

# Clinical Decision Support BPA for Sevoflurane

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# MyMichigan Health System

41,621 Anesthesia  
Cases in 2024

**Alma – 4,885 Cases**



**Alpena – 7,734 Cases**



**Clare – 2,609 Cases**



**Gladwin – 379 Cases**



**Midland – 19,299 Cases**



**West Branch – 3,169 Cases**



**Sault – 3,546 Cases**



Monthly  
Meetings, data  
review and set  
goals

BPA halogenated gases  
pushed live and  
removed by IT – No  
anesthesia guidance

Collaboration with  
Quality Champions,  
ACQR, IT, and CRNA  
Manager (May 23, 2024)

BPA  
Parameters set  
to align with  
SUS-02  
Measure

Education sent out to  
providers

BPA live June 13, 2024

P4P and VBR  
Target  
Performance  
met

| A  | B                 | C                  | D   | E              | F                    | G   | H              | I                 | J    | K | L                            | M | N                               | O                        | P                     | Q                     | R                     |
|--|-------------------|--------------------|-----|----------------|----------------------|-----|----------------|-------------------|------|---|------------------------------|---|---------------------------------|--------------------------|-----------------------|-----------------------|-----------------------|
| Pilonidal Cyst                                       | Pollutants        |                    |     | Flows          |                      |     |                |                   |      |   | Total Fresh Gas Flow (L/min) |   | Convert % agent to MLs of agent | Convert mLs/min to moles | Convert moles to mass | Convert mass to CO2eq | Total CO2/Included mi |
| Measure time period 1247 - Measure start: Intubation | Sevoflurane Insp% |                    |     | Oxygen (L/min) |                      |     | Air (L/min)    |                   |      |   |                              |   |                                 |                          |                       |                       |                       |
| 1248   | 3/7/2025 12:47    | Sevoflurane Insp % | 2.8 | 3/7/2025 12:47 | Flows Oxygen (L/Min) | 10  |                |                   |      |   | 10                           |   | 280                             | 0.01147541               | 0.002295082           | 0.330491803           |                       |
| 1249   | 3/7/2025 12:48    | Sevoflurane Insp % | 2.8 | 3/7/2025 12:48 | Flows Oxygen (L/Min) | 10  |                |                   |      |   | 10                           |   | 280                             | 0.01147541               | 0.002295082           | 0.330491803           |                       |
| 1250   | 3/7/2025 12:49    | Sevoflurane Insp % | 2.8 | 3/7/2025 12:49 | Flows Oxygen (L/Min) | 10  |                |                   |      |   | 10                           |   | 280                             | 0.01147541               | 0.002295082           | 0.330491803           |                       |
| 1251   | 3/7/2025 12:50    | Sevoflurane Insp % | 2.7 | 3/7/2025 12:50 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:50 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 52.65                           | 0.002157787              | 0.000431557           | 0.062144262           |                       |
| 1252   | 3/7/2025 12:51    | Sevoflurane Insp % | 2.4 | 3/7/2025 12:51 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:51 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 46.8                            | 0.001918033              | 0.000383607           | 0.055239344           |                       |
| 1253   | 3/7/2025 12:52    | Sevoflurane Insp % | 2.6 | 3/7/2025 12:52 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:52 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 50.7                            | 0.002077869              | 0.000415574           | 0.059842623           |                       |
| 1254   | 3/7/2025 12:53    | Sevoflurane Insp % | 2.6 | 3/7/2025 12:53 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:53 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 50.7                            | 0.002077869              | 0.000415574           | 0.059842623           |                       |
| 1255   | 3/7/2025 12:54    | Sevoflurane Insp % | 2.6 | 3/7/2025 12:54 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:54 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 50.7                            | 0.002077869              | 0.000415574           | 0.059842623           |                       |
| 1256   | 3/7/2025 12:55    | Sevoflurane Insp % | 2.7 | 3/7/2025 12:55 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:55 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 52.65                           | 0.002157787              | 0.000431557           | 0.062144262           |                       |
| 1257   | 3/7/2025 12:56    | Sevoflurane Insp % | 2.8 | 3/7/2025 12:56 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:56 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 54.6                            | 0.002237705              | 0.000447541           | 0.064445902           |                       |
| 1258   | 3/7/2025 12:57    | Sevoflurane Insp % | 2.9 | 3/7/2025 12:57 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:57 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 56.55                           | 0.002317623              | 0.000463525           | 0.066747541           |                       |
| 1259   | 3/7/2025 12:58    | Sevoflurane Insp % | 2.9 | 3/7/2025 12:58 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:58 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 56.55                           | 0.002317623              | 0.000463525           | 0.066747541           |                       |
| 1300   | 3/7/2025 12:59    | Sevoflurane Insp % | 2.9 | 3/7/2025 12:59 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 12:59 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 56.55                           | 0.002317623              | 0.000463525           | 0.066747541           |                       |
| 1301   | 3/7/2025 13:00    | Sevoflurane Insp % | 3   | 3/7/2025 13:00 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 13:00 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 58.5                            | 0.002397541              | 0.000479508           | 0.06904918            |                       |
| 1302   | 3/7/2025 13:01    | Sevoflurane Insp % | 3   | 3/7/2025 13:01 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 13:01 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 58.5                            | 0.002397541              | 0.000479508           | 0.06904918            |                       |
| 1303   | 3/7/2025 13:02    | Sevoflurane Insp % | 3   | 3/7/2025 13:02 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 13:02 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 58.5                            | 0.002397541              | 0.000479508           | 0.06904918            |                       |
| 1304   | 3/7/2025 13:03    | Sevoflurane Insp % | 3   | 3/7/2025 13:03 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 13:03 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 58.5                            | 0.002397541              | 0.000479508           | 0.06904918            |                       |
| 1305   | 3/7/2025 13:04    | Sevoflurane Insp % | 3   | 3/7/2025 13:04 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 13:04 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 58.5                            | 0.002397541              | 0.000479508           | 0.06904918            |                       |
| 1306   | 3/7/2025 13:05    | Sevoflurane Insp % | 3   | 3/7/2025 13:05 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 13:05 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 58.5                            | 0.002397541              | 0.000479508           | 0.06904918            |                       |
| 1307   | 3/7/2025 13:06    | Sevoflurane Insp % | 3   | 3/7/2025 13:06 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 13:06 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 58.5                            | 0.002397541              | 0.000479508           | 0.06904918            |                       |
|  | 3/7/2025 13:07    | Sevoflurane Insp % | 3   | 3/7/2025 13:07 | Flows Oxygen (L/Min) | 1.1 | 3/7/2025 13:07 | Flows Air (L/min) | 0.85 |   | 1.95                         |   | 58.5                            | 0.002397541              | 0.000479508           | 0.06904918            |                       |

