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Call to Action:

Adult Opioid Postoperative Prescribing

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Summary

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 over-prescribing of opioids while still effectively managing pain.

The MN Health Collaborative is a group of more than a dozen influential health care organizations in the upper-Midwest working together to develop shared, sustainable solutions to health care's toughest challenges.

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

Introduction

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.

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 guideline, and want to build on that foundation by expanding an approach recommended by surgeons within the MN Health Collaborative," states Claire Neely, MD, President & CEO of 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 appropriate pain management is important. 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. Non-opioid therapies are often effective for managing pain and clinicians should first consider all non-opioid options. 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 may 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 are prescribed.

Surgical departments within the MN Health Collaborative organizations, with focused improvement efforts, have been successful at prescribing at or below benchmark doses. Benchmark community standards are derived from health plan data (see Appendix B).

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 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 scheduled multimodal analgesia (e.g., NSAIDs and acetaminophen) when possible.
  - This approach may provide superior pain relief and decrease 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 relevant medical 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 or exacerbated by these medications.

3. Prescribe the lowest dose, short-acting opioid possible, while considering individual patient needs.

- Clearly communicate to the patient how to use their opioids.
  - Be specific about when to use opioids (e.g., use for moderate or severe pain).
  - Instruct them how to decrease dose and increase length of time between doses as healing progresses.
  - Avoid general PRN ("take as needed") language.

- Prescribers should query the Prescription Drug Monitoring Program upon discharge, especially if it has not been documented in the preoperative exam.

- 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 a pain specialist, if needed.
  – For more detailed information on the use of opioids in this population see the ICSI Perioperative Guideline, December 2019.

- 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 Recommendations

Develop your organizational approach

Determine your Benchmarks

The goal of this initiative is to reduce the quantity of opioids given to patients postoperatively. The MN Health Collaborative has developed procedure-specific benchmarks for maximum MME in the first prescription postoperatively. We recognize that there are several benchmarking methods. We ask that you select the method that best supports your patient's need for safe, effective pain relief. Options include:

- Using MN Health Collaborative procedure-specific benchmarks (based on procedure groupings), or
- using tier-specific standards (based on procedure groupings), or
- selecting an overall standard to be used for all procedures, or
- a self-developed standard, based on your current work or research in progress.

Procedure Selection Criteria:

Organizations should select all or some of the procedures in their specialty for focused improvement. The number of procedures selected may depend on the organization's current capacity to build skills and structure to support the work. The procedure groupings in this document represent high volume (30 procedures or more per year) and include those with

and without opioid prescriptions. The following methods have been used by organizations to determine their approach to procedure selection:

- procedures with wide variation in prescribing practice
- procedures with discharge prescriptions with the highest MMEs
- procedures with the highest volume
- procedures with the highest percent of opioid prescriptions

Implementation Techniques:

- Engage leadership in the initiative, including a physician champion who will promote buy-in, awareness, and ongoing implementation. Engage an operational dyad who will partner in facilitating the changes needed to support the goals.
- Develop an internal improvement team to manage this work. Potential members include: Surgical and/or pain subject matter experts, patient educators, clinicians who write opioid prescriptions, electronic medical record (EMR) optimizers, data analysts, process and workflow experts, pharmacists, anesthesiologists, nursing staff, etc.
- Determine who will measure and monitor your data. Compare your data to other organizations to understand your postoperative prescribing relative to the Minnesota community.
- Determine your approach to benchmarking and select your procedures (see above).
- Understand where both your best practices and key gaps are (e.g., changing MME, better perioperative management, patient education, workflow changes, etc.), set your goals, and start with small tests of change.
- Verify that embedded EMR workflows support your desired goals (e.g., alerts, order sets, preferences, existing protocols/guidelines, and decision-support tools, etc.).
- Assure that physicians and staff understand and can use the new concepts and techniques.
- Provide support to providers who routinely prescribe outside of the recommendations (mentoring, training tools, etc.)
- Assess your progress and either adopt (accept), adapt (modify and re-test), or abandon the changes made and move to the next opportunity to improve.

