Krakora Study Group
March 23, 2019
*:00 – 10:00 am

Safe and Responsible Prescribing of Opioid Analgesics: Practice Recommendations for Dentistry

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USS Homestead Mill - 1966

http://pgdigs.tumblr.com/

Juno Huey

Hawkeye Huey

Hawkeye Huey

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Changing Professional Responsibilities

- Antibiotic Stewardship
  - Narrow spectrum selection
  - D/C after 2-3 days symptom free
  - Bacterial infections only
- Mercury Waste: EPA/ADA requirements
  - Amalgam separators
  - Prohibits flushing
  - Avoid bleach and chorine cleaners
- Opioid Prescribing: ADA guidelines
  - Risk assessment and history of abuse or mental illness
  - ADR's: Nausea / vomiting and constipation
  - Respiratory depression with alcohol and other drugs
  - Counseling for misuse and abuse of unused opioid medications

Fluent MT, Jacobsen PL, Hicks LA: Considerations for responsible antibiotic use in dentistry. *J Am Dent Assoc* 147:683-686, 2016

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Opioids and Acute Pain Management

- Opioid Epidemic: From Prescriptions to Illicit Drugs.
- Opioid Prescribing Practices in Dentistry.
- Changing Landscape in Analgesic Therapeutics.

  Propoxyphene, Codeine, Tramadol, Acetaminophen.
- Changing Guidelines and Regulations:
  - ADA, FDA, CDC, DEA, State Legislation
- Opioid-sparing Strategies for Post-op Pain Management.
- Alternative Prescribing: APAP combined with Ibuprofen.
- Dentistry's Responsibility for Safe Prescribing.

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Heath Ledger's Overdose

- ✓ Feb 6, 2008 -- A deadly cocktail of mostly prescription drugs killed Heath Ledger.
- ✓ The deadly drug cocktail included:

  Oxycodone, also known under brand name OXYCOTIN, a potent painkiller.

  Hydrocodone, an ingredient in VICODIN, other painkillers, and some cough suppressants.

  Diazepam or VALIUM, an antianxiety drug sometimes prescribed as a muscle relaxant

  Alprazolam or XANAX, prescribed for panic attacks

  Temazepam or RESTORIL, prescribed for insomnia

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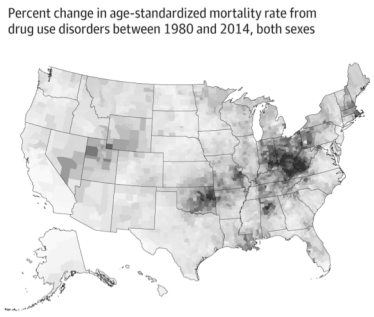
Geographic Distribution: Drug Use



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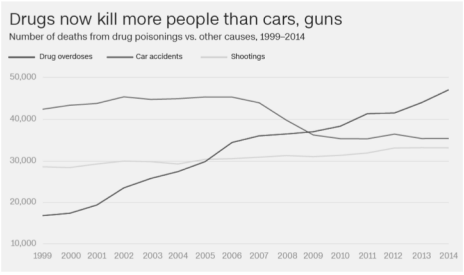
Drugs, Guns and Cars



U.S. Peak in HIV Deaths 41,699/yr (1995)
U.S. Casulties in Vietnam = 58,220
U.S. Overdose Deaths = 64,000

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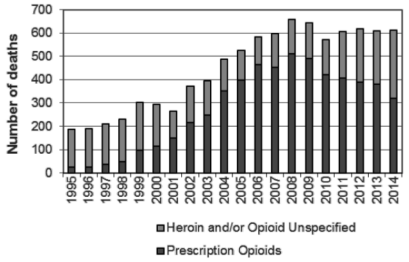
Prescriptions vs Heroin



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Decreasing Prescriptions Rates

- Amount of prescription opioids peaked in 2010 (782 MME per capita).
- Prescription rates plateau 2010 – 2012 and have declined since.
- Amount prescribed in 2015 is four times higher than Europe.
- Declines are due to State legislation, Federal Laws, CDC reports, education and use of PDMPs.
- Overdose deaths continue due to illicit opioids.

Schular A et al. CDC report. JAMA July 6, 2017

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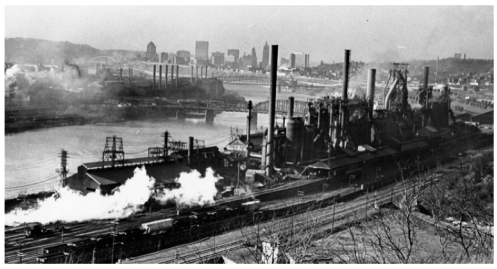
Southside & Hazelwood 1967



http://pgdigs.tumblr.com/

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Opioid Epidemic: Why Now?

- Advocacy groups pressure the medical community to improve treatment of chronic non-cancer pain.
- To improve awareness and diagnostics, pain was recommended to be the "fifth" vital sign (2001 Joint Commission).
- Insurance companies and hospitals offered patient satisfaction as a element of quality of care.

