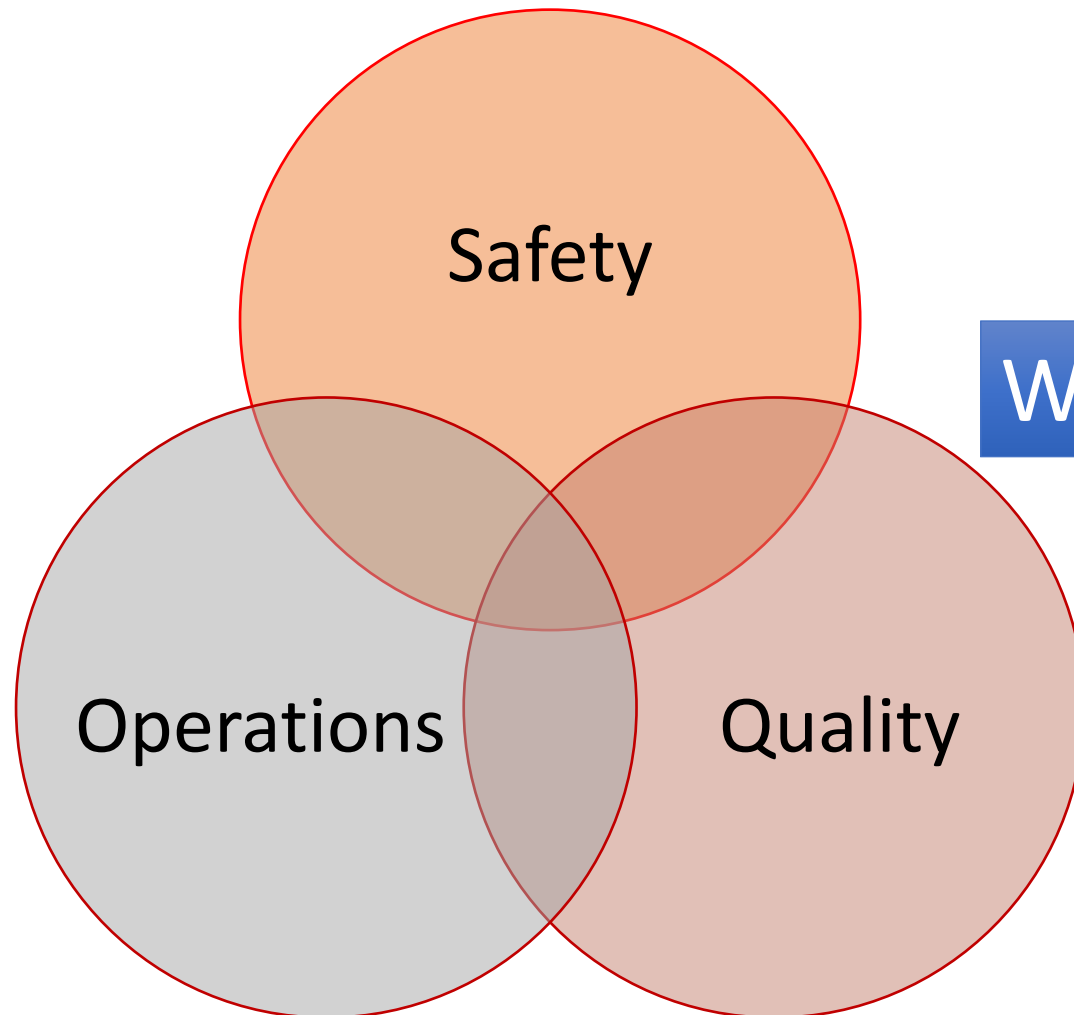


NORA Quality Metrics

Where Are We Now?



Where Should We Be Going?