# SUS-02 Goals



**2024 P4P 45% (Measurement Period 01/01/24 – 12/31/24)**



**2025 P4P 55% (Measurement Period 01/01/25 – 12/31/25)**

# Parameters

BPA triggers after induction and will prompt if Sevoflurane is greater than 2% and FGF is greater than 1.8L/min over a 10-minute period average

SEVO GAS RULE TEST

1694549

This rule will return true if sevoflurane is greater than 2.0% with a fresh gas flow average above 1.8 L/min and a last recorded gas flow sum value above 2.2 L/min.

This is a Foundation System-released record and most fields are not editable. This record is used with BestPractice Advisory BASE AN INTRA HIGH FRESH GAS

Evaluation logic:

And

Or

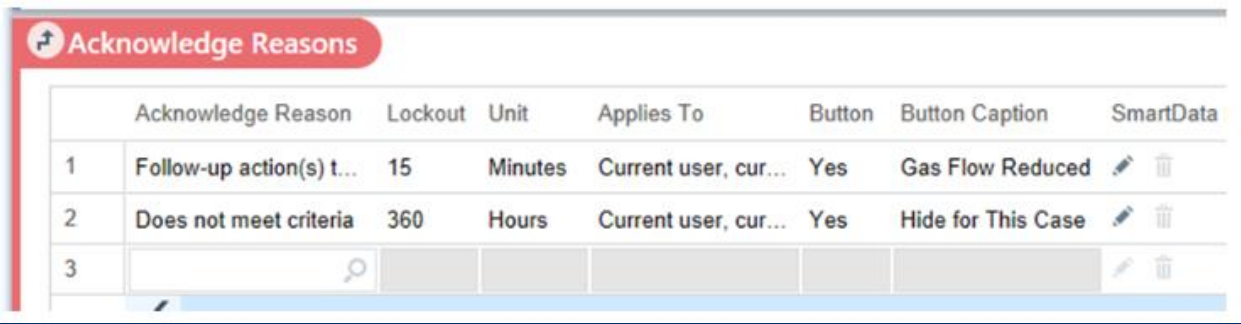
Custom:







Show Parameter Values

| # | Property   | Operator | Value |  |
|---|--|----------|-------|--|
| 1 | AN Agents Fresh Gas Flow 10 Minute Average  Edit Rule    | >        | 1.8   |  |
| 2 | AN Agents Fresh Gas Flow Last Device Value  Edit Rule    | >        | 1.8   |  |
| 3 | AN Agents Fresh Gas Flow Flowsheet Last Value  Edit Rule | >        | 1.8   |  |
| 4 | an sevo > 2% test  Edit Rule                             | =        | 1     |  |

# Acknowledge Reasons

- Provider selects Follow-up actions taken – BPA repeats after lockout of 15 minutes and will fire again if rate is high
- Provider selects Does not meet criteria – BPA lock out for 360 hours, only for current user and current encounter



|   | Acknowledge Reason       | Lockout | Unit    | Applies To           | Button | Button Caption     | SmartData   |
|---|--------------------------|---------|---------|----------------------|--------|--------------------|---|
| 1 | Follow-up action(s) t... | 15      | Minutes | Current user, cur... | Yes    | Gas Flow Reduced   |   |
| 2 | Does not meet criteria   | 360     | Hours   | Current user, cur... | Yes    | Hide for This Case |   |
| 3 | <input type="text"/>     |         |         |                      |        |                    |   |

# BPA

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OurPractice Advisory - [REDACTED]

Suggestion (1)

