

MN Health Collaborative Call to Action: Adult Opioid Postoperative Prescribing

Released October 2018

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The MN Health Collaborative is a group of health leaders from 15 organizations working together to develop shared sustainable solutions to healthcare's toughest challenges.

MN Health Collaborative members are changing the community of practice, designing practical, evidence-based and innovative approaches to shared problems.

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Postoperative Opioid Prescribing

MN Health Collaborative partners are adopting the following postoperative opioid prescribing practices to manage pain safely and effectively:

- Educate patients about pain and opioids.
- Explore non-opioid solutions first.
- Prescribe the lowest opioid dose possible.

MN Health Collaborative recommendations provide procedure-specific, patient-centric guidance to help prevent under- or over-prescribing of opioids.

Changing current postoperative prescription standards is a critical step to ensure that patients do not receive more pills than necessary for pain management.

Overprescribing opioids may lead to side effects and potential dependence for some individuals. Surplus opioid medications also increase the risk of these drugs being diverted from intended use and distributed illegally within the community.

To combat these potential problems, surgeons within the MN Health Collaborative are taking action together to balance reductions in the amount of opioid pain medication prescribed while maintaining a patient-centered approach to pain management.

Several studies have found that more than 80% of patients reported unused opioids and that 42-71% of pills dispensed went unused after surgery (1, 2, 3, 4).

Developed in part as an answer to the lack of evidence-based guidelines for postoperative opioid use, the approach used by MN Health Collaborative surgeons is based on available literature, expert consensus and community data relevant to the effort.

The MN Health Collaborative approach to postoperative opioid prescribing expands and enhances current guidance in the State of Minnesota's Department of Human Services (DHS) 2018 guideline. The DHS guideline draws in part from the 2017 ICSI Guideline [Pain: Assessment, Non-Opioid Treatment Approaches and Opioid Management](#).

"We applaud DHS on its new guideline, and want to build on that foundation by testing an approach recommended by surgeons within the MN Health Collaborative," states Claire Neely, M.D., Chief Medical Officer for ICSI. "We believe this work will provide a clearer determination of the varying pain management needs required by different surgical procedures. This effort will help support a significant need to develop more patient-centered prescribing practices where opioids are needed for pain management."

The goal of these prescribing recommendations is to provide postoperative pain management that is procedure-specific and more effectively tailored to the individual patient's need.

Background and Principles

MN Health Collaborative recommendations provide guidance for patient-centered opioid prescription practices, as risky long-term opioid use often begins with treatment of acute postoperative pain (5,6,7). Recommendations are informed by the following principles:

Pain is complex, and pain management is critical. When there is tissue damage related to a surgical procedure, pain is normal and helping to manage it is critical to patient recovery. One study showed that 39% of patients experience severe to extreme pain at some point during their postsurgical recovery period (8). Clinicians should work to consistently communicate realistic expectations with patients regarding pain management and engage them in creating shared postoperative goals.

Opioids are often not the best answer for managing pain. In addition to potential harms of opioid addiction, non-opioid therapies are often effective for managing pain. Thus, clinicians should first consider all non-opioid options to relieve pain. An NIH study reports that the majority of patients (72%) report preferring non-narcotic drugs for pain control (8).

In addition, reduction in post discharge opioid prescribing practices does not increase refill rates (9).

A “one-size-fits-all” approach is not sufficient. Patient needs are different, and clinician judgment is critical in assessing and effectively managing pain. A one-size-fits-all approach creates a risk of over- or under-prescribing. In addition, this approach does not sufficiently curtail the quantity of opioids given postoperatively. (3,4).

Action by MN Health Collaborative

MN Health Collaborative recommendations for initial postoperative opioid prescribing include a maximum dose (morphine milligram equivalent, MME) for individual procedures across many specialties, targeting those procedures where a high volume of opioids is prescribed.

Surgical departments within the MN Health Collaborative organizations are currently focusing on prescribing at or below a benchmark dose for 1-2 procedures. Benchmark community standards are derived from health plan data (see Appendix C).