Standardized Metrics

Standardized Expectations

Accountability



Scheduling the nonoperating room anesthesia suite

Mary E. Warner and David P. Martin

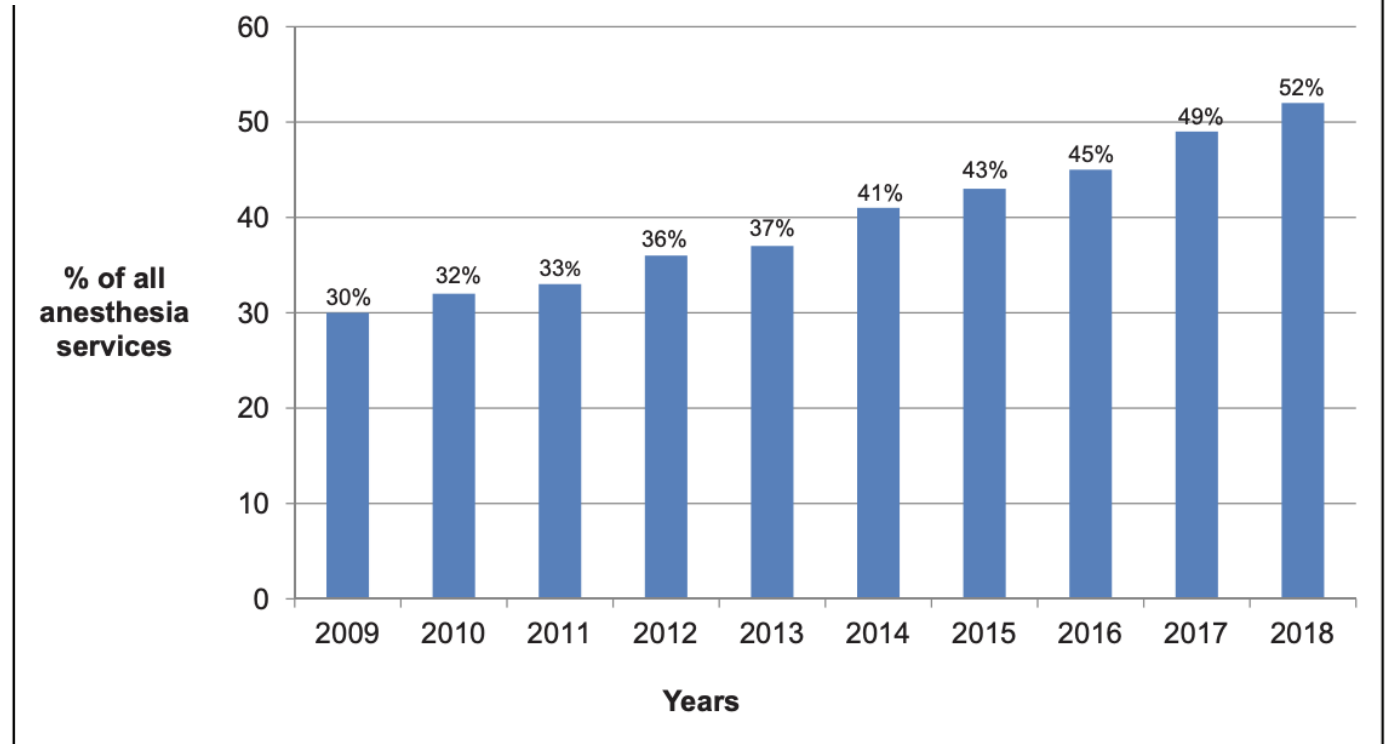
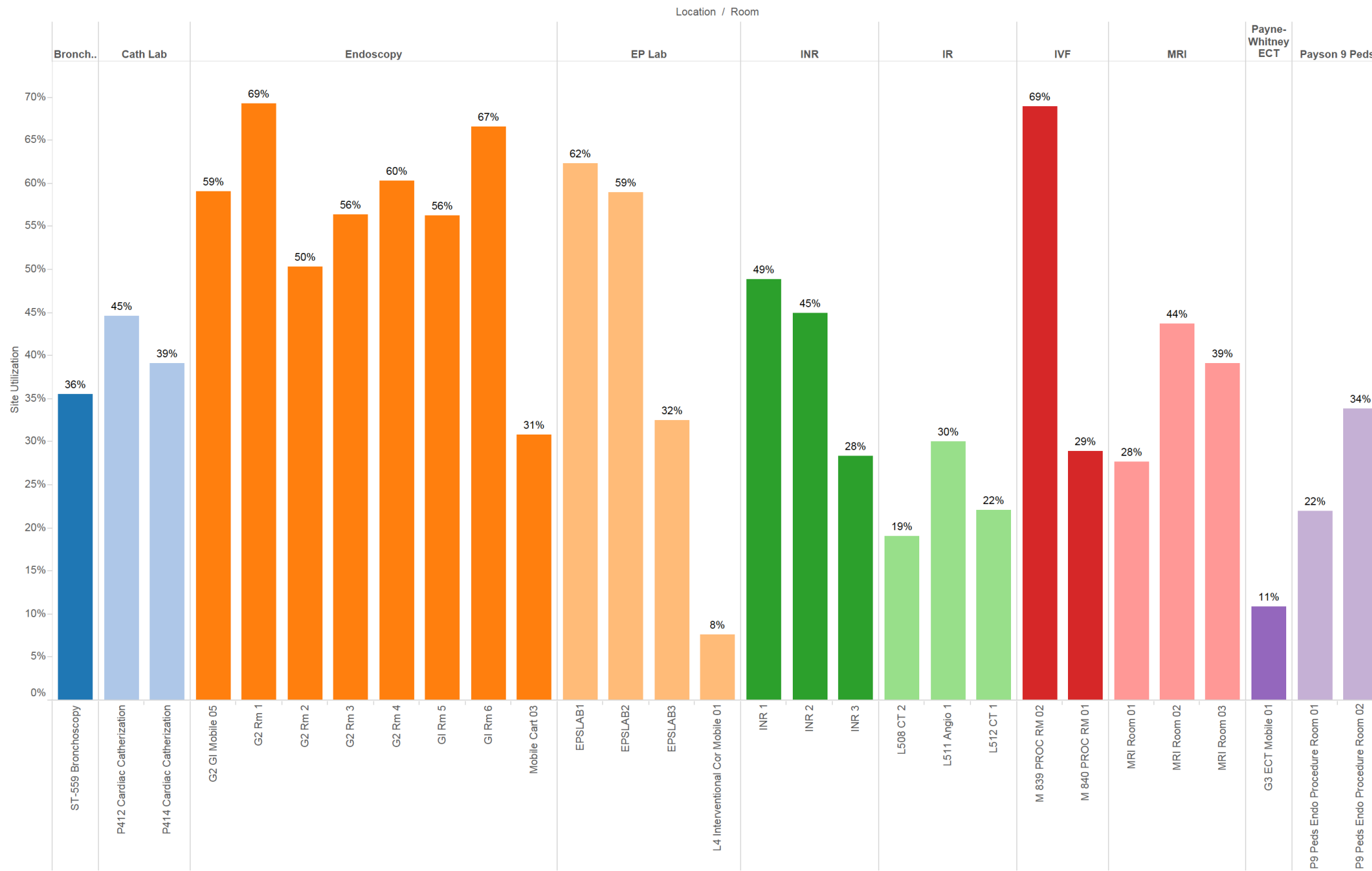


