Leveraging ASPIRE/EPIC data & Questionnaires For Practice Improvement & Reporting

Joshua Berris *No conflicts to disclose*

Beaumont
Farmington Hills

Anesthesiology Dashboard
Beaumont Farmington Hills
MDA: BERRIS, JOSHUA R
Updated on 7/18/2017
CRNA: (All)
Quality
Provider YTD
Provider 2016
Dept. YTD
Dept. 2016
POHV excludes endoscopy
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 excludes endoscopy
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
Adverse Outcomes
Corneal Abrasion
External Measures
PQRS Temp >= 36 / ASPIRE Tem
ASPIRE PUL01 (Tidal Volume)
ASPIRE NBM01 (check TOF)
ASPIRE TEMP02 (Core Temp)
ASPIRE TOC02 (Transfer of Car
Satisfaction (Press Gane
Anesthesia Explaination
Anesthesia Friendliness
Efficiencies
OR start to Induction
OR start to Ready Case (ETT/LMA) 12.9 Min 12.6 Min 11.6 Min 12.0 Min
OR start to Ready Case (Spinal)
Surgery Stop to Out OR (ETT/LMA) 11.5 Min 11.3 Min 11.7 Min 11.8 Min
Surgery Stop to Out OR (Non General) 5.4 Min 5.6 Min 5.5 Min 5.1 Min
Out OR to End Anesthesia 5.8 Min 5.8 Min 5.5 Min 6.0 Min
Percent extubations <= 15 minutes 93.8 % 94.8 % 92.5 % 92.1 %
Cancelation 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 Min 83 Min 77 Min 73 Min
Cost per minute (meds & gases - ETT/LMA) 34.4 $ 34.3 $ 36.7 $ 36.9 $
Berris, Joshua
Operating Room Audits, This week
9:31a
Attached is one excel file with all metrics and audit data for this week (Sunday - Saturda...
Berris, Joshua
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
input
When We Last Talked...
ASPIRE Temp-02
ASPIRE TEMP-03
TRANSFUSION
TRANSFER OF CARE
• NOT PART OF MEDICAL RECORD • PEER REVIEW DOCUMENT •
CSN# 123
CaseID# 2
Quality Improvement & Clinical Outcomes
Department of Anesthesia – Beaumont Farmington Hills
- Check the box of any events that occured.
- 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
Unanticipated difficult airway, requiring treatment
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

Anesthesiology Dashboard

Beaumont Farmington Hills MDA: BERRIS, JOSHUA R

Updated on 7/18/2017 CRNA: (All)

Quality

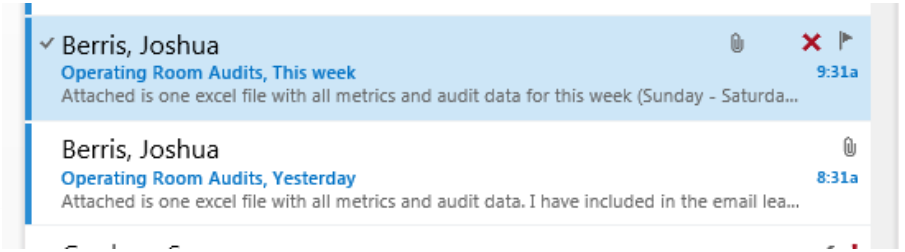
	Provider YTD	Provider 2016	Dept. YTD	Dept. 2016
PONV excludes endoscopy				
PONV Rate	5.2 %	7.7 %	6.0 %	7.8 %
PONV Prophylaxis Rate	96.6 %	93.2 %	96.0 %	92.6 %
Airway				
Re-Intubation Rate (PACU)	0.0 %	0.2 %	0.1 %	0.0 %
Post-Op Ventilation Rate (unexpected)	0.1 %	0.1 %	0.1 %	0.1 %
Pain excludes endoscopy				
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 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 Explaination	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 Min	6.7 Min	6.4 Min	6.8 Min
OR start to Ready Case (ETT/LMA)	10 Min	11 Min	10 Min	12 Min
OR start to Ready Case (Spinal)	12.9 Min	12.6 Min	11.6 Min	12.0 Min
Surgery Stop to Out OR (ETT/LMA)	11.5 Min	11.3 Min	11.7 Min	11.8 Min
Surgery Stop to Out OR (Non General)	5.4 Min	5.6 Min	5.5 Min	5.1 Min
Out OR to End Anesthesia	5.8 Min	5.8 Min	5.5 Min	6.0 Min
Percent extubations <= 15 minutes	93.8 %	94.8 %	92.5 %	92.1 %
Cancelation 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 Min	83 Min	77 Min	73 Min
Cost per minute (meds & gases - ETT/LMA)	34.4 $	34.3 $	36.7 $	36.9 $