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 postoperative prescribing tests of change will be monitored internally by each organization using QI data. Sharing your progress with Collaborative peers will help determine which improvement efforts represent optimal impact on postoperative prescribing. If organizations intend to compare data within the Collaborative postoperative initiative, it will be important to use shared specifications that are provided by the Collaborative. QI data and measures will eventually help inform the overall performance goals.

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References

1. Alam A, Gomes T, Zheng H, et al. Long-term analgesic use after low-risk surgery: a retrospective cohort study. *Arch Intern Med.* 2012;172(5):425-430.

2. Apfelbaum JL. Practice guidelines for acute pain management in the perioperative setting: an updated report by the American Academy of Anesthesiologists Task on Acute Pain Management *Anesthesiology.* 2012;116(2):248–273.

3. Bateman BT, Cole NM, Maeda A, et.al. Patterns of Opioid Prescription and Use After Cesarean Delivery. *Obstet Gynecol* 2017;130(1):29-35.

4. Bates C, Laciak R, Southwick A, Bishoff J. Over-prescription of postoperative narcotics: a look at postoperative pain medication delivery, consumption and disposal in urological practice. *The J Urol* 2011;185(2):551-5.

5. Bicket MC, Long JJ, Pronovost PJ, et al. Prescription opioid analgesics commonly unused after surgery: a systematic review *JAMA Surg* 2017;152(11)1066-71.

6. Hill, MV, McMahon, ML, Stucke RS, Barth RJ Jr. Wide Variation and Excessive Dosage of Opioid Prescriptions for Common General Surgical Procedures. *Ann Surg* 2017;265(4)709-14.

7. Hooten, WM; St Sauver, JL, McGree ME, et al. Incidence and risk factors for progression from short-term to episodic or long-term opioid prescribing: a population-based study. *Mayo Clin Proc* 2015;90(7):850-56.

8. Liang Y, Turner BJ. Assessing risk for drug overdose in a national cohort: role for both daily and total opioid dose? *J Pain* 2015;16(4):318-25.

9. Osmundson, SS, Schornack LA, Grasch JL, et.al. Post-discharge opioid use after cesarean delivery. *Obstet Gynecol* 2017;130(1)36-41.

Appendices

A. Postoperative Opioid Prescribing Procedure-Specific Opioid MME Benchmarks

B. Postoperative Opioid Prescribing Claims Data Methodology

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Appendix A: Postoperative Opioid Prescribing Procedure-Specific Opioid Morphine Milligram Equivalents (MME) Benchmarks

The following tables represent the procedure-specific benchmarks that have been created by using Minnesota health plan claims data from 2018. The methodology that has been tested and revised resulted in the decision to aim for the 25th percentile of MME as the maximum initial opioid prescription (Rx) postoperatively. This means that 25% of patients who received an opioid were prescribed this MME or less. The work group determined that this number best represents a reasonable dose and should be considered along with a patient's individual condition and level of pain. Please also see the health plan data specifications (Appendix B) for detailed information.

Definitions

- **Surgical Grouping and Procedure:** The benchmarks for common procedures are sorted below by department using procedure grouper software. While this document is primarily focused on adults, we included adolescent (ages 12-17) and pediatric (<12) procedure information where it was available because many surgeons treat all ages.
- **# Procedures:** Actual number of procedures performed (must be at least 30/year to be included).
- **# Rx:** The number of patients receiving an opioid prescription for these procedures, regardless of preoperative opioid status (naive or chronic use).
- **% Rx:** The percentage of patients who received an opioid prescription for this procedure group. The asterisk (*) by some numbers indicates that ≤10% of patients received a prescription, in which case the benchmark was changed to zero "no routine opioids."
- **Benchmark (2018 25th Percentile MME) MAX:** These benchmarks are based on the 25th percentile MME from 2018 health plan data. (25% of patients who received an opioid received that MME or less for a given procedure.)
- **2018 Mean MME**: The current mean of the opioid prescriptions given for this procedure grouping.
- **2018 Minimum/ Maximum MME**: The actual minimum and maximum MME prescribed (this shows the range). Note that this number includes patients who were likely on long-term opioids prior to surgery.