FIGURE 1. The percentage of all in-patient and out-patient anesthesia services provided outside of traditional operating rooms at Mayo Clinic health system facilities during the 9-year period from 2009 to 2017 and projected through 2018. The anesthesia services include all of those provided by anesthesiologists and nurse anesthetists, as well as sedation provided by Department of Anesthesiology-trained sedation nurses in areas such as gastroenterological and radiology procedural practices. Cases involving sedation provided in ICUs and emergency rooms are not included. In 2018, more than half of all anesthesia and sedation cases will involve nonoperating room anesthesia.

Site Utilization (Percentage of Time a Room is Being Used in a 9/10 Hour Day) from 7am/8am - 5pm



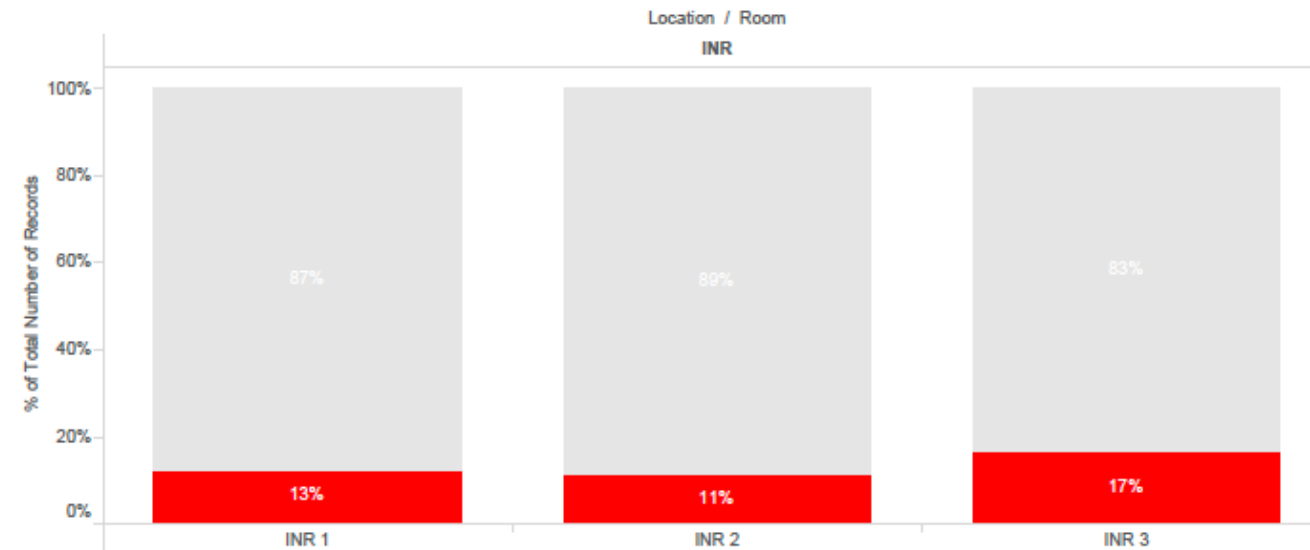
NORA After 5pm Report



Average Number of Hours after 5pm by Room & Location

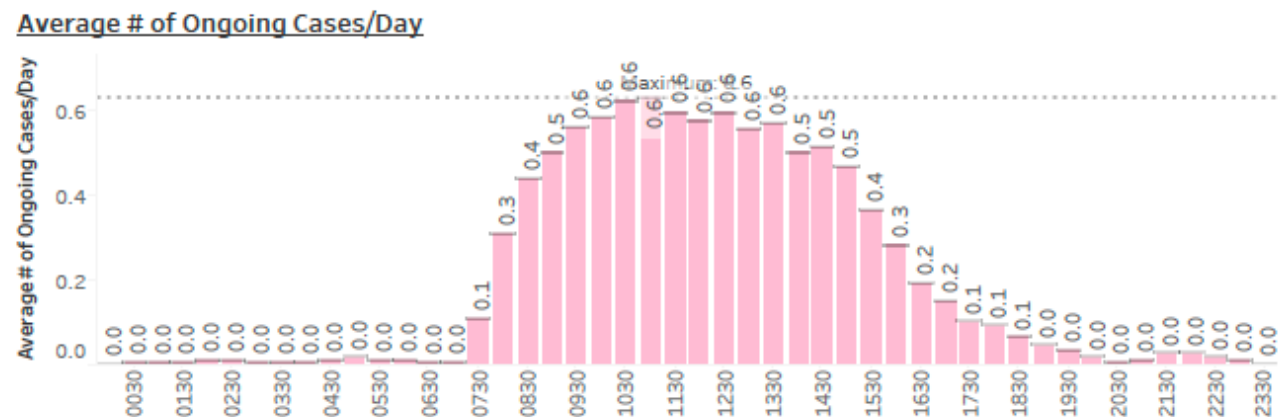


Percentage of After 5pm Cases vs. Work Day Cases by Room & Location

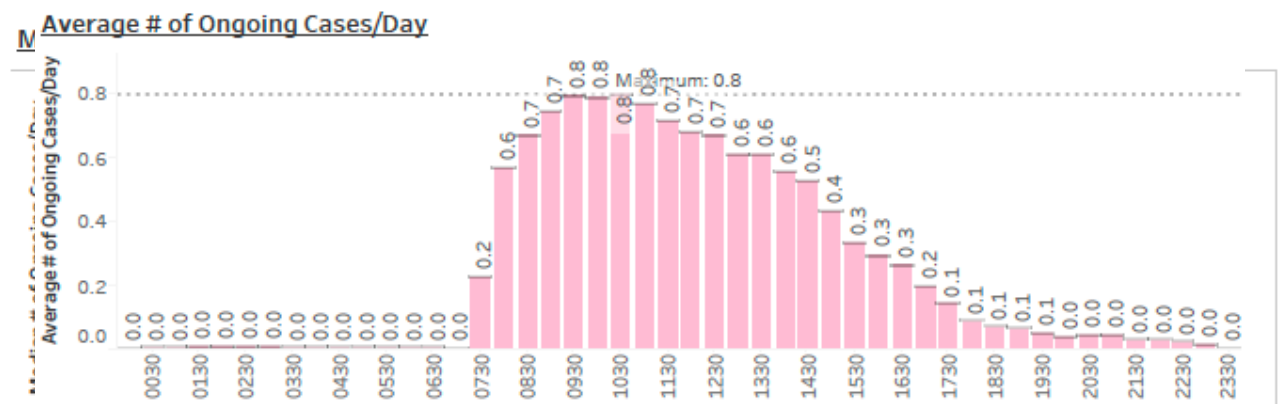


Comparison of Start Times

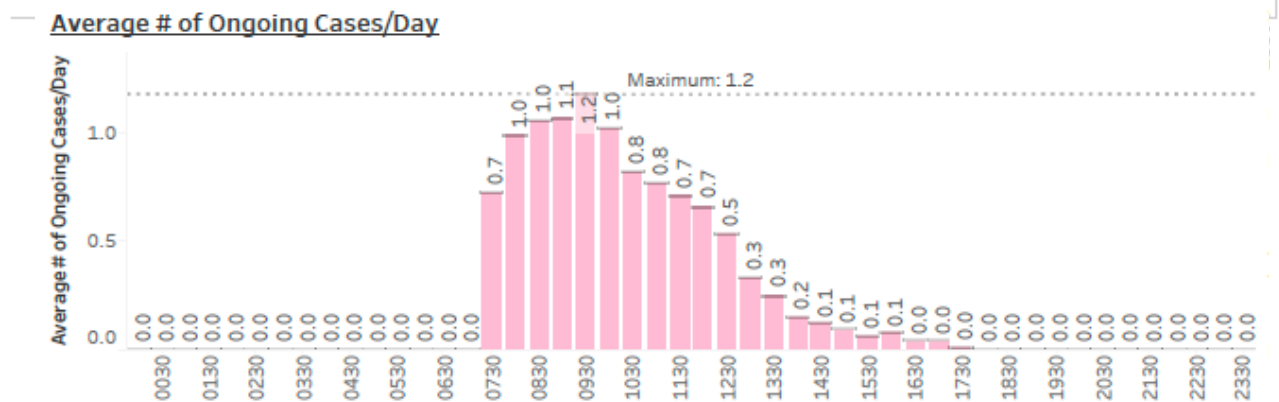
Person 1



Person 2



Person 3



EPIC Procedures Vs EPIC OpTime

Differences in:

- Procedure Start times
- Timeout Documentation
- Proceduralist Identification



Standardized Processes

Standardized Expectations

Accountability



REGULATORY
Universal Protocol
PC2: Pre-Op Chart Review
PC2: Post-Op Chart Review
RCA/Reportable Events
Surgical Errors
INTERNAL AUDIT
Vendor Monitoring^
Overlapping Surgery: Presence
Overlapping Surgery: Consent
