MPOG Pediatric Subcommittee Meeting

October 6, 2020





Agenda

2:00 – 2:10	Roll Call/Announcements
2:10 - 2:15	Pediatric Quality Dashboard
2:15 - 2:30	Using MPOG Data for Pediatric Research
2:30 - 2:50	Pediatric Measure Updates
2:50 - 3:00	MPOG Peds Measure Review Schedule

July 2020 Meeting Summary

- Meeting Minutes from July 2020 have been posted to the <u>website</u>
- Pediatric Measure Performance Review
 - TEMP-04
 - Opioid Equivalency Tonsil & Adenoidectomy (pediatric)
- Non-Opioid Adjunct Measure Discussion (PAIN-01)
 - Initial measure proposal and discussion of non-opioid adjuncts to include





Announcements

- Annual MPOG Retreat held virtually last Friday 10/2. All presentations available on our website.
 - CMS perspectives on Quality Improvement
 - Best of MPOG Abstracts
 - MPOG Subcommittee updates
 - Is Equity, Diversity and Inclusion important for perioperative outcomes?
 - Nathalia Jimenez, MD (Seattle Children's)
 - Integrating MPOG Data with Surgical Registries
- SPA Quality & Safety Meeting this Friday 10/9
 - Update on the work of MPOG pediatric subcommittee will be presented









Upcoming Meetings

Pediatric Subcommittee Meetings

- December 15

2021 Schedule

- February 17
- May 19
- August 18
- October 9 (In person @ SPA)
- December 15

MPOG Annual Retreat 2021

- October 8 (San Diego, CA)



NEW! Pediatric QI Dashboard

Overall Score

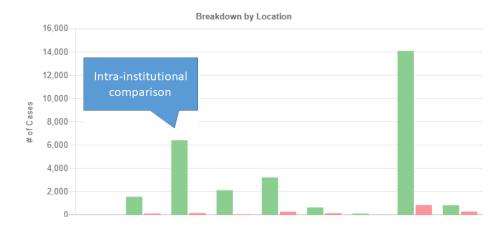


Result Counts

Result	Case Count
Passed	4.442
Passed	4,443
Flagged	1,886
Excluded	7,777
Total	14,106

Result Reasons

Result	Reason	Case Count
Passed	Median temp >= 36°C	4,443
Flagged	Median temp < 36°C	1,886
Excluded	Case Duration	4,358
Excluded	Diagnostic Procedure	1,270
Excluded	Cardiac Surgical Service	1,122
Excluded	MAC/Sedation Case?	796
Excluded	Core Temperature Route	122
Excluded	Intraop Temperature exists	83
Excluded	Anesthesia CPT	17
Excluded	ASA Class	9
Total		14,106

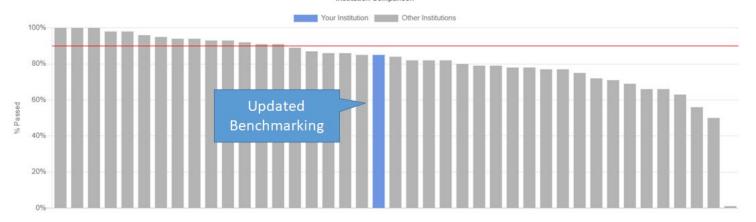




Performance Trend



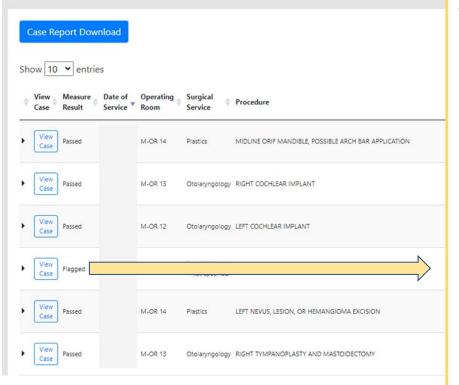
Institution Comparison





PONV-02: PONV prophylaxis, Pediatrics Cases More Info

The percentage of pediatric cases with appropriate antiemetic administration for postoperative nausea and



