

# Leveraging ASPIRE and EPIC data for Practice Improvement & Reporting

Joshua Berris

*No conflicts to disclose*



# Anesthesiology Dashboard

Beaumont Farmington Hills

MDA: [Redacted]

Updated on 7/18/2017

CRNA: (All)

## Quality

	Provider YTD	Provider 2016	Dept. YTD	Dept. 2016
POIV <small>excludes endoscopy</small>	5.2 %	7.7 %	6.0 %	7.8 %
PONV Rate	96.6 %	93.2 %	96.0 %	92.6 %
PONV Prophylaxis Rate				
<b>Airway</b>				
Re-Intubation Rate (PACU)	0.0 %	0.2 %	0.1 %	0.0 %
Post-Op Ventilation Rate (unexpected)	0.1 %	0.1 %	0.1 %	0.1 %
<b>Pain <small>excludes endoscopy</small></b>				
PACU Admission Pain < 7	85.9 %	82.3 %	83.4 %	80.5 %
PACU Discharge Pain <= 4	88.1 %	83.8 %	87.0 %	84.8 %
Multimodal Analgesia	80.6 %	82.0 %	73.1 %	75.7 %
Morphine Equivalents / Kg / Min	2.1	2.1	2.8	2.8
<b>Blood Sugar</b>				
Blood Sugar < 200 on PACU Discharge	87.4 %	87.6 %	90.3 %	90.7 %
<b>PDPHA</b>				
Spinal etiology rate	1.3 %	2.1 %	0.7 %	1.6 %
Epidural etiology rate	0.0 %	0.0 %	0.0 %	0.0 %
<b>Anesthesia Reversal</b>				
Narcan / Flumazenil / Doxapram use	0.00 %	0.12 %	0.00 %	0.08 %
<b>Adverse Outcomes</b>				
Corneal Abrasion	No Cases %	No Cases %	0.02 %	0.02 %
<b>External Measures</b>				
PQRS Temp >= 36 / ASPIRE Temp03	99.8 %	99.2 %	99.6 %	99.4 %
ASPIRE PUL01 (Tidal Volume)	97.8 %	96.2 %	97.4 %	93.5 %
ASPIRE NBM01 (check TOF)	93.3 %	94.7 %	95.6 %	93.3 %
ASPIRE TEMP02 (Core Temp)	97.8 %	28.0 %	97.0 %	26.5 %
ASPIRE TOC02 (Transfer of Care)	88.3 %	No Cases	86.5 %	No Cases

## Satisfaction (Press Ganey)

	Provider YTD	Provider 2016	Dept. YTD	Dept. 2016
Anesthesia Explanation	98.1	95.1	95.9	93.3
Anesthesia Friendliness	100.0	93.1	96.2	93.7

## Efficiencies

	Provider YTD	Provider 2016	Dept. YTD	Dept. 2016
OR start to Induction	6.4 Mir	6.7 Min	6.4 Min	6.8 Min
OR start to Ready Case (ETT/LMA)	10 Mir	11 Min	10 Min	12 Min
OR start to Ready Case (Spinal)	12.9 Mir	12.6 Min	11.6 Min	12.0 Min
Surgery Stop to Out OR (ETT/LMA)	11.5 Mir	11.3 Min	11.7 Min	11.8 Min
Surgery Stop to Out OR (Non General)	5.4 Mir	5.6 Min	5.5 Min	5.1 Min
Out OR to End Anesthesia	5.8 Mir	5.8 Min	5.5 Min	6.0 Min
Percent extubations <= 15 minutes	93.8 %	94.8 %	92.5 %	92.1 %
Cancellation rate in PreOp	0.00 %	0.17 %	0.07 %	0.21 %
Anesthesia PreOp Delay (% of dept, % anes)	N/A %	N/A %	5.1 %	0.3 %
First case PreOp complete efficiency (OR)	100.0 %	98.6 %	97.4 %	96 %
First case PreOp complete efficiency (ENDO)	100.0 %	100.0 %	97.7 %	96.9 %
PACU Time (clinical)	82 Mir	83 Min	77 Min	73 Min
Cost per minute (meds & gases - ETT/LMA)	34.4 \$	34.3 \$	36.7 \$	36.9 \$

Operating Room Audits, This week 9:31a  
Attached is one excel file with all metrics and audit data for this week (Sunday - Saturda...

Operating Room Audits, Yesterday 8:31a  
Attached is one excel file with all metrics and audit data. I have included in the email lea...

