

Acute Dental Pain Management & the National Opioid Crisis



VS.



The Cost of the Opioid Crisis, The New Yorker, Sept. 18, 2017

OBJECTIVES

1. Understand how dentists have historically contributed to the opioid crisis and why HOPE participation by dentists is critical
2. Know that opioids are no longer a first line medication to address dental pain
3. Know how to utilize IHS resources to more appropriately prescribe pain medications (EHR, medical staff, guidelines, etc.)

PSYCHOLOGY OF PRESCRIBING



ADA Survey Center (2004) – survey of 563 OMFS *Prescribing Practices After 3rd Molar Extractions*

- 73.5% of OMFS said the most preferable post-operative pain reliever was ibuprofen
- 85% of OMFS said they almost always prescribed an opioid
- 64% of OMFS said the opioid of choice was hydrocodone with acetaminophen (Vicodin) – average of 20 tabs.

→ ***“Why do we prescribe Vicodin?” -- editorial in JADA, Oct. 2016***

DENTAL RX MISUSE & DIVERSION

- > ½ of opioids prescribed after dental surgeries are not used by patients for dental pain⁴
- **38%** of dental patients at a dental school clinic reported some form of non-medical use of prescription opioids
- **6.5%** of these respondents reported diverting their unused opioids⁵

→ DDS PRESCRIPTIONS RESULT IN OPIOIDS FOR MISUSE

4. Maughan BC, Hersh EV, et al. Unused opioid analgesics and drug disposal following outpatient dental surgery: a randomized controlled trial. Drug and Alcohol Dependence. 2016. 168:328-34.

5. Ashrafioun L, Edwards PC, Bohnert AS, et al. Nonmedical use of pain medications in dental patients. Am J Drug Alcohol Abuse. 2014;40:312–316.

Opioid-Prescribing Rates by Specialty, IMS Health, U.S., 2012

Specialty	Opioid Rx <i>n</i> , millions (%)	Total Rx <i>n</i> , millions (%)	Opioid Rx/Total Rx %
Family practice	52.5 (18.2)	946.9 (22.3)	5.6
Internal medicine	43.6(15.1)	913.9 (21.5)	4.8
Non-physician prescriber ^a	32.2 (11.2)	447.3 (10.5)	7.2
General practice ^b	32.2 (11.2)	431.2 (10.1)	7.5
Surgery ^c	28.3 (9.8)	77.6 (1.8)	36.5
Dentistry	18.5 (6.4)	64.0 (1.5)	29.0
Pain medicine ^d	14.5 (5.0)	29.8 (0.7)	48.6
Emergency medicine	12.5 (4.3)	60.5 (1.4)	20.7
Physical med and rehab	9.3 (3.2)	26.1 (0.6)	35.5
All Others ^e	45.3 (15.7)	1251.5 (29.5)	3.6
Total	289.0 (100.0)	4248.7 (100.0)	6.8

[View Table in HTML](#)

^a Non-physician prescriber: nurse practitioner and physician's assistant.

^b General practice: osteopathic medicine, general practice, and preventive medicine.

^c Surgery: general, orthopedic, plastic, cardiothoracic, vascular, colorectal, spinal, and neurologic.

^d Pain medicine: anesthesiology and pain medicine.

^e All others: cardiology, critical care, dermatology, endocrinology, gastroenterology, geriatrics, hematology, infectious disease, neurology, obstetrics and gynecology, oncology, otolaryngology, palliative care, pathology, pediatrics, podiatry, psychiatry, pulmonology, radiology, rheumatology, urology, veterinary, and "unspecified" specialty types. Rx, prescriptions.

NUMBERS OF OPIOID RX

From 2007-2012, dentists ranked 4th in prescribers of opioids.

From: *Trends in Opioid Analgesic—Prescribing Rates by Specialty, U.S., 2007–2012* -- *American Journal of Preventive Medicine* -- Sept. 2016.

- 2000-2009, DDS prescribed **8%** of the ***overall*** opioid prescriptions in the U.S. (18 million opioid prescriptions a year) and were **2nd** only to PCP as opioid prescribers¹
- 2000–2009, DDS prescribed **12.2%** of all ***immediate-release opioids*** (*for comparison, family physicians prescribed 15%*)²
- 2012, DDS dropped from **2nd** most prevalent prescriber of opioids to the **5th** with **6.4%** of ***overall*** opioid prescriptions, but still prescribed 18.5 million opioid prescriptions in 2012³

→ **DDS PRESCRIBE A LOT OF OPIOIDS**



1. Governale L. Outpatient Prescription Opioid Utilization in the US, Years 2000–2009. 2010.

2. Golubic et al. Opioid Prescribing in Dentistry. Compend CE Dent, 2011

3. Levy B, Paulozzi L, Mack KA, Jones CM. Trends in Opioid Analgesic-Prescribing Rates by Specialty, U.S., 2007-2012. Am J PrevMed. 2015 Sep;49(3):409-13.

PATIENT'S FIRST EXPOSURE TO OPIOIDS

- 5 million people per year undergo 3rd molar extraction⁶
- This results in **~3.5 million** young adults being exposed to opioid pain medications each year⁷
- Average age of patients receiving opioids for 3rd molar extractions is **14-24 years old**^{8,9}, with a mean **age of 20**^{10,11}
- **Age 20** is also the average age at which people try using an opioid non-medically for the first time^{10,11}

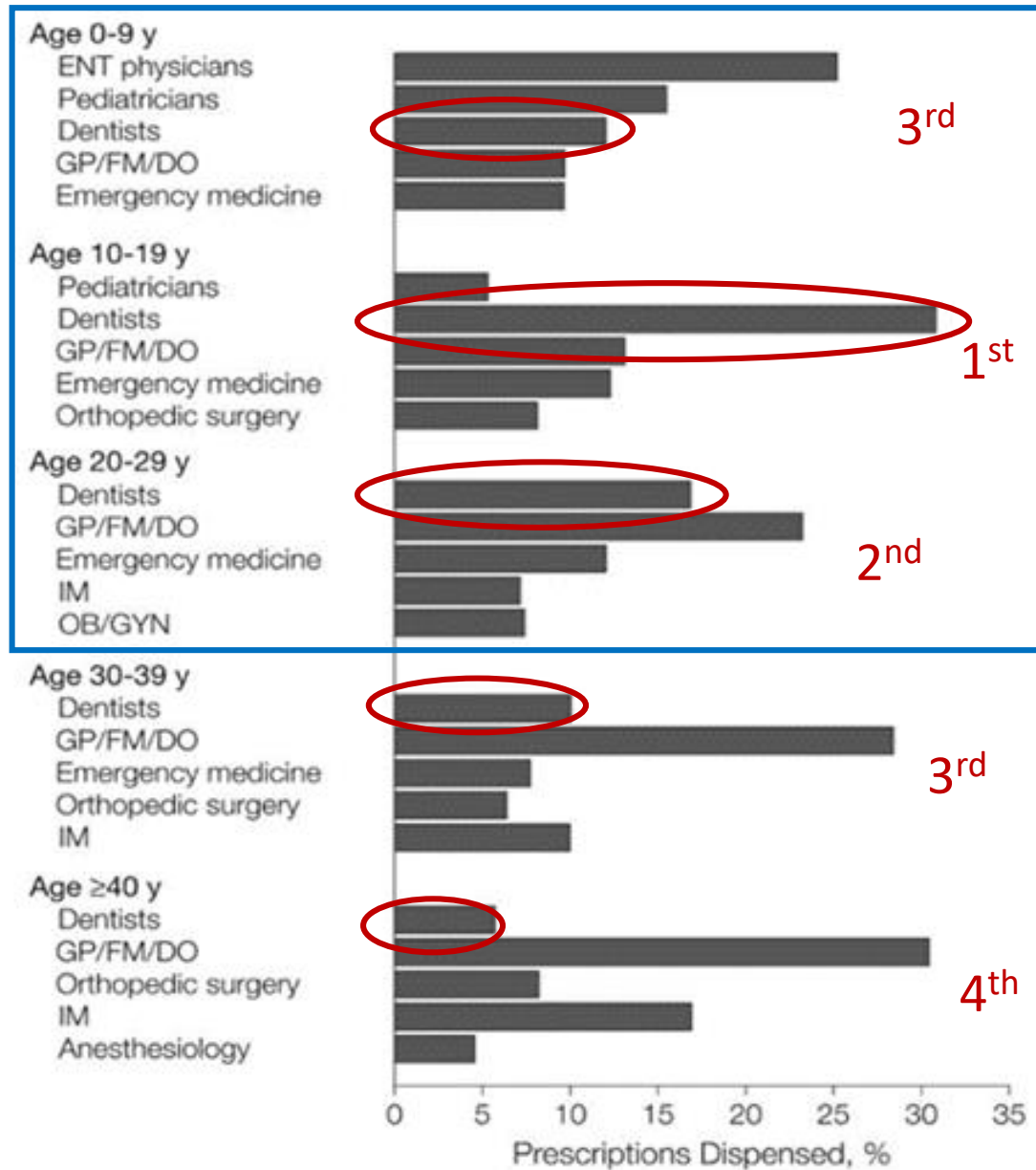
- OMFS in U.S. reported most commonly prescribing Vicodin, on average **20 tablets**, after third molar extractions¹²