View Case

Measure Result Date of Service ▼

Operating Room Surgical Service

Procedure



Flagged

M-MRI-BAY2

- Not specified

MR HEAD GENERAL ANESTHESIA

Attribute	Value	Result
Anti-Emetic Class Count	1	Failed
Is Valid Case	Yes	Included
Transported to ICU	No	Included
Patient Age	6	Included
Labor Epidural	No	Included
Liver Transplant	No	Included
Lung Transplant	No	Included
Labor Room	No	Included
Medical Exception	No	Included
Anesthesia CPT	01922	Included
Received General Anesthetic After Induction	Yes	Included
Risk Factor Count	2	Included
Responsible Provider	Yes	Included
Patient Transported to PACU	Yes	Info
PONV Risk Factor: Patient Age	Triggered	Info
Anti-Emetic Classes	Other: PROPOFOL	Info
Is Non-Operative Case	No	Included
PONV Risk Factor: History of PONV	Not Triggered [Missing]	Info
PONV Risk Factor: Strabismus	Not Triggered [No]	Info
PONV Risk Factor: Surgery Duration	Triggered [53]	Info

MPOG Research Process Overview

From Real-World Data to Actionable Knowledge

Michael Mathis, MD
Assistant Professor of Anesthesiology
Associate Research Director, MPOG

Shelley Vaughn, MPH
Department of Anesthesiology
Lead Research Facilitator, MPOG



Types of Research Studies Leveraging MPOG

- Descriptive Studies
- Operational Analyses
- Outcomes Studies
 - MPOG Data
 - MPOG + Surgical Registry





Anesthesiology, 2016 Nov;125(5):904-913.

Reference Values for Noninvasive Blood Pressure in Children during Anesthesia: A Multicentered Retrospective Observational Cohort Study.

de Graaff JC¹, Pasma W, van Buuren S, Duijghuisen JJ, Nafiu OO, Kheterpal S, van Klei WA.

Anesth Analg, 2017 Oct;125(4):1203-1211. doi: 10.1213/ANE.000000000002305.

Alarm Limits for Intraoperative Drug Infusions: A Report From the Multicenter Perioperative Outcomes Group.

Berman MF¹, Iyer N, Freudzon L, Wang S, Freundlich RE, Housey M, Kheterpal S: Multicenter Perioperative Outcomes Group (MPOG) Perioperative Clinical Research Committee.

Anesthesiology, 2017 Jun;126(6):1053-1063. doi: 10.1097/ALN.000000000001630

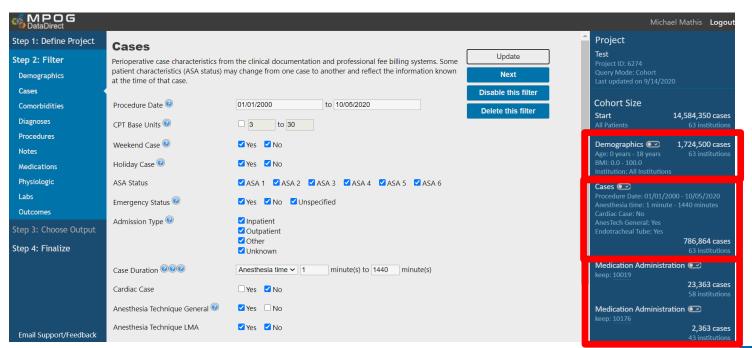
Risk of Epidural Hematoma after Neuraxial Techniques in Thrombocytopenic Parturients: A Report from the Multicenter Perioperative Outcomes Group.

Lee LO¹, Bateman BT, Kheterpal S, Klumpner TT, Housey M, Aziz ME, Hand KW, MacEachern M, Goodier CG Bernstein J, Bauer ME; Multicenter Perioperative Outcomes Group Investigators.

Management of 1-Lung Ventilation—Variation and Trends in Clinical Practice: A Report From the Multicenter Perioperative Outcomes Group

Colquhoun, Douglas, A., MB ChB, MSc, MPH*; Naik, Bhiken, I., MBBCh†; Durieux, Marcel, E., MD, PhD‡; Shanks, Amy, M., PhD*; Kheterpal, Sachin, MD, MBA*; Bender, S., Patrick, MD, MPH§; Blank, Randal, S., MD, PhD‡on behalf of the MPOG Investigators

DataDirect: "Democratizing" data access



How many...