Surgical Grouping: Cardiology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	2018 Minimum/ Maximum MME
Ablations	339	11*	3%	0	312	54-1500
Catheter (Diagnostic)	528	9*	2%	0	252	15-675
Catheter (With Drug Stents)	255	5*	2%	0	292	36-900
Catheter (With Stents)	72	3*	4%	0	145	75-210
Coronary Bypass Surgery	49	32	65%	113	201	45-450
Implantable Device Defibrillator	56	23	41%	75	575**	50-10800
Implantable Device Pacemaker	47	10	21%	45	72	30-150
Surgical Valve Repair	40	20	50%	100	171	60-450

* <10% of patient received Rx, benchmark changed to no routine opioids

** Standard Deviation was 2229.41. (2017 Mean was 185 MME)

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)

Surgical Grouping: Otolaryngology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Ear Tubes	280	6*	2%	0	250	90-675
Laryngoscopy with Treatment	77	34	44%	50	105	25-615
Myringotomy	85	2*	2%	0	88	75-100
Nasal Ablation	79	5*	6%	0	157	50-420
Nasal Endoscopy with Treatment	254	200	79%	75	134	10-675
Nasal Vestibule Repair	60	46	77%	113	168	50-375
Rhinoplasty	42	35	83%	140	199	60-450
Septoplasty	423	387	91%	100	174	23-1350
Tonsils and Adenoids	361	342	95%	240	397	80-1618.5
Turbinate Excision	170	119	70%	100	164	25-315
Tympanoplasty	80	67	84%	75	133	20-1440

* <10% of patient received Rx, benchmark changed to no routine opioids

Surgical Grouping: Pediatric Otolaryngology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Ear Tubes (General Anesth)	1190	2*	0%	0	60	45-75
Tonsils and Adenoids	1038	429	41%	60	128	8-1200
Tympanic Membrane Repair	62	*3	5%	0	142	30-270
Tympanoplasty	41	17	41%	50	203	25-800

* <10% of patient received Rx, benchmark changed to no routine opioids

Surgical Grouping: Adolescent Otolaryngology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Tonsils and Adenoids	136	114	84%	150	277	15-750

Surgical Grouping: General/ Gastroenterology/ Hepatobiliary Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Appendectomy	167	138	83%	80	130	45-600
Colonoscopy, Diagnostic	14978	118*	1%	0	690	8-18900
Dilation of Esophagus	53	1*	2%	0	225	
Endoscopic Retrograde Cholangiopancreatography with Treatment	118	32	27%	90	153	38-640
Esophagoplasty/Fundoplasty	112	78	70%	80	140	40-450
Gall Bladder	899	789	88%	100	144	38-600
GI Restrictive Procedure (Bypass)	56	39	70%	80	147	40-420
GI Restrictive Procedure (Sleeve)	219	158	72%	53	120	45-1185
Hernia Repair, Inguinal	739	692	94%	100	136	15-450
Lower Gastrointestinal Endoscopy with Treatment	8634	76*	1%	0	414	25-3600
Lower GI Removal	166	105	63%	96	148	30-360
Repair, Incisional or Ventral Hernia	236	205	87%	100	157	50-450
Repair, Umbilical Hernia	298	265	89%	100	133	25-420
Upper Gastrointestinal Endoscopy with Treatment	1107	39*	4%	0	216	25-1800
Upper GI Removal	38	26	68%	150	233	40-710

* <10% of patient received Rx, benchmark changed to no routine opioids

Surgical Grouping: Pediatric General Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Hernia Repair, Inguinal	85	23	27%	9	69	6-400
Repair, Umbilical Hernia	33	12	36%	14	114	7-600

Surgical Grouping: Adolescent General Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Appendectomy	35	16	46%	55	88	30-150
Colonoscopy, Diagnostic	74	1*	1%	0	125	