Overlapping Surgery: Backup Surgeon
PERIOP QUALITY
PREOP: BCMA
PACU: BCMA
PACU: Orders on Arrival
PACU: Avg time for orders (min)
PACU: Pain Assessment
OR/ENDO: POU Cleaning
OR: Medication Labeling
OR: Surgical Attire/PPE
OR: Tissue Compliance
HIM
OR: H&P
OR: H&P Update
OR: Consent
OR: Brief Op Note
OR: Complete Op Note
ENDO: H&P
ENDO: H&P Update
ENDO: Consent
ENDO: Op Note
IP&C ^^
ENDO: HLD
OR: HLD
ENDO: Scope ATP

Hospital “Quality” Metrics

- Vendor Monitoring
- Overlapping Surgery
- Infection Prevention and Control
- Attire

Quality Metrics

- Same level of Preop Assessment /Optimization
- History and Physical
- MIPS metrics apply! – Smoking Cessation
- Obstructive Sleep Apnea - STOPBANG
- Risk Stratification
- Same NPO criteria
- Same PACU Discharge Criteria
- Same postop assessment



When is a PACU not a PACU?



NORA Recovery!!



PACU vs ICU

This particular event concerned the transfer of care after a patient in the bronchoscopy suite had to be re-intubated and sent to the ICU. Our team (nurses, anesthesia, CT surgery) had a patient who underwent a bronch and afterward was noted to be somnolent, hypotensive, and hypoxemic. She was re-intubated after the procedure and placed on vasopressors with the plan to send to either PACU or the ICU. For nearly 1 hour, our team was unable to transfer the patient for a higher level of care. If this were in true operating rooms, it would not have been a huge concern but in the bronch suite, we do not have supplies for a higher level of care (lab draws, arterial lines, etc.)