→ **3rd MOLAR EXTRACTIONS ARE OFTEN A PATIENT'S 1ST INTRODUCTION TO AN OPIOID**



6. Becker DE. Pain management: Part 1: Managing acute and postoperative dental pain. *Anesthesia progress* 2010; 57:67-78; quiz 9-80.
7. Friedman JW. The prophylactic extraction of third molars: a public health hazard. *Am J Public Health*. 2007;97:1554–1559.
8. McCabe SE, West BT, Boyd CJ. Leftover prescription opioids and nonmedical use among high school seniors: a multi-cohort national study. *Journal of Adolescent Health* 2013;52:480-5.
9. Miech R, Johnston L, O'Malley PM, Keyes KM, Heard K. Prescription opioids in adolescence and future opioid misuse. *Pediatrics*. 2015:1364.
10. Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Summary of National Findings. Rockville, Md.: U.S. Department of Health and Human Services; 2010:89-94. National Survey on Drug Use and Health series H-38A, HHS publication SMA 10-4486 Findings. Results from the 2009 National Survey on Drug Use and Health; vol 1.
11. Snyder M, Shugars DA, White RP, Phillips C. Pain medication as an indicator of interference with lifestyle and oral function during recovery after third molar surgery. *J Oral Maxillofacial Surg* 2005;63(8): 1130-1137.
12. Richard C. Denisco, MD, MPH; George A. Kenna, PhD, RPh; Michael G. O'Neil, PharmD; Ronald J. Kulich, PhD; Paul A. Moore, DMD, PhD, MPH; William T. Kane, DDS, MBA; Noshir R. Mehta, DMD, MDS, MS; Elliot V. Hersh, DMD, MS, PhD; Nathaniel P. Katz, MD, MS. Prevention of prescription opioid abuse: The role of the dentist. *Journal of the American Dental Association (JADA)*. July, 2011. 142(7): 800-810.

AGES OF PATIENTS RECEIVING DENTAL OPIOID RX



Percentage of Prescriptions Dispensed for Opioid Analgesics from Outpatient US Retail Pharmacies **by Age** and Physician Specialty, 2009

From: *Characteristics of Opioid Prescriptions in 2009* – *Journal of American Medical Association* -- April, 2011

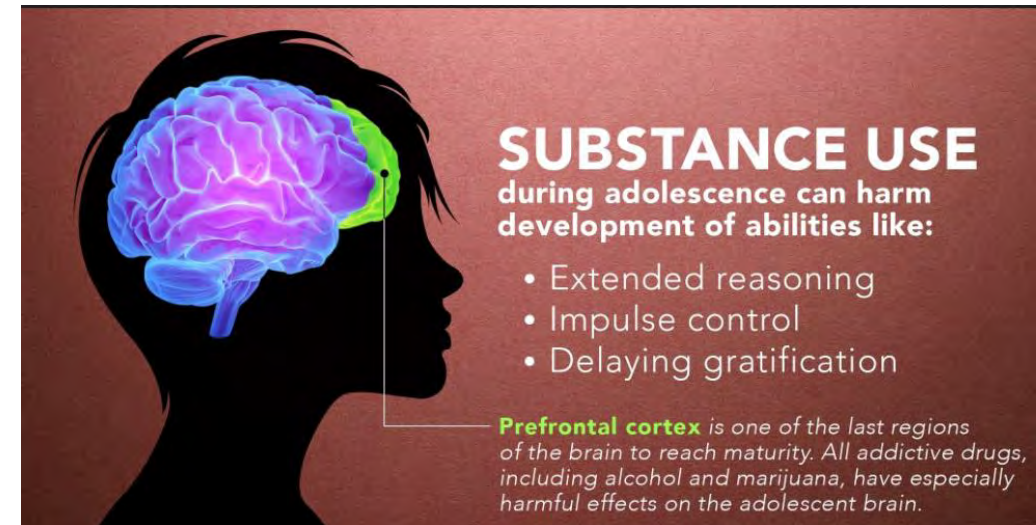
Brains don't fully develop until around age 25.

Opioid use in patients under the age of 25 can alter brain development and patients that have been exposed to opioids in adolescence are more likely to develop substance use disorders and addiction as adults.

13. Jenna L. McCauley, PhD, J. Madison Hyer, MS, V. Ramesh Ramakrishnan, PhD, Renata Leite, DDS, MS, Cathy L. Melvin, PhD, MPH, Roger B. Fillingim, PhD, Christie Frick, RPh, and Kathleen T. Brady, MD, PhD. Dental Opioid Prescribing and Multiple Opioid Prescriptions Among Dental Patients: Administrative data from the South Carolina Prescription Drug Monitoring Program. *J Am Dent Assoc.* 2016 Jul; 147(7): 537–544.

14. Nora D. Volkow, MD; Thomas A. McLellan, PhD; Jessica H. Cotto, MPH; Meena Karithanom, MPH; Susan R. B. Weiss, PhD; et al. Characteristics of Opioid Prescriptions in 2009. *JAMA.* 2011; 305 (13):1299-1301.

15. 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)



#FacingAddiction

- One study found that legitimate opioid use before high school graduation is independently associated with a **33%** increase in the risk of future opioid misuse by the **age of 23** among low risk individuals¹⁵.
- In South Carolina in 2012-2013, dentists prescribed **44.9%** of initial fill opioid prescriptions even though they made up only **8.9%** of unique prescribers¹³
- For patients **aged 10 to 19 years**, dentists are the main prescribers (**30.8%**) and patients **aged 10 to 29** are the most likely to abuse drugs and develop addiction¹⁴

→ DDS ARE ONE OF THE MOST LIKELY PROVIDERS TO PRESCRIBE AN OPIOID TO A PATIENT WHOSE BRAIN IS NOT FULLY DEVELOPED.

EXISTING EVIDENCE FOR ACUTE DENTAL PAIN RX

- Studies have found that NSAIDs taken after a dental procedure are at least as effective (or superior to) opioid analgesics for reducing frequency & intensity of acute dental pain¹⁶
- Studies have shown that NSAID + APAP are synergistic when combined and are more effective than opioids in treating dental pain¹⁷
- Dosing reductions (2013) of **APAP** in Hydrocodone + APAP formulations (*changed from 500/750 mg to 300/325 mg*), the amount of APAP as most commonly dosed (1 Vicodin q4-6h) is often suboptimal w/o NSAID¹⁸

16. Dionne RA, Gordon SM, Moore PA. Prescribing Opioid Analgesics for Acute Dental Pain: Time to Change Clinical Practices in Response to Evidence and Misperceptions. *Compendium of Continuing Education in Dentistry*. 2016;37:372.