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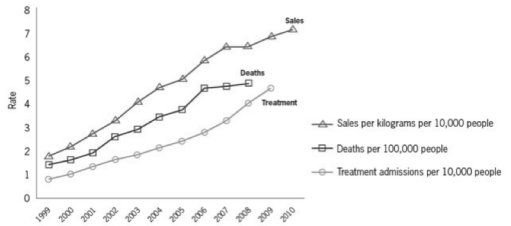
Unintentional Drug Overdose: 1999-2010



SOURCES: National Vital Statistics System, 1999-2008; Automation of Reports and Consolidated Orders System (ARCOS) of the Drug Enforcement Administration (DEA), 1999-2010; Treatment Episode Data Set, 1999-2009

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Opioid Epidemic: Why Now?

- 1996 Purdue Pharmaceutical Company introduces OxyContin in 1995.
- 2000 – 2014 overdose deaths increase 137%
- 2010 OxyContin reformulated
- Since 2010, overdose deaths decrease for prescription opioids and increase for heroin, fentanyl and now carfentanyl

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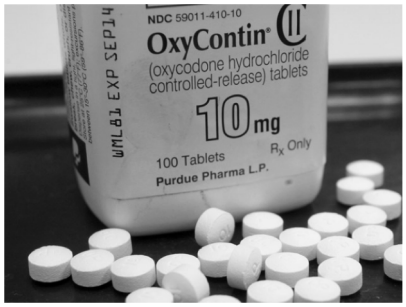
Managing Chronic Pain



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ADDICTION RARE IN PATIENTS TX WITH NARCOTICS

To the Editor: Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients' who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well documented addiction in patients who had a history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients, Percodan in one, and hydromorphone in one.
We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

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Opioid Epidemic: Why Now?

- The Great Recession 2007-2014
- 2007-2012: 740 million Vicodin and OxyContin pills sold in WV, - 433 pills per resident
- One (1) OxyContin pill = $80.00
- One (1) bag of heroin = $10.00
- 2010 OxyContin reformulated

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Fentanyl

As matter of reference it has been determined that it would only take 2-3 milligrams of fentanyl to induce respiratory depression, arrest and possibly death**.** When visually compared, 2 to 3 milligrams of fentanyl is about the same as five to seven individual grains of table salt.

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Potent Synthetic Opioids

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Six Days of Drug Overdose: Cincinnati

- ✓In a six day period (August 19-24, 2016) Cincinnati area experienced 174 opioid overdose reactions.
- ✓The culprit responsible was heroin cut with a fentanyl analogue: Carfentanyl.
- ✓Carfentanyl is 10,000 times as potent as morphine.
- ✓Carfentanyl is used to tranquilize elephants.

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Trends for Opioids Misuse

- From 1997-2007, use increased from 74 mg/person to 369 mg person (500% increase).
- Prescription opioid drugs rank second to marijuana in categories of abused drugs.
- For first time users, friends and family were the primary source: "the AT&T plan".

Epidemic: Responding to America's Prescription Drug Abuse Crisis. US Surgeon General report 2010

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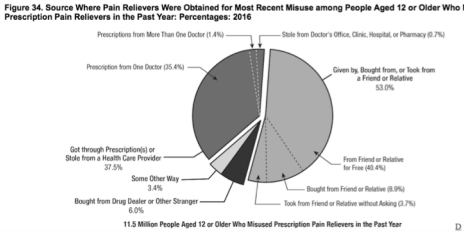
Friends and Relatives



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Trends: Opioid Prescribing in Dentistry

- ✓ A total of 9.4 billion units of opioids were sold in in the U.S. in 2007. (80% of total world prescriptions).
- ✓ Estimated that 15% are diverted for sale on the street.
- ✓ 12.2% of immediate-release opioids are prescribed by dentists.
- ✓ Dentists and OMFSs often prescribe opioid analgesics to adolescents and young adults for the first time in their lives (3-4 million wisdom teeth extractions).

Golubic et al. Opioid prescribing in dentistry. Compend CE Dent 2011.

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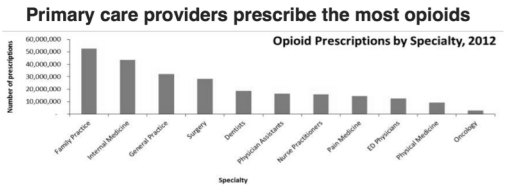
Opioid Prescriptions by Dentists



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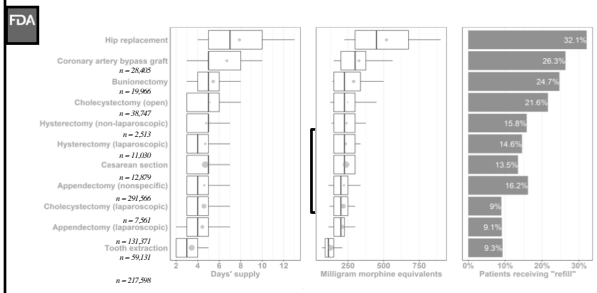
Observed Quantities Dispensed: Preliminary Findings



Bohn J, Mundkur M, et al.: Estimating "Optimal" Durations for Initial Opioid Analgesic Prescription Following Common Surgical Procedures". International Conference on Pharmacoepidemiology & Therapeutic Risk Management (34th ICPE), August 25, 2018

Why Are Dental Practitioners Unique?