Patient arrived from the EP lab hypotensive with SBPs 60-80s, heart rate 40s-50s. Pt complaining of feeling nauseous and dizzy. Pt accompanied by Cath Lab RN. Pt placed in reverse Trendelenburg position...



ASPAN – American Society of PeriAnesthesia Nurses

- Board Certification
- CPAN- Certified Post Anesthesia Nurse
- CAPA- Certified Ambulatory Perianesthesia Nurse

Anesthesia Recovery Criteria Tx

Medication sent to receiving unit

BP Within Pre-Op Value

BP No Less Than 20% Below

BP No More Than 30% ABOVE

Heart Rate (60-100 or patient's baseline value)

 Patient has pacemaker and/or AICD. Is repr...

Heart Rhythm Unchanged from Pre-op

Optimal Pain Relief Achieved

Level Of Consciousness Ambulatory: 4

Level Of Consciousness Other: 3

Temperature 36-38 Centigrade

Respiratory Rate

O2 Saturation > 94% or at Pre-op Baseline (if <...

O2 Source

Urinary Output: > or =.5ml/kg/hr (Foley)

Written Anesthesiology Leave PACU order obta...

Written Service Discharge/Transfer Order Obtai...

Incision/Dressing Dry

Patient Demonstrates steady gait or meets pre-...

Hours of NORA Site Recovery Area



Patient in EP needed to go to PACU based on anesthesia criteria and discretion of anesthesia attending. Charge RN from PACU told us that there were no spots and hung up on the anesthesia provider. After calling back again explained that for patient safety patient needed to come to PACU and that we understood if there was a PACU hold. Charge RN then stated that patient shouldn't need to come to PACU despite team insisting it was necessary for patient safety.

Why did patient need to go to PACU?

Hours of NORA Site Recovery Area



Patient in EP needed to go to PACU based on anesthesia criteria and discretion of anesthesia attending. Charge RN from PACU told us that there were no spots and hung up on the anesthesia provider. After calling back again explained that for patient safety patient needed to come to PACU and that we understood if there was a PACU hold. Charge RN then stated that patient shouldn't need to come to PACU despite team insisting it was necessary for patient safety.

Only 1 nurse in EP Recovery

What is MAC?



Subject: Monitored Anesthesia Care for Gastrointestinal Endoscopic Procedures
Guideline #: CG-MED-34
Status: Reviewed

Publish Date: 04/13/2022
Last Review Date: 02/17/2022

Clinical Indications

Medically Necessary:

Monitored Anesthesia Care (for definition, see Discussion below)

Monitored anesthesia care is considered **medically necessary** during gastrointestinal endoscopic procedures when there is documentation by the operating physician or the anesthesiologist that demonstrates **any** of the following higher risk situations exist:

- Prolonged or therapeutic endoscopic procedure requiring deep sedation such as endoscopic retrograde cholangiopancreatography (ERCP) or repeat colonoscopy due to tortuous colon; **or**
- A history of or anticipated poor response due to cross tolerance or paradoxical reaction to standard sedatives used during moderate (conscious) sedation specifically due to narcotics or benzodiazepines; **or**
- Increased risk for complication due to severe comorbidity (American Society of Anesthesiologists [ASA] class III physical status or greater. See Appendix for physical status classifications); **or**
- Individuals over 70; **or**
- Individuals under the age of 18; **or**
- Pregnancy; **or**
- History of drug or alcohol abuse; **or**
- Uncooperative or acutely agitated individuals (for example, delirium, organic brain disease, senile dementia); **or**
- Increased risk for airway obstruction due to anatomic variant including **any** of the following:
 - History of previous problems with anesthesia or sedation; **or**
 - History of stridor or sleep apnea; **or**
 - Dysmorphic facial features, such as Pierre-Robin syndrome or trisomy-21; **or**
 - Presence of oral abnormalities including but not limited to a small oral opening (less than 3cm in an adult), high arched palate, macroglossia, tonsillar hypertrophy, or a non-visible uvula (not visible when tongue is protruded with individual in sitting position [for example, Mallampati class greater than II]); **or**
 - Neck abnormalities including but not limited to short neck, obesity involving the neck and facial structures, limited neck extension, decreased hyoid-mental distance (less than 3cm in an adult), neck mass, cervical spine disease or trauma, tracheal deviation, or advanced rheumatoid arthritis; **or**
 - Jaw abnormalities including but not limited to micrognathia, retrognathia, trismus, or significant malocclusion.

The routine assistance of an Anesthesiologist or Certified Registered Nurse Anesthetist (CRNA) for individuals meeting the above criteria who are undergoing gastrointestinal endoscopic procedures is considered **medically necessary**.

Not Medically Necessary:

Monitored anesthesia care is considered **not medically necessary** when the above criteria are not met.

The routine assistance of an Anesthesiologist or Certified Registered Nurse Anesthetist (CRNA) for individuals not meeting the above criteria who are undergoing gastrointestinal endoscopic procedures is considered **not medically necessary**.

