The Role of Perioperative Opioids in Developing Chronic Opioid Use

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April 2018
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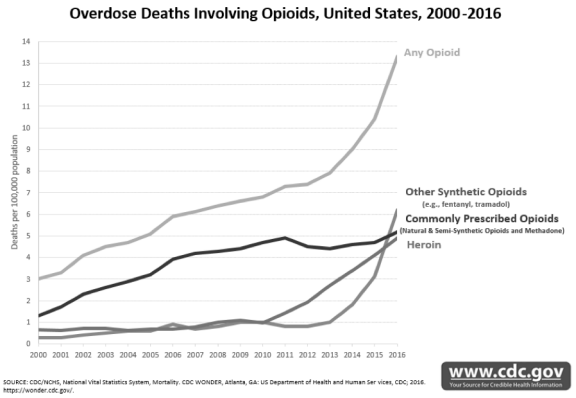
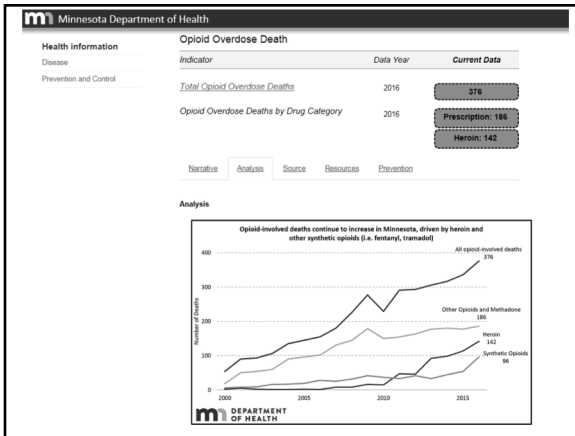




www.health.state.mn.us/divs/healthimprovement/opioid-dashboard/index.html

Opioids In 2015

- 38% of adult Americans used an opioid at some point
- 5% of Americans on chronic opioids for pain
- 5% of American abused opioids at some point
- 1% of Americans were addicted to opioids

"prescription opioid use, misuse, and use disorder in U.S. adults"
Han et al, Annals of internal medicine September 5 2017

The question is not: "Why do some people start opioids?"

The question is: "Why do some people struggle to stop opioids?"

Five Pathways to Opioid Use Disorder (addiction)

1. Inadequately controlled chronic pain
2. Exposure to opioids in acute pain
3. Chronic pain in individuals with prior substance use disorders (addictions)
4. Relief from emotional distress
5. Recreational/non-medical use

"Patient reported pathways to opioid use disorder and pain related barriers to treatment engagement"
Stumbo Journal of substance abuse 2017

Remarks on the *Opioid Epidemic*

- Opioid overdose deaths continue to rise
- Physician prescriptions continue to contribute
- Annual overdose deaths represent <3% of at-risk population
- Annual overdose deaths represent minority of total opioid related deaths
- Political and public urgency and scrutiny
- Ongoing process of reevaluating and regulating opioid prescriptions

Todays talk

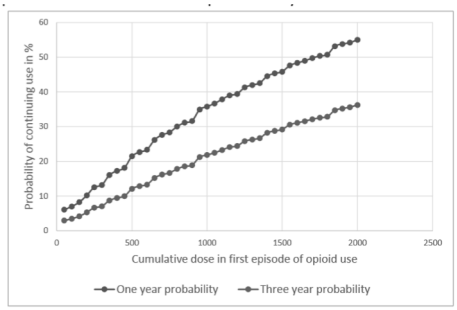
- The risk of chronic opioid use after acute opioid use for pain
- The risk of chronic opioid use after postoperative opioids
- The risk of opioid addiction after postoperative opioids
- How to modify those risks

Acute opioid use is an inoculation!

