HANDOUT

OPIOID ABUSE

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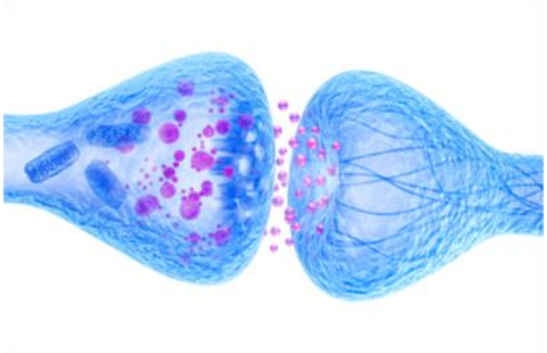
I. Epidemiology of Opioid Abuse in America

Data from the National Survey on Drug Use and Health (NSDUH) reveal that for 2015 36.4% of Americans age 12 or older [97.5 million people] were on some form of prescription opioids during the past year. Of those, 4.7% admit to past year misuse and 1.4% admit to past month misuse.

Among whites, non-Hispanic, 38.7% reported past year use [66 million people], and 4.8% reported past year misuse, while 1.4% reported past month (current) misuse.



Among African Americans, 38.3% reported past year use [12.3 million people], while 4.4% reported past year misuse, while 1.3% reported past month (current) misuse.

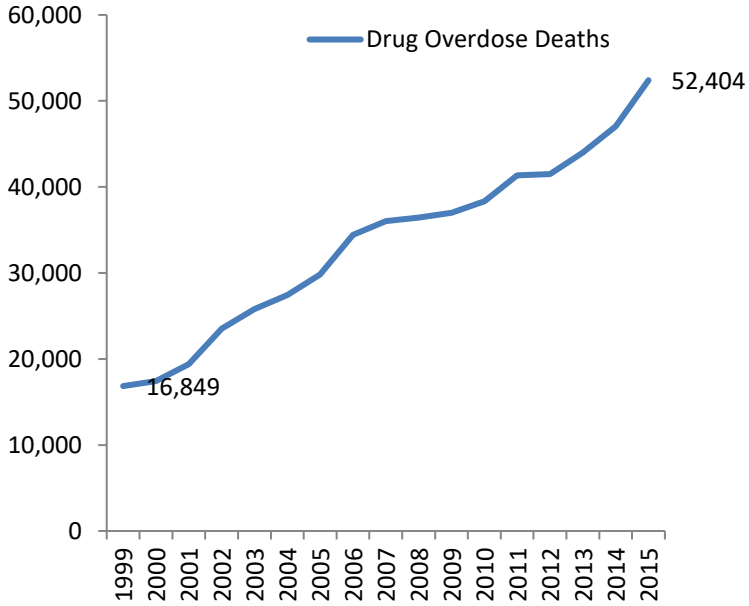
Among Hispanics, 30.2% reported past year use [13.1 million people], while 5.0% reported past year misuse, while 1.6% reported past month (current) misuse.

Among Asians, 22% reported past year use [3.2 million people], while 1.8 percent reported past year misuse and 0.4% reported past month (current) misuse.

Among American Indian or Alaska Natives 38.7% reported past year use [554,000 people], while 5.6% reported past year misuse and 1.1% reported past month (current) misuse.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2014 and 2015.

Figure 1a. Drug Overdose Deaths in the United States, 1999–2015



Source: NCHS, National Vital Statistics System, Mortality

Figure 1b. Age-adjusted drug overdose death rates, by gender: United States, 1999–2015, Deaths per 100,000