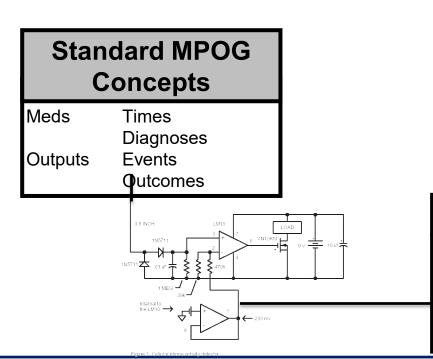
...pediatric patients <18 vears...

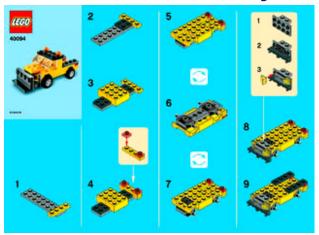
...undergoing general anesthesia with an endotracheal tube...

...received albuterol *AND* epinephrine during surgery?



Phenotypes: *Structured Inferences* from messy data





MPOG Phenotypes

Cardiopulmonary Bypass Used Anesthesia Technique: General Oral Morphine Equivalents Baseline Blood Pressure

. . . .



Developing a Research Study



About

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Perioperative Clinical Research Committee (PCRC)

The research committee coordinates the clinical research efforts of MPOG, by reviewing all submitted research proposals and tracking the progress of ongoing research projects. The committee ensures the appropriateness of the clinical research conducted within MPOG and the use of MPOG resources. Only colleagues from active MPOG sites can submit a research proposal to the PCRC for review and it is the responsibility of the MPOG site's Principal Investigator (PI) to review all proposals before submission to the PCRC.

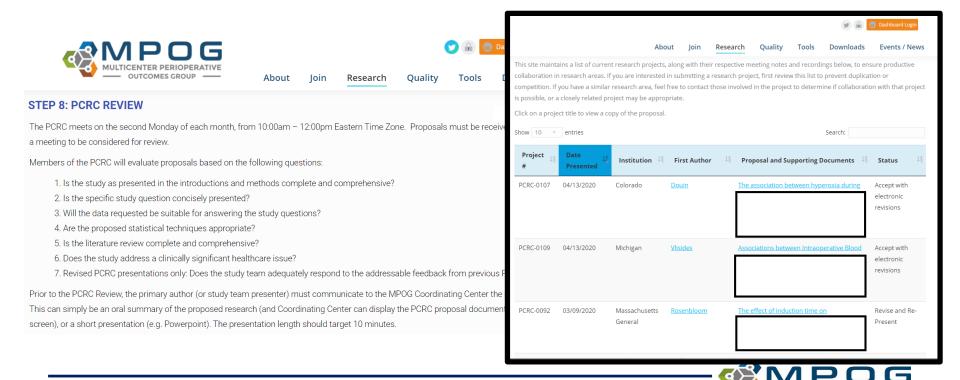
The following steps outline the process for submitting a research proposal:

STEP 1: BEFORE YOU BEGIN	,
STEP 2: DETERMINE FEASIBILITY	,
STEP 3: WRITE RESEARCH PROJECT SPECIFIC IRB AND DRAFT PCRC PROPOSAL	,
STEP 4: DATA QUERY SPECIFICATION	