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

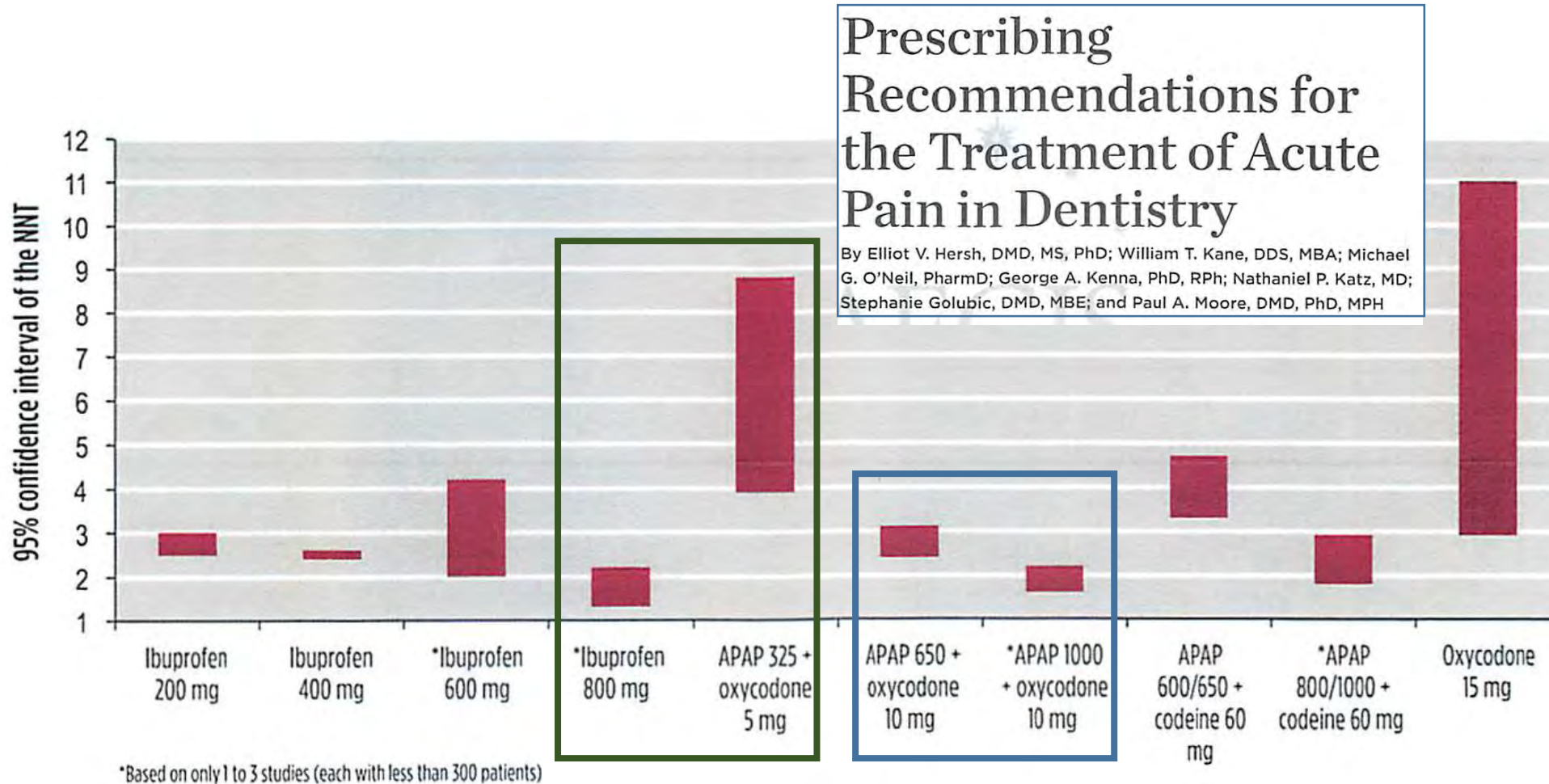
18. Moore PA, Dionne RA, Cooper SA, Hersh EV. Why do we prescribe Vicodin? *JADA* 10.2016;147(7):530-533.

For patients in the ED with acute extremity pain, no significant differences in pain reduction:

- Oxycodone 5mg + 325mg Acetaminophen (**4.4 pt. reduction**)
- Ibuprofen 400mg + 1,000mg Acetaminophen (**4.3 pt. reduction**)
- Codeine 30mg + 300mg Acetaminophen (**3.9 pt. reduction**)
- Hydrocodone 5mg + 300mg Acetaminophen (**3.5 pt. reduction**)

Pain re-accessed after 2 hours using 11-point numerical rating scale (NRS)¹⁹

NNT to achieve 50% pain reduction over 4-6 hrs.



From:
Compendium
 April 2011

➤ Publication was a collaboration of dentists, pharmacist, & a physician

Fig 2. The 95% confidence interval of the number needed to treat (NNT) for at least 50% pain relief over 4 to 6 hours compared with placebo in acute postoperative pain trials.^{19,38}

WHY RX OPIOIDS AT ALL IF THEY ARE LESS EFFECTIVE THAN NSAID + APAP?



- When NSAID may be contraindicated
 - allergies, kidney disease, some GI diseases, bleeding disorders, anticoagulant use, pregnancy, severe liver impairment (*most common reasons*)
- When anticipate severe pain and NSAID + Opioid / APAP indicated

CHALLENGES IN IHS

1. Addiction disproportionately affects people in poverty
2. Addiction is harder to kick in poverty
3. Medically compromised population / disease rates are higher
4. Highly medicated population
5. We do a lot of extractions that require pain management

OPPORTUNITIES IN IHS



UDS

- Can request a urinary drug screening if you are concerned that a patient may already be using an opioid, alcohol, etc. to more safely prescribe opioid
- Consider that some patients self-medicate when they are in pain



EHR

- Can make more informed decision about prescribing than just relying on patients to self-report in health history questionnaire (\rightarrow *HHQ + EHR*)
- EHR problem list isn't always accurate or complete (*much like HHQ*), but it often gives us the clues we need to f/u

IN-HOUSE PHARMACY / NURSES / PROVIDERS

- Your medical co-workers can help you when medical history or behavior gets complicated! They often know the patients better and can fill in gaps.
- Patients on chronic opioids generally have pain contracts → your facility will have policies about prescribing to these folks.
- Calling to inquire about labs is critical! EHR may say 'Kidney Disease' but you should call pharmacy / nursing and ask about renal labs for clarification. Sometimes diagnoses are outdated / wrong / missing. Often a patient had 1 high lab test 6 years ago (*that triggered a Dx*) but all labs since then are normal.....



CAC / IT can design an EHR dental health summary specific to your needs and can limit it to specific timeframes (for each category):

1. PCP
2. Allergies
3. Problem List (*diagnoses*)
4. Medications (*dispensed at SU pharmacy*)
5. Lab Results
6. Patient Postings (*warnings, pain contracts*)
7. Other requirements (*eligibility, demographics, insurance info., etc.*)

→ *generally only helpful if patient gets his/her medical treatment at your SU*

***** CONFIDENTIAL PATIENT INFORMATION -- 10/25/2018 10:24 AM [BILL] *****
***** ZANY,ADULTS #26572 <WAD> (PWH DENTAL SUMMARY) pg 1 *****

My Wellness Handout Report Date: Oct 25, 2018 Page: 1

ADDRESS, PHONE #, EMERGENCY CONTACT

----- My Insurance Coverage -----

----- DEMOGRAPHIC DATA -----

ELIGIBILITY, DOB, AGE, GENDER, PARENT'S NAMES, PCP

----- My Allergies -----

Allergies: PENICILLIN (verified) - HIVES, RASH
SULFASALAZINE (verified) -

Adverse Reactions: COMPAZINE (verified) - FACIAL DYSKINESIA, FEELING OF WARMTH
METFORMIN HYDROCHLORIDE (verified) - DELUSION

----- My Problem List -----

	ENT.	MODIFIED	
CL17	05/15/07	10/16/14	N18.3-Chronic kidney disease, stage 3 (moderate); Chronic kidney disease stage 3 (onset 05/15/07) (Status: CHRONIC)
CL19	10/31/07	10/31/07	.9999-UNCODED DIAGNOSIS; *Diabetic foot Ulcer R great toe, probable osteo, improved (onset 10/31/07) (Status: CHRONIC)
CL21	11/06/07	01/27/17	E11.40-Type 2 diabetes mellitus with diabetic neuropathy, unsp; Diabetic neuropathy (onset 11/06/07) (Status: CHRONIC)
CL58	01/27/17	01/27/17	279.01-Long term (current) use of anticoagulants; Anticoagulant drug monitoring Completes therapy on Dec 25 2017 (onset 01/01/17) (Status: CHRONIC)
CL59	04/24/17	09/07/17	J45.909-Unspecified asthma, uncomplicated; Asthma ASTHMA SEVERITY: 3-MODERATE PERSISTENT (Status: CHRONIC) Severity: 246112005 - Severity 371924009 - Moderate to severe
CL61	09/29/17	09/29/17	F11.10-Opioid abuse, uncomplicated; Opioid abuse (Status: CHRONIC)

----- My Medications (max 10 visits or 90 days) -----

09/13/18 TRUE METRIX TEST STRIPS #100 (20 days) (expires 9/13/2019)
USE 1 STRIP IN BLOOD GLUCOSE MONITOR AS DIRECTED 11 refills left.