Documentation of General Anesthesia

GI endoscopy patients usually receive care from anesthesiologists. Gastroenterologists frequently request that the patient be unaware and not purposefully responsive to noxious stimuli during passage of the endoscope. According to the American Society of Anesthesiologist's standards and guidelines:²

"If the patient loses consciousness and the ability to respond purposefully, the anesthesia care is a general anesthetic, irrespective of whether airway instrumentation is required."

In order to accurately describe the physiologic state of the patient, **if the patient loses consciousness and the ability to respond purposefully,** will adopt standardized nomenclature regarding the delivery of this care: that care will be documented as "General Anesthesia" rather than MAC (Monitored Anesthesia Care). Acceptable documentation options include:

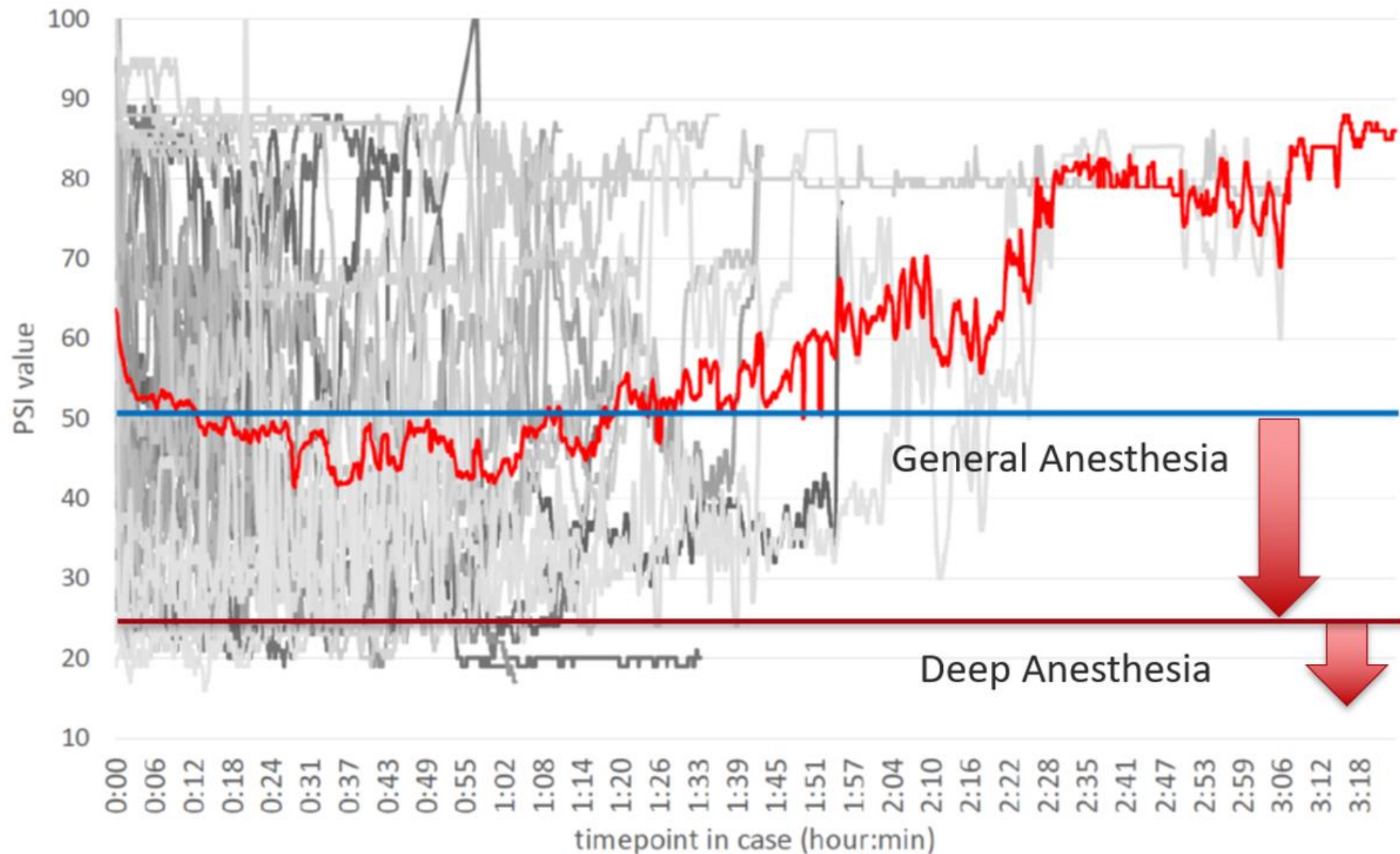
GEN- General Anesthesia with any type of mask

GET – General Anesthesia with endotracheal tube

TIVA – Total Intravenous Anesthesia

GANA- General Anesthesia with Natural Airway

Patient Sedation Index (PSI) values vs. Time for MAC cases



Postoperative Team responsibilities

- 1) OSA patients who undergo general anesthesia must have a minimum of 3 hours of postoperative observation in the PACU except:
 - A. if being transferred to another monitored unit (such as step down or ICU), or
 - B. if considered sufficiently recovered and safe to be discharged from the PACU upon assessment by the attending anesthesiologist.
- 2) Use caution when combining opioids with sedatives or hypnotics.