*Personalized Dashboards*

*Department Reminders emails*

*"Near" real-time case review*

*QA Case input*

ASPIRE Temp-02	ASPIRE TEMP-03	TRANSFUSION	TRANSFER OF CARE
ANEITYPE Temp_Location Fail	ANEITYPE POUR_TEMP Fail	ANEITYPE Transfusion Yes	Compliance50623 POKANETIME No
New Labels	New Labels		

NOT PART OF MEDICAL RECORD - PEER REVIEW DOCUMENT

Quality Improvement & Clinical Outcomes  
Department of Anesthesia - Beaumont Farmington Hills

- Check the box of any events that occurred.  
- All unchecked boxes will be recorded as "no."  
- This form may be completed multiple times, by multiple people.  
- Any future "no" will not overwrite an existing "yes."  
- Please submit comments in the text box.  
- The form is anonymous.

**MISCELLANEOUS**

Event not listed. See comments.  
 Flag case for M&M / Quality Review  
 STAT Anesthesiologist requested

**AIRWAY / RESPIRATORY**

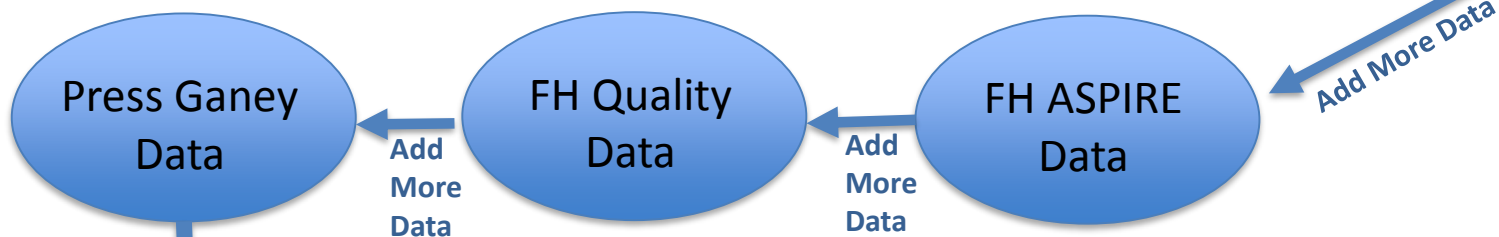
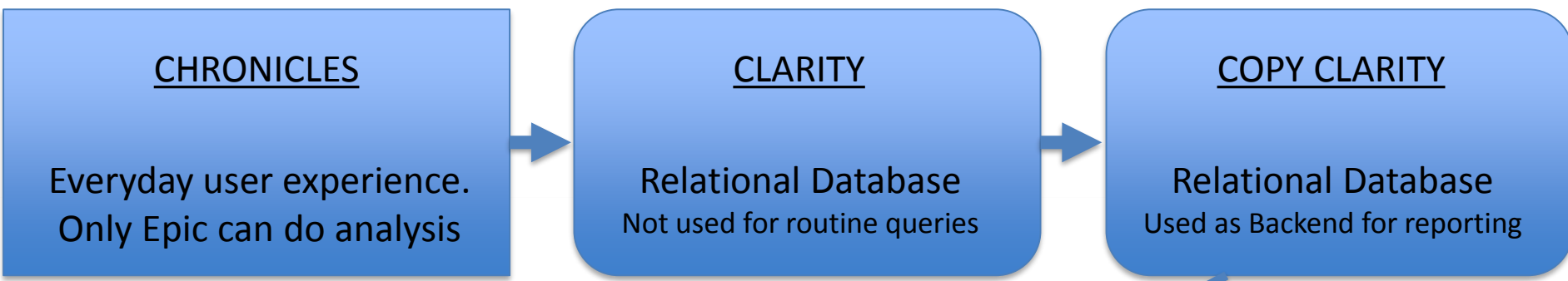
> 1 intubation attempt (excluding trainee)  
 Change anesthesia plan (ex: failed LMA)  
 Unanticipated difficult airway, catastrophic  
 Bronchospasm / Laryngospasm, requiring treatment

**MISCELLANEOUS**

Difficult IV start or problem with IV  
 Burn or fire  
 Ocular injury / corneal abrasion  
 Transfusion, unexpected or >10 units  
 Positioning problem / Fall from table  
 Intraoperative awareness during GA  
 Urinary retention  
 Anesthesia machine / monitor problem

**REGIONAL**

High Spinal  
 Dura puncture, unplanned  
 Local anesthetic toxicity  
 Failed surgical block



CHRONICLES

Everyday user experience.  
Only Epic can do analysis

CLARITY

Relational Database  
Not used for routine queries

COPY CLARITY

Relational Database  
Used as Backend for reporting

Press Ganey  
Data

Add  
More  
Data

FH Quality  
Data

Add  
More  
Data

FH ASPIRE  
Data

Add More Data

Combined  
Data Warehouse

**BACKEND OF THE PROGRAM**

Anes. Dashboard  
CRNAs & MDAs  
Monthly

OR Performance  
Managers & Director  
Daily

Multiple other  
reports &  
dashboards

Med. Admin  
OPPE & FPPE  
Monthly

ASPIRE Audit  
CRNAs & AQCRs  
Daily

Quality  
Committee  
Quarterly

# Why we do what we do

---

- Clinicians tell IT *what they want*.
  - Physician or Administrator:
    - “Hey we need to do better on ASPIRE temp-02. *I need* a dashboard showing our temp-02 performance so I can track this.”
  - IT gives back a dashboard showing the temp-02 performance. It can be sliced 100s of ways.
  - Performance change?