08/10/18 ACETAMINOPHEN 325MG TAB #100 (10 days) (expires 8/20/2018)
TAKE 2 TABLET(S) BY MOUTH EVERY 4-6 HOURS IF NEEDED DO NOT USE IF TAKING VICODIN -NO MORE THAN 12 TABLETS PER DAY.

08/10/18 CRX HYDROCODONE/ACETAMINOPHEN 5 MG/325 MG TAB #2 (1 days) (expires 8/11/2018)
TAKE 1 TABLET BY MOUTH EVERY 4-6 HOURS IF NEEDED CAUTION: OPIOID. RISK OF OVERDOSE AND ADDICTION

----- My Vital Signs (max 2 visits or 45 days) -----

	HT	WT	BP	BMI	HRW	VU	VC
08/29/18	64	204	102/67	35.0	161		

----- My Lab Tests (max 3 visits or 90 days) -----

		08/30/18
HGB A1C	8.4	(08/30/18@08:24)
-INR	1.0	(08/30/18@08:23)
PREGNANCY TEST	POS	(08/30/18@08:24)
CREATININE (order creat (vit))	0.5	(09/11/18@08:59)
AST (vit)	37	(09/11/18@08:59)
ALT (vit)	64	(09/11/18@08:59)

EHR HANDOUT GIVES YOU INFO. YOU NEED TO CHOSE APPROPRIATE PAIN MEDICATION:

1. ALLERGIES / ADVERSE RXNS
2. LABS
3. DIAGNOSES
4. MEDICATIONS
5. PREGNANCY STATUS / BREAST FEEDING STATUS
6. BLOOD PRESSURE (HISTORIC)
7. COAGULATION STATUS (INR)
8. PRIMARY CARE PROVIDER

Make sure to ask if the patient also gets care or prescriptions elsewhere! Maybe they see a cardiologist or get some additional meds at an outside pharmacy (aren't available through IHS).

Establish working relationships with your pharmacy staff and don't be afraid to ask them for help with prescribing. They have more training & experience in medication contraindications, interactions, etc. They want to be asked BEFORE you send the patient down to the pharmacy to pick up a medication that is not appropriate. They don't want to be the person that says "NO" after-the-fact.

UTILIZE YOUR STATE'S PDMP / PMP

Minnesota Prescription Monitoring Program

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Recipient Query

Multiple State Query
Prescriber DEA Query
Search History Query

* Last Name :

* First Name :

Search Method :

* Date of Birth :

Within :

Gender :

* Dispensed Start Date :

* Dispensed End Date :

Preset Timeframe Ranges :

Alias #1

Last Name :

First Name :

Date of Birth :

*Required Field
All required fields must be filled in.

- You may be able to designate this to auxiliary staff or ask pharmacy to check it for you.
- Check for current / history of opioid prescriptions **BEFORE** you tell the patient what you are going to prescribe and **BEFORE** you send the patient down to the pharmacy to pick up their prescription.
- Strongly recommend this is documented in clinical notes.

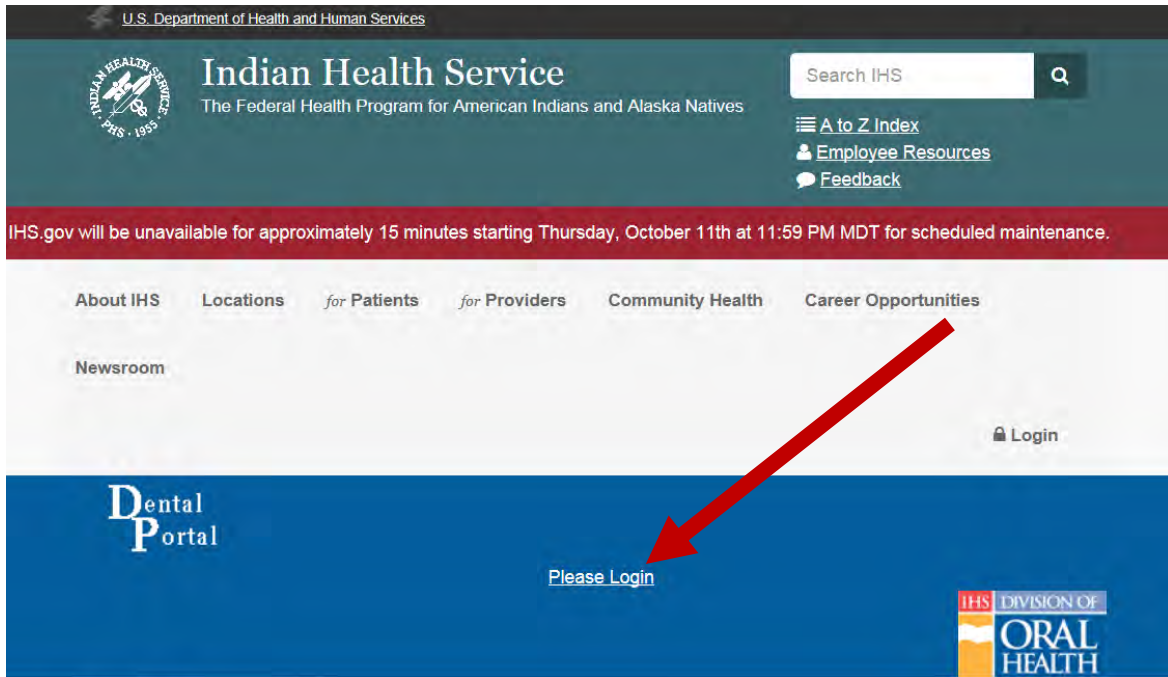
HOPE & DOH COLLABORATION ON DENTAL GUIDELINES

- Created by a workgroup composed of IHS dentists and pharmacists. Reviewed, revised, & approved by IHS oral surgeons, ADOs, DOH, and HOPE committee.
- Evidence-based → Developed utilizing literature review, ADA & state recommendations, Dental Management of the Medically Compromised Patient Textbook, and Drug Information Handbook for Dentistry.
- Tailored to IHS because it references medications / dosages on IHS formulary and includes our challenges & advantages

- Outlines general guidance for dental acute pain prescribing for adults
–general population
- Outlines general guidance for dental acute pain prescribing for adults
–medically compromised & special populations
- Includes pain management decision tree & info. on specific opioids and NSAIDs
- Recommends additional dental-specific resources on dental pain prescribing