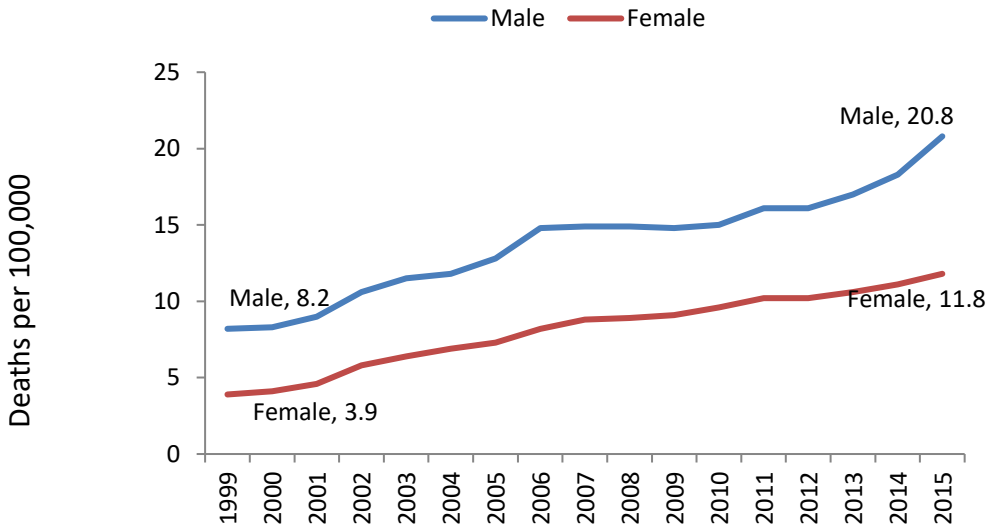
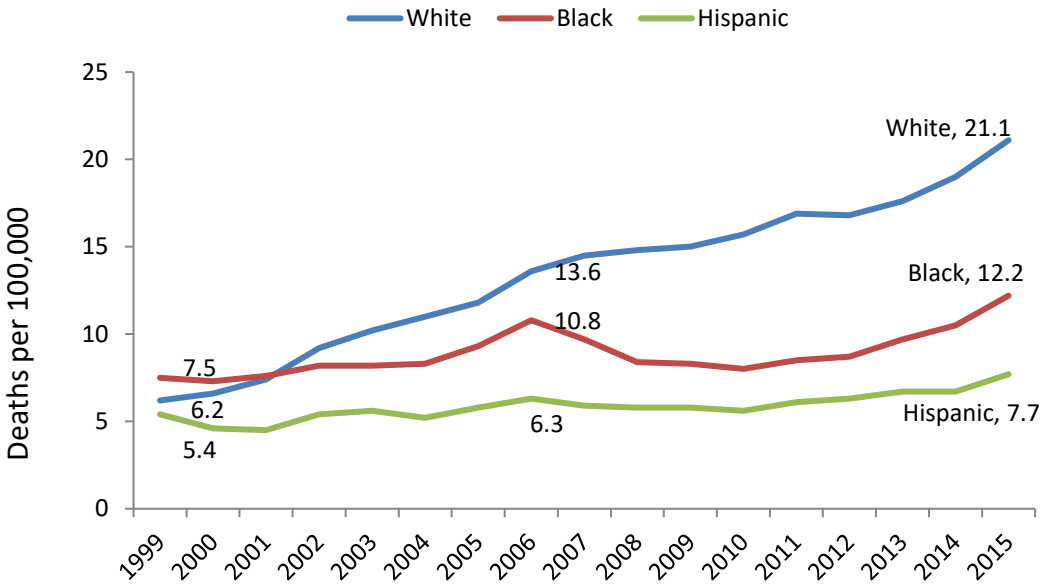


Figure 1c. Age-adjusted drug overdose death rates, by race and ethnicity: United States, 1999–2015, Deaths per 100,000



Source: NCHS, National Vital Statistics System, Mortality

Figure 1a demonstrates that the number of drug overdose deaths has risen sharply from 1999 through 2015, from 16,849 to 52,404

Figure 1b shows that although male deaths per 100,000 for drug overdose deaths are approximately twice that of females, both genders experienced a substantial increase in overdose deaths from 1999 to 2015.

In addition Figure 1c reveals that the deaths per 100,00 among white non-Hispanics, black non-Hispanics and Hispanics rose for all three racial/ethnic groups over the period from 1999 through 2015. However, while the death rate per 100,000 started off higher for blacks in 1999, it was substantially eclipsed by the death rate per 100,000 for whites. The death rate per 100,000 for whites in 2015 was 21.1 per 100,000 compared to that for blacks at 12.2 per 100,000 and Hispanics at 7.7 per 100,000.

The racial variant may be explained in part due to the observation that people of color are often denied appropriate access to pain relievers under the mistaken belief that they are either drug misusers or have a higher pain threshold and require less pain medications.