* <10% of patient received Rx, benchmark changed to no routine opioids

Surgical Grouping: Gynecology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/Maximum MME
Colporrhaphy	43	26	60%	100	144	30-450
Conization Of Cervix	231	28	12%	55	86	30-225
Endometrial Ablation	30	10	33%	45	72	23-160
Excision of Ovary/Ovarian Duct	218	184	84%	90	128	25-300
Hysterectomies	1003	846	84%	113	158	25-440
Hysteroscopy with Treatment	535	285	53%	50	78	15-270
Incision and Drainage of Bartholin's Gland Abscess	55	8	15%	63	93	45-150
Ligation of Fallopian Tube	277	185	67%	113	172	38-1200
Removal of Ovary/Ovarian Duct	329	275	84%	75	133	23-1800
Stress Incontinence Repair	122	103	84%	75	106	25-240
Cesarean Section**				100		
Vaginal Delivery **				0		

** Benchmark derived from literature and expert opinion.

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

Surgical Grouping: Urology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Cystourethroscopy with Treatment	794	465	59%	75	152	20-9600
Incision and Drainage of Bartholin's Gland Abscess	55	8	15%	63	93	45-150
Laparoscopic Prostatectomy	153	126	82%	75	134	40-350
Laser Coagulation	49	45	92%	50	92	25-225
Lithotripsy	135	98	73%	75	111	30-225
Stress Incontinence Repair	122	103	84%	75	106	25-240
Transurethral Resection of Bladder Neck	67	28	42%	65	96	38-225

Surgical Grouping: Pediatric Urology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Orchiopexy	62	35	56%	18	51	3-250

Surgical Grouping: Orthopedic Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Bilateral Knee Replacement Surgery	33	24	73%	300	392	90-1050
Carpal Tunnel Surgery	888	670	75%	50	105	15-1800
Joint Replacements (Hip)	766	600	78%	240	335	50-1500
Joint Replacements (Knee Revision)	58	41	71%	320	443	140-1200
Joint Replacements (Knee)	1136	945	83%	300	411	75-2250
Other Knee Arthroscopy with Treatment	379	340	90%	150	197	38-1350
Other Open Surgery of The Knee	184	161	88%	280	361	90-1050
Scopes (Knee Ligament Repair)	314	297	95%	225	304	70-675
Scopes (Knee Meniscectomy)	1311	1121	86%	100	160	38-1500
Therapeutic Arthroscopy of The Hip	138	121	93%	225	288	53-990
Scopes (Rotator Cuff)	670	625	92%	300	348	30-1250
Scopes (Shoulder)	508	468	88%	225	318	25-1050
Total Shoulder Replacement	106	89	84%	240	332	40-1050

Surgical Grouping: Adolescent Orthopedic Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Other Knee Arthroscopy with Treatment	65	61	94%	100	176	50-450
Scopes (Knee Ligament Repair)	104	97	93%	200	276	60-585
Scopes (Knee Meniscectomy)	40	36	90%	100	124	38-225
Scopes (Shoulder)	31	29	94%	150	252	68-750
Therapeutic Arthroscopy of The Hip	30	29	97%	210	306	150-600

Surgical Grouping: Orthopedic/Podiatry Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Ankle Ligament Repair	120	111	93%	150	248	30-742.5
Arthrodesis, Midfoot	140	120	86%	188	276	50-1350
Arthroscopy of Ankle with Major Repair	47	42	89%	130	214	75-450
Bunionectomy	381	335	88%	150	224	50-2700
Repair Hammer Toe	166	139	84%	100	184	30-975
Repair of Achilles Tendon	147	134	91%	150	246	50-600

Surgical Grouping: Neurological/ Orthopedic Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Spine Surgery (Cervical Fusion)	199	161	81%	280	387	75-2025
Spine Surgery (Cervical Spine Laminectomy)	74	63	85%	225	311	113-630
Spine Surgery (Lumbar Fusion)	224	174	78%	300	532	50-2790
Spine Surgery (Lumbar Herniated Disc, Decompression)	611	503	82%	225	334	70-5520