**ⓘ Fresh gas flow is exceeding thresholds below. Reduce gas flow, if appropriate.**

Acknowledge Reason

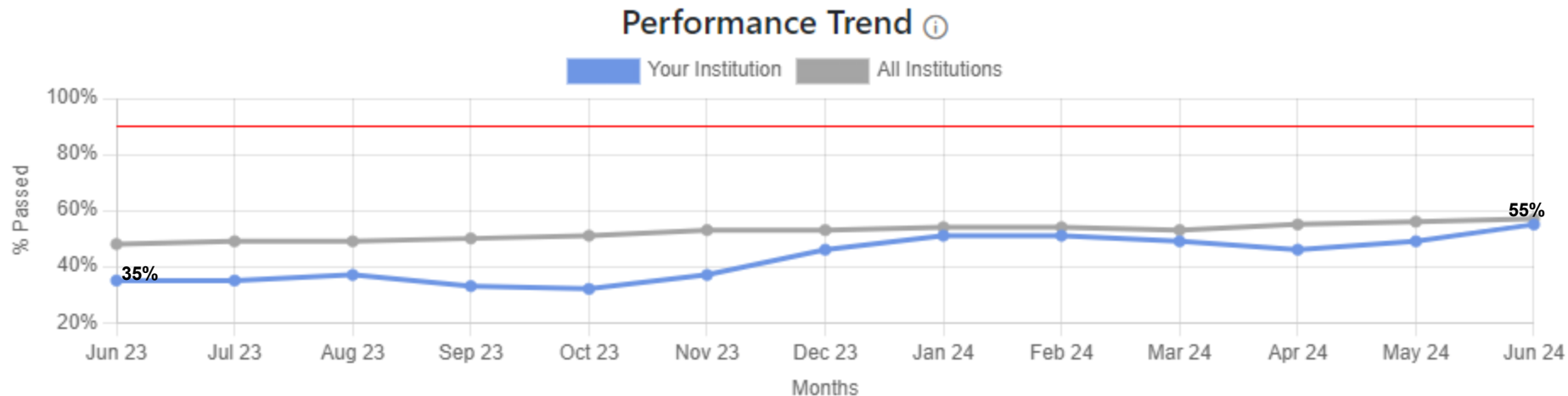


# SUS-02 Performance

| Entity      | 2024 P4P Goal | Composite<br>January-May 2024<br><br>Before BPA | Composite<br>June – December<br>2024<br><br>After BPA | Post-BPA<br>Improvement | Final Score |
|-------------|---------------|---|---|-------------------------|-------------|
| System      | NA            | 49%   | 56%   | 7%                      | 56%         |
| Alma        | 45%           | 37%   | 65%   | 28%                     | 50%         |
| Alpena      | 45%           | 54%   | 73%   | 19%                     | 65%         |
| Clare       |               | 49%   | 56%   | 7%                      | 53%         |
| Midland     | 45%           | 50%   | 60%   | 10%                     | 56%         |
| West Branch |               | 76%   | 80%   | 4%                      | 73%         |