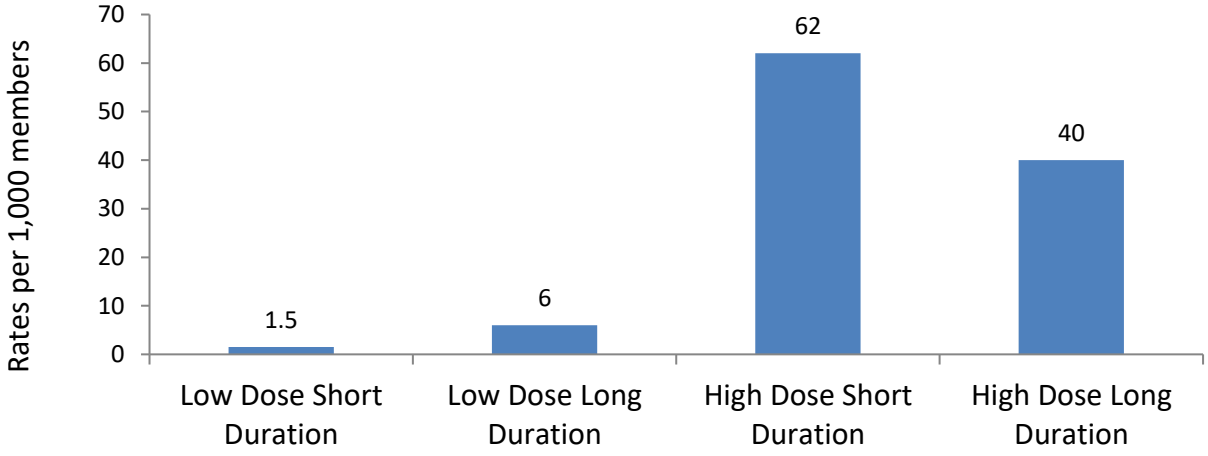
Nevertheless, it appears that around 2006 the prevalence of deaths per 100,000 among whites was sufficiently stark that it began to draw the attention of the larger community, which apparently did not respond with much concern in 1999 when the deaths per 100,000 for blacks exceeded whites and Hispanics.
In December of 2016, Anne Case and Angus Deaton published an analysis of morbidity and mortality among non-Hispanic whites in midlife. They noted that for white non-Hispanics ages 45-54 there was a reversal in the decline in midlife mortality. From 1978 to 1998, the mortality rate for US whites aged 45-54 decreased by 2% per year. After 1998,

the mortality rate for US whites rose by half a percent a year. Surprisingly, black mortality rate for ages 45-54 did not follow the rise of whites, but declined by 2.6% per year over the period from 1999 to 2013. The rise in mortality among middle aged whites was attributed to increasing death rates from dur and alcohol poisoning, suicide, chronic liver disease and cirrhosis. [Ann Case & Angus Deaton, PNAS, 2015: vol 112(49): 15078-15083]

From the perspective of dentists, another epidemiological finding of note was published by BlueCross and Blue Shield (hereafter BCBS) in June of 2017 "America's Opioid Epidemic". Using medical claims data from its commercially insured members for the period 2010 through 2016, BCBS looked at the degree of prescription opioid use and the relationship between dose and duration of opioid prescription as it relates to opioid dependence.

BCBS looked at the rate of members diagnosed with opioid use disorders and their opioid usage by dose and duration in 2015 per 1,000 members. They found the following:

Figure 2: Rate of BCBS Members Diagnosed with Opioid Use Disorders and Their Opioid Usage by Dosage and Duration in 2015 (Per 1,000 Members)