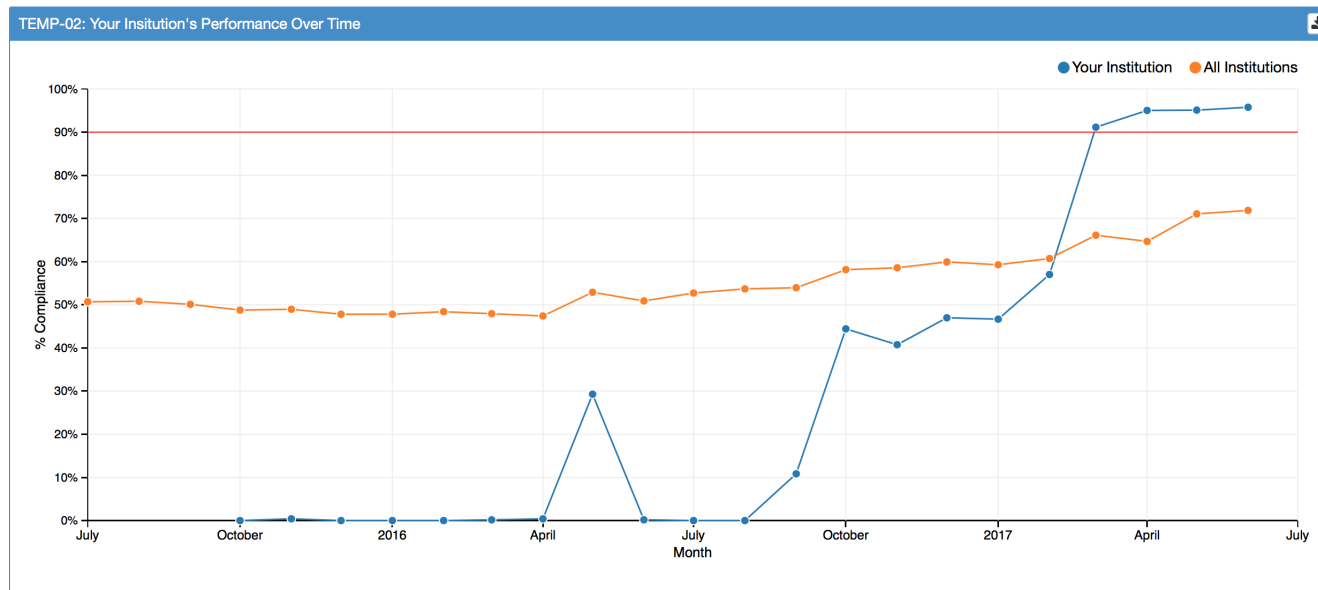
# Why we do what we do

---

- IT gave exactly what was asked for
  - Request was flawed.
- The question should be
  - “I am having a problem with temp-02 what can IT do to help.”