Recommendations: Postoperative Opioid Prescribing

1. Educate patients about pain and opioids.

Patients should be informed before the procedure about their anticipated healing time, including that pain is a normal and an expected part of the recovery process. Support consistent messaging by everyone who educates the patient/family about pain management, opioid use and disposal.

2. Explore non-opioid solutions first.

When making the determination for postoperative acute pain management for the patient:

- Consider the anticipated intensity of pain associated with the patient's condition, patient access to clinical follow-up, and the extent to which non-opioid analgesics may be utilized for pain management.
- Optimize peri-procedural regional analgesia/anesthesia techniques to reduce the need for opioid use postoperatively where possible.
- Use multimodal analgesia (e.g., NSAIDs and acetaminophen) when possible. This approach provides superior pain relief and decreases the need for supplemental opioid use compared to a unimodal analgesia approach. Patients may only require non-pharmacologic (e.g., ice, therapy, massage, bracing, splinting) modalities.
- Consult with the patient's primary provider or a specialist if needed, before prescribing acetaminophen and/or NSAIDs to patients with a history of liver disease, kidney disease, coronary artery disease, peptic ulcer disease, or other medical conditions that might be provoked/exacerbated by these medications.

3. Prescribe the lowest opioid dose possible, not to exceed MN Health Collaborative benchmark MME.

- Use the procedure-specific benchmark MME (morphine milligram equivalent) short-acting opioid as the maximum for the initial prescription, taking into consideration individual patient needs (See appendix A and B). Include a plan to decrease dose and increase length of time between doses as healing progresses.
- Prescribers should consider querying the Prescription Drug Monitoring Program before prescribing.
- Opioid doses should be individualized based on risk for adverse outcomes.
- Geriatric patients should be assessed for risk of falls, cognitive decline, respiratory malfunction, and renal malfunction before receiving opioids. If impairment or risk is detected in a geriatric patient, consider reducing the initial opioid dose by at least 50%.
- Patients who are taking chronic and/or high-dose opioids preoperatively should receive an individualized postoperative pain management plan developed before surgery in coordination with their primary prescriber and, if needed, a pain specialist.
- The surgeon should manage opioid prescriptions for acute postoperative pain and through the expected healing period. If the patient's need for opioids extends beyond the expected healing period, the surgeon should work with the patient's primary care provider and/or a pain specialist to transition the patient's care.

Implementation Process Tips

Develop your organizational approach

- Use local data to lead discussions about how to use the MN Health Collaborative approach in your department.
- Compare your data to other organizations to understand your postoperative prescribing relative to the Minnesota community.
- Verify that embedded EHR workflows support Collaborative recommendations such as alerts, order sets, preferences, existing protocols/ guidelines, decision-support tools, and the like.
- We caution against setting default opioid quantities in the EHR. Evidence shows that patients may be over- or under-treated using default quantities (12).

Measurement

Quality Improvement Measurement

Quality improvement (QI) tests of change are beneficial in early implementation of recommendations or new processes to discover whether the changes are leading to the expected improvement. These tests help determine which are the key elements of the change that should be replicated across settings, and which are elements that need adaptation based on local resources, staff, and patient population needs. Collecting QI data is useful in understanding small or limited tests of change, and, sharing information from tests of change allows comparability to increase the rapidity of learning across all involved systems.

Progress on post-operative prescribing tests of change will be monitored internally by each organization using quality improvement data until it is determined which measures represent optimal impact on postoperative prescribing.

For internal QI measurement purposes, MN Health Collaborative organizations are developing ways to measure and monitor progress towards aims. One example is below:

Aim: Decrease the quantity of opioids prescribed at discharge for inpatient or outpatient surgical procedures.

Quality Improvement Data Suggested: Short-acting initial opioid prescribed mean Morphine Milligram Equivalents (MME) and MME range (min, max) for each selected procedure.