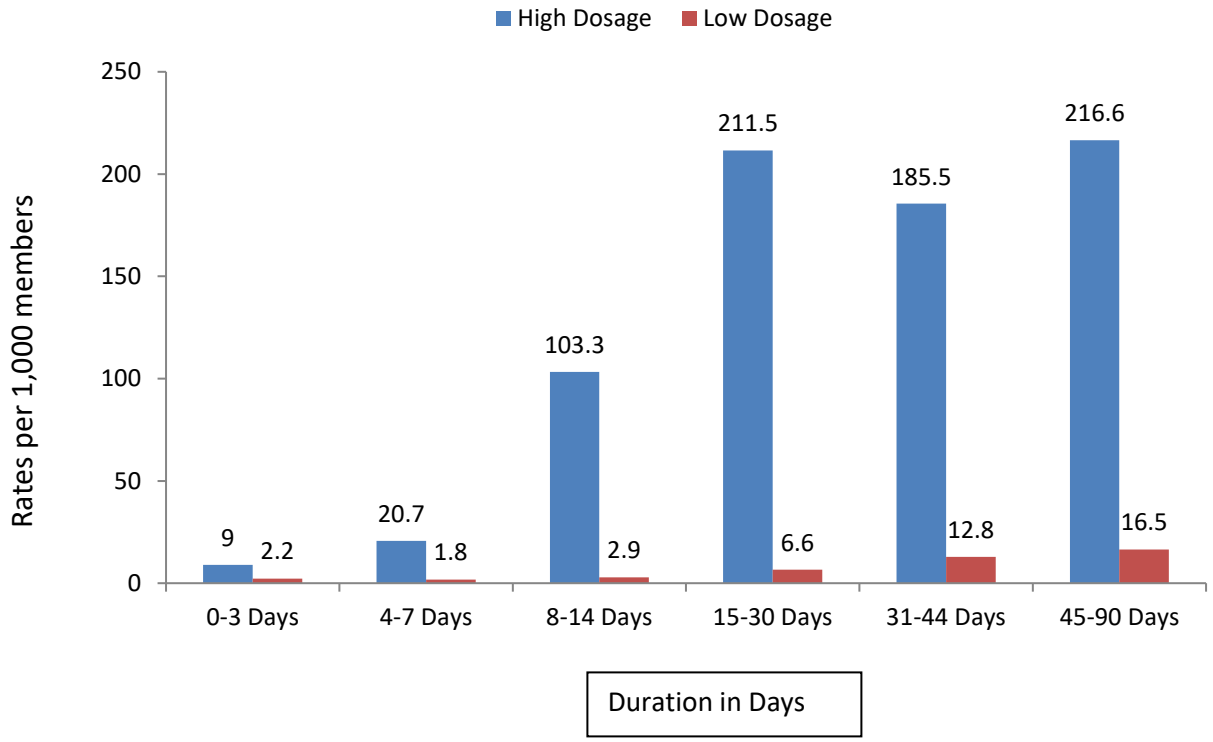
Low Dosage: Less than 100 Morphine-equivalent daily dose

High Dosage: More than 100 Morphine equivalent daily doses.

The BCBS reports notes that an opioid use disorder diagnosis is more than 40 times as likely in patients who fill high-dose, short-duration regimens than it is for those who fill low-dose, short-duration regimens**.**

Looking closer, BCBS found differences in the rate of diagnosed opioid use disorder by duration in days and dosage in 2015.

Figure 3: Rate of Diagnosed Opioid Use Disorder by Prescription Dosage and Duration Category in 2015 (per 1,000 Members)



In short, the longer the duration and the higher the dose, the greater the correlation with opioid use disorders. Opioid prescriptions lasting longer than 14 days may be contributing to opioid use disorders, even in the low dose category**.**

Also of special interest to Dentists, the BCBS report noted that of those covered for dental disease and other oral disorders 32% had opioid prescriptions filled. However, 83% of those prescriptions were for less than 45 days. Another 17% were for more than 45 days. Fortunately, only 1%received a high dose.

II. Use of Naloxone for the Reversal of Opioid Overdose

Naloxone is a medication approved by the Food and Drug Administration (FDA) to prevent overdose by opioids such as heroin, morphine, and oxycodone. It blocks opioid receptor sites, reversing the toxic effects of the overdose. Naloxone is administered when a patient is showing signs of opioid overdose. The medication can be given by intranasal spray, intramuscular (into the muscle), subcutaneous (under the skin), or intravenous injection.

Candidates for naloxone are those who:

- Take high doses of opioids for long-term management of chronic pain
- Receive rotating opioid medication regimens
- Have been discharged from emergency medical care following opioid poisoning or intoxication
- Take certain extended-release or long-acting opioid medications
- Are completing mandatory opioid detoxification or abstinence programs
- Are known to have had an overdose on opioids in the past

- Are known to use opioids such as heroin, fentanyl or carfentanil.
-

Pregnant women can be safely given naloxone in limited doses under the supervision of a doctor.

A dentist, medical doctor or pharmacist can show patients, their family members, or caregivers how to administer naloxone. Intravenous injection every two to three minutes is recommended in emergencies.

Patients given an automatic injection device or nasal spray should keep the item available at all times. Medication should be replaced when the expiration date passes.

Naloxone is effective if opioids are misused in combination with other sedatives or stimulants. It is not effective in treating overdoses of benzodiazepines or stimulant overdoses involving cocaine and amphetamines.