Title of Study or Project:	Multicenter Review of Practice Patterns Regarding Benzodiazepine Use in Cardiac Surgery
Primary Institution:	University of Michigan
Principal Investigator:	Allison Janda, MD
Co-Investigators:	Allison Janda, MD; Jessica Spence, MD; Timur Dubovoy, MD; Emilie <u>Belley</u> ; <u>Côté</u> , MD PhD; Graciela Mentz, PhD; Sachin Kheterpal, MD, MBA; Michael Mathis, MD
Statisticians:	Graciela Mentz, PhD
Type of Study:	☑ Retrospective Observational
IRB Number and Status:	HUM00167369 / approved
Hypotheses/Aims:	We propose to explore data from cardiac surgical patients meeting inclusion criteria, to describe benzodiazepine use during cardiac surgery across MPOG centers. We aim to identify patient factors associated with benzodiazepine use and further describe the timing of administration. We hypothesize that patient, provider, and institutional factors are independently associated with benzodiazepine use during cardiac surgery.
Number of Patients/Participants:	Based on the availability of pertinent perioperative data, we expect approximately 5,000 patients to be included at the University of Michigan, and 60,000 in MPOG.
Power Analysis:	Sample size for this descriptive study are based on the accuracy of the overall estimates of benzodiazepine administration. It was determined that if the true population level use of benzodiazepines ranges between 70% and 90%, we will need a sample between 1,536 to 3,885 patients to estimate descriptive statistics with a precision of 3%.
Proposed statistical test/analysis:	We will produce descriptive statistics including: histograms, mean/median, standard deviation/interquartile ranges, percentiles and Q-Q plots.
Resources (Brief summary of resources for data collection, personnel, financial):	Data collection will include MPOG database queries performed via IT support. Statistical analysis will be conducted by Anesthesiology Department staff in consultation with Graciela Mentz; and in discussion with all co-investigators. Financial support as per the University of Michigan Department of Anesthesiology, NIH-NIGMS, Grant T32GM103730-06; NIH-NHLBI, Grant 1K01HLL41701-02, Bethesda, MD



PCRC Community of Peers



Data Visualization and Curation





Writing the Manuscript

ANESTHESI

Succinylcholine I Dantrolene Availa Malignant Hyperl Treatment

quality in actio

Database Analyses and Systematic Re

Marilyn Green Larach, M.D., F.A.A.P., Thomas T. Klumpn M.D., Barbara W. Brandom, M.D., Michelle T. Vaughn, M Kumar G. Belani, M.B.B.S., M.S., F.A.A.P., Andrew Herlich, D.M.D., M.D., F.A.A.P., F.A.S.A., Tae W. Kim, M.D., M.E.H.P., Janine Limoncelli, M.D., Sheila Riazi, M.Sc., M.D., FRCPC, Erica L. Sivak, M.D., John Capacchione, M.D., Darlene Mashman, M.D., Sachin Kheterpal, M.D., M.B.A., on behalf of the Multice Perioperative Outcomes Group*

ANESTHESIOLOGY 2019; 130:41-54

ANESTHESIOLOGY

Sugammadex *versus*Neostigmine for Reversal of Neuromuscular Blockade and Postoperative Pulmonary Complications (STRONGER)

A Multicenter Matched Cohort Analysis

Sachin Kheterpal, M.D., M.B.A., Michelle T. Vaughn, M.P.H., Timur Z. Dubovoy, M.D., Nirav J. Shah, M.D., Lori D. Bash, Ph.D., M.P.H., Douglas A. Colquhoun, M.B.Ch.B., Amy M. Shanks, Ph.D., Michael R. Mathis, M.D., Roy G. Soto, M.D., Amit Bardia, M.D., Karsten Bartels, M.D., Ph.D., Patrick J. McCormick, M.D., M.Eng., Robert B. Schonberger, M.D., M.H.S., Leif Saager, M.D., M.M.M.

ANESTHESIOLOGY 2020; 132:1371-81

ANESTHESIOLOGY

Preoperative Risk and the Association between Hypotension and Postoperative Acute Kidney Injury

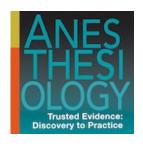
Michael R. Mathis, M.D., Bhiken I. Naik, M.B.B.Ch., Robert E. Freundlich, M.D., M.S., M.S.C.I., Amy M. Shanks, Ph.D., Michael Heung, M.D., Minjae Kim, M.D., Michael I. Rurge M.D., Ph.D.