- ➢We are extremely risk aversive.
- ➢We manage acute pain almost exclusively.
- ➢Outpatient and solo practice model:

  "A Culture of Independence"
- ➢Our role in opioid addiction crisis is

  "Primary Prevention".
- ➢May be first to prescribe to adolescents.

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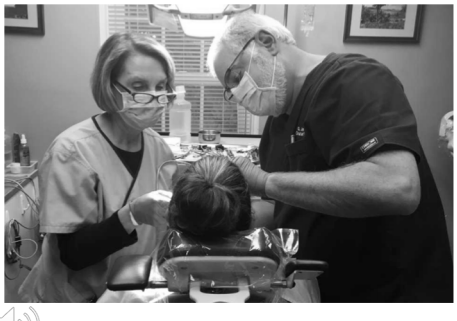
NPR: Audio from WHYY Radio



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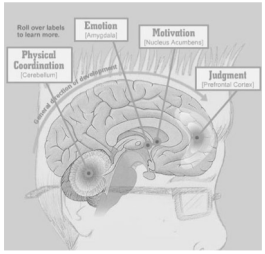
Developing Adolescent Brain

Balance between pleasure center (Nucleus Acumbens) and judgement center (Prefrontal Cortex) is not completely developed until 20-25 years of age.



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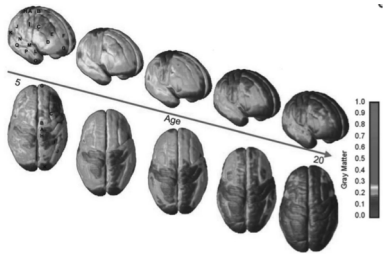
Developing Adolescent Brain

Prefrontal Cortex is not completely developed until 20-25 years of age.



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Monitoring the Future

- Data come from the Monitoring the Future study, University of Michigan.
- Nationally representative sample of 6,220 individuals surveyed in high school in 12th grade
- Followed up through age 23. Analyses are stratified by predicted future opioid misuse as measured in 12th grade on the basis of known risk factors. The main outcome is nonmedical use of a prescription opioid at ages 19 to 23. Predictors include use of a legitimate prescription by 12th grade, as well as baseline history of drug use and baseline attitudes toward illegal drug use.
- **RESULTS:** Legitimate opioid use before high school graduation is independently associated with a 33% increase in the risk of future opioid misuse after high school.

Richard Miech, Lloyd Johnston, Patrick M. O'Malley, Katherine M. Keyes, Kennon Heard Prescription Opioids in Adolescence and Future Opioid Misuse. Pediatrics 2017;139(6)

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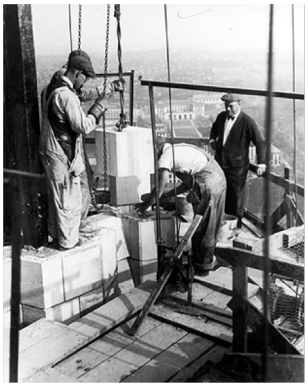
Frank E. Bingaman



http://www.carnegielibrary.org/exhibit/photog.html

Comprehensive National Survey

- Random national sample
- Current practicing OMFS
- 3rd molar extractions
- Pain control practices

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Questionnaire Design

- Random national sample of 850 currently active practicing oral and maxillofacial in U.S. (5,542)*
- Survey included practitioners from 8 geographic census regions.
- Questionnaire designed with expert panel and pilot testing.
- Initial and two follow-up mailings.

*ADA Survey Center's Distribution of Dentists in the United States by Region and State, 2000.

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U.S. Anesthesia Practices: Summary

- ✓ 3.5 million surgery cases/year
- ✓ 2.8 million required General Anesthesia or Deep Sedation.
- ✓ US Census: 3.8 million per year age.

Moore PA, Nahouraii HS, Zovko J, Wisniewski SR. Dental therapeutic practice patterns in the U.S. II. Analgesics, corticosteroids, and antibiotics. *Gen Dent 2006;54(3):201-207.*

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Peripherally-Acting Analgesics

"Please complete the following prescription for the **peripherally-analgesic** you have recommended most often in the past month."