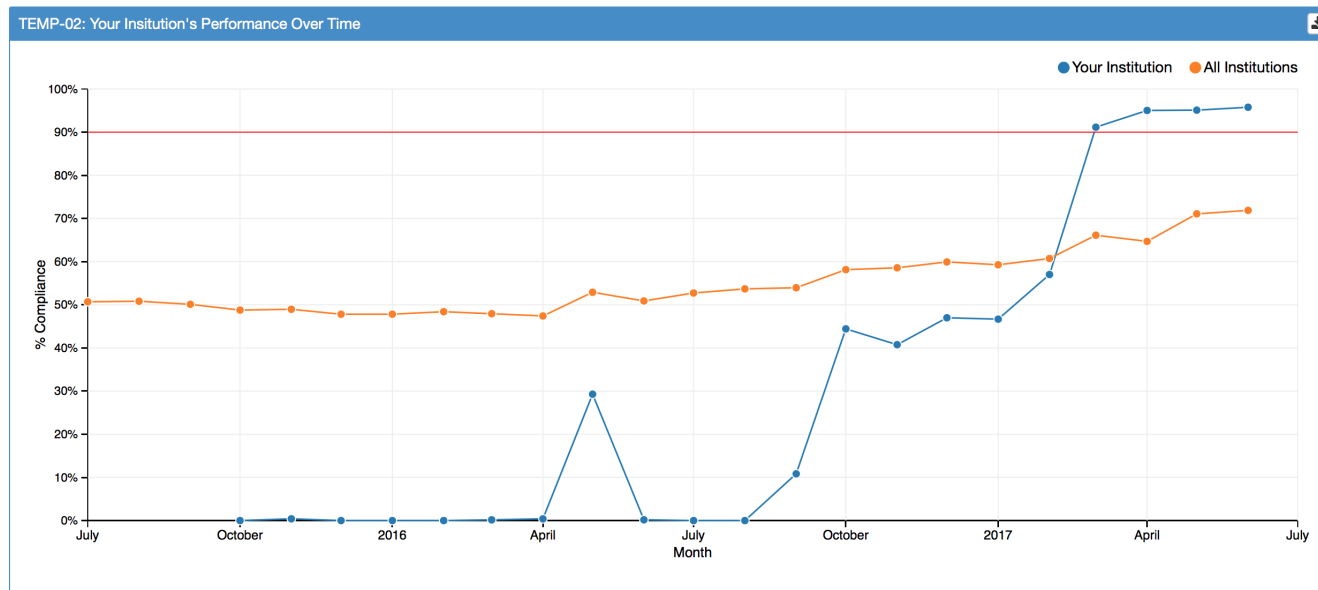
# Improving ASPIRE Performance

- Temp 02 at Beaumont Farmington Hills



# Improving ASPIRE Performance

- ASPIRE Dashboard isn't annoying enough.
- Hospital Dashboard isn't annoying enough.





# Improving ASPIRE Performance

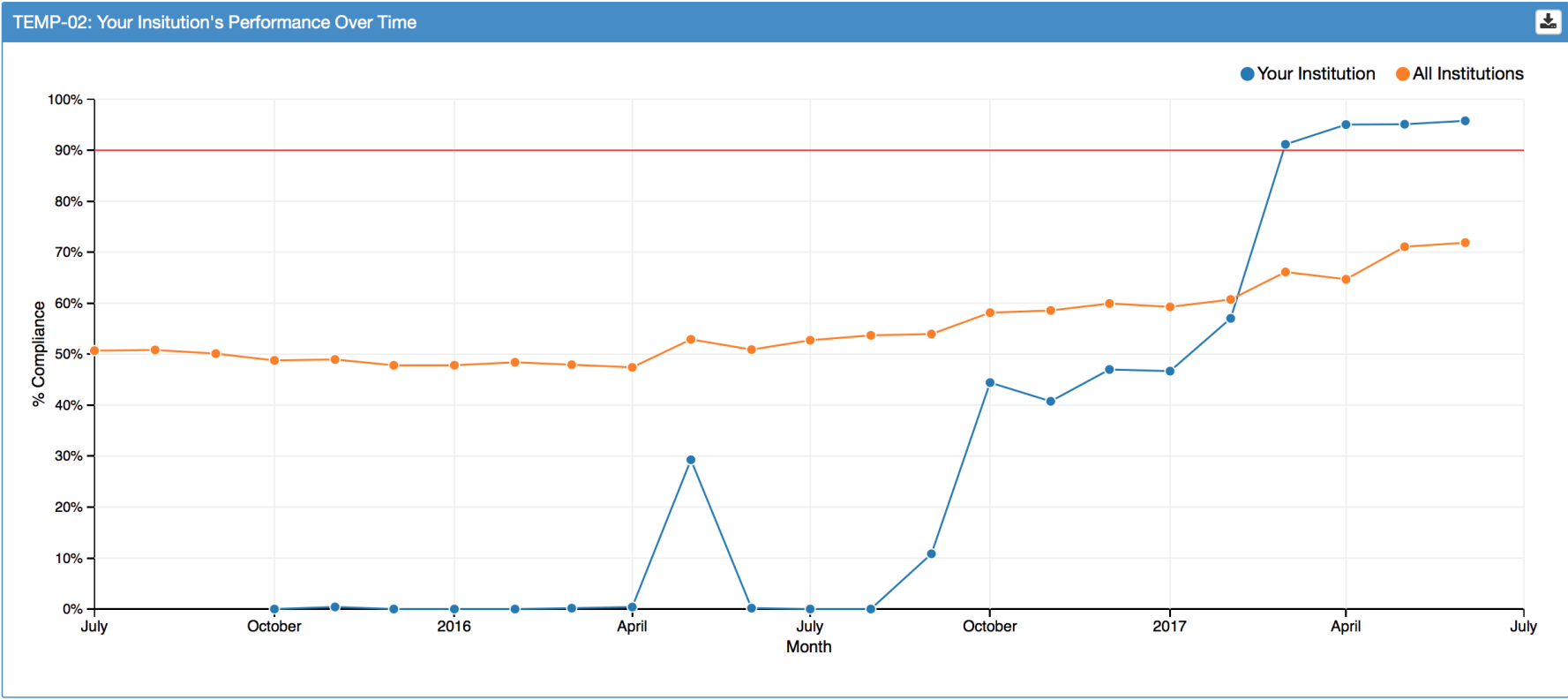
We send this every morning



Goes to CRNA manager  
Annoying Enough & Serious Enough  
to promote **practice change**.