→ Gives more specifics to assist with pain medication selection

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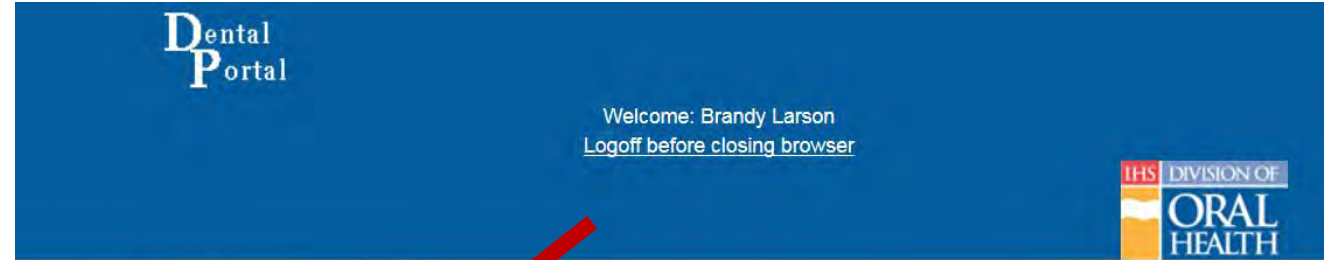
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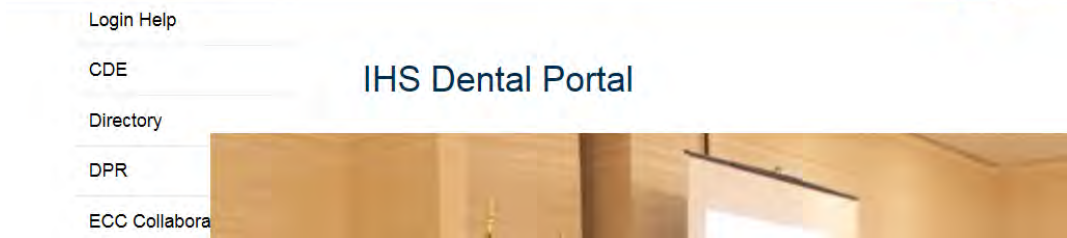
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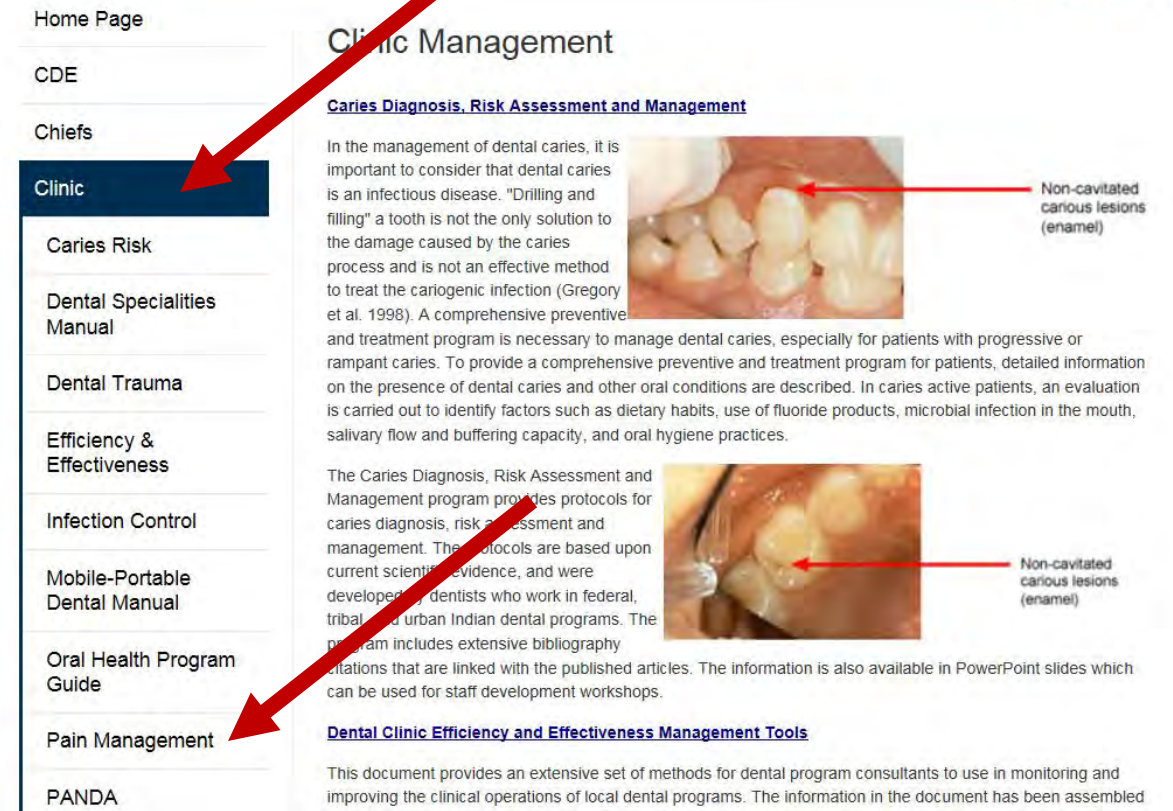

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IHS DIVISION OF ORAL HEALTH



IHS Dental Portal


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Clinic Management


Caries Diagnosis, Risk Assessment and Management

In the management of dental caries, it is important to consider that dental caries is an infectious disease. "Drilling and filling" a tooth is not the only solution to the damage caused by the caries process and is not an effective method to treat the cariogenic infection (Gregory et al. 1998). A comprehensive preventive and treatment program is necessary to manage dental caries, especially for patients with progressive or rampant caries. To provide a comprehensive preventive and treatment program for patients, detailed information on the presence of dental caries and other oral conditions are described. In caries active patients, an evaluation is carried out to identify factors such as dietary habits, use of fluoride products, microbial infection in the mouth, salivary flow and buffering capacity, and oral hygiene practices.



Non-cavitated carious lesions (enamel)

The Caries Diagnosis, Risk Assessment and Management program provides protocols for caries diagnosis, risk assessment and management. The protocols are based upon current scientific evidence, and were developed by dentists who work in federal, tribal and urban Indian dental programs. The program includes extensive bibliography citations that are linked with the published articles. The information is also available in PowerPoint slides which can be used for staff development workshops.



Non-cavitated carious lesions (enamel)

Dental Clinic Efficiency and Effectiveness Management Tools

This document provides an extensive set of methods for dental program consultants to use in monitoring and improving the clinical operations of local dental programs. The information in the document has been assembled

Home Page
CDE
Chiefs
Clinic
Caries Risk
Dental Specialties Manual
Dental Trauma
Efficiency & Effectiveness
Infection Control
Mobile-Portable Dental Manual
Oral Health Program Guide
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Home Page

CDE

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Pain Management

Below is information about the IHS Division of Oral Health's new dental pain management guidelines.

[Recommendations for Acute Dental Pain Management](#) (348 KB)

[Pain Meds Selection Spreadsheet](#) (272 KB)

If you have any difficulties with this website, contact [DOH Portal Administrator](#).

1. **Recommendations for Acute Dental Pain Management** – Reviewed & Approved by DOH & HOPE → 21 pages, covers only most common medical conditions
2. **Pain Meds Selection Spreadsheet** – Meant to be a template that needs to be adapted and updated locally → assists w/ selecting pain meds

Purpose

The purpose of this document is to provide evidence-based guidance on prescribing for acute dental pain. This guidance seeks to reduce unnecessary opioid prescribing and assist dentists in selecting the most appropriate, effective, and safest pain medication based on patients' individual medical status. This document does not consider every medical condition but rather addresses the most common systemic medical conditions that affect acute pain medicine prescribing. This document is intended for general dentists and does not address pain management for the more complex and extensive surgeries performed by oral surgeons.

- [Purpose](#)
- [Background & Statistics](#)
- [Clinical Summary of Common Dental Pain Medications](#)

Clinical Summary of Common Dental Pain Medications

ACETAMINOPHEN (APAP) - Acetaminophen has been shown to have a synergistic effect when administered with NSAIDs for the treatment of acute dental pain, with efficacy similar or superior to opioid therapy^{11,12,15,16,19,20,24}. The total acetaminophen dose from ALL sources (including opioid fixed dose combinations) should not exceed 3,000 mg daily (4,000 mg daily if monitored). Patients should be counseled not to combine acetaminophen prescriptions with other over the counter medications containing acetaminophen.

- [General Recommendations](#)
- [Recommendations for Prescribing in the General Population](#)
- [Recommendations for Prescribing for Special Populations](#)

Recommendations for Prescribing & Administering in the General Population:

- Pre-operative pain management:
 - Using a single dose oral NSAID (*see figure 1*) 30-60 minutes prior to dental procedures may delay onset and reduce intensity of post-procedural pain, though contraindications and perioperative bleeding risks must be considered^{21-23,28,29}. The use of a pre-operative NSAID is not recommended in procedures anticipated to introduce significant trauma or bleeding.
 - Consider the use of an antiseptic moutrhine, such as chlorhexidine gluconate, to promote healing, prevent post-operative infection, and reduce post-operative pain.

Recommendations for Prescribing & Administering for Special Populations:

- Pre-operative pain management:
 - Pre-operative NSAIDs should be used with extreme caution in patients with clotting disorders or taking anticoagulants. Standard precautions and contraindications regarding NSAIDs, as outlined below, should also be followed.
 - Consider the use of an antiseptic moutrhine without alcohol in patients with a history of substance use disorder to prevent relapse.