Ibuprofen (Advil, Motrin)	73.5% (312)
Rofecoxib (Vioxx)	6.1% (26)
Naproxen (Aleve, Naproxen)	4.9% (21)
Etolorac (Lodine)	4.5% (19)
Ketorolac (Toradol)	2.3% (10)
Valdecoxib (Bextra)	1.9% (8)
Acetaminophen (Tylenol)	1.7% (7)

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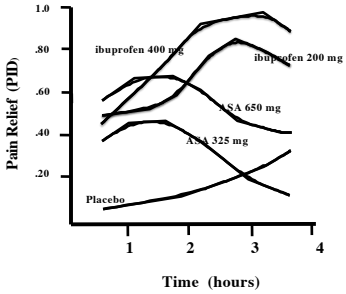
Ibuprofen



randomized
double-blind
clinical trial
3rd molar extractions
192 subjects

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Ibuprofen vs APAP

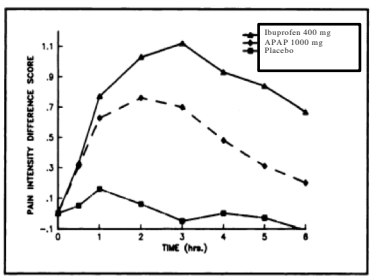

Figure 1. Mean pain intensity difference scores vs time. Pain intensity was rated on a scale of 0 = none to 3 = severe.

Cooper SA et al.: J Clin Pharmacol 1989 29:1026

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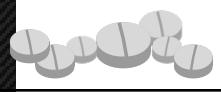
Centrally-Acting Analgesics

"What percentage of patients do you prescribe **centrally-acting analgesics (narcotic)** following third molar extractions? "

Rarely (1-20%)	2.9%
Sometimes (21-40%)	1.5%
Half the time (41-60%)	1.9%
Often (61-80%)	8.6%
Almost always (81-100%)	85.1%



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Preferred Centrally-Acting Analgesics

"Please complete the following prescription for the **centrally-acting analgesic** you prescribed most often in the past month."

Hydrocodone / APAP	64.0%
Oxycodone / APAP	20.2%
Hydrocodone / ibuprofen	4.6%
Codeine / APAP	4.3%
Promethazine / meperidine	3.7%
Propoxyphene / APAP	1.2%

Moore PA, Nahouraii HS, Zovko J, Wisniewski SR. Dental therapeutic practice patterns in the U.S. II. Analgesics, corticosteroids, and antibiotics. *Gen Dent 2006;54(3):201-207.*

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Centrally-Acting Analgesics: South Carolina

South Carolina PDMP 2012-2013 by Dentists.
653,650 opioid prescriptions.
99.9% were for immediate release formulations.
People younger than 21 year was 11.2%.
Refills represent only 3.8%.

Hydrocodone / APAP	76.1%
Oxycodone / APAP	12.2%
Codeine / APAP	6.8%
Hydrocodone / ibuprofen	3.0%
Meperidine	1.2%

MacCauley JL et al, JADA 2016

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Top Prescription in US

	2011	2012	2013	2014	2015
Total*	4,014	4,155	4,236	4,325	4,368
1. levothyroxine	105	112	117	120	121
2. lisinopril (Zestril® and Prinivi®)	89	99	102	104	106
3. APAP/hydrocodone (Vicodin®, Norco® and Lorcet®)	137	136	129	119	97

*millions of prescriptions

Medicines Use and Spending in the U.S.
IMS Institute for Healthcare Informatics, April 2016.

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Summary: Analgesics

- OMFS's prescribe opioid analgesic almost always (85%) following third molar extraction surgery.
- Hydrocodone /APAP is the preferred combination analgesics. (efficacy, flexibility, marketing, side effects?)
- Instructions recommend "take as needed for pain" by 96% OMFS.
- Median dispensing of hydrocodone/APAP: 20 tabs (range 8-40).

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Prescribing vs Utilization

- 1.7 million patients prescribed opioids following third molar extractions.
- The median milligrams of morphine equivalents was 120 MME's.
- This represents:
  - 24 tablets of hydrocodone 5 mg (Vicodin)
  - 16 tablets of oxycodone 5 mg (Percocet).

Opioid Prescribing After Surgical Extraction of Teeth in Medicaid Patients, 2000–2010
James A. Baker JA et al. JAMA 2016.

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Prescribing vs Utilization

- Forty-eight patient interviews (1-day, 7-days).
- Age: 18.8 yrs (15-30)
- Female = 22 / Males =13
- 20 Vicodin® prescribed
- 12 (60%) pills unused at 7-days.
- Nausea/vomiting at 7-days interview: 24%.

"Postoperative Pain, Prescription Analgesic Use, and Complications Following Third Molar Extractions" . Welland B. et al. Compend Cont Dent Ed, 2015

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Prescribing vs Utilization

- One hundred and five patients (7-day follow-up).
- Age: 25.2 yrs (±8.91)
- Female = 58 / Males =47
- 18 pills of Oxycodone IR ®, Vicodin® or Percocet® prescribed.
- 10.6 pills (62%) unused at 7-days.
- Less with antibiotics, females and ibuprofen.

"How Many Opioid Pills do Patients Require following Third Molar Extractions with IVS" Lahey ET, et al. J Oral Max Surgery 2017.

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Prescribing vs Utilization

- Seventy-nine patients filled prescriptions following third molar extractions.
- Patients received 28 opioid pills.
- Seven patients did not fill the prescription.
- 15 pills (54%) unused after 21 days.