Audit Cases for:		Week beginning: 7/16/17	
PONV Prophylaxis (missed)		ASPIRE Temp-02	
AREA	FH_Main_OR	ANETYPE	
PONV_PROPHYLAXIS	No	Temp_Location	Fail
Row Labels		Row Labels	
7/9/17		7/10/17	
[Redacted]		[Redacted]	
[Redacted]		[Redacted]	
[Redacted]		[Redacted]	
[Redacted]		[Redacted]	

# Improving ASPIRE Performance



### Quality Improvement & Clinical Outcomes Department of Anesthesia – Beaumont Farmington Hills

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#### AIRWAY / RESPIRATORY

- > 1 intubation attempt (excluding trainee)
- Change anesthesia plan (ex: failed LMA)
- Unanticipated difficult airway, catastrophic
- Bronchospasm / Laryngospasm, requiring treatment
- Aspiration
- Airway trauma / dental injury
- Re-intubation
- Post-op vent. or BiPap, unexpected
- Pneumothorax (line/regional related)
- Respiratory arrest

#### CARDIOVASCULAR

- ACLS or Code Blue
- MI / Ischemia on EKG
- Pressor / inotrope infusion or repeated boluses
- Prolonged hypotension (> 10 min. 25% below base)
- HTN requiring treatment
- Pulmonary Edema / CHF
- Anaphylaxis
- Arrhythmia. (Significant / Require Tx)

#### MEDICATION

- Drug reaction
- Prolonged neuromuscular relaxant
- Malignant hyperthermia reaction
- Transfusion reaction
- Drug administration error
- Dynamic Research 1 --
- Dynamic Research 2 --

#### NEUROLOGIC

- Nerve injury
- Seizure
- Stroke
- Post-op delirium

#### MISCELLANEOUS

- Difficult IV start or problem with IV
- Burn or fire
- Ocular injury / corneal abrasion
- Transfusion, unexpected or >10 units
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- Intraoperative awareness during GA
- Urinary retention
- Anesthesia machine / monitor problem

#### REGIONAL

- High Spinal
- Dura puncture, unplanned
- Local anesthetic toxicity
- Failed surgical block
- Failed pain block

#### CASE MANAGEMENT

- Delay to start case
- Incorrect patient
- Delayed discharge, non-clinical (bed, ride, nasal packing, prescription, etc.)
- Unanticipated ICU admission
- Unanticipated hospital admit (Non-pain related)
- Unanticipated hospital admit (Pain related)
- Return to OR

#### COMMENTS

SUBMIT

- Replaces ScanTron
- Feeds directly to Data Warehouse
- Not “accidentally” discoverable

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- Unanticipated hospital admit (Pain related)
- Return to OR

#### COMMENTS

SUBMIT

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Beaumont Health - Beaumont Development TST - ANESTHESIA FH - JC

Epic Patient Station Telephone Call Master Daily S

TEST HAIRU

PostProcedure

Summary Pre Intra Post Orders Intra

Snapshot

Chart Review

Results Revi...

Synopsis

History

Flowsheets

Intake/Output

Allergies

Problem List

FYI/Hx Prec

Notes

Discharge

MAR

Manage Orders

Intraprocedure

PreProcedure

PostProcedure

ATTACHED PROCEDURES

Attached Procedu...

POSTPROCEDURE HANDOFF

Procedure Info

Anes Type

I/O

Airway Removal

Line Removal

Transfer of Care

Anesthesia Stop

POSTOP DOCUMENTATION

Anesthesia History

ICD

Post-evaluation N...

Close Encounter

Follow-up Needed

Anesthesia Quality

DISCHARGE TASKS

Order/Med Rec

Attached Proc...

Attached? Date/Time

Attached to This An...

Procedure Info

Case: [REDACTED]

Procedure: [REDACTED]

Anesthesia type: Ge...

Pre-op diagnosis: Tr...