- Recommendations for Prescribing for Special Populations

- Allergy & Drug Intolerance

- Anticoagulant Use

- Benzodiazepine Use

- Gastro-Intestinal Conditions

- Gastric Bypass

- Gastritis, Gastrointestinal Bleeding / Ulcer, Hiatal Hernia, Irritable Bowel Syndrome / Disease, Peptic Ulcer Disease, & Ulcerative Colitis

- Hepatic Conditions

- Alcohol Abuse

- Liver Impairment

- Opioid Use

- Abstinence-Based Treatment for Opioid Use Disorder

- Chronic Pain Patients

- Medication-Assisted Treatment for Opioid Use Disorder

- Substance Use Disorders

- Pregnancy

- Renal impairment

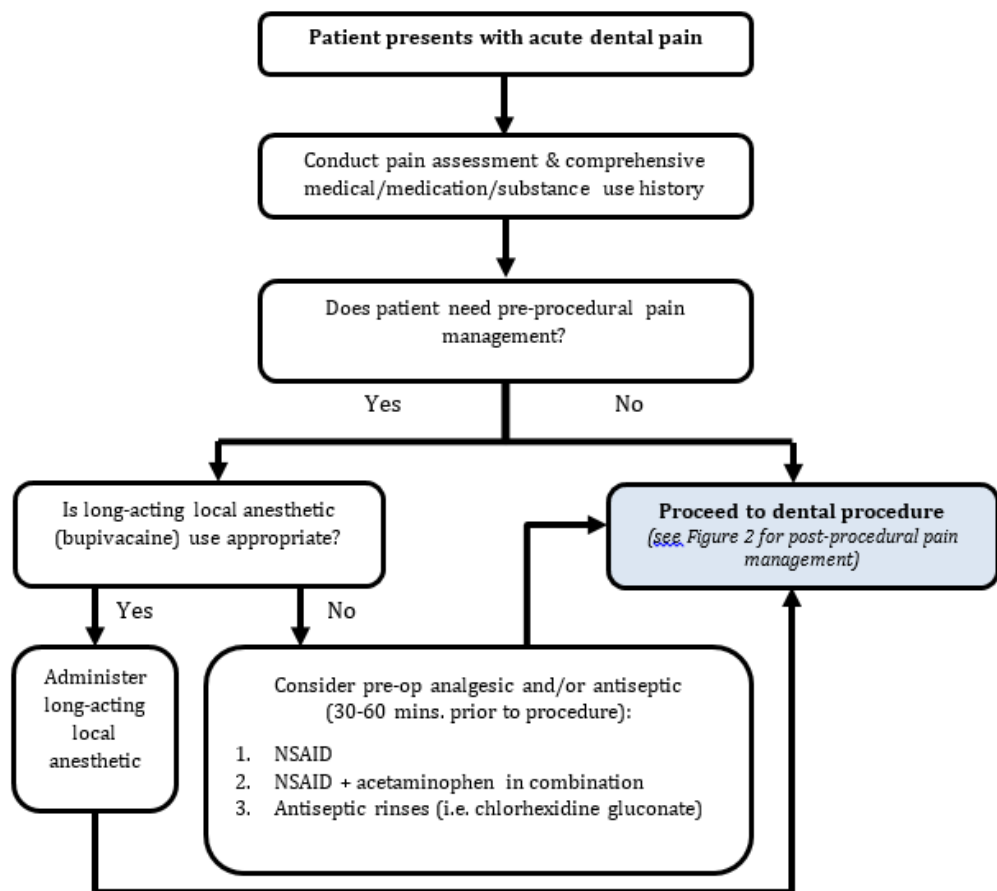
- Ventilation Impairment

*Recommendations for only the most common or significant medical conditions, is not all-inclusive

Renal impairment

- Codeine should be avoided for all patients with renal impairment.
- NSAIDs should be avoided if:
 - Creatinine Clearance [CrCl] <30 mL/min.
 - Estimated Glomerular Filtration Rate [eGFR] <30 mL/min.
 - Estimated Glomerular Filtration Rate [eGFR] 30 - 60 mL/min. when there is concurrent disease, such as diabetes.
- Acetaminophen and acetaminophen/opioid combinations require prolonged dosing intervals in patients with significant renal impairment:
 - Glomerular Filtration Rate [GFR] 10-50 mL/min/1.73m², limit dosing to q6h.
 - Glomerular Filtration Rate [GFR] <10 mL/min/1.73m², limit dosing to q8h.
 - For kids with intermittent dialysis, limit dosing to q8h.
- If an opioid is required, tramadol is the opioid of choice. It should, however, be reduced to 100 mg q12h if Creatinine Clearance [CrCl] <30mL/min.

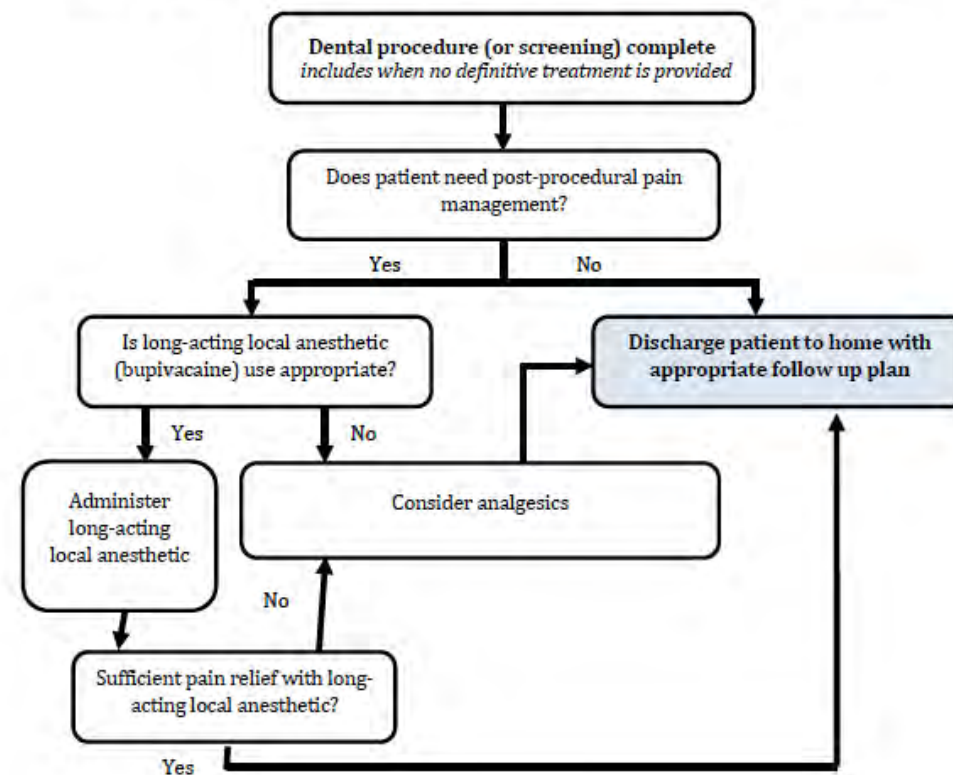
Figure 1. Recommendations for Pre-Procedural Acute Dental Pain Management (general population)



PRE-OPERATIVE NSAIDs*

Preoperative Medications	Recommended Dose	Timing
Ibuprofen	400 mg	30 mins. prior to procedure
Naproxen Sodium	550 mg	1 hr. prior to procedure**
Naproxen	500 mg	1 hr. prior to procedure

Figure 2. Recommendations for Post-Procedural Acute Dental Pain Management



POST-OPERATIVE NSAIDs*

NSAID	Recommended Dose	Max Daily Dose	Tp** (hours)	t _{1/2} (hours)	Analgesic Onset (hours)	Analgesic Duration (hours)
PROPIONIC ACIDS						
Ibuprofen	400-800 mg q6h	3,200 mg	1-2	1.8-2	0.5	4-6
Naproxen (base)	500 mg q12h <i>or</i> 250 mg q6h	1,000 mg	2-4	12-15	1	up to 7
Naproxen Sodium	550 mg q12h <i>or</i> 275 mg q6h	1,100 mg	1-2	12-13	1	up to 7
ACETIC ACIDS						
Diclofenac Sodium	50 mg q8h	150 mg	2-3	1-2	1	4-6
Diclofenac	(can do 100 mg loading dose)		1-2	1-2	0.5	4-6
Etodolac	400 mg q8h <i>or</i> 200 mg q6h	1,200 mg	1-2	7.3	0.5	4-12

** Tp = Time to peak response

NSAID SAFETY COMPARISONS

DRUG	COX-2 Selectivity (in vitro)	GI Risk	Cardiovascular Risk
ACETIC ACID - NSAIDS			
Diclofenac Na	High	Moderate	High
Etodolac	High	Low	Moderate
PROPIONIC ACID - NSAIDS			
Ibuprofen	Moderate	Low	Moderate - High
Naproxen	Low	Moderate - High	Low

*From Pharmacist's Letter / Prescriber's Letter November 2011 (PL Detail-Document #271106)

[Figure 1. Recommendations for Pre-Procedural Acute Dental Pain Management \(general population\)](#)

[Figure 2. Recommendations for Post-Procedural Acute Dental Pain Management](#)

POST-OPERATIVE OPIOIDS*

Opioid	Recommended Dose	Morphine Equiv. Dose
Codeine/ Acetaminophen	30/300mg q6h	4.5 mg per dose
Hydrocodone/ Acetaminophen	5mg/325mg q6h	5 mg per dose
Tramadol**	50mg q6h	5 mg per dose

*Opioids and NSAIDs lists are not all-inclusive; selection should be guided by patient-specific factors, individual facility protocols, and medication formulary.