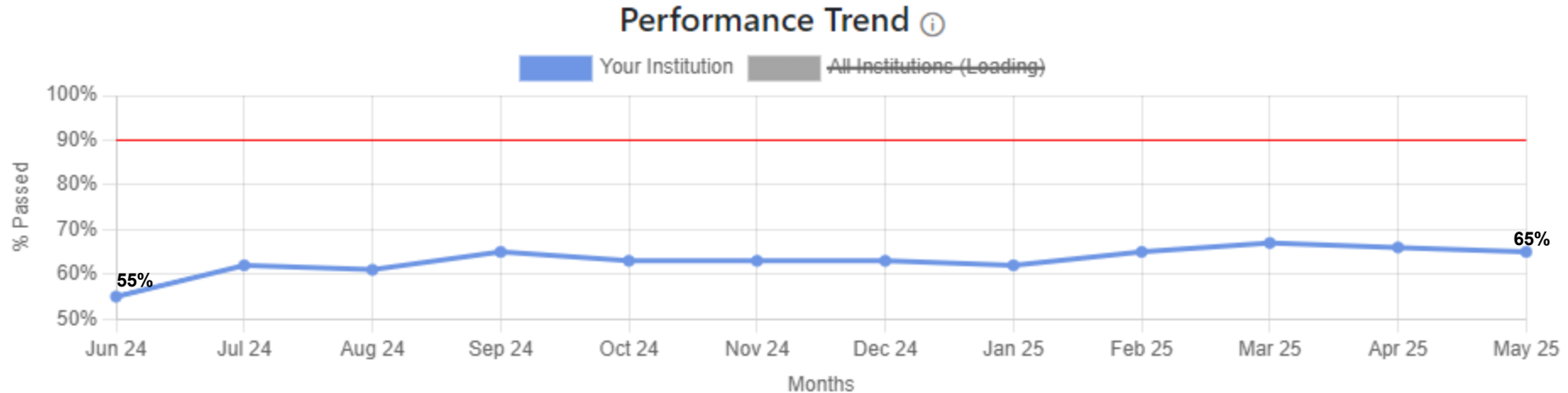
# MyMichigan Health System SUS-02

## June 2023 – June 2024 (Fiscal Year)



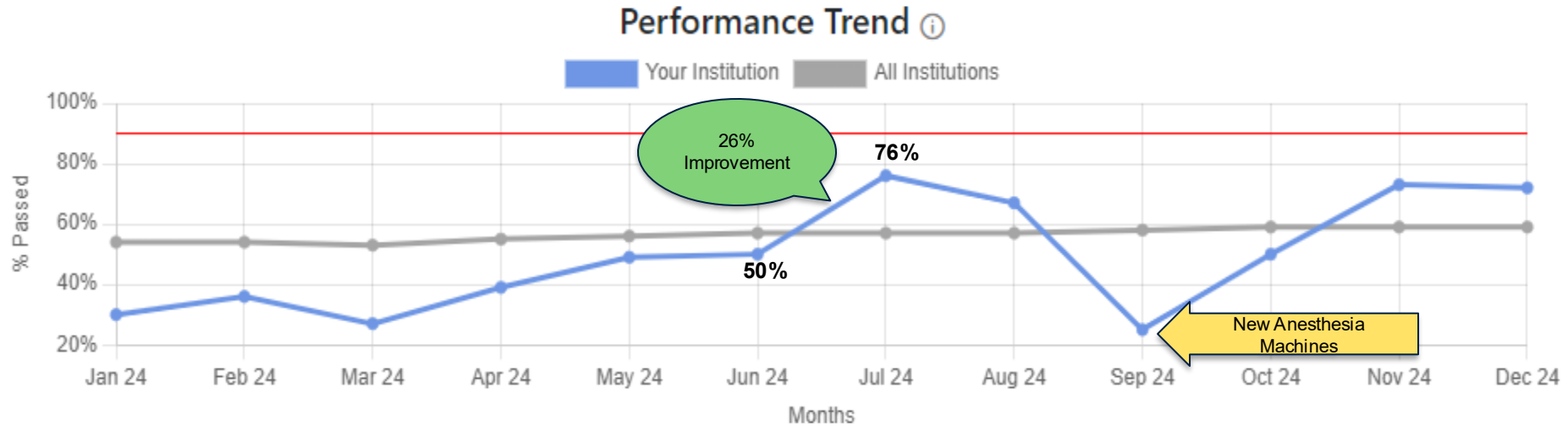
# MyMichigan Health System SUS-02

## June 2024 – May 2025 (Fiscal Year)



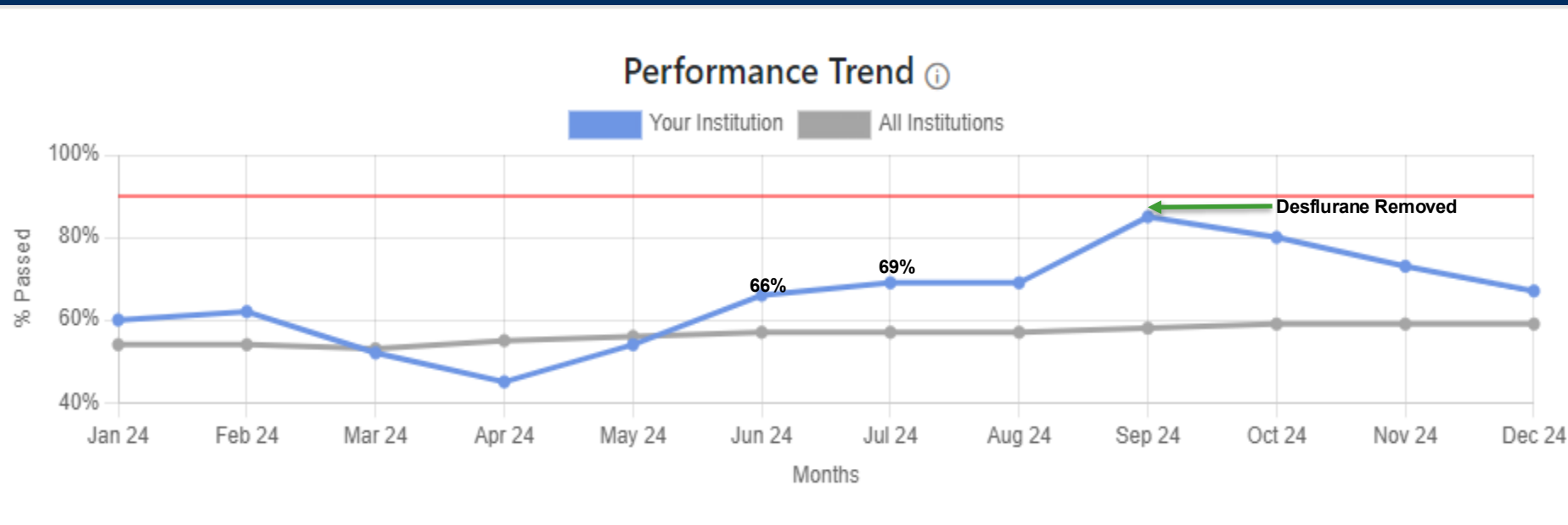