Location: FH OR 01

Surgeon: Rebeck, M

Anes Type

Anesthesia Type

CSE

Click Here

New browser window opens

Non-PHI identifiers auto-populate

# Anesthesiology Dashboard

Beaumont Farmington Hills

MDA: [Redacted]

Updated on 7/18/2017

CRNA: (All)

## Quality

	Provider YTD	Provider 2016	Dept. YTD	Dept. 2016
POIV <small>excludes endoscopy</small>				
PONV Rate.....	5.2 %	7.7 %	6.0 %	7.8 %
PONV Prophylaxis Rate.....	96.6 %	93.2 %	96.0 %	92.6 %
Airway				
Re-Intubation Rate (PACU).....	0.0 %	0.2 %	0.1 %	0.0 %
Post-Op Ventilation Rate (unexpected).....	0.1 %	0.1 %	0.1 %	0.1 %
Pain <small>excludes endoscopy</small>				
PACU Admission Pain < 7 .....	85.9 %	82.3 %	83.4 %	80.5 %
PACU Discharge Pain <= 4 .....	88.1 %	83.8 %	87.0 %	84.8 %
Multimodal Analgesia.....	80.6 %	82.0 %	73.1 %	75.7 %
Morphine Equivalents / Kg / Min.....	2.1	2.1	2.8	2.8
Blood Sugar				
Blood Sugar < 200 on PACU Discharge.....	87.4 %	87.6 %	90.3 %	90.7 %
PDPHA				
Spinal etiology rate.....	1.3 %	2.1 %	0.7 %	1.6 %
Epidural etiology rate.....	0.0 %	0.0 %	0.0 %	0.0 %
Anesthesia Reversal				
Narcan / Flumazenil / Doxapram use.....	0.00 %	0.12 %	0.00 %	0.08 %
Adverse Outcomes				
Corneal Abrasion.....	No Cases %	No Cases %	0.02 %	0.02 %
External Measures				
PQRS Temp >= 36 / ASPIRE Temp03.....	99.8 %	99.2 %	99.6 %	99.4 %
ASPIRE PUL01 (Tidal Volume).....	97.8 %	96.2 %	97.4 %	93.5 %
ASPIRE NEM01 (check TOF).....	93.3 %	94.7 %	95.6 %	93.3 %
ASPIRE TEMP02 (Core Temp).....	97.8 %	28.0 %	97.0 %	26.5 %
ASPIRE TOC02 (Transfer of Care).....	88.3 %	No Cases	86.5 %	No Cases

- Personalized monthly dashboard emailed to all MDAs and CRNAs
- Automatic email
- VBA programming and Excel

## Satisfaction (Press Ganey)

	Provider YTD	Provider 2016	Dept. YTD	Dept. 2016
Anesthesia Explanation	98.1	95.1	95.9	93.3
Anesthesia Friendliness	100.0	93.1	96.2	93.7

## Efficiencies

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Percent extubations <= 15 minutes.....	93.8 %	94.8 %	92.5 %	92.1 %
Cancellation rate in PreOp.....	0.00 %	0.17 %	0.07 %	0.21 %
Anesthesia PreOp Delay (% of dept, % anes)....	N/A %	N/A %	5.1 %	0.3 %
First case PreOp complete efficiency (OR).....	100.0 %	98.6 %	97.4 %	96 %
First case PreOp complete efficiency (ENDO)....	100.0 %	100.0 %	97.7 %	96.9 %
PACU Time (clinical).....	82 Mir	83 Min	77 Min	73 Min
Cost per minute (meds & gases - ETT/LMA).....	34.4 \$	34.3 \$	36.7 \$	36.9 \$

# Novel Metrics – Beaumont FH

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- ASPIRE does great data clean up
  - Makes writing queries easier

# Anesthesiology Dashboard

Beaumont Farmington Hills

MDA: [REDACTED]

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ASPIRE TEMP02 (Core Temp).....	97.8 %	26.0 %	97.0 %	26.5 %
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Morphine

Cost

# Cost Per Case

Row Labels	Average of TotalMedCost_Per Case
BRADY, MARY M	\$8.18
BRADY, MARY M	\$10.44
BRADY, PATRICIA A	\$14.04
BRADY	\$16.51
BRADY, STEPHEN J	\$17.65
BRADY, STEPHEN J	\$19.28
BRADY, STEPHEN J	\$19.67
BRADY, VICTORIA A	\$20.15
BRADY, VICTORIA A	\$21.94
BRADY, VICTORIA A	\$24.51
BRADY, VICTORIA A	\$28.32
BRADY, VICTORIA A	\$28.63
BRADY, VICTORIA A	\$29.62
BRADY, VICTORIA A	\$30.61
BRADY, VICTORIA A	\$30.96
BRADY, VICTORIA A	\$32.01