Chronic opioid use is predicted by:

1. Inoculation characteristics
2. Host response
3. Context of inoculation

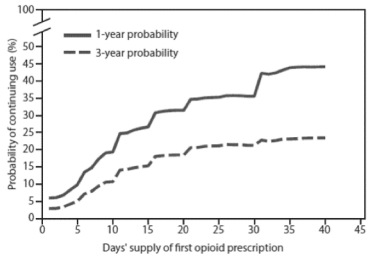
Probability of continued opioids depending on initial total DOSE



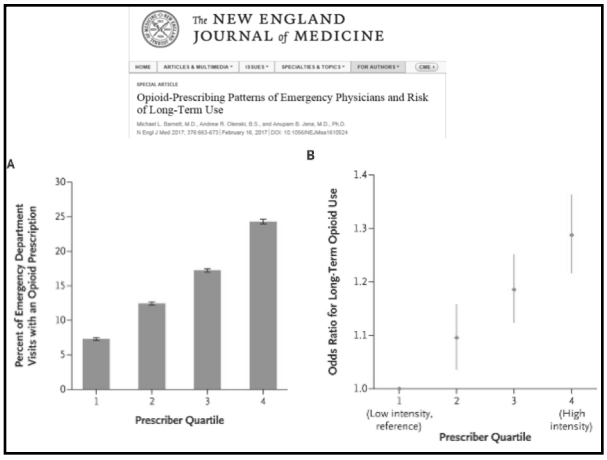
https://www.cdc.gov/mmwr/volumes/66/wr/mm6610a1.htm?s_cid=mm6610a1_w

Probability of continued opioids depending on initial total number of days supply

FIGURE 1. One- and 3-year probabilities of continued opioid use among opioid-naïve patients, by number of days' supply* of the first opioid prescription — United States, 2006–2015



https://www.cdc.gov/mmwr/volumes/66/wr/mm6610a1.htm?s_cid=mm6610a1_w



Comparison between 1Q and 4Q average prescribing rate, by specialty group

Specialty	Quartile 1 Average Prescribing Rate	Quartile 4 Average Prescribing Rate	How many times higher the Q4 prescribing rate is than Q1 rate:
Dentist General	0.005	0.11	**22**
Dentist Surgical	0.112	0.647	**5.7**
Emergency Medicine	0.012	0.088	**7.3**
Family Medicine	0.008	0.07	**8.75**
Internal Medicine	0.005	0.057	**11.4**
OBGYN	0.013	0.142	**10.9**
Orthopedic Surgery	0.018	0.154	**8.6**
Other PA APRN	0.008	0.122	**15.25**
Pediatrics	0.002	0.036	**18**
Surgery	0.021	0.234	**11**

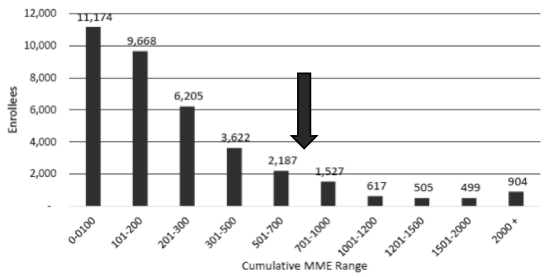
7/20/2017 Minnesota Department of Human Services | mn.gov/dhs 11

How opioid exposure is defined

- **MME** (OME, OED, MED) is a unit measuring opioid exposure: all/any opioids
- ***Daily MME:*** used to assess risk (of death) in chronic daily opioid use
- ***Total MME:*** used to asses risk (of chronic opioid use) in acute opioid exposure
  - The cumulative opioids taken over the entire acute opioid treatment episode

700 MME total taken to be a meaningful threshold for chronic opiodi use

Cumulative MME Exposure in Post-Acute Period: Family Medicine



JAMA Intern Med. 2016 Sep 1;176(9):1286-93. doi: 10.1001/jamainternmed.2016.3298.

Incidence of and Risk Factors for Chronic Opioid Use Among Opioid-Naive Patients in the Postoperative Period.

Sun EC[1], Darnall BD[1], Baker LC[2], Mackey S[1].