**Tramadol (utilized without NSAID or APAP) is usually dosed at 100mg q8h or q6h for moderate - severe dental pain.

POST-OPERATIVE PAIN MEDICATION DOSING RECOMMENDATIONS FOR THE GENERAL POPULATION

Expected Pain →	Mild to Moderate Pain (i.e. mild trauma / inflammation)	Moderate to Severe Pain (i.e. moderate trauma / inflammation)	Severe Pain (i.e. significant trauma / inflammation)
1 st line therapy	Ibuprofen 400-600 mg q6h or alternative NSAID ^{5,6,7,11} or Acetaminophen 325-650 mg q6h ⁷ ----- <i>2 day supply - scheduled dosing interval</i>	Ibuprofen 400-800 mg q6h or alternative NSAID ^{5,6,7,11} and Acetaminophen 500-650 mg q6h ⁷ ----- <i>3 day supply - scheduled dosing interval</i>	Ibuprofen 400-800 mg q6h or alternative NSAID ^{5,6,7,11} and Acetaminophen 500-650 mg q6h ⁷ and Hydrocodone/APAP 5/325 mg q6h or alternative opioid ^{1-4,7,9} ----- <i>2-3 day PRN opioid supply with scheduled NSAID/APAP dosing interval</i>
If inadequate pain control	Take both NSAID and Acetaminophen	Add PRN Hydrocodone / APAP 5/325 mg q6h or alternative opioid ^{1-4,7,9} <i>(1 day supply)</i>	For pain extending past 72 hours, use Ibuprofen 400-800 mg q6h prn ⁷
NOTE: Acetaminophen dosage from all sources should not exceed 3,000 mg daily if patient unmonitored / 4,000 mg if monitored. ³⁷			
NOTE: Some NSAID & APAP dosage recommendations have been adjusted to accommodate what formulations are available at IHS facilities.			

[Appendix A: ADA Statement on the Use of Opioids in the Treatment of Dental Pain](#)

[Appendix B: Dental Specific Resources -- Acute Dental Pain Management](#)

[Appendix C: Benzodiazepines, Sedative-Hypnotics, and Anxiolytics](#)

[References](#)

Dental Portal

Welcome: Brandy Larson
[Logoff before closing browser](#)

IHS DIVISION OF ORAL HEALTH

Home Page

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Pain Management

Below is information about the IHS Division of Oral Health's new dental pain management guidelines.

[Recommendations for Acute Dental Pain Management](#) (348 KB)

[Pain Meds Selection Spreadsheet](#) (272 KB)

If you have any difficulties with this website, contact [DOH Portal Administrator](#).

Dental Pain Meds Selection Spreadsheet

CL FORMULARY PAIN MEDS	OK for kids?	Breast Feeding OK?	Pregnancy OK?	Maximum Dosing	Renal Considerations	Hepatic Considerations	Cardiac Considerations	Drug Interactions	Contra-indications	Adverse Effects	Misc.
ALL NSAIDs											
ALL NSAIDs			N		Avoid if: Creatinine Clearance [CrCl] <30 mL/min.	Dosing adjustments: None for mild-moderate disease	Contraindicated: -CHF -Cardiac Edema -Recent Acute MI -Unstable Angina -Perioperative period of Bypass Surgery	Avoid Concomitant Use: <u>Increases toxicity due to potential renal dysfunction:</u> -Lithium -Digoxin -Methotrexate (high-dose) <u>Medications causing Myelosuppression or Thrombocytopenia:</u> -Omacetaxine -Synribo	Allergy: -History of Aspirin Triad Rxns -NSAID Allergy -NSAID induced Asthma	Bleeding: Prolonged bleeding (less than Aspirin)	Synergistic if combined w/ Acetaminophen
		Avoid if: Estimated Glomerular Filtration Rate [eGFR] <30 mL/min.		Severe Hepatic Impairment: -Avoid in severe impairment or active hepatic disease	GI [avoid]: -GI ulcer/bleeding -IBS / IBD						Cardiac: -Increased risk of MI / Stroke (due to increased risk of blood clots)
		Avoid if: Estimated Glomerular Filtration Rate [eGFR] 30 - 60 mL/min. <u>and</u> concurrent disease (like diabetes)		-Avoid in patients with Cirrhosis (due to increased risk of esophageal hemorrhages)		GI [caution]: -Gastric Bypass -Gastritis -Hiatal Hernia -Peptic Ulcer Disease --> consider Rx PPI	- Increased Blood Pressure & Edema (due to Sodium Retention)	Must Rx PPI if prescribing NSAID to Gastric Bypass patient. Rx M&M sized pills or liquid.			
				Alcoholism: consider Rx Proton Pump Inhibitor (PPI)	Aspirin: Take NSAID Rx 8 hrs. prior to Aspirin <u>and</u> take Aspirin 2 hrs. prior to NSAID Rx --> NSAIDs lower effectiveness of Aspirin in prevention of stroke / MI because they have to bind to same receptors and can prevent the irreversible	Moderate: -Aspirin <i>-anticoagulants</i> <i>-antiplatelets</i> --> avoid if possible or Rx PPI w/ NSAIDs to minimize GI bleeds	Bleeding Disorders: -Intracranial Hemorrhage, -Thrombocytopenia, -Agranulocytosis, -Aplastic Anemia, -Coagulation Defects, -C-V Bleeding, -Hemorrhagic Diathesis, -Incomplete Hemostasis			Recommend taking with food to minimize GI adverse effects	
						Mild: -Corticosteroids -Alcohol -Tobacco <i>-SSRIs</i> <i>-SNRIs</i> <i>-tricyclic antidepressants</i>					

Promotes safe and effective prescribing

- **VERY SPECIFIC**

- 7 pages

- Pedo Dosing Tab

- Interaction Meds Tab

CL FORMULARY PAIN MEDS	OK for kids?	Breast Feeding OK?	Pregnancy OK?	Maximum Dosing	Renal Considerations	Hepatic Considerations	Cardiac Considerations	Drug Interactions	Contra-indications	Adverse Effects	Misc.
PROPRIONIC ACID NSAIDs											
Ibuprofen 200mg 400mg 800mg tabs <i>(Advil, Motrin)</i>	Y	Y	N	<u>PATIENTS (45+ lbs.)</u> - 200 mg (45 lbs.) - 400 mg (88 lbs.) - 600 mg (120 lbs.) - 800 mg (175 lbs.) QID Max daily dose (175+ lbs.) = 8 tabs (400 mg tab) <i>Consult a pediatric dosing chart for kids < 88 lbs.</i> Onset = 0.5 hr. Peak = 1-2 hrs. Duration = 4-6 hrs. t-1/2 = 1.8-2 hrs.	Dosing Adjustments: No dosing adjustments for mild - moderate renal disease		Higher risk of blood clots than other NSAIDs --> caution in pts. w/ peripheral artery disease / atherosclerosis Cardiovascular Risk: Moderate - High		GI Risk: Low	CNS: Dizziness (3-9%) GI Disturbances: (<10%)	Some Ibuprofen formulations may contain phenylalanine <i>(CL formulation does not)</i>
Naproxen [Base] 500mg tabs <i>(Naprosyn)</i>	Y	N	N	<u>PATIENTS</u> <u>(12-64 yrs. & 110+ lbs.)</u> 500 mg BID Max daily dose = 2 tabs (500 mg tab) Onset = 1 hr.	Dosing Adjustments: No dosing adjustments for mild - moderate renal disease		Less risk of blood clots than Ibuprofen --> safer in pts. w/ peripheral artery disease / atherosclerosis Less likely to interfere with antiplatelet activity of Aspirin than Ibuprofen Cardiovascular Risk: Low		Elders > 65 yrs. Due to long half-life	CNS: Dizziness (9%) Drowsiness (3-9%) Headache (9-15%) Dermatologic: Pruritus (3-9%) Rash/Ecchymoses (3-9%) Endocrine: Fluid retention (3-9%) GI Disturbances: (<14%) Hematologic: Hemolysis (3-9%)	Similar adverse effects to Ibuprofen, but more of them and more significant effects Pediatric doses not available at CL pharmacy Naproxen Na has faster onset but is not on formulary Max daily dose of