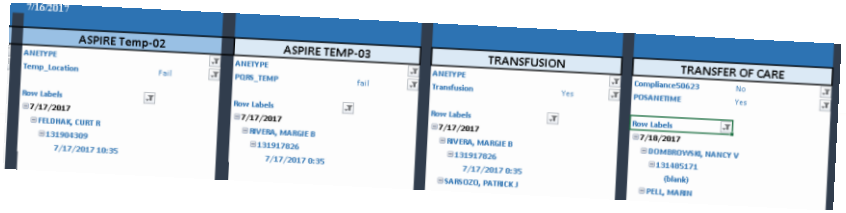


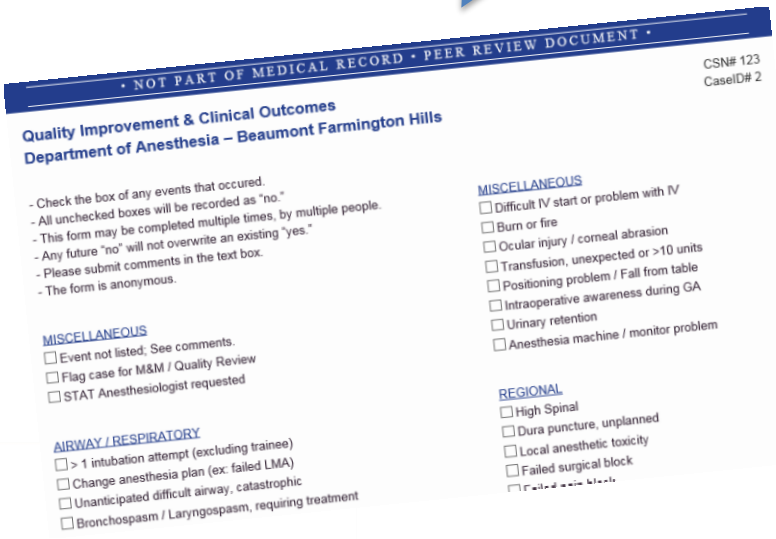
Personalized Dashboards

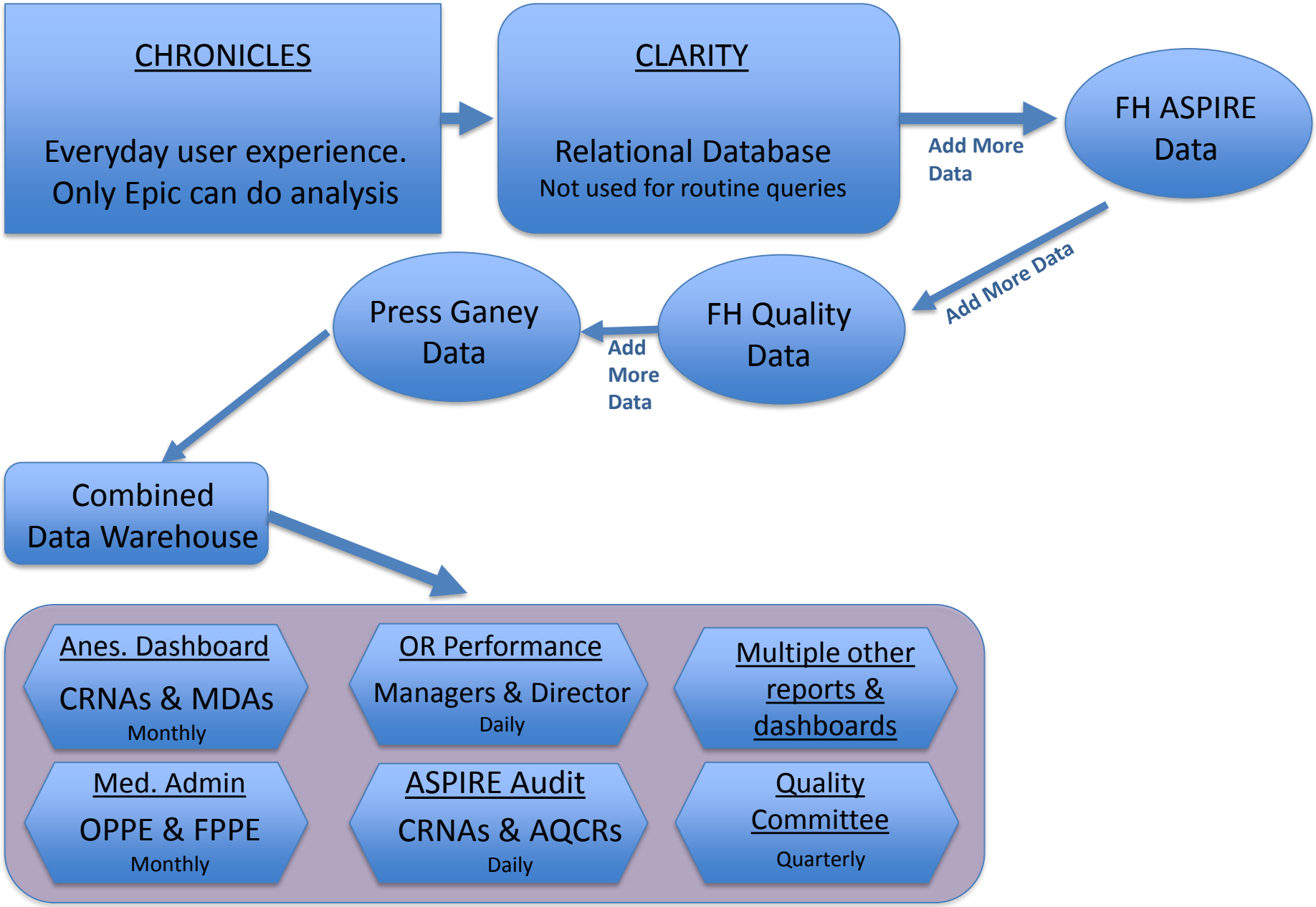
Department Reminders emails

QA Case input

"Near" real-time case review



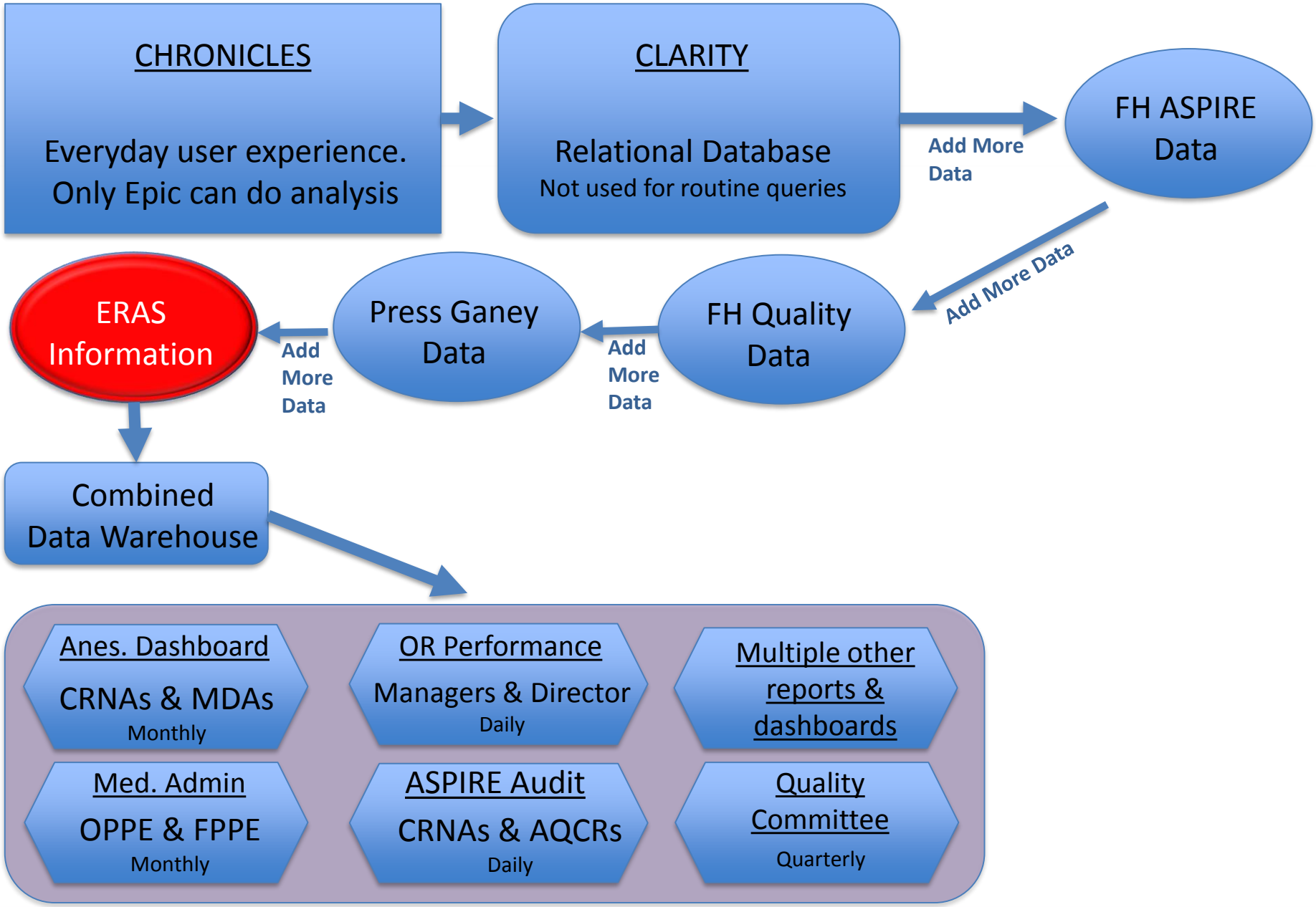



CHRONICLES
Everyday user experience.
Only Epic can do analysis
CLARITY
Relational Database
Not used for routine queries
Add More Data
FH ASPIRE Data
Add More Data
FH Quality Data
Add More Data
Press Ganey Data
Combined Data Warehouse
Anes. Dashboard
CRNAs & MDAs
Monthly
OR Performance
Managers & Director
Daily
Multiple other reports & dashboards
Med. Admin
OPPE & FPPE
Monthly
ASPIRE Audit
CRNAs & AQCRs
Daily
Quality Committee
Quarterly

Now there is more…

Now there is more…

We included Surgeons


CHRONICLES
Everyday user experience.
Only Epic can do analysis
CLARITY
Relational Database
Not used for routine queries
Add More Data
FH ASPIRE Data
Add More Data
FH Quality Data
Add More Data
Press Ganey Data
Add More Data
ERAS Information
Combined Data Warehouse
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

What was the need

- Time, money, personnel dedicated to ERAS
  - How do we show impact to
    - Administration
    - Surgeons
    - Anesthesiologists
    - CRNAs
- IT support is a limited resource