Unused opioid analgesics and drug disposal following outpatient dental surgery: A randomized controlled trial. Maugham BC et al. Drug and Alcohol Dependence. 2016

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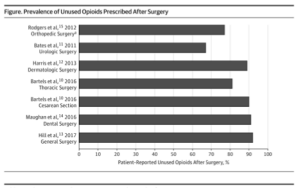
Excess opioid prescribing after surgery

- Patients report excess opioid analgesics (OAs) after surgery[1-3]
  - Leftover supply affords opportunity for unintended use, misuse, abuse, overdose or diversion
  - Can "refilling" behavior in claims inform appropriate dispensing?



FDA

[1] *Bicket et al. JAMA Surg. 2017 Nov 1;152(11):1066-1071.*
[2] *Hill et al. Ann Surg. 2017 Apr;265(4):709-714.*
[3] *Hill et al. J Am Coll Surg. 2018 Jun;226(6):946-1003..*

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Luke Swank

http://www.cmoa.org/searchcollections/imageview.

National Issues in Opioid Therapeutics

- ✓ Expand take-back programs.
- ✓ Educational requirements for DEA registration and State licensure.
- ✓ REMS: Risk Evaluation and Mitigation Strategies.
- ✓ Expand dental school accreditation curriculums in anesthesia and pain control (CODA).
- ✓ PDMPs: State sponsored electronic prescription drug monitoring programs.
- ✓ Revise opioid formulation DEA scheduling.

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Definition of Controlled Substance Schedules

Schedule I High abuse potential, no acceptable medical use.
Examples: heroin, LSD, peyote, marijuana

Schedule II High abuse potential, may lead to severe dependence
Examples: codeine, morphine, cocaine, amphetamines, fentanyl, meperidine, oxycodone (Percocet®, Oxycontin®), APAP/hydrocodone (Vicodin®)

Schedule III Less abuse potential, risk of moderate dependence
Examples: ASA/codeine, APAP/codeine

Schedule IV Low abuse potential
Examples: barbiturates, alprazolam (Xanax®), carisoprodol (Soma®), triazolam (Halcion®), tramadol(Ultram®)

Schedule V Abuse potential less IV, limited amount of narcotics
Examples: Cough prep. with codeine (Robitussin AC®)

http://www.deadiversion.usdoj.gov/schedules/index.html#list

Food and Drug Administration: FDA

- Labeling: Black Box Warnings
- REMS for extended release opioids
- Narcan Formulations
- Limits to advertising

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PA State: Act 126

- Act 126: Prescribing to minors requires signed consent and limits to seven days, discuees risks of addiction and overdose.
- Act 125: Required curriculum for medical/dental schools. Licensure renewal requires two hours of CE.
- Act 124: requires a check of the PDMP for every prescription of an opioid or benzodiazepine. Dispenser input required within 24 hours.
- Act 122: Emergency departments limit to seven day prescriptions of opioids.
- No early refills.
- Act 123: Broadens drop-off locations to include pharmacies.

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PA Consent Info. For Minors

(i) The risks of addiction and overdose associated with the controlled substance containing an opioid.

(ii) The increased risk of addiction to controlled substances to individuals suffering from mental or substance use disorders.

(iii) The dangers of taking a controlled substance containing an opioid with benzodiazepines, alcohol or other central nervous system depressants.

(iv) Any other information in the patient counseling information section of the labeling for controlled substances containing an opioid that I deemed necessary.

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New York Mandatory PDMP

Prescription Drug Monitoring Programs (PDMPs) have dramatically decreased "doctor shopping".

New York State instituted a mandatory PDMP program for prescribing opioid analgesics in 2014.

Assessing the impact of the program within a dental urgent care center, during a three month period, investigators found a 78% reduction in the quantity of opioid pills.

Rasubala l, Pernapati L, Velasquez X, Burk j and Ren YF. Impact of a Mandatory Prescription Drug Monitoring Program on Prescription of Opioid Analgesics by Dentist. PLoS ONE 10(8): e0135957. Doii:10.1371/journal.pone

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CDC Guidelines for Opioids in Chronic Pain

The CDC expert panel recognized that long-term opioid use often begins with treatment of acute pain.

"Three days or less will often be sufficient; more than seven days will rarely be needed."

Extended release and long-acting opioids, such as methadone, fentanyl patches, or extended release versions of opioids such as oxycodone, oxymorphone, or morphine, should not be prescribed for the treatment of acute pain.

Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain - United States, 2016. MMWR Recomm Rep 2016;65:1–49.

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ADA Advocacy and Education

- ✓PCSS-O Webinars (2012-2017)
- ✓Leadership for the National Opioid Agenda
- ✓Continuing Education Programs
- ✓CDP Wellness Committee
- ✓Current ADA Journal Articles
- ✓Revised ADA Opioid Statement, 2016
- ✓Updated Policy in 2018.

ada.org for "opioid advocacy"

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ADA Statement for Opioids in Acute Pain 2016

The American Dental Association revised its statement on the Use of Opioids in the Treatment of Dental Pain.*

"Dentists should consider nonsteroidal anti-inflammatory analgesics (NSAIDs) as the first-line therapy for acute pain management.