Performance Measurement

Quality improvement data and measures will eventually help inform the overall performance goals. Measures with optimal impact will be rolled up to become “system level” measures of the overall performance and impact of implementation changes on the system. Performance measures will require detailed specifications and more rigorous testing than quality improvement measures.

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Appendices:

- A. Opioid MME Benchmarks by Surgical Procedure
- B. Top 15 Surgeries by Number of Initial Rx
- C. Claims Data Methodology

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Appendix A: Opioid MME Benchmarks by Surgical Procedure MN Health Collaborative Postoperative Opioid Prescribing

- We ask clinicians to systematically aim towards the benchmark MME for each procedure as the maximum for the initial opioid prescription, taking into consideration individual patient needs.
- These benchmarks are based on the 25th percentile MME from 2017 health plan data. In other words, 25% of patients who received an opioid received that MME or less for a given procedure. Use the benchmarks to determine where there is opportunity to reduce opioid prescribing.
- Specifically, prioritize high volume and/or high MME procedures within each specialty and focus improvement efforts on 1-2 procedures at a time. See Appendix B for a list of the top 15 procedures overall.
- It is recommended that each specialty department use the procedure-specific benchmarks to prioritize efforts to decrease both the mean MME and range of MME for each procedure.
- The benchmarks for common procedures are sorted below by department. Note: The very high maximum prescriptions seen in the range for some procedures were often the same dose a member was taking prior to surgery. Also, procedures with a very low number of prescriptions were changed to zero (no routine opioids).
- Please see the health plan data methodology (Appendix C) and refer to the full MN Health Collaborative Call to Action for background and process information.

Surgical Grouping: Cardiology Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Coronary Bypass Surgery	150.0	261.75	45-1200	55	40
Catheter (Diagnostic)	112.5	855.83	60-4260	409	12
Surgical Valve Repair	112.5	223.21	50-900	39	21
Catheter (With Drug Stents)	0	307.14	50-800	212	7
Catheter (With Stents)	0	150.00	75-300	86	4
Implantable Device Pacemaker	50.0	185.00	25-1200	53	16
Ablations	50.0	112.83	25-450	301	12
Implantable Device Defibrillator	48.8	102.13	27-225	36	12

Surgical Grouping: Maxillofacial /Dental Procedure Description**	MME Maximum Benchmark **
Simple Third Molar extraction/ Dentoalveolar surgery	No routine opioids
Complex Dentoalveolar surgery	90

** Based on literature and expert opinion. (Moore, 2013, Weiland, 2015)

**Appendix A: Opioid MME Benchmarks by Surgical Procedure
MN Health Collaborative Postoperative Opioid Prescribing**

Surgical Grouping: Adult Gastroenterology/Hepatology /Endocrinology/Hematology	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Esophagoplasty/ Fundoplasty	150.0	296.83	50-3600	82	60
Gall Bladder	150.0	183.96	40-810	810	730
Lower GI Removal	150.0	246.75	75-1484	148	106
Repair, Incisional or Ventral Hernia	150.0	216.52	50-1800	203	177
Upper Gastrointestinal Endoscopy With Treatment	150.0	272.43	50-1080	888	33
Inguinal Hernia	125.0	176.77	37.5-600	673	622
Colonoscopy, Diagnostic	112.5	422.36	50-8400	13080	123
Repair, Umbilical Hernia	112.5	170.92	50-600	320	289
GI Restrictive Procedure (Sleeve)	105.0	170.11	50-709.5	193	163
Appendectomy	100.0	165.65	35-630	126	107
Endoscopic Retrograde Cholangiopancreatography With Treatment	100.0	204.05	40-1350	78	21
Dilation of Esophagus	0	270.00	90-450	50	2
GI Restrictive Procedure (Bypass)	90.0	205.73	50-709.5	43	33
Lower Gastrointestinal Endoscopy With Treatment	80.0	344.77	30-3600	7033	79

