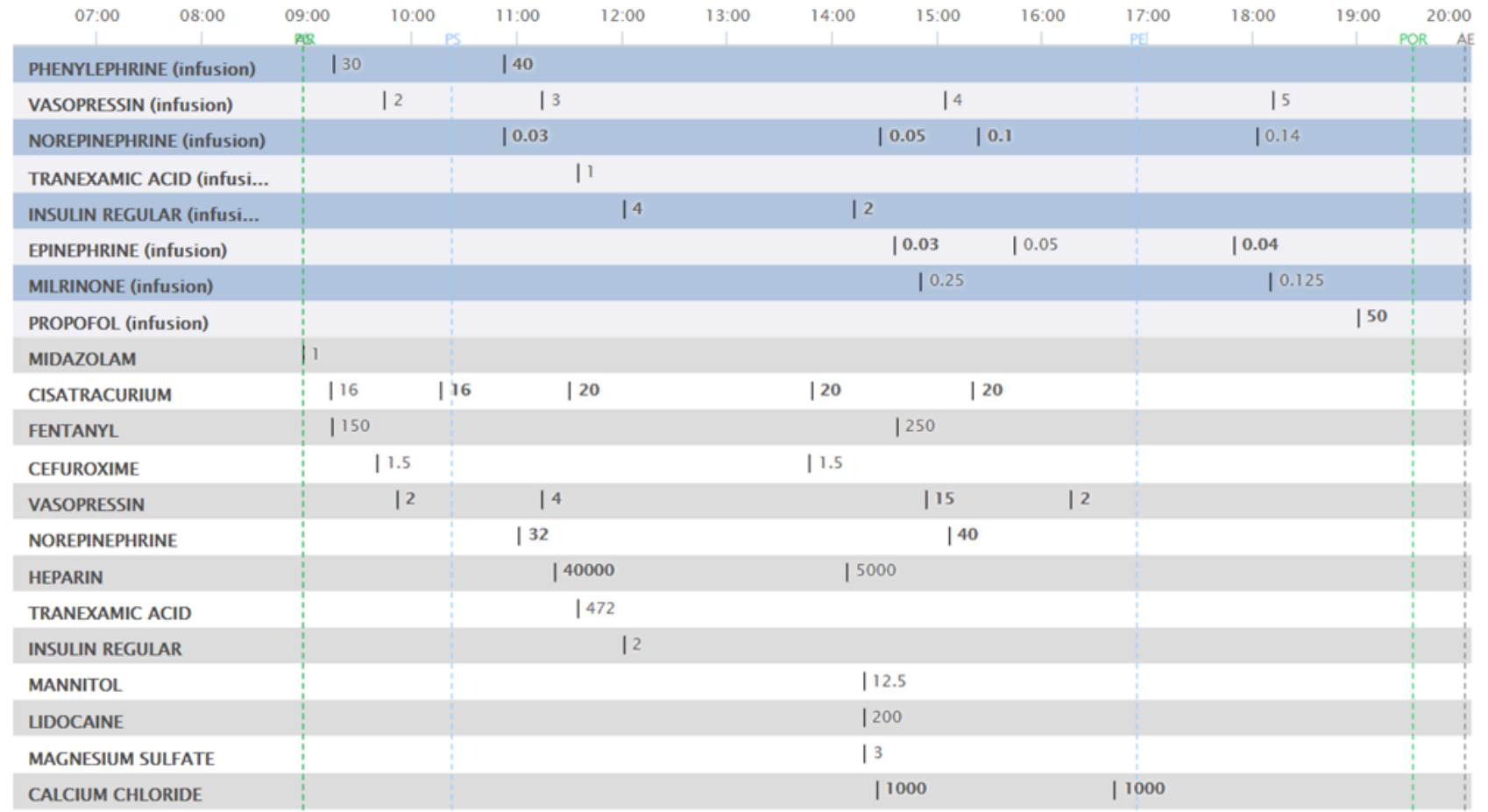
ASA Status: 4
 49 kg, 160 cm (IBW:56.92)
 Admission Type: Inpatient
 Operating Room: CVC-OR 03

Procedure Time: [REDACTED]
 Anes Duration: 08:58 to 20:02
 Procedure: MIDLINE AORTIC VALVE REPLACEMENT OR REPAIR
 Diagnosis: aortic valve endocarditis

MPOG Case ID: [REDACTED]
 MPOG Patient ID: [REDACTED]
 AIMS Case ID: [REDACTED]
 AIMS Patient ID: [REDACTED]

[view all lab values](#)

Time	Note
21:19	Patient in Facility
07:15	Anesthesia Machine Checked
07:15	Equipment verified
07:52	Assigned PreOp
08:45	Room Ready
08:50	Patient dosed 500 mg vancomycin 10/5/2017 after dialysis. Per OR pharmacist repeat vancomycin dosing is not required intraoperatively. Next dose of vancomycin to be after next dialysis session. SSV 20462
08:53	NPO status confirmed to be solids > 8 hours and clear liquids > 3 hours
08:53	Patient identified, chart reviewed, status unchanged from preoperative evaluation
08:53	Pre-Anesthesia evaluation completed and discussed with Attending
08:58	Anesthesia Start
08:58	Patient In Room



Questions?

Reminders and Wrap-Up

- MPOG Application Suite upgrades scheduled for the week of September 24-28th, the Suite might be temporarily inaccessible during that time.
- Sites that have Import Manager and Production will both need to be updated
- Update gets pushed out from MPOG Central on Wednesday, September 26th. MPOG technical team has scheduled a 30 minute meeting with each site's technical team to apply upgrade.
- Continue to update Provider Contacts
- Q & A



Thanks for joining us today! Safe travels home and don't forget our goodies!