*Adopted by the House of Delegates 2016

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ADA Statement for Opioids in Acute Pain 2016

The American Dental Association revised its statement on the Use of Opioids in the Treatment of Dental Pain.*

"Dentists should consider coordination with other treating doctors, including pain specialists when prescribing opioids for management of chronic orofacial pain."

*Adopted by the House of Delegates 2016. Available at ADA.org

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ADA Policy on Opioid Prescribing: March 26, 2018

1. Continuing Education

"The ADA supports mandatory continuing education in prescribing opioids and other controlled substances."

2. Dosage and Duration

"The ADA supports statutory limits on opioid dosage and duration of no more than seven days for the treatment of acute pain, consistent with the Centers for Disease Control and Prevention evidence-based guidelines."

3. Prescription Drug Monitoring

"The ADA supports dentists registering with and utilizing Prescription Drug Monitoring Programs (PDMPs) to promote the appropriate use of opioids and deter misuse and abuse."

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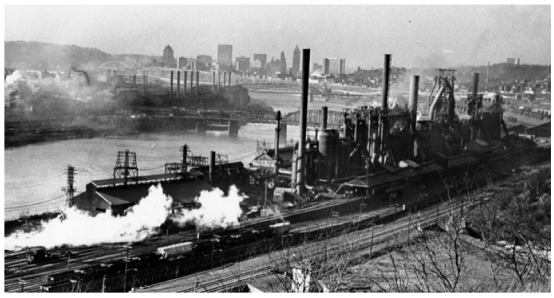
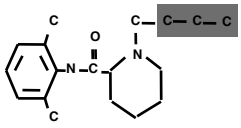
Southside & Hazelwood 1967



http://pgdigs.tumblr.com/

Bupivacaine



- Marketed as Marcaine® and Vivacaine®
- Provides prolonged duration of soft tissue anesthesia to delay the postoperative pain (6-8 hours).
- 0.5% bupivacaine, 1:200,000 epinephrine.
- Onset time is longer (8 min. vs 4 min.) than other LA drugs b/c of elevated pKa
- Long duration due to binding to tissue proteins.

Paul A. Moore

Local Anesthetics for Oral Surgery

"Which one of the following local anesthetics do you administer most frequently for anesthesia when extracting third molars?"

Local Anesthetic Formulation	Frequency
2% lidocaine, 1:100,000 epinephrine	70.4%
0.5% bupivacaine, 1:200,000 epinephrine	11.3%
4% articaine, 1:100,000 epinephrine	7.3%
4% prilocaine, 1:200,000 epinephrine	3.1%
2% mepivacaine, 1:20,000 levonordefrin	1.9%
2% lidocaine, 1:50,000 epinephrine	1.8%
3% mepivacaine	0.7%
1.5% etiodocaine, 1:200,000 epinephrine	0.5%
4% prilocaine	0.2%
Do not use local anesthetics	2.8%

Moore PA, Nahouraii HS, Zovko J, Wisniewski SR. Gen Dent 2006; 54(2):92-98.

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Long-Acting Local Anesthetics

"How often do you use long-acting local anesthetics to manage the post-operative pain of third molar extractions? **Check ONE box**"

Never	20.2%
Rarely	19.6%
Sometimes	8.0%
Half the time	5.7%
Often	10.6%
Almost always	35.8%

"95% of OMFS selected 0.5% bupivacaine, 1:200,000 epinephrine"

Moore PA, Nahouraii HS, Zovko J, Wisniewski SR. Gen Dent 2006; 54(2):92-98.

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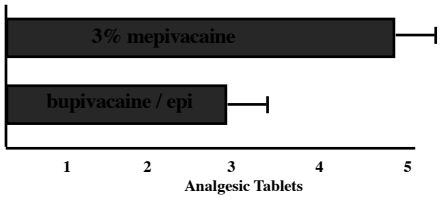
Post-Extraction Pain

0.5% Marcaine

Analgesics Following Third Molar Extractions



Trieger N and Gillen GH. Anesth Prog 20:23-27, 1979.

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Ibuprofen Pretreatment

Pretreatment	Pain onset (min)	Severity: Severe	Moderate	Mild
Placebo	**137 ± 8**	**16**	**29**	**0**
Ibuprofen	**238 ± 20**	**8**	**34**	**3**

Dionne and Cooper; Oral Surg 45:851

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Corticosteroid Use: 3rd molars

"How often do you use corticosteroids as part of your post-operative management?"

Never	20.0%
Rarely	7.9%
Sometimes	6.2%
Half the time	5.1%
Often	22.8%
Almost always	38.0%

"90.2% of OMFS selected dexamethasone"

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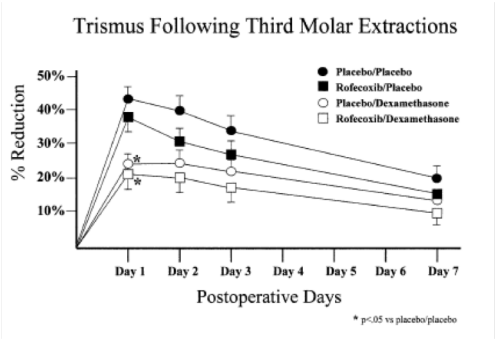
Dexamethasone and Third Molar Surgery



Moore PA, Brar P, Smiga ER, Costello BJ: Prevention of Pain and Trismus Following Third Molar Surgery: Rofecoxib vs. Dexamethasone. OOO 2005;99(2) E1-E7.