verlapping Surgery ve Outcomes

PhD; Chris A. Rishel, MD, PhD; Michelle T. Vaughn, MPH; Dr Med, MMM; Lee A. Fleisher, MD; Edward J. Damrose, MD; PhD; for the Multicenter Perioperative Outcomes Group (MPOG)



MPOG Pediatric Publications



Perioperative Medicine | November 2016

Reference Values for Noninvasive Blood Pressure in Children during Anesthesia: A Multicentered Retrospective Observational Cohort Study

Jurgen C. de Graaff, M.D., Ph.D.; Wietze Pasma, D.V.M.; Stef van Buuren, Ph.D.; Jesse J. Duijghuisen, M.D.; Olubukola O. Nafiu, M.D.; et al



Risk Factors for Intraoperative Hypoglycemia in Children: A Multicenter Retrospective Cohort Study

Lori Q. Riegger, MD, Aleda M. Leis, MS, Kristine H. Golmirzaie, MD, and Shobha Malviya, MD



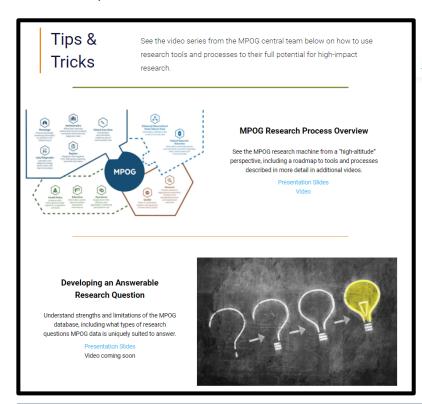


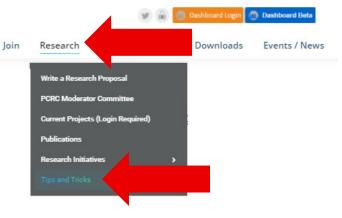
Writing the Manuscript

- Authorship protocol
 - Byline authors as per <u>ICMJE guidelines</u>
 - Acknowledged collaborators MPOG assists with tracking
- Registration of research protocol
 - Protected version on MPOG website → always
 - Public access version on <u>Open Science Framework</u> → discretion of PI
- <u>iThenticate</u> plagiarism checker



...so, where do I start?







Pediatric Measure Performance Review

Opioid Equivalency - Spine (pediatrics)

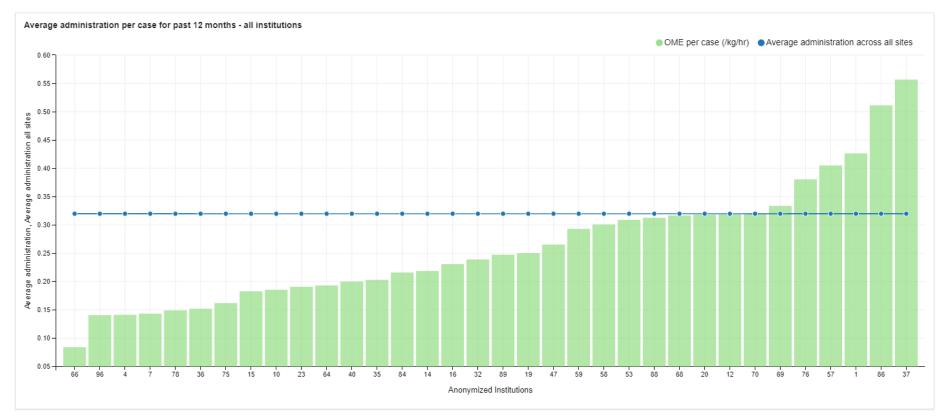
- Anesthesia Start → Anesthesia End
- Case Cohort Patients < 18yo
 - Procedures on cervical spine and cord
 - not otherwise specified (CPT: 00600)
 - patient in sitting position (CPT: 00604)
 - Procedures on thoracic spine and cord
 - not otherwise specified (CPT: 00620)
 - via an anterior transthoracic approach; not utilizing 1 lung ventilation (CPT: 00625); utilizing 1 lung ventilation (CPT: 00626)
 - **Procedures in lumbar region**; not otherwise specified (CPT: 00630)
 - Extensive spine and spinal cord procedures (CPT: 00670)
- Measure Specification