BRADY, VICTORIA A	\$32.87
BRADY, VICTORIA A	\$32.95
BRADY, VICTORIA A	\$33.27
BRADY, VICTORIA A	\$33.34
BRADY, VICTORIA A	\$33.43
BRADY, VICTORIA A	\$33.90
BRADY, VICTORIA A	\$34.03
BRADY, VICTORIA A	\$34.83
BRADY, VICTORIA A	\$35.98
BRADY, VICTORIA A	\$36.05
BRADY, VICTORIA A	\$36.34
BRADY, VICTORIA A	\$36.54
BRADY, VICTORIA A	\$36.64
BRADY, VICTORIA A	\$36.82
BRADY, VICTORIA A	\$36.99
BRADY, VICTORIA A	\$37.39
BRADY, VICTORIA A	\$37.68

BRADY, VICTORIA A	\$37.79
BRADY, VICTORIA A	\$38.29
BRADY, VICTORIA A	\$38.45
BRADY, VICTORIA A	\$38.71
BRADY, VICTORIA A	\$38.95
BRADY, VICTORIA A	\$39.21
BRADY, VICTORIA A	\$39.22
BRADY, VICTORIA A	\$40.25
BRADY, VICTORIA A	\$41.34
BRADY, VICTORIA A	\$41.49
BRADY, VICTORIA A	\$41.51
BRADY, VICTORIA A	\$43.36
BRADY, VICTORIA A	\$44.18
BRADY, VICTORIA A	\$44.57
BRADY, VICTORIA A	\$45.48
BRADY, VICTORIA A	\$47.89
BRADY, VICTORIA A	\$50.02
BRADY, VICTORIA A	\$54.57

- \$54.57 vs. \$10.44
- Biggest Drivers of Cost



# Cost Per Case

Row Labels	Average of TotalMedCost_PerCase
BRIDGES, HEIDI M	\$8.18
BRIDGES, KATHY L	\$10.44
BRIDGES, PATRICIA S	\$14.04
BRIDGES	\$16.51
BROOKS, CHRISTOPHER J	\$17.65
BROOKS, KENNETH J	\$19.28
BROOKS, KENNETH S	\$19.67
BROOKS, VICTORIA A	\$20.15
BROOKS, JILL S	\$21.94
BROOKS, SUE A	\$24.51
BROOKS, JAMES D	\$28.32
BROOKS, AMY S	\$28.63
BROOKS, PATRICIA J	\$29.62
BROOKS, FREDERICK J	\$30.61
BROOKS, WILSON A	\$30.96
BROOKS, BARBARA J	\$32.01

BRIDGES, KATHY L	\$32.87
BROOKS, HEIDI M	\$32.95
BROOKS, KATHY L	\$33.27
BROOKS, KENNETH S	\$33.34
BROOKS, KENNETH J	\$33.43
BROOKS, MICHAEL W	\$33.90
BROOKS, KENNETH S	\$34.03
BROOKS, KENNETH S	\$34.83
BROOKS, KENNETH S	\$35.98
BROOKS, KENNETH S	\$36.05
BROOKS, KENNETH S	\$36.34
BROOKS, KENNETH S	\$36.54
BROOKS, KENNETH S	\$36.64
BROOKS, KENNETH S	\$36.82
BROOKS, KENNETH S	\$36.99
BROOKS, KENNETH S	\$37.39
BROOKS, KENNETH S	\$37.68

BROOKS, KENNETH S	\$37.79
BROOKS, KENNETH S	\$38.29
BROOKS, KENNETH S	\$38.45
BROOKS, KENNETH S	\$38.71
BROOKS, KENNETH S	\$38.95
BROOKS, KENNETH S	\$39.21
BROOKS, KENNETH S	\$39.22
BROOKS, KENNETH S	\$40.25
BROOKS, KENNETH S	\$41.34
BROOKS, KENNETH S	\$41.49
BROOKS, KENNETH S	\$41.51
BROOKS, KENNETH S	\$43.36
BROOKS, KENNETH S	\$44.18
BROOKS, KENNETH S	\$44.57
BROOKS, KENNETH S	\$45.48
BROOKS, KENNETH S	\$47.89
BROOKS, KENNETH S	\$50.02
BROOKS, KENNETH S	\$54.57

- \$54.57 vs. \$10.44
- Biggest Drivers of Cost
- Gas Flows and Vasopressin

# Morphine Equivalents

CRNA	Average of mcg/kg/min M504	Average of PACU TIME
SMITH, BRUCE	5.78	104
ANDREWS, JAMES	5.51	119
ANDREWS, MARCO S	4.84	65
ANDERSON, MICHAEL J	4.12	87
THOMAS, JAMES W	4.09	102
THOMAS, TERRANCE	4.05	95
LEE, JAMES	3.71	102
BRUCE, HARRY B	3.71	89
LEITCH, JAMES J	3.70	111
MORROW, DAVID J	3.66	127
LEE, BARBARA	3.50	131
SMITH, MARCO J	3.47	137
SMITH, JAMES B	3.47	83
ANDERSON, MICHAEL A	3.40	114
SMITH, PATRICIA A	3.35	87
ANDERSON, MARCO W	3.32	106