Surgical Grouping: Ophthalmology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Cataract Removal	1368	14*	1%	0	360	45-900
Closure of The Lacrimal Punctum	97	3*	3%	0	224	72-450
Destruction of Retina	36	*	0%	0		
Discission Of Secondary Membranous Cataract	570	6*	1%	0	1092	125-3600
Excision or Transposition of Pterygium	33	10	30%	70	75	50-100
Intravitreal Injection of a Pharmacologic Agent	3040	33*	1%	0	1010	50-6300
Iridotomy/Iridectomy	76	1*	1%	0	21600	
Keratoplasty	48	10	21%	50	140	25-500
Prophylaxis of Retinal Detachment	131	*	0%	0		
Removal of Foreign Body, External Eye	206	5*	2%	0	1138	50-3600
Repair of Blepharoptosis	129	55	43%	50	100	25-240
Repair of Brow Ptosis	31	20	65%	50	82	25-225
Repair of Retinal Detachment	156	9*	6%	0	99	45-300
Strabismus Revision	63	29	46%	60	81	36-125
Trabeculoplasty By Laser Surgery	62	*	0%	0		

* <10% of patient received Rx, benchmark changed to no routine opioids

Surgical Grouping: Pediatric Ophthalmology Procedure Description	# procedures	# Rx	% Rx	Benchmark (2018 25th Percentile MME) MAX	2018 Mean MME	Minimum/ Maximum MME
Strabismus Revision	73	5*	7%	0	71	25-90

* <10% of patient received Rx, benchmark changed to no routine opioids

References

1. Bateman BT, Cole NM, Maeda A, et al. Patterns of opioid prescription and use after cesarean delivery. *Obstet Gynecol* 2017;130:29-35.

2. Emerson JB, Danilack VA, Kulkarni A, et al. Outpatient opioid use after cesarean section. *Obstet Gynecol* 2017;129:7S–8S.

3. Moore PA, Hersh EV. Combining ibuprofen and acetaminophen for acute pain management after third-molar extractions: translating clinical research to dental practice. *JADA* 2013;144: 898-908.

4. Osmundson SS, Schornack LA, Grasch JL, et al. Postdischarge opioid use after cesarean delivery. *Obstet Gynecol* 2017;130:36-41.

5. Prabhu M, Garry EM, Hernandez-Diaz S, et al. Frequency of opioid dispensing after vaginal delivery. *Obstet Gynecol* 2018;132:459-65.

6. Prabhu M, McQuaid-Hanson E, Hopp S, et al. A shared decision-making intervention to guide opioid prescribing after cesarean delivery. *Obstet Gynecol* 2017;130: 42-46.

7. Weiland BM, Wach AG, Kanar BP, et al. Use of opioid pain relievers following extraction of third molars. *Compend Contin Educ Dent* 2015;36:107-11.

Appendix B: Postoperative Opioid Prescribing Claims Data Methodology

MN Health Collaborative claims data for postoperative opioid prescribing by procedure has been provided by one or more Minnesota health plan.

Definitions

- Procedure Episode Groups (PEGs): Optum proprietary grouper that uses surgical procedures as units of analysis, or similar software
- Prescription patterns measured based on total prescription at discharge Morphine Milligram Equivalent (MME) based on filled Rx
- Adults = members >= 18 years at discharge
- Adolescents = members between 12 and 17 years at discharge
- Children = members < 12 years at discharge

Methodology

- Identify inpatient and outpatient surgical procedures (date and type of procedure)
  - Dates of service range between 01/01/2018 through 12/31/2018.
- Retrieve all opioid prescriptions following the surgical procedure discharge date up to 45 days, including tramadol and tapentadol
  - Consider first prescription(s) with filled date within seven days of post-operative discharge date
  - Include all patients regardless of preoperative opioid status (naive and chronic use)
  - Prescriptions filled on the same day will be grouped
    - Add MMEs for multiple medications
- Percentiles based on MMEs

Exclusions

- Trauma and polytrauma
- Opioid addiction treatment drugs
- Hospice members (hospice benefit for procedure)
- Low volume procedures (< 30 within measurement period) excluded
- All data for members with carve-out for pharmacy benefits are excluded
- Instances where an individual had more than a single surgical procedure within a 14-day window were excluded