Standardized Metrics

Standardized Expectations

Accountability



National trends in nonoperating room anesthesia: procedures, facilities, and patient characteristics

Austin L. Du^a, Kimberly Robbins^b, Ruth S. Waterman^b, Richard D. Urman^c, and Rodney A. Gabriel^{b,d}

This necessitates clear guidelines with emphasis placed on adequate time and space for thorough preprocedure anesthetic evaluation, monitoring and equipment standards, development of emergency response protocols specific to out of OR procedure areas, training of procedure suite staff (who are often unfamiliar with anesthetized patients,) as well as rigorous quality improvement programs.

BJA

British Journal of Anaesthesia, 127 (5): 729–744 (2021)

doi: 10.1016/j.bja.2021.07.007

Advance Access Publication Date: 25 August 2021

Review Article

QUALITY AND PATIENT SAFETY

Morbidity, mortality, and systems safety in non-operating room anaesthesia: a narrative review


Abigail D. Herman¹, Candace B. Jaruzel², Sam Lawton³, Catherine D. Tobin³, Joseph G. Reves³, Kenneth R. Catchpole³ and Myrte C. Alfred^{3,*}

¹College of Medicine, Medical University of South Carolina, Charleston, SC, USA, ²College of Health Professions, Medical University of South Carolina, Charleston, SC, USA and ³Department of Anesthesia and Perioperative Medicine, Medical University of South Carolina, Charleston, SC, USA

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Founded on ASATT's Standards and Scope of Practice, to assist hospitals in determining a ratio for Certified Technologists/Technicians per room. ASATT has recommended for Certified Technologists/Technicians per room coverage is as follows:

- General Anesthesia: One (1) per three (3) rooms.
- Teaching Facilities with Anesthesia Residents/CRNA students: One (1) per four (4) rooms.
- Cardiovascular Anesthesia: One (1) per room.
- Liver transplant: One (1) per room.
- Offsite procedures – MRI, IMRI, GI Services, Radiology, Cardiac Catherization Lab: One (1) per one (1) area. 
- Outpatient/Ambulatory Services: One (1) per four (4) rooms during working hours.

- Significant event review

- Same Criteria
- Electronic Event System
- RCA Process
- Rates of events – should be similar
- Plans of correction for all events need to be implemented in NORA as well
- **Multidisciplinary** – review of teamwork

- Outcomes

- Database review
- What percentage of MAC cases are really general
- Temperature (MAC is excluded)
- Some outcomes may not be known to anesthesiology team- must be captured

Comparative Data

	OR	NORA	OB	Benchmark %
Aspiration	0.02	0.04	0.00	0.05
Cardiac Arrest	0.00	0.02	0.01	0.15
Central Neuro Deficit	0.00	0.01	0.00	0.8
Dental Injury (requiring intervention)	0.01	0.00	0.00	0.02
Difficult Intubation	0.13	0.08	0.09	0.5
Drug Reaction	0.00	0.00	0.01	0.2
Ocular Injury	0.02	0.02	0.02	0.08
Peripheral Nerve Deficit	0.01	0.01	0.01	0.45
Reintubation within 2 hours	0.10	0.13	0.00	0.45
Medication Errors	0.01	0.05	0.01	0.12-0.15

Multidisciplinary Metrics – OR Patients

- STS – Beta Blocker for CABG
- SSI
- CLABSI
- CAUTI
- VTE

Stroke Metrics

Am J Transl Res 2021;13(3):1558-1567
www.ajtr.org /ISSN:1943-8141/AJTR0123350

Original Article

General anesthesia versus monitored anesthesia care during endovascular therapy for vertebrobasilar stroke

Guangjun Hu^{1,2,3*}, Zhen Shi^{4,5*}, Bixi Li⁶, Weidong Shao², Bo Xu^{1,2}

- “Third, current definitions of GA and MAC are heterogeneous, and allow for various choices of drugs and measures”

	Arrival Date:
	Prenotification (Y/N):
	Last Known Normal:
	Hospital Arrival (Door):
	Stroke Page:
	Stroke Team at Bedside:
	CT Interpreted:
	tPA Bolus:
	CTA / CTP / MRI Interpreted:
	INR Suite Arrival:
	Arterial Puncture:
	Recanalization:
	Initial NIHSS:
Goal (min)	
5	Door-to-Stroke Page
20	Door-to-CT
	Door-to-CTA
	CTA-to-INR Suite
60	Door-to-Skin Puncture (TRANSFERS Only)
120	Door-to-Recanalization
60	Skin Puncture-to-Recanalization

GI Metrics

The adenoma detection rate (ADR) has been described as “the single most important quality measure in colonoscopy”

Rex, D. K. et al. Quality indicators for colonoscopy. *Gastrointest. endoscopy*. 81(1), 31–53 (2015).

GI Quality Metrics

Article | [Open Access](#) | [Published: 07 February 2020](#)

Predictors of Failed Conscious Sedation in Patients Undergoing an Outpatient Colonoscopy and Implications for the Adenoma Detection Rate