⊕ Author information

1.4% 1 year chronic opioid use post TKA

Table 2. Risk Factors for Chronic Opioid Use Following Surgery[a]

Risk Factor	Odds Ratio (SE)[a]	*P* Value
Demographics		
Male	1.34 (0.0648)	<.001
Age >50 y	1.74 (0.0942)	<.001
Preoperative drug use		
Benzodiazepines	1.82 (0.1049)	<.001
Antidepressants	1.65 (0.0928)	<.001
Antipsychotics	1.14 (0.1330)	.28
Medical comorbidities		
Depression	1.15 (0.0717)	.03
Psychosis	1.03 (0.2094)	.89
Alcohol abuse	1.83 (0.2834)	<.001
Drug abuse	3.15 (0.5385)	<.001

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[a] Table lists the results of a multivariable logistic regression in which the dependent variable was chronic opioid use and the independent variables were preoperative use of benzodiazepines, antidepressants, or antipsychotics; reported odds ratios are for chronic use associated with each risk factor, with robust standard errors (SEs) reported in parentheses. Not shown are controls for the remaining medical variables listed in Table 1 or controls for year of surgery.

Original Investigation ONLINE FIRST

April 12, 2017

New Persistent Opioid Use After Minor and Major Surgical Procedures in US Adults

Chad M. Brummett, MD[1,2]; Jennifer F. Waljee, MD, MPH, MS[2,3]; Jenna Goesling, PhD[1]; et al

› Author Affiliations

JAMA Surg. Published online April 12, 2017. doi:10.1001/jamasurg.2017.0504

Key Points

Question What is the incidence of new persistent opioid use after surgery?

Findings In this population-based study of 36 177 surgical patients, the incidence of new persistent opioid use after surgical procedures was 5.9% to 6.5% and did not differ between major and minor surgical procedures.

Meaning New persistent opioid use is more common than previously reported and can be considered one of the most common complications after elective surgery.

thebmj Research Education News & Views Campaigns Archive

Research

Postsurgical prescriptions for opioid naive patients and association with overdose and misuse: retrospective cohort study

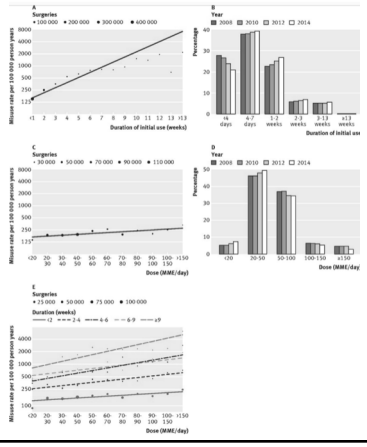
BMJ 2018 ; 360 doi: https://doi.org/10.1136/bmj.j5790 (Published 17 January 2018)
Cite this as: *BMJ* 2018;360:j5790

- Risk of post op opioid addiction
- Risk factors:
  - Tobacco use disorder RR=2
  - Preop Major Depressive D/o RR=1.6
  - Dose of opioids+10 MME/day=0.8% incr risk
  - Duration of opioids+7days=20% incr risk

Duration

Dose

Duration/dose

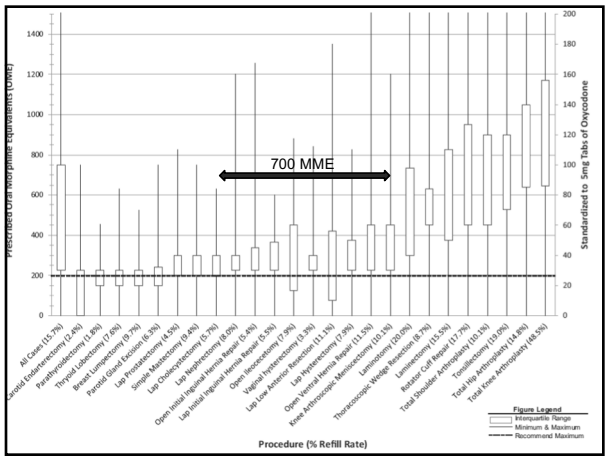


Wide Variation and Overprescription of Opioids After Elective Surgery

Cornelius A. Thiels, DO, MBA,† Stephanie S. Anderson, BS,‡ Daniel S. Ubl, MPH,† Kristine T. Hanson, MPH,† Whitney J. Bergquist, PharmD, RPh,§ Richard J. Gray, MD, FACS,¶ Halena M. Gazelka, MD,|| Robert R. Cima, MD, MA, FACS, FASCRS,*† and Elizabeth B. Habermann, MPH, PhD†*