Supplemental Postoperative Pain Management

- ✓Ice, soft diet and rest.
- ✓Long-acting local anesthetics i.e. Marcaine
- ✓Primary reliance on NSAIDs (ibuprofen, naproxen) when managing dental postoperative pain.
- ✓Steroids (dexamethasone) as an anti-inflammatory agents limit trismus and swelling.
- ✓Use of NSAID's pre-emptively.

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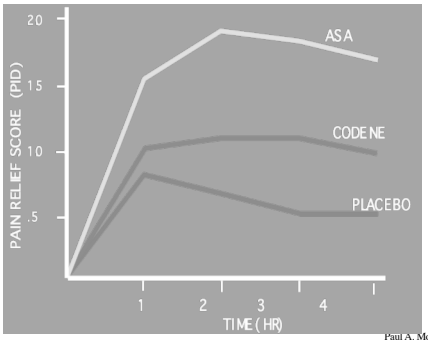
Steeler Cheerleaders-1961

http://pgdigs.tumblr.com/

ASA vs. Codeine vs. Placebo



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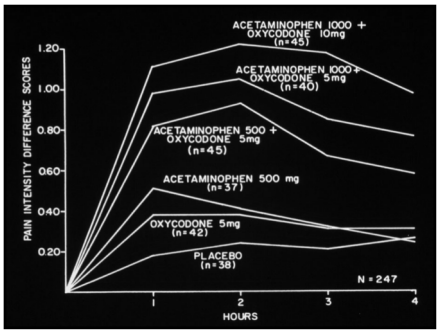
Oral Surgery Model: Opioid Combinations



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OTC Analgesic Comparisons

	Aspirin	Acetaminophen	Ibuprofen
Analgesic	+++	+++	++++
Antipyretic	+++	+++	+++
Anti-inflammatory	+++	+	+++

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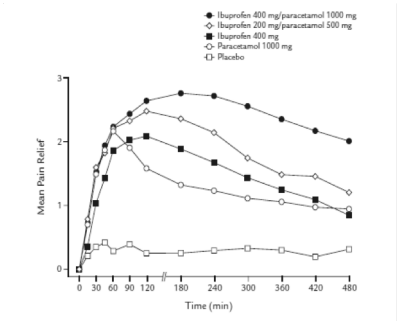
Ibuprofen and APAP



Paracetamol is acetaminophen (Tylenol)

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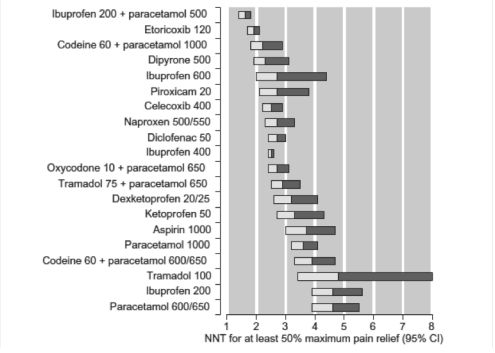
NNTs for Analgesic Agents



NNTs for Dental Analgesics

Drug Formulation	Trials/Subjects	NNT (C.I.)
Aspirin 600/650 mg	45/3581	4.5 (4.0-5.0)
Aspirin 1,000 mg	4/436	4.2 (3.2-6.0)
Acetaminophen 1,000 mg	19/2157	3.2 (2.9-3.6)
Ibuprofen 200 mg	18/2470	2.7 (2.5-3.0)
Celecoxib 400 mg	4/620	2.5 (2.2-2.9)
Ibuprofen 400 mg	49/5428	2.3 (2.2-2.4)
Oxycodone 10 mg plus Acetaminophen 650 mg	6/673	2.3 (2.0-6.4)
Codeine 60 mg plus APAP 1000 mg	26/2295	2.2 (1.8-2.9)
Naproxen 500/550 mg	5/402	1.8 (1.6-2.1)
Ibuprofen 200 mg plus Acetaminophen 500 mg	2/280	1.6 (1.4-1.8)

Benefits and harms associated with analgesic medications used in the management of acute dental pain: An overview of systematic reviews. J Am Dent Assoc. 2018:149(4):256-268.

Stepwise Guidelines

Mild Pain
Ibuprofen 200-400 mg
q 4-6 hours: as needed (p.r.n.) pain

Mild-Moderate Pain
Ibuprofen 400-600 mg
q 4-6 hours: fixed interval for 24 hours

Moderate - Severe Pain
Ibuprofen 400-600 mg plus APAP 500 mg
q 6 hours: fixed interval for 24 hours

Severe Pain
Ibuprofen 400 mg plus APAP 650/hydrocodone 10 mg
q 6 hours: fixed interval for 24-48 hours

Moore PA and Hersh EV. Combining Ibuprofen and Acetaminophen for Acute Postoperative Pain Management: Translating Clinical Research to Dental Practice. J Am Dent Assoc 2013;144(8):898-908.