SMITH, APRIL	3.31	102
ANDREWS, MARCO S	3.30	148
ANDREWS, JAMES	3.15	109
SMITH, MARCO S	3.11	124
SMITH, JAMES W	3.11	126
SMITH, MARCO S	3.08	85
SMITH, MICHAEL W	3.07	113
SMITH, JAMES W	3.07	77
SMITH, MARCO S	3.03	109
SMITH, MARCO S	3.00	105
SMITH, JAMES W	2.92	98
SMITH, JAMES W	2.89	97
SMITH, JAMES W	2.89	117
SMITH, MARCO S	2.88	112
SMITH, MARCO S	2.87	111
SMITH, MARCO S	2.77	101
SMITH, MARCO S	2.74	104

ANDERSON, MARCO W	2.71	116
SMITH, MARCO S	2.67	115
ANDERSON, MICHAEL J	2.66	83
ANDERSON, MICHAEL J	2.64	140
SMITH, MARCO S	2.61	59
SMITH, MARCO S	2.55	80
SMITH, MARCO S	2.51	115
SMITH, MARCO S	2.50	106
SMITH, MARCO S	2.49	102
SMITH, MARCO S	2.46	70
SMITH, MARCO S	2.44	192
SMITH, MARCO S	2.40	113
SMITH, MARCO S	2.36	107
SMITH, MARCO S	2.33	108
SMITH, MARCO S	1.82	160
SMITH, MARCO S	1.05	92

- Pearson Correlation

# Morphine Equivalents

CRNA	Average of mcg/kg/min MS04	Average of PACU TIME
DAVID, BRUCE	5.78	104
CHRISTOPHER, JAMES D	5.51	119
DEBRA, MARCOLO B	4.84	65
CHRISTOPHER, STEPHEN J	4.12	87
CHRISTOPHER, JAMES M	4.09	102
CHRISTOPHER, THOMAS D	4.05	95
DAVID, JAMES D	3.71	102
BRUCE, JAMES D	3.71	89
CHRISTOPHER, JAMES V	3.70	111
CHRISTOPHER, DAVID C	3.66	127
DAVID, BRUCE	3.50	131
CHRISTOPHER, JAMES V	3.47	137
CHRISTOPHER, JAMES D	3.47	83
CHRISTOPHER, JAMES A	3.40	114
DAVID, BRUCE	3.35	87
CHRISTOPHER, JAMES M	3.32	106

CHRISTOPHER, JAMES V	3.31	102
CHRISTOPHER, JAMES D	3.30	148
CHRISTOPHER, JAMES A	3.15	109
CHRISTOPHER, JAMES D	3.11	124
CHRISTOPHER, JAMES M	3.11	126
CHRISTOPHER, JAMES D	3.08	85
CHRISTOPHER, JAMES D	3.07	113
CHRISTOPHER, JAMES D	3.07	77
CHRISTOPHER, JAMES D	3.03	109
CHRISTOPHER, JAMES D	3.00	105
CHRISTOPHER, JAMES D	2.92	98
CHRISTOPHER, JAMES D	2.89	97
CHRISTOPHER, JAMES D	2.89	117
CHRISTOPHER, JAMES D	2.88	112
CHRISTOPHER, JAMES D	2.87	111
CHRISTOPHER, JAMES D	2.77	101
CHRISTOPHER, JAMES D	2.74	104

CHRISTOPHER, JAMES V	2.71	116
CHRISTOPHER, JAMES D	2.67	115
CHRISTOPHER, JAMES V	2.66	83
CHRISTOPHER, JAMES D	2.64	140
CHRISTOPHER, JAMES D	2.61	59
CHRISTOPHER, JAMES D	2.55	80
CHRISTOPHER, JAMES M	2.51	115
CHRISTOPHER, JAMES D	2.50	106
CHRISTOPHER, JAMES D	2.49	102
CHRISTOPHER, JAMES M	2.46	70
CHRISTOPHER, JAMES D	2.44	192
CHRISTOPHER, JAMES M	2.40	113
CHRISTOPHER, JAMES D	2.36	107
CHRISTOPHER, JAMES M	2.33	108
CHRISTOPHER, JAMES D	1.82	160
CHRISTOPHER, JAMES D	1.05	92

- Pearson Correlation
  - Morphine to PACU time 0.124
  - No correlation to admit pain scores

# In Closing...

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- The data is there
- The technology is there
- Use them both to  
*improve and not just measure our metrics*