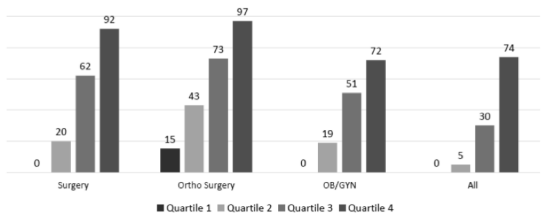
1. Patients given >300 mme postop
2. Wide variability between procedures, providers, and medical centers
3. Increased initial quantity did not decrease chance of refill

Annals of surgery 2017 july 10th



>600,000 opioid prescriptions, 1.3 M patient years, 2016 MN Medicaid data

Percent of index opioid prescriptions that exceed 200 MME, by specialty (Percentage = Average within Quartile)



9/20/2017 13

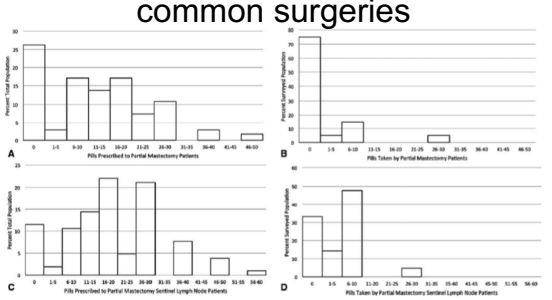
An Educational Intervention Decreases Opioid Prescribing After General Surgical Operations

Maureen V. Hill, MD, Ryland S. Stucke, MD,* Michelle L. McMahon, BS,† Julia L. Beeman, BS,* and Richard J. Barth Jr., MD**

- Define the opioid use for specific surgeries
- Target opioid prescriptions to match reported use for specific surgeries
- Reduction of opioids >50%
- <0.5% (one patient) requested a refill

- Annals of Surgery 2017

Prescribed vs used opioids for common surgeries



IGURE 1. Frequency of opioid pills prescribed (A, C) and taken (B, D) after partial mastectomy and partial mastectomy with entinel lymph node biopsy.

Unused opioids after orthopedic surgery

- Follow up after hip, knee, carpel tunnel, rotator cuff, lumbar surgeries
- 557 patients contacted post-op
- 61% had unused opioids
- Of those only 41% properly disposed of them

Bedard et al JBJS 100(3) e17 Feb 7 2018

ICSI/Mayo Tier system

Level	Procedure/Surgery	Max 1st Rx MME total	tramadol (50 mg) or hydrocodone (5 mg)	hydromorphone (2mg) or oxycodone (5mg)
0	Sprain or Strain Vaginal Delivery Simple Dentoalveolar surgery Carotid endarterectomy	No routine opioids	**Step 1**: Ibuprofen (400-600 mg) with APAP (500 mg) q6 hours: fixed interval for 24 hours **Step 2**: Ibuprofen (400 mg) with APAP (500 mg) q6 hours PRN for pain	
1	Complex Dentoalveolar surgery Breast lumpectomy Laparoscopic Appendectomy Postpartum Tubal Ligation Simple Mastectomy Thyroid surgery Carpal Tunnel release	Up to 100 MME	Up to 20 tabs	Up to 14 tabs
2	ACL reconstruction Bunionectomy Wrist fracture ORIF Laparoscopic Cholecystectomy Inguinal/Femoral Hernia (open/Lap) Hysterectomy vag/ abd/ lap Hip Fracture (geriatric) Laparoscopic nephrectomy Laparoscopic prostatectomy Maxillofacial fx/ reconstruction	Up to 200 MME	Up to 40 tabs	Up to 25 tabs
3	Ankle fracture ORIF Ankle fusion Minor Spine Surgery (w/o fusion) Open nephrectomy Open prostatectomy Rotator Cuff repair Thoracoscopic lung wedge resection Primary Arthroplasty Shoulder Primary Arthroplasty Total Hip	Up to 300 MME	Up to 60 tabs	Up to 40 tabs
4	Primary Arthroplasty Total Knee Major Spine Surgery (fusion, hardware implants) Tonsils and Adenoids (adults)	Up to 400 MME	Up to 80 tabs	Up to 50 tabs