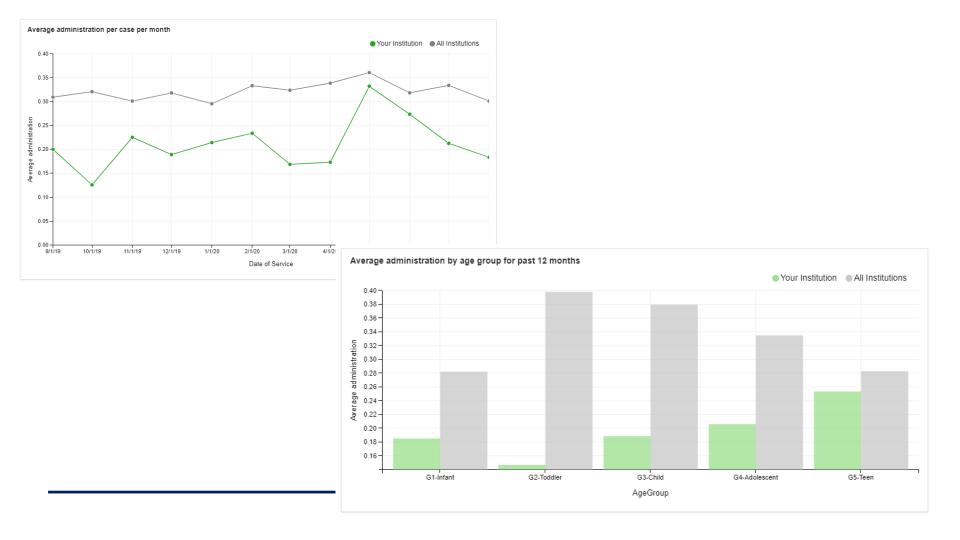




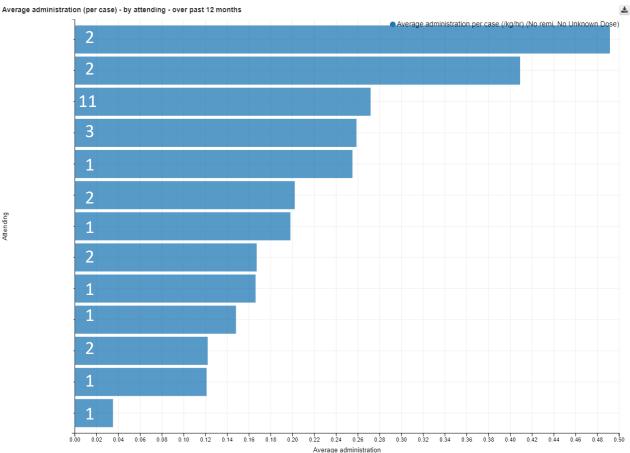
Opioid Equivalency - Spine







Variation by Provider and Case Count (past12 mo.)





Opioid Equivalency by Case



Procedure	Operating Room	Anes Duration	CPT	OME(mg/kg/hi		Highest Pain Score in PACU	View Case
MIDLINE POSTERIOR SPINE FUSION THORACOLUMBAR WITH O-ARM	M-OR 08	7.8	00670	0.39	No remi	0	View Case
MIDLINE POSTERIOR SPINE FUSION THORACOLUMBAR WITH O-ARM	M-OR 06	5.5	00670	0.48	No remi	0	View Case
RIGHT OPEN LAMINECTOMY LUMBAR	M-OR 10	4.8	00630	0.17	No remi	0	View Case
POSTERIOR LUMBAR SPINAL FUSION WITH STEALTH	M-OR 06	6.5	00670	0.12	No remi	0	View Case
MIDLINE POSTERIOR SPINE FUSION THORACOLUMBAR WITH O-ARM	M-OR 06	4.2	00670	0.57	No remi	0	View Case
MIDLINE POSTERIOR SPINAL FUSION WITHOUT STEALTH	M-OR 08	6.0	00670	0.15	No remi	0	View Case
MIDLINE GROWING ROD PLACEMENT?WITH O-ARM	Slots	6.1	00670	0.38	No remi	0	View Case
INFUSION PUMP PLACEMENT MIDLINE POSTERIOR SPINE FUSION THORA	M-OR 08	12.1	00670	0.21	No remi	0	View Case
MIDLINE POSTERIOR SPINE FUSION THORACOLUMBAR WITH O-AR POST	M-OR 06	8.4	00670	0.28	No remi	8	View Case
MR SPINE CERVICAL ANESTHESIA	M-OR 10	9.0	00670	0.09	No remi	0	View Case
MIDLINE TETHERED CORD RELEAS FLAP CLOSURE	M-OR 10	4.6	00630	0.16	No remi	2	View Case