Opioid overdose can happen:

- When a patient misunderstands the directions for use, accidentally takes an extra dose, or deliberately misuses a prescription opioid or an illicit drug like heroin, fentanyl or carfentanil .
- If a person takes opioid medications prescribed for someone else
- If a person mixes opioids with other medications, alcohol, or over-the-counter drugs
- Opioid overdose is life-threatening and requires immediate emergency attention. Recognizing the signs of opioid overdose is essential to saving lives

[See, https://www.samhsa.gov/medication-assisted-treatment/treatment/naloxone]

The major side effect associated with naloxone use is the precipitation of acute withdrawal symptoms: nausea, vomitting, diarrhea, lacrimation, yawning or rhinorrhea.

The dose of naloxone depends on the opioid consumed. The dose ranges from 0.4 mg to 2mg IM/IV or 2 mg to 4 mg intransal. It should be noted that repeat dosing may be required if an effect is not precipitated in 2-3 minutes. It should also be noted that street opioids "boosted" with fentanyl or carfentanil may require multiple doses of naloxone either to produce the initial withdrawal effect or to maintain the effect. Care must be taken to monitor the patient to avoid relapsing back into respiratory depression before emergency assistance arrives.

Emergency crews are well aware of opioid overdose issues and come prepared with naloxone kits. increasingly, law enforcement and community nongoverment organizations help prepare those who are in a position to "rescue" a person suffering from an overdose of opioids are equipped with naloxone.

III. Prescription of Opioids for the Treatment of Acute Pain

Pain in the Dental practice can be classified as acute, procedural, and chronic. The Centers for Disease Control define chronic pain as pain lasting more than 3 months. For dentists, it is in the areas of procedural or acute pain that the question of the use of opioids is most likely to be an issue. Nevertheless, there are dental/ or oral conditions that can cause chronic pain: untreated dental caries, pulpitis, abscesses of teeth, gums or bone supporting teeth, malocclusion, TMJ or trauma are a few conditions.
State Dental Societies have come to recognize the importance of addressing the acute dental pain problem with appropriate therapeutics. However, there is also the recognition that the improper use of opioids poses a threat to the patient and to society. The Pennsylvania Dental Association (PDA) notes that

"Providers have a responsibility to diagnose and treat pain using sound clinical judgement, and such treatment may include the prescribing of opioids." The PDA further notes that "Providers also have a responsibility to minimize the potential for serious adverse effects, including the abuse and diversion of opioids."

In 2015, the Journal of the Massachusetts Dental Society (JMDS) contained a number of articles on prescribing and dentistry. In that issue, Richard Harold, DMD, JD provided a review of prescribing options in the pharmacologic management of dental pain. Other articles focused on prescription drug monitoring programs and their use in dentistry and the growing misuse of prescription drugs and one thing dentists can do to help,

Debra Udey in the JMDS issue highlighted an administrative issue that has less to do with the appropriate management of pain and more to do with the appropriate management of pain pills. She pointed out that dentists often prescribe too many opioid pills to patients who end up only using only a partial prescription and having the rest of the prescription sitting around waiting for mischief and misuse.

Jenna L. McCauley et al in a convenience sample of 86 South Carolina dentists found that the procedures for which dentists most commonly endorsed prescribing opioids were: tooth extraction, root canal, implant placement periodontal surgery; bone graft biopsy, pre-prosthetic surgery, restoration, sinus lift, soft tissue graft, orthognathic surgery, and, other oral surgery. When asked if they used state prescription drug monitoring programs to determine if the patients to whom they would be giving an opioid prescription, 62% reported that they did not. Furthermore, 59% of those who prescribed opioids acknowledged that they explained the risks associated with opioids from sometimes to never. In addition, 61% discussed the appropriate disposal of unused medication with patients almost never or never [See, Jenna L. McCauley et al, (2016) Subst Abus. 37(1): 9–14.]

Also, in 2015, the Journal of the California Dental Association contained a number of articles addressing the issue of prescribing for dental pain management. In the November issue of that journal, Raymond Dionne and Sharon Gordon argue, "Factors for individualizing analgesic therapy can be considered in advance and then adjusted to the responses of the patient in
order to optimize therapeutic outcomes, both efficacy and safety". They promulgated a table similar to the one below which is an adaptation of their work.