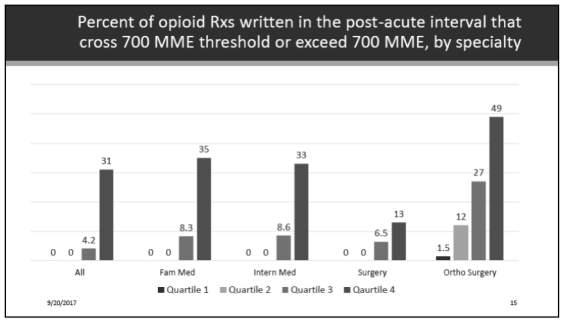
ORIGINAL RESEARCH

Prescription Opioid Use among Adults with Mental Health Disorders in the United States

Matthew A. Davis, MPH, PhD, Lewei A. Lin, MD, Haiyin Liu, MA, and Brian D. Sites, MD, MS

- **16% US population is seriously mentally ill.**
- **They receive >50% of licit opioid prescriptions**

50% of MN docs do not "create" chronic opioid use



MN DHS 2016 1.3 M patient years >600,000 opioid RX

Rethinking the risk of chronic opioid use after surgery

- RISKS of developing chronic opioid use include:
  - High quantity of opioid and large # days supply of the prescription
  - Mental health and addiction risk of patient
  - Minor and major surgery
  - Physician prescribing habits, attitudes and training

Opioid sparing anesthesia?

Summary

- Slides 16, 18, 25
- Rate of chronic opioid use are modifiable
- Rate of opioid addiction are modifiable
- Post operative opioids play a role in these rates
- Targeted opioid prescriptions will help
- Increasing evidence and regulations will address the issue of post operative opioids

Opioid addiction treatment and opioids for pain ARE compatible.

I say “both or neither” to addicts in pain

Managing Buprenorphine and Methadone patient in perioperative period:

Annals of Internal Medicine | PERSPECTIVE

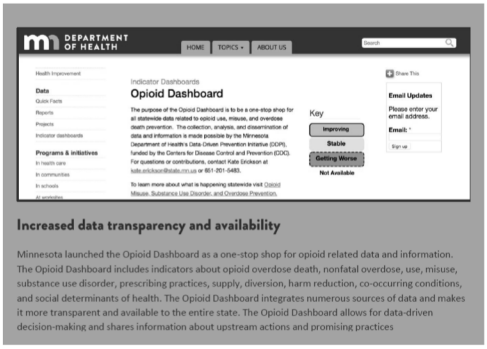
Acute Pain Management for Patients Receiving Maintenance Methadone or Buprenorphine Therapy

Daniel P. Alford, MD, MPH; Peggy Compton, RN, PhD; and Jeffrey H. Samet, MD, MA, MPH

More patients with opioid addiction are receiving opioid agonist therapy (OAT) with methadone and buprenorphine. As a result, physicians will more frequently encounter patients receiving OAT who develop acutely painful conditions, requiring effective treatment strategies. Undertreatment of acute pain is suboptimal medical treatment, and patients receiving long-term OAT are at particular risk. This paper acknowledges the complex interplay among addictive disease, OAT, and acute pain management and describes 4 common misconceptions resulting in suboptimal treatment of acute pain. Clinical recommendations for providing analgesia for patients with acute pain who are receiving OAT are presented. Although challenging, acute pain in patients receiving this type of therapy can effectively be managed.

Ann Intern Med. 2006;144:127-134. www.annals.org
For author affiliations, see end of text.

OPIOID ACTION PLAN



Increased data transparency and availability

Minnesota launched the Opioid Dashboard as a one-stop shop for opioid related data and information. The Opioid Dashboard includes indicators about opioid overdose death, nonfatal overdose, use, misuse, substance use disorder, prescribing practices, supply, diversion, harm reduction, co-occurring conditions, and social determinants of health. The Opioid Dashboard integrates numerous sources of data and makes it more transparent and available to the entire state. The Opioid Dashboard allows for data-driven decision-making and shares information about upstream actions and promising practices

Questions & Discussion