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Ibuprofen + APAP Emergency Room

- 416 patients going to the ER at Montefiore Medical Center.
- Acute extremity pain from bone fractures, dislocated shoulders, sprained ankles, and other injuries or conditions.
- Four groups:
  - non-opioid group:
    - 400 mg ibuprofen and 1,000 mg acetaminophen.
  - opioid groups
    - 5 mg of oxycodone /325 mg of acetaminophen
    - 5 mg of hydrocodone and 300 mg of acetaminophen,
    - 30 mg of codeine and 300 mg of acetaminophen.
- Initial pain score of 8.7/10
- Pain scores fell over the two hours:
  - 4.3 in the ibuprofen and acetaminophen group,
  - 4.4 in the oxycodone and acetaminophen group,
  - 3.5 in the hydrocodone and acetaminophen group,
  - 3.9 in the codeine and acetaminophen group.

Chang et al. JAMA 2017

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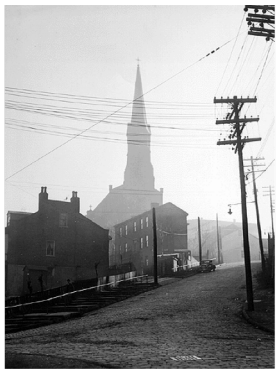
Luke Swank



Checklist: Opioid-Sparing Strategies

- ✓ Preventive NSAIDs (naproxen sodium 550 mg, or ibuprofen 600 mg)
- ✓ Long-acting local anesthesia/analgesia: 0.5% bupivacaine with 1:200,000 epinephrine.
- ✓ Corticosteroids (dexamethasone 8 mg i.m. or i.v.)
- ✓ Reliance on NSAIDs analgesics as the first-line of therapy. (ADA)
- ✓ Consider the combination of ibuprofen (400 mg) and acetaminophen (500 mg) as an opioid alternative.
- ✓ A two or three day supply of opioids analgesics is usually sufficient. (CDC)

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Provider Issues with Opioid Therapy

- ✓ Drug use and abuse histories of patient and family.
- ✓ Consider risks regarding patient's mental health.
- ✓ Use State's PDMP
- ✓ Determine potential drug interactions re. opioids.
- ✓ Limiting prescriptions with fewer units of opioids. (No refills, 8 units?, 20 units?, 40 units?)
- ✓ Counsel patients of expectations and dangers.

This may be our most important "teaching opportunity for first time users of anesthetics and analgesic drugs"

Paul A. Moore

Patient Issues with Opioid Therapy

- ✓ Re-enforce parent's responsibility as the "gatekeeper" to monitor pain and analgesia needs.
- ✓ Prepare for patients for possible ADR's i.e. nausea, vomiting, and constipation.
- ✓ Understand the potential of opioid prescriptions for drug misuse, abuse and addiction, particularly with young adults.
- ✓ Recommend strategies to secure prescriptions.
- ✓ Indicate local DEA drug take-back programs.
- ✓ Describe procedures for disposal of unused drug.

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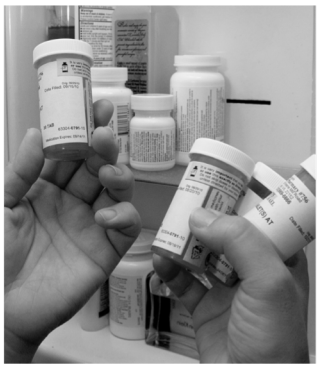

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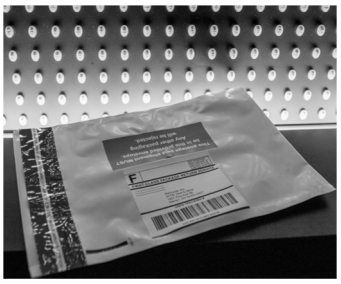

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Disposal of Prescription Drugs

Take them out of their original containers and mix them with an undesirable substance, such as used coffee grounds or kitty litter. The medication will be less appealing to children and pets, and unrecognizable to people who may intentionally go through your trash. Put them in a sealable bag, empty can, or other container to prevent the medication from leaking or breaking out of a garbage bag.

- Cat litter
- Coffee grinds
- Take back programs
- Flush it done!

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Prescription Drug Disposal: Flushing

Fentanyl: Duragesic, patch (extended release)
Methylphenidate
Meperidine: Demerol, tablets
Diazepam
Hydromorphone HCl: Dilaudid, tablets, oral liquid
Methadone: Dolophine Hydrochloride, tablets
Morphine: Embeda, capsules (extended release)
Hydromorphone Hydrochloride
Methadose, tablets
Morphine Sulfate, tablets (immediate release)
Oxycontin, tablets
Percocet, tablets & Percodan, tablets

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Thankyou for your attention

Aaron Huey, NatGeo Photographer

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