The Dionne and Gordon table was modified because their approach suggested an absolute prohibition of prescribing opioids to those with a previous history of drug abuse or alcoholism rather than a cautionary approach. The former approach stigmatizes those with histories of substance use disorders and implies that appropriate pain management becomes secondary to a policy that is focused on preventing drug diversion. While policies that focus on preventing the diversion of prescription opioid medication, the legitimate needs of the patient should take precedent.

Table 1

Individualizing Analgesics for a Patient*	
Medical History	• If a previous history of drug abuse or alcoholism, choose a non-opioid as the medication of first choice • If an opioid is indicated, restrict prescription to a low to moderate dose and for a short duration of time. • Avoid opioid if history of nausea or vomiting from previous opioid administration • Avoid acetaminophen if current or previous liver disease

	• Avoid NSAID if history of ulcers, irritable bowel disease, renal disease or cardiovascular disease • Avoid any drug in same class if previous history of allergy
Family History	• If there is a family history of drug abuse, choose a non-opioid analgesic as the first option • If an opioid is indicated despite a family history of drug abuse, restrict prescription to a low to moderate dose and for a short duration of time.
Body Weight	• Consider greater analgesic dose if BMI>30 • Consider lower analgesic dose if BMI<18
Clinical Procedure	• Premedication with NSAID and use of long-acting local anesthetic indicated if surgical procedure makes sever postoperative pain likely. • Pre-existing infection may interfere with local anesthetic efficacy, carefully test for signs of anesthesia before initiating procedure
Patient Apprehension	• Patient self-report of "somewhat nervous" about the procedure, consider nitrous oxide to minimize intraoperative pain perception. • Patient self-report of "moderately nervous" about the procedure, consider enteral sedation with a benzodiazepine to minimize pain perception and recall. Avoid discharging patient with both an opioid and a benzodiazepine. • Patient self-report of "very nervous" or "terrified" about procedure, consider use of parenteral sedation or general anesthesia.
Risk Factors for Drug Abuse	• Avoid opioids if patient displays a personal preference or necessity for oxycodone or hydrocodone containing combinations • If a previous history of drug treatment or arrest for drug seeking behavior, choose a non-opioid as the medication of first choice • If an opioid is indicated, restrict prescription to a low to moderate dose and for a short duration of time

*Adapted from Raymond Dionne, DDS, PhD & Sharon Gordon, DDS, PhD in Journal of the California Dental Association, November 2015.

In 2016, the Oregon Health Authority's Opioid Prescribing Guidelines Task Force recommended opioid guidelines for dentists. Fifteen principles were included in those guidelines, they are:

1. Prescribe opioids cautiously to those with a substance abuse history.

2. Ask if patients are getting medications from other doctors, and use the PDMP prior to prescribing opioids whenever possible.

3. Do not prescribe opioids to patients in substance abuse treatment programs without consulting the program's medical staff.

4. Do not offer prescriptions with refills. Use caution if replacing prescriptions that were lost, destroyed, or stolen.

5. Prescribing over the phone is discouraged, especially with patients you have not met.

6. Use combination opioids (e.g., hydrocodone and acetaminophen) when an opioid is necessary.

7. If an opioid is indicated, prescribe only in small dosages, which in most cases should not exceed three days or 10 tablets.

8. Use stepwise guidelines for acute pain management as recommended in *Principles of Pain Management in Dentistry* in ADA Practical Guide to Substance Use Disorders and Safe Prescribing, 2015:

- Mild to moderate pain: ibuprofen
- Moderate to severe pain: ibuprofen + APAP
- Severe pain: ibuprofen + hydrocodone/APAP

9. Inform patients how to secure medication against diversion and how to dispose of leftover medication.

10. Opioids should not be prescribed more than seven days after the last appointment. It is strongly recommended that the patient be assessed in the clinic prior to providing a refill (same or different opioid).

11. A second refill (same or different opioid) request should require that the patient be assessed in the dental clinic and only be provided once a supporting diagnosis to continue with opioid pain management is established.

12. Third refills are strongly discouraged (except in unusual clinical circumstances that are well documented, such as osteonecrosis management); consider need for chronic pain management by physician.

13. Prolonged pain management (while awaiting specialty care) should be managed by and/or coordinated with the patient's primary care provider.

14. Long acting or controlled release opioids including, but not limited to methadone, buprenorphine, fentanyl, and long acting formulations of hydrocodone, hydromorphone, morphine, or oxycodone