Surgical Grouping: Pediatric Gastroenterology/Hepatology /Endocrinology/Hematology	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Inguinal Hernia	22.5	148.81	6-750	83	35
Colonoscopy, Diagnostic	0	0	0	32	

Surgical Grouping: Adolescent Gastroenterology/Hepatology /Endocrinology/Hematology	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Colonoscopy, Diagnostic	0	0	0	71	0

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Surgical Grouping: Gynecology Procedure Description	2017 Benchmark MME	2017 Mean MME	MME Range	# procedures	# Rx
Cautery of Cervix	0	225.00	225	37	1
Colpopexy	150.0	195.83	100-630	33	24
Hysterectomies	150.0	198.59	37.5-900	797	680
Ligation of Fallopian Tube	150.0	201.77	45-495	240	193
Colporrhaphy	112.5	149.48	50-225	35	29
Excision of Ovary/Ovarian Duct	112.5	175.14	40-450	165	146
Removal of Ovary/Ovarian Duct	112.5	170.33	25-750	224	195
Stress Incontinence Repair	100.0	142.63	45-330	126	105
Cesarean Section**	100.0				
Endometrial Ablation	75.0	116.88	45-225	39	16
Conization of Cervix	50.0	138.72	15-1350	160	34
Hysteroscopy with Treatment	50.0	93.00	10-225	493	296
Incision and Drainage of Bartholin's Gland Abscess	0	90.07	50-135	45	7
Vaginal Delivery**	0				

** Benchmark derived from literature and expert opinion.

(Bateman, 2017, Emerson 2017, Osmundson, 2018, Prabhu, 2017, Prabhu, 2018)

Surgical Grouping: Nephrology/Urology Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Laparoscopic Prostatectomy	100.0	151.15	75-300	35	24
Lithotripsy	100.0	145.68	30-337.5	117	73
Stress Incontinence Repair	100.0	142.63	45-330	126	105
Cystourethroscopy With Treatment	75.0	126.69	25-450	498	335
Transurethral Resection of Bladder Neck	55.0	91.61	25-262.5	52	28
Laser Coagulation	50.0	81.50	15-225	35	25
Incision and Drainage of Bartholin's Gland Abscess	0	90.07	50-135	45	7

Surgical Grouping: Pediatric Nephrology/Urology Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Orchiopexy	15.0	112.42	9-1400	50	38

**Appendix A: Opioid MME Benchmarks by Surgical Procedure
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Surgical Grouping: Neurological/ Orthopedic Surgery Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Spine Surgery (Lumbar Fusion)	450.0	677.66	135.5-1980	218	171
Spine Surgery (Cervical Fusion)	300.0	507.05	150-5580	179	159
Spine Surgery (Cervical Spine Laminectomy)	300.0	452.35	150-900	54	50
Spine Surgery (Lumbar Herniated Disc, Decompression)	300.0	419.29	30-1350	547	493

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Surgical Grouping: Adult Orthopedic Surgery Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Joint Replacements (Knee Revision)	375.0	661.29	150-5400	32	31
Joint Replacements (Knee)	375.0	529.53	40-2100	977	824
Other Open Surgery of the Knee	325.0	476.25	50-1400	182	166
Bilateral Knee Replacement Surgery	300.0	506.77	50-2025	50	31
Joint Replacements (Hip)	300.0	443.51	50-1500	637	529
Scopes (Rotator Cuff)	300.0	451.04	100-1275	582	565
Scopes (Shoulder)	300.0	386.17	50-1350	416	389
Therapeutic Arthroscopy of The Hip	300.0	373.04	90-1350	132	124
Total Shoulder Replacement	300.0	440.33	135-1200	70	60
Scopes (Knee Ligament Repair)	275.0	407.68	90-1350	319	305
Arthrodesis, Midfoot	225.0	350.09	150-900	89	80
Repair of Achilles Tendon	225.0	323.51	25-1350	165	153
Arthroscopy of Ankle With Major Repair	200.0	299.68	100-600	40	39
Ankle Ligament Repair	150.0	285.09	50-1140	114	107
Bunionectomy	150.0	262.35	45-2025	339	301
Other Knee Arthroscopy With Treatment	150.0	239.34	50-2400	295	266
Repair Hammer Toe	150.0	293.42	50-7425	138	122
Scopes (Knee Meniscectomy)	150.0	212.10	40-7560	1176	1038
Carpal Tunnel	75.0	135.47	25-2925	755	574