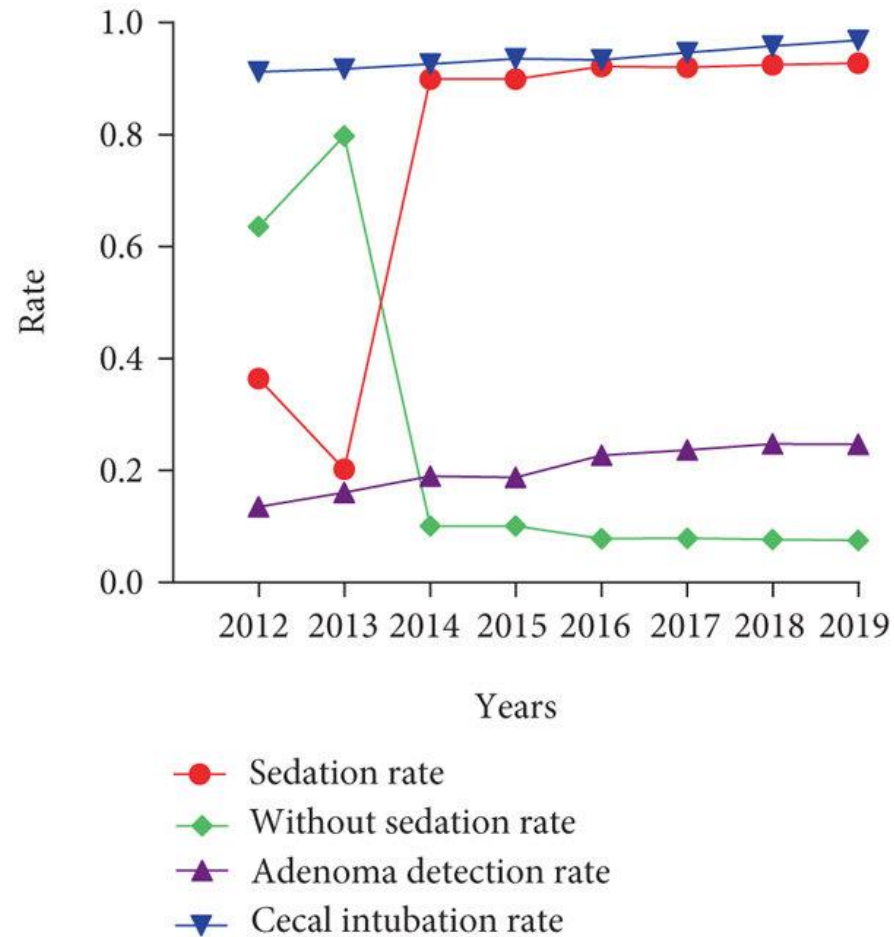
[Benjamin E. Cassell](#) , [Kristina Ross](#), [Tae Y. Chang](#) & [Gregory L. Austin](#)

[Scientific Reports](#) **10**, Article number: 2167 (2020) | [Cite this article](#)

6838 Accesses | **1** Citations | [Metrics](#)

In conclusion, we demonstrated that **failure of conscious sedation** based on reported patient tolerability is uncommon, occurring in **less than 1 in 4 colonoscopies** performed at our institution during the study period using the most expansive definition. We identified **female gender, trainee involvement, younger age, and the need for adjunctive medications** as significant predictors. Future efforts to identify the additional patient factors that could be identified before the day of the procedure that lead the endoscopist to administer an adjunct medication for sedation would optimize the ability to triage patients who would benefit from going directly to MAC and those that are highly likely to do well with conscious sedation. Finally, the finding of a substantially reduced ADR in those who tolerate the procedure less than well deserves further investigation and consideration in determining the subsequent colonoscopy interval, similar to the current practice for patients with inadequate bowel preparation.

GI Quality Metrics – Sedation improved ADR & CDR



- Independent of
 - experience of GI
 - quality of prep
 - gender
- Sedation = 80-120 mcg/kg propofol followed by 20-50 mcg/kg as needed

Future Directions – Patient Centered Data

“ Patient Experience: it’s not about making patients happy over quality. It’s about safe care first, high quality care, and then satisfaction. ”

— JAMES MERLINO, MD

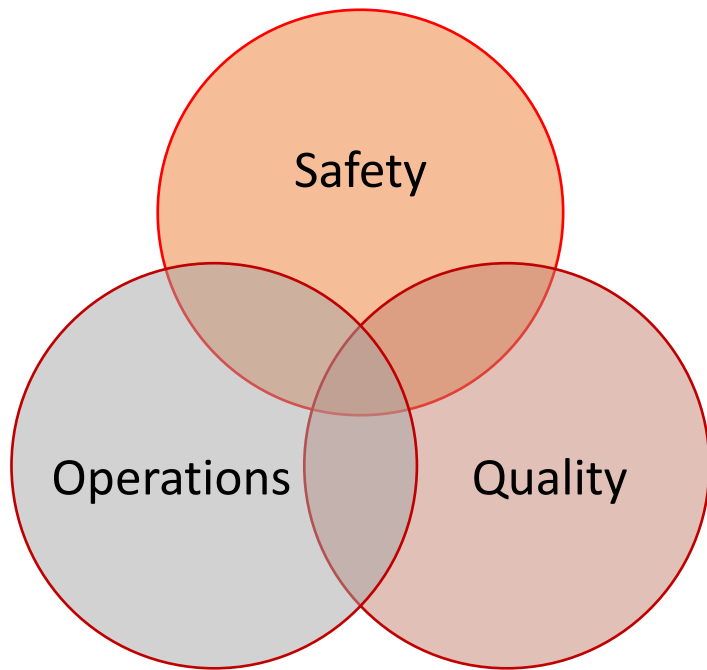
**PRESIDENT AND FOUNDER,
ASSOCIATION FOR PATIENT
EXPERIENCE**



What are NORA appropriate metrics?

Same as OR Appropriate Metrics!

Tolerate and Manage



Collaborate with procedural colleagues

Define shared metrics

Engage with Patients

Patient Optimization

Patient Reported Outcomes