PAIN-01 In Development

PAIN-01 Update

- Description: Percentage of patients < 18 years old who undergo a surgical or therapeutic procedure and receive a non-opioid adjunct preoperatively and/or intraoperatively.
- Success Criteria: At least one non-opioid adjunct medication was administered to the patient during the preoperative or intraoperative period.
- Measure Time Period: Preop Start → Anesthesia End
- Exclusions
 - ASA 5 and 6; Patients transferred directly to ICU
 - Organ Harvest , Cardiac Surgery , Non-operative procedures and Radiology procedures
 - Patients that were not extubated in the immediate postoperative period.
 - Patients not given opioids or non-opioid adjuncts
- Responsible Provider: No individual attribution





Medications and Routes Considered

NON-OPIOID ADJUNCTS				
Acetaminophen				
Aspirin				
Ibuprofen				
Naproxen				
Celecoxib				
Ketorolac				
Ketamine				
Lidocaine (IV Infusion only)				
Dexmedetomidine				
Gabapentin				
Pregabalin				
Clonidine				
Esmolol				
Magnesium				

Routes			
Intravenous (bolus and infusion)			
Intramuscular (*Ketorolac only)			
Oral			
Nasal			
Enteric Tube			

Additional Information Provided:

- Peripheral Nerve Block (Yes/No)
- Neuraxial (Yes/No)
- Spinal (Yes/No)
- Opioids Given in PACU
- Highest Pain score in PACU





MPOG Quality Measure Review

Background

- Coordinating Center has created a review schedule for all measures
 - Quality measures should reflect the latest evidence or may be"topped out" and worth retiring if no longer relevant for QI
- MPOG subcommittee members have tremendous experience and expertise that should be leveraged to keep quality measures current and relevant to pediatrics
- Request MPOG Pediatric Champions collaborate in this review process with other quality committee members







Plan

- Reviewers will make one of the following recommendations (with supporting evidence)
 - Continue measure as is
 - 2. Modify measure
 - 3. Retire measure
- Considerations
 - Reviewers will be de facto members of MPOG
 Quality Improvement Measure Workgroup
 - Coordinating Center will not assign more than 2 measures per Quality Champion
 - Coordinating Center team will assist reviewers as necessary to complete review process







Measures Review Schedule: Pediatrics

12/2020

- AKI 01 Acute Kidney Injury → (Bishr Haydar)
- PUL 01 Protective Tidal Volume, < 10mL/kg PBW → (Wes Templeton)
- PUL 02 Protective Tidal Volume, < 8mL/kg PBW → (Wes Templeton)
- TEMP 03 Postoperative Hypothermia \rightarrow (Vikas O'Reilly-Shah)

03/2021

- CARD 02 Myocardial Infarction → (Peds Reviewer?)
- PONV 02 PONV Prophylaxis, Pediatrics → (Brad Taicher & Lisa Vitale)

Full Schedule





Next Steps...

- Publish PAIN-01
- Discuss 2021 Goals
 - Call for Measure Survey will be sent out later this month
- Schedule meeting for December

Measure Build	Status
Pediatric Temperature Management (TEMP-04)	Complete!
OME Pediatric Cohort #1 - Tonsillectomy/Adenoidectomy	Complete!
OME Pediatric Cohort #2 - Spine	Complete!
Non-Opioid Adjunct (PAIN-01)	December 2020