# Alma SUS-02

## January 2024 – December 2024



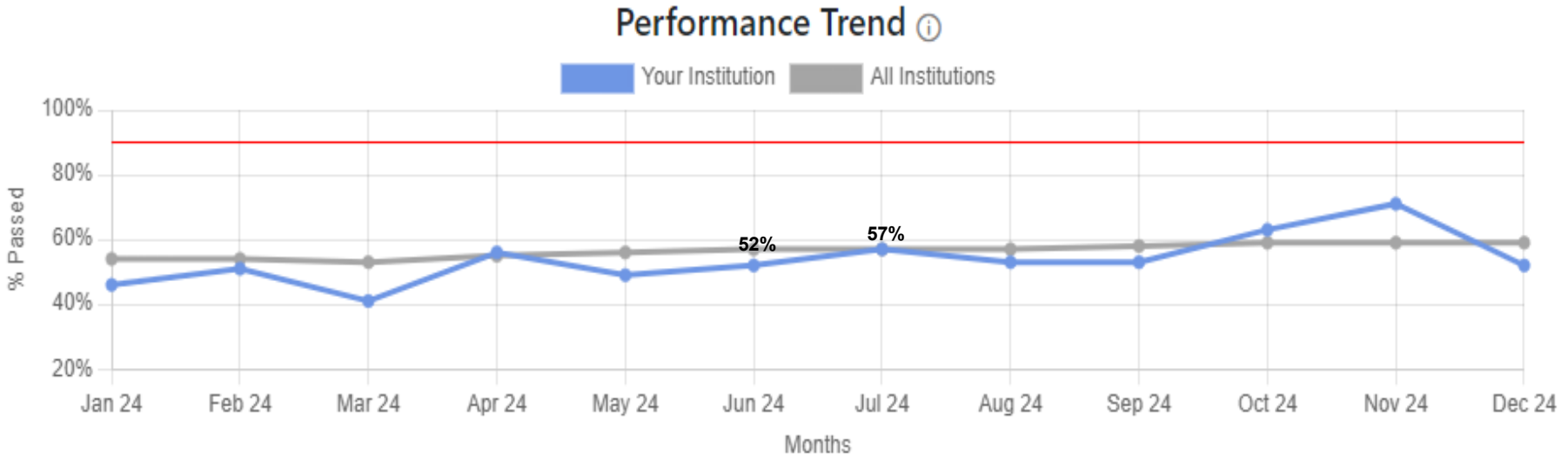
# Alpena SUS-02

## January 2024 – December 2024



# Clare SUS-02

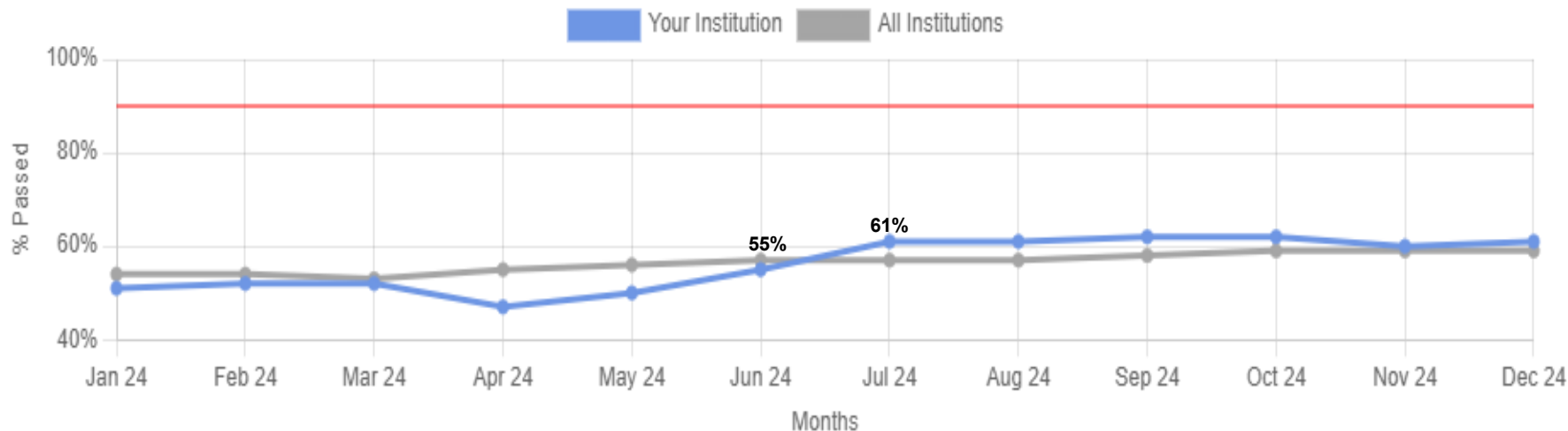
## January 2024 – December 2024



# Midland SUS-02

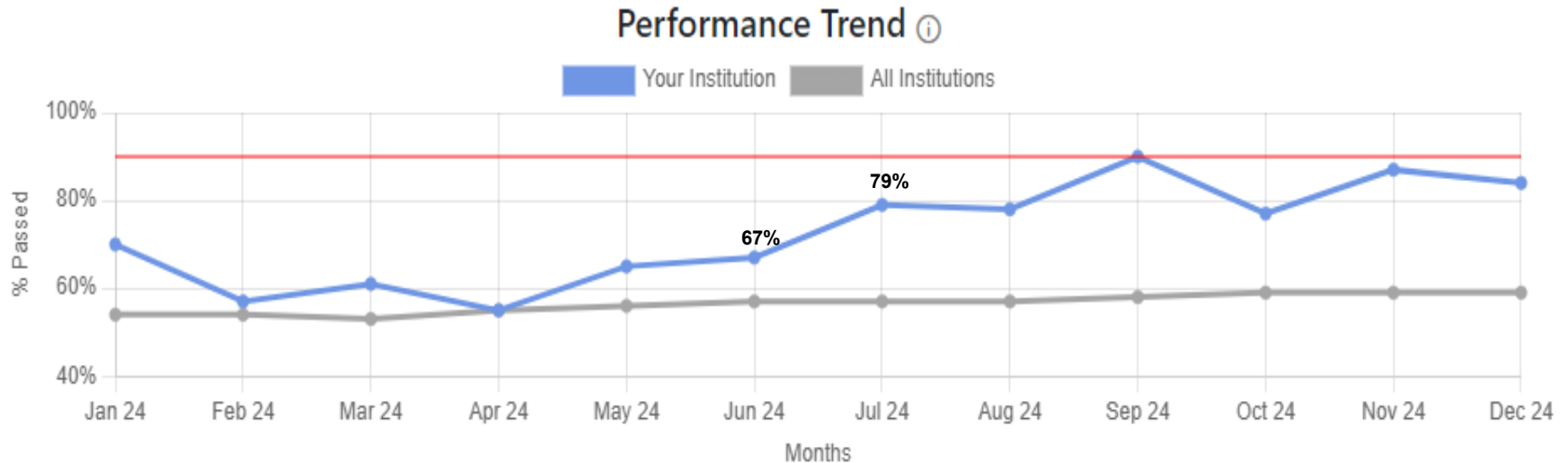
## January 2024 – December 2024

Performance Trend ⓘ



# West Branch SUS-02


## January 2024 – December 2024








# EPIC Community Library


comlibepic.com


 Forums Galaxy Nova Sherlock Community Library Training Home Show All


 OurPractice Advisory Base Search Filter by organization #MPOG


 BASE DH AN IDDM INTRAOP ALERT  
Dartmouth Health OurPractice Advisory


 BASE IP SMOKING CESSATION  
MyMichigan Health OurPractice Advisory


 BASE MM AN INTRA HIGH FRESH GAS FLOW  
MyMichigan Health OurPractice Advisory


 BASE UAMS AN HANDOFF ATTENDING CRNA RESIDENT  
University of Arkansas for Medical Sciences OurPractice Advisory