What was the problem

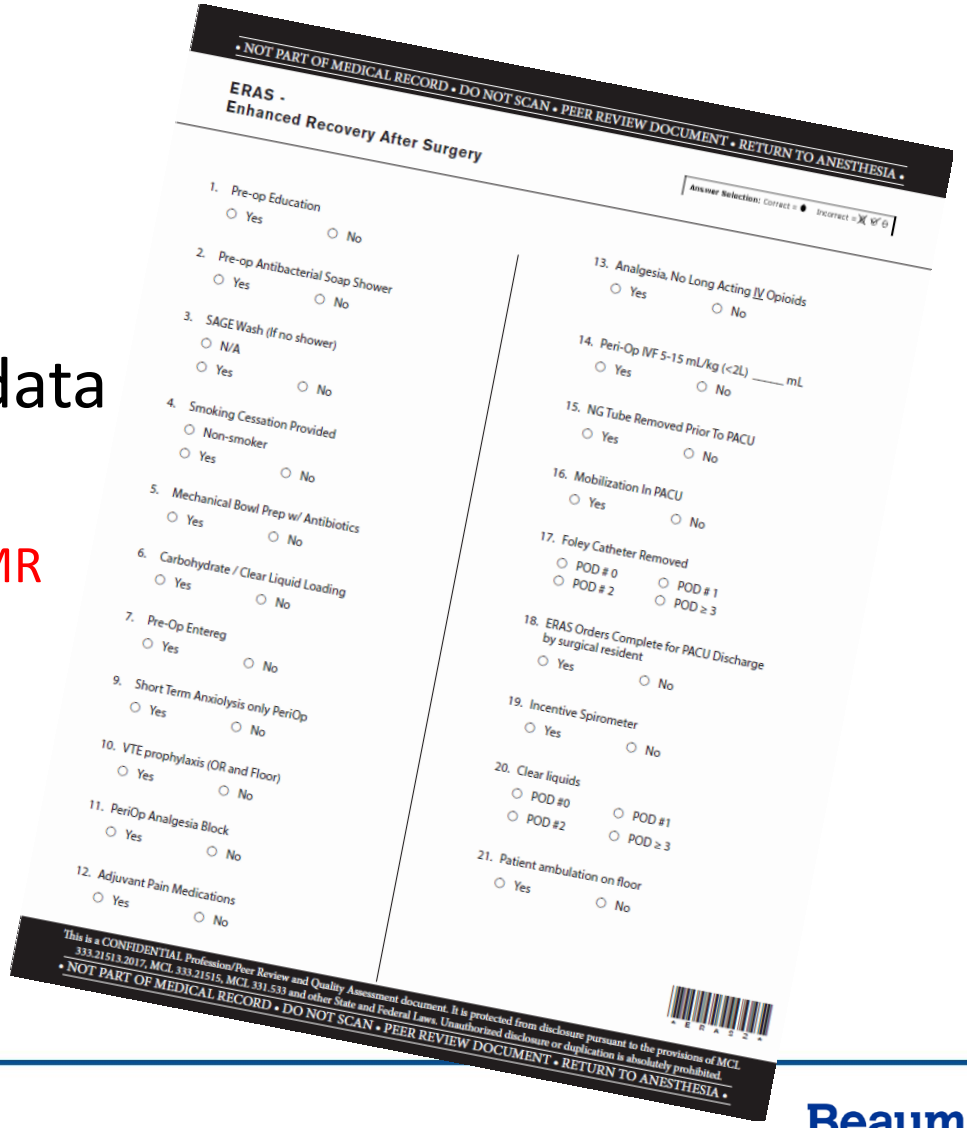
- Need to get non-EMR data into electronic reportable form
- Need to extract EMR data into electronic reportable form
- Need a method to report

Problem already solved

- ✓ Need to get non-EMR data into electronic reportable form – Scan Tron
- ✓ Need to extract EMR data into electronic reportable form – Reporting extract Clarity
- ✓ Need a method to report – Excel + VBA

Solutions

- Non-EMR data
  - Patient diary data
  - Human extracted data
    - Bubble Sheets
      - Remark Office OMR
- Existing structure for other info.



Beaumont
Farmington Hills

Resolution

ERAS Dashboard

Provider = *(All)*

	Provider 2018	Provider 2017	Dept 2017
Pre-Hospital			
Education	100 %	91 %	91 %
Shower	100 %	100 %	100 %
Bowel Prep	100 %	100 %	100 %
Oral Hydration / Carb Loading	59 %	52 %	52 %
Smoking (% non-smoker)	89 %	78 %	78 %
Sage Wipe	0 %	0 %	0 %
Discharge			
Readmission 30d	6.9 %	6.3 %	6.3 %
ER Visit *without* admission 30d	6.9 %	12.5 %	12.5 %
Mortality 30d	0.0 %	0.0 %	0.0 %
Mortality 24h	0.0 %	0.0 %	0.0 %
Length of Stay [Pre ERAS LOS]			
Robotic Colectomy [X]	4.1 Days	1.4 Days	1.4 Days
Robotic Perineal Resection [X]	None Days	3.8 Days	3.8 Days
Perineal Resection (open) [5.95]	6.0 Days	4.1 Days	4.1 Days
Small Bowel Resection (open)[10.82]	None Days	4.9 Days	4.9 Days
Laparoscopic bowel resection [4.00]	None Days	3.0 Days	3.0 Days
Proctosigmoidectomy [6.40]	4.4 Days	4.4 Days	4.4 Days
Colostomy / Iliosotomy [8.34]	None Days	3.6 Days	3.6 Days
Colostomy / Iliosotomy revision [4.58]	5.0 Days	3.7 Days	3.7 Days
Colectomy, right (open) [8.20]	3.8 Days	4.0 Days	4.0 Days
Colectomy, right (laparoscopic) [4.28]	3.5 Days	3.6 Days	3.6 Days
LAR (open) [7.61]	4.6 Days	7.2 Days	7.2 Days
LAR (laparoscopic) [4.54]	2.8 Days	3.8 Days	3.8 Days
Colectomy, left (open) [4.17]	None Days	4.0 Days	4.0 Days
Colectomy, left (laparoscopic) [5.84]	None Days	4.0 Days	4.0 Days
OVERALL [8.84]	4.15 Days	4.6 Days	4.6 Days
Pneumonia	0 %	1 %	0 %
Intra-Op			
PONV Prophylaxis Rate	98 %	100 %	100 %
MSO_4 (mcg/kg/min)	1.55	1.77	1.77
Temperature ≥ 37°	100 %	100 %	100 %
ABX Prophylaxis	98 %	85 %	85 %