Surgical Grouping: Adolescent Orthopedic Surgery Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Scopes (Knee Ligament Repair)	200	365.56	100-1350	93	89
Other Knee Arthroscopy With Treatment	150	210.36	45-600	50	42
Scopes (Knee Meniscectomy)	100	168.62	75-375	39	29

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Surgical Grouping: Ophthalmology Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Intravitreal Injection of A Pharmacologic Agent	0	1033.70	112.5-6300	2317	23
Discission of Secondary Membranous Cataract	0	258.33	75-90	447	12
Repair of Brow Ptosis	100.0	150.69	25-300	30	18
Iridotomy/Iridectomy	0	495.00	90-900	64	2
Cataract Removal	0	571.00	50-3600	1158	10
Strabismus Revision	75.0	109.90	45-202.5	45	24
Repair of Retinal Detachment	63.8	79.84	45-150	160	16
Probing of Nasolacrimal Duct	0	111.25	45-225	73	4
Removal of Foreign Body, External Eye	0	503.30	50-2240	177	5
Destruction of Retina	0	50.00		72	1
Repair of Blepharoptosis	25.0	71.43	25-270	102	49
Closure of The Lacrimal Punctum	0			78	
Prophylaxis of Retinal Detachment	0			182	
Trabecuoplasty By Laser Surgery	0			83	

Surgical Grouping: Pediatric Ophthalmology Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Strabismus Revision	0	381.00	15-600	73	5
Probing of Nasolacrimal Duct	0	0	0	61	

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Surgical Grouping: Adult Otolaryngology Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Tonsils And Adenoids	250.0	469.55	40-1500	379	357
Myringotomy	0	241.67	225-250	67	3
Nasal Vestibule Repair	150.0	166.25	50-300	36	24
Rhinoplasty	150.0	224.31	112.5-525	45	29
Septoplasty	150.0	203.55	22.5-962.5	391	345
Turbinate Excision	150.0	198.64	10-750	141	110
Nasal Endoscopy With Treatment	112.5	168.17	40-800	224	179
Ear Tubes	0	165.63	100-225	239	4
Tympanoplasty	100.0	154.45	75-375	78	64
Laryngoscopy With Treatment	87.5	177.92	37.5-1200	50	24
Nasal Ablation	0	59.17	22.5-112.5	40	6

Surgical Grouping: Pediatric Otolaryngology Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Tonsils And Adenoids	75.0	188.20	15-2400	1176	508
Tympanic Membrane Repair	0	139.17	67.5-200	52	3
Tympanoplasty	50.0	114.64	37.5-473	46	22
Ear Tubes (General Anesth)	0	36.00	12-60	1169	2
Nasal Foreign Body Removal	0			31	0

Surgical Grouping: Adolescent Otolaryngology Procedure Description	Benchmark (2017 25th percentile MME) MAX	2017 Mean MME	2017 MME Range	# procedures	# Rx
Tonsils and Adenoids	180	335.32	47.5-19	140	115

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Appendix B: Top 15 adult surgical procedures by number of initial opioid prescriptions postoperatively MN Health Collaborative Postoperative Opioid Prescribing