 BASE UWM AN ABNORMAL LOW GLUCOSE INTRA-OP  
UW Medicine OurPractice Advisory


 BASE UWM AN ADULT PONV RISK PRE-OP (1-2 RISK FACTORS)  
UW Medicine OurPractice Advisory


 BASE UWM AN CHECK GLUCOSE REMINDER  
UW Medicine OurPractice Advisory


 BASE UWM AN INTRA HIGH FRESH GAS FLOW  
UW Medicine OurPractice Advisory


 BASE UWM AN PERIOP GLYCEMIC MANAGEMENT  
UW Medicine OurPractice Advisory


 BASE UWM AN TIDAL VOLUME GREATER THAN 8ML/KG AND ...  
UW Medicine OurPractice Advisory


 BASE Y AN ADULT PONV RISK INTRA-OP (3 OR MORE RISK FA...  
Yale New Haven Health System and Yale University OurPractice Advisory

 BR AN FGF DESFLURANE  
UCSF Health OurPractice Advisory

 BR AN FGF ISOFLURANE  
UCSF Health OurPractice Advisory

 BR AN FGF SEVOFLURANE  
UCSF Health OurPractice Advisory

 CCHS AN ADULT PONV RISK INTRA-OP (BASE)

 **BASE MM AN INTRA HIGH FRESH GAS FLOW**  
MyMichigan Health (Epic February 2024) • OurPractice Advisory • 2 views

**Record Summary for: BASE MM AN INTRA HIGH FRESH GAS FLOW [4354]**

**General Information**

|                            |                                      |                                    |       |
|----------------------------|--------------------------------------|------------------------------------|-------|
| Record Name:               | BASE MM AN INTRA HIGH FRESH GAS FLOW | Contact date:                      | 66926 |
| Type:                      | Base                                 | Contact:                           |       |
| Importance Level           | Suggestion                           | Contact released?                  | Yes   |
| Display text:              | Reduce Fresh Gas Flow                |                                    |       |
| SmartLink:                 |                                      | SmartLink Parameter:               |       |
| Default View in Navigator: |                                      |                                    |       |
| Show last order date?      |                                      | Show last health maintenance date? |       |

**Linked Criteria**

Linked criteria:

| Linked Criteria  |
|--|
| 1 CL MM AN EVALUATE DESFLURANE PERCENTAGE AND AVERAGE FRESH AIR [1120000160]           |
| 2 CL MM AN EVALUATE ISOFLURANE PERCENTAGE AND AVERAGE FRESH GAS FLOW RATE [1120000166] |
| 3 CL MM AN BPA EVALUATE SEVOFLURANE PERCENTAGE AND AVERAGE FRESH GAS FLOW RATE [4350]  |
| 4 CL MM AN INTUBATION/AIRWAY PRESENT [11200004354]                                     |

Logic: (1 AND 4) OR (2 AND 4) OR (3 AND 4)

**Restrictions**

Advisory targeting:

| Potential Triggering Actions              |
|---|
| 1 Anesthesia Intraprocedure Refresh [100] |

Use expanded trigger check?

Override Profile Frequency?

**Follow-up Actions**



**My Michigan Health**  
UNIVERSITY OF MICHIGAN HEALTH

# Future Direction

Near term- Removing case duration lock-out and decrease FGF goal  $<1.4\text{L/min}$ , and change of BPA lockout from 15 min to 10 min

Long term- Decision support real-time feedback on reduced Greenhouse gas usage performance

Traffic light decision support tool - Display a Red-Yellow-Green based on ongoing moving average

Provide immediate feedback of CO<sub>2</sub> equivalent calculation