	Provider 2018	Provider 2017	Dept 2017
Post-Op			
PONV Rate	16 %	15 %	15 %
Oral Liquids Starting			
Day 0	52 %	48 %	48 %
Day 1	43 %	39 %	39 %
Day 2	5 %	10 %	10 %
Day 3	0 %	4 %	4 %
IV Fluids			
POD 0	2251 L	2030 L	2030 L
POD 1	2749 L	3125 L	3125 L
DVT Prophylaxis	100 %	100 %	100 %
NG, removed Intra-Op	94 %	96 %	96 %
PostOp Glucose check	58 %	62 %	62 %
Foley removal on:			
Day 0	12 %	21 %	21 %
Day 1	53 %	39 %	39 %
Day 2	24 %	14 %	7 %
Day 3	10 %	26 %	26 %
PACU d/c Pain ≤ 4	73 %	61 %	61 %
48h Return to OR	8 %	15 %	15 %
Mobilization (PACU)	1 %	9 %	9 %
Mobilization (Floor)	99 %	96 %	96 %
Incentive Spirometer	100 %	100 %	0 %
Multimodal Pain Meds (floor)	93 %	83 %	100 %
Pre-Op			
PreOp Anxiolysis	100 %	100 %	100 %
VTE Prophylaxis	100 %	100 %	100 %
Block By Aneshtesia	100 %	100 %	100 %
Multimodal Pain Meds	100 %	96 %	96 %
ERAS Order Set (inc. Entereg)	100 %	98 %	98 %
PreOp Glucose check	98 %	92 %	92 %
Overall			
ERAS Cases	58	80	80

Beaumont
Farmington Hills

Resolution

- Individualized dashboard sent to each surgeon monthly
- Surgeon and department performance for this year and last year

Conclusion

- We collect a large amount of data on our ERAS population
- We now organize that data and push it to surgeons, administrators and anesthesia providers

Conclusion

- Does ERAS make a difference?
  - LOS prior to ERAS Colorectal
    - 8.8 days
  - LOS after ERAS Colorectal
    - 4.2 days

- **BUT…**

Conclusion

- Correlation between LOS

PreOp Education	0.01
Antibacterial Shower	-0.04
Liquid Carb Loading	0.13
Smoking Status	-0.21
30 day Readmission	-0.12
PONV Prophylaxis	0.05
PONV	0.04
Morphine mcg/kg/min	0.19
ABX Prophylaxis Given	0.11
Liquid Starting Day 0	0.20
Liquid Starting Day 1	0.01
Liquid Starting Day 2	0.10
Liquid Starting Day >3	-0.42
Fluid total POD 0	0.16
Fluid total POD 1	0.15
Fluid total POD 2	0.26
NG Removed IntraOp	0.22
Foley Removed POD0	0.15
Foley Removed POD1	0.23
Foley Removed POD2	-0.06
Foley Removed POD>3	-0.38
Pain <4, PACU Discharge	0.08

Conclusion

- Correlation between LOS
- **But that's not exactly what this talk is about.**

PreOp Education	0.01
Antibacterial Shower	-0.04
Liquid Carb Loading	0.13
Smoking Status	-0.21
30 day Readmission	-0.12
PONV Prophylaxis	0.05
PONV	0.04
Morphine mcg/kg/min	0.19
ABX Prophylaxis Given	0.11
Liquid Starting Day 0	0.20
Liquid Starting Day 1	0.01
Liquid Starting Day 2	0.10
Liquid Starting Day >3	-0.42
Fluid total POD 0	0.16
Fluid total POD 1	0.15
Fluid total POD 2	0.26
NG Removed IntraOp	0.22
Foley Removed POD0	0.15
Foley Removed POD1	0.23
Foley Removed POD2	-0.06
Foley Removed POD>3	-0.38
Pain <4, PACU Discharge	0.08