2017 Surgical Grouping	Procedure Description	# procedures	# Rx	Mean MME	Std. Dev MME	Min MME	Benchmark (2017 25 th percentile MME) MAX	50% MME	75% MME	Max MME	# RX >= 700 MME (w/in 45 days)
Neurological/Orthopedic Surgery	Scopes (Knee Meniscectomy)	1176	1038	212.10	256.74	40.0	150.0	200.0	225.0	7560	42
Neurological/Orthopedic Surgery	Joint Replacements (Knee)	977	824	529.53	274.20	40.0	375.0	450.0	640.0	2100	581
Gastroenterology/Hepatology /Endocrinology/Hematology	Gall Bladder	810	730	183.96	83.37	40.0	150.0	150.0	225.0	810	13
Nephrology/Urology/Gynecology	Hysterectomies	797	680	198.59	82.06	37.5	150.0	200.0	225.0	900	20
Gastroenterology/Hepatology /Endocrinology/Hematology	Inguinal Hernia	673	622	176.77	70.84	37.5	125.0	150.0	225.0	600	7
Neurological/Orthopedic Surgery	Carpal Tunnel	755	574	135.47	152.81	25.0	75.0	100.0	150.0	2925	30
Neurological/Orthopedic Surgery	Scopes (Rotator Cuff)	582	565	451.04	197.77	100.0	300.0	400.0	500.0	1275	193
Neurological/Orthopedic Surgery	Joint Replacements (Hip)	637	529	443.51	212.77	50.0	300.0	450.0	525.0	1500	170
Neurological/Orthopedic Surgery	Spine Surgery (Lumbar Herniated Disc, Decompression)	547	493	419.29	193.94	30.0	300.0	375.0	450.0	1350	135
Neurological/Orthopedic Surgery	Scopes (Shoulder)	416	389	386.17	190.48	50.0	300.0	375.0	450.0	1350	90
Otolaryngology	Tonsils and Adenoids	379	357	469.55	254.16	40.0	250.0	450.0	750.0	1500	129
Otolaryngology	Septoplasty	391	345	203.55	133.78	22.5	150.0	150.0	225.0	962.5	18
Nephrology/Urology/Gynecology	Cystourethroscopy with Treatment	498	335	126.69	67.55	25.0	75.0	112.5	150.0	450	16
Neurological/Orthopedic Surgery	Scopes (Knee Ligament Repair)	319	305	407.68	222.06	90.0	275.0	375.0	450.0	1350	62
Neurological/Orthopedic Surgery	Bunionectomy	339	301	262.35	157.34	45.0	150.0	225.0	300.0	2025	19

NOTE: The very high "Max" prescriptions for some procedures were often the same dose a member was taking prior to surgery.
MME: morphine milligram equivalents.

Appendix C: Claims Data Methodology

MN Health Collaborative Postoperative Opioid Prescribing

At this time, health plan claims-based data provides the 25th percentile benchmarks for the MN Health Collaborative on postoperative opioid prescribing. Following is the methodology used.

1. Use CPT codes and procedure clusters (e.g. all codes for one procedure) to identify all surgical procedures with an opioid prescription at postoperative discharge for combined inpatient and outpatient procedures.
 - Exclude the following:
 - Second procedure within 14 days,
 - Opioid addiction drugs, poly-trauma, and
 - Patients who are receiving palliative care for serious advanced illness, end-of-life or hospice.
2. Report procedure volume. Exclude low volume procedures (<30 within measurement period)
3. Retrieve all opioid prescriptions post-discharge by each procedure up to 45 days.
 - Consider first prescription(s) with filled date within 7 days of postoperative discharge date
 - Prescriptions filled on the same day will be grouped
 - Add morphine milligram equivalent (MME) for multiple medications
 - Select maximum days' supply for prescription
4. For each procedure, report the following:
 - Mean morphine milligram equivalent (MME) of first opioid prescription post-discharge,
 - MME range (min, max),
 - Report percentiles (25th, 50th, 75th, 90th) based on MME and days supply prescribed at discharge.
5. If possible, report bullet 4 by:
 - Surgical department,
 - Individual specialty group (for use by that organization), and
 - Facility.
6. Report pediatric and adolescent population separately (ages <12, 12-17, >=18 years at discharge)