CL FORMULARY	OK for kids?	Breast Feeding OK?	Pregnancy OK?	Maximum Dosing	Renal Considerations	Hepatic Considerations	Cardiac Considerations	Drug Interactions	Contra-indications	Adverse Effects	Misc.
OPIOIDS											
ALL OPIOIDS	N	N	Consult PCP / OBGYN					Avoid Concomitant Use: <i>-mixed agonist / antagonist opioids</i> <i>-opioid antagonists</i> <i>-CNS depressants</i> -Metoclopramide (Reglan, Metozolv)	Addiction: Opioid dependence Intoxication w/: -alcohol -centrally-acting analgesics -hypnotics -opioids -psychotropics	CNS: CNS Depression Respiratory Depression Sedation Dizziness	Not a good anti-inflammatory
								Significantly Increased Sedation: -Cyclobenzaprine (Amrix, Fexmid, Flexeril, Tabradol)	Respiratory: Caution w/ impaired ventilation <i>Including:</i> -Asthma -COPD -Emphysema -Bronchitis -Sleep Apnea		
								Black Box Warning: <i>benzodiazepines</i> + opioids = increased sedation, respiratory suppression, & death	CNS: ↑ intracranial pressure / head injury	GI: Constipation Nausea Vomiting	Nausea is centrally mediated and taking w/ food will not decrease nausea.
								FDA Warning: Can interact w/ <i>antidepressants</i> & <i>migraine meds</i> to cause Serotonin Syndrome (Serotonin build up causing toxicity)	Adrenal Impairment: Can cause reduced Cortisol production if significant adrenal impairment present		

CL FORMULARY PAIN MEDS	OK for kids?	Breast Feeding OK?	Pregnancy OK?	Maximum Dosing	Renal Considerations	Hepatic Considerations	Cardiac Considerations	Drug Interactions	Contra-indications	Adverse Effects	Misc.
OPIOIDS, cont.											
Codeine + Acetaminophen 30/300mg tabs <i>(Tylenol #3)</i>	N	N	Y	<u>PATIENTS (12+ yrs.)</u> -30/300 mg (48-110 lbs.) -60/600 mg (110+ lbs.) QID <i>(can dose q 4 hrs. if necessary)</i>	Dosing Adjustments: If GFR 10-50 mL/min/1.73m ² , limit to QID	Dosing Adjustments: -Mild - mod. impairment -Active liver disease -Alcoholism * 30/300mg QID	Caution: CV disease <i>Including:</i> -Acute MI -Post-MI -Unstable Angina	Avoid Concomitant Use: -Azelastine -Eluxadoline -Orphenadrine -Paraldehyde -Thalidomide CYP2D6 inhibitors --> - Amiodarone -Cimetidine -Desipramine -Duloxetine (Cymbalta) -Fluoxetine (Prozac) -Paroxetine (Paxil) -Propafenone -Quinidine -Ritonavir	CYP2D6 "Ultrarapid Metabolizers"	GI: 10% -Abdominal pain -Constipation --> More emotogenic than other opioids	No studies showing that Tylenol #3 interacts w/ Warfarin, but studies do show Acetaminophen can if taken > 1 week 2017 FDA Contraindication: should not be used to treat pain in kids <12 years 2017 FDA Warning: recommend against use in kids ages 12-18 who are obese or have breathing conditions (e.g. sleep apnea, severe lung disease)
				Dosing Adjustments: If GFR < 10 mL/min/1.73m ² , limit to TID	Dosing Adjustments: - Cirrhosis * 30/300mg TID	Allergy: Metabisulfite Alcoholism CNS depression					
				Caution: Severe renal impairment	Avoid if: Severe hepatic impairment / disease	Caution with: -Morbid obesity -Hypovolemia -Adrenal Insufficiency -Impaired Biliary Tract -Thyroid Disorder -Prostatic Hyperplasia -Seizure Disorder			Hepatic: Acute liver failure if recommended doses exceeded Pseudoallergy: Codeine is most likely opioid to trigger pseudoallergy (can also occur with NSAIDs and other opioids)		
				Onset = 0.5-1 hrs. Peak = 1.5-2 hrs. Duration = 4-6 hrs. t-1/2 = 2-3 hrs.	<i>Dosing adjustments based on Acetaminophen</i>						
Hydrocodone + Acetaminophen 5/325mg tabs <i>(Lortab, Norco, Zydone, **Vicodin)</i>	N	N	Y	<u>PATIENTS (110+ lbs.)</u> 10/650 mg QID <i>(can dose q 4 hrs. if necessary)</i>	Dosing Adjustments: If GFR 10-50 mL/min/1.73m ² , limit to QID	Dosing Adjustments: -Mild - mod. impairment -Active liver disease -Alcoholism *5/325mg QID	Caution: CV disease <i>Including:</i> -Acute MI -Post-MI -Unstable Angina	Avoid Concomitant Use: -Alcohol -Conivaptan -Eluxadoline -Fusidic Acid -Idelalisib -Orphenadrine -Thalidomide	Alcoholism	GI: <i>Most Common</i> --> Constipation <i>Less Common</i> --> Dyspepsia Peptic Ulcer	No studies showing that Vicodin interacts w/ Warfarin, but studies do show Acetaminophen can if taken > 1 week
				Dosing Adjustments: If GFR < 10 mL/min/1.73m ² , limit to TID	Caution: renal impairment	Caution: hepatic impairment			GI: Caution w/ acute abdominal conditions		
				<u>ELDERS (>65 yrs.) & PATIENTS (48-110 lbs.)</u> 5/325 mg QID <i>(can dose q 4 hrs. if needed)</i>	Caution: renal impairment	Caution: hepatic impairment			Cardiac AE's: <i>Frequency Unknown</i> --> -Bradycardia -Cardiac Arrest	Caution with: -Morbid Obesity -Adrenal Insufficiency -Impaired Biliary Tract -Thyroid Disorder	

Acetaminophen Pediatric Dosing

Dosing = 10 – 15 mg/kg/dose every 4 – 6 hours (Max 5 doses in 24 hours)

	Children's Mapap Suspension	Children's Chewable Mapap	Mapap Tablets (Adult)
Concentration	160 mg/5 ml	80 mg	325 mg
Weight lbs.			
6 – 11 lbs.	1.3 mL	½ tablet	
12 – 17 lbs.	2.5 mL	1 tablet	
18 – 23 lbs.	3.8 mL	1 ½ tablet	
24 – 35 lbs.	5 mL	2 tablets	
36 – 47 lbs.	7.5 mL	3 tablets	
48 – 59 lbs.	10 mL	4 tablets	
60 – 71 lbs.	12.5 mL	5 tablets	
72 – 95 lbs.	15 mL	6 tablets	
48 - 95 lbs.			1 tablet
96+ lbs.	20 mL	8 tablets	2 tablets

Ibuprofen Pediatric Dosing

Dosing = 5 – 10 mg/kg/dose every 6 to 8 hours (Max of 4 doses in 24 hours)

	Children's Ibuprofen Suspension	Ibuprofen Tablet	Ibuprofen Tablet
Concentration	100 mg/5 ml	400 mg	800 mg
Weight lbs.			
12 – 17 lbs.	2.5 mL		
18 – 23 lbs.	3.8 mL		
24 – 35 lbs.	5 mL		
36 – 47 lbs.	7.5 mL		
48 – 59 lbs.	10 mL		
60 – 71 lbs.	12.5 mL		
72 – 95 lbs.	15 mL		
88 – 175 lbs.	20 mL	1 tablet	
176+ lbs.	40 mL	2 tablets	1 tablet

3rd tab

This document is a bit of a monster for DOH to manage and keep updated. Therefore, this document is meant to be used as a template for what programs can develop locally and **MUST be updated locally.**

It should reflect medications on your formulary.

QUESTIONS?

There is also a PDF of today's presentation that goes into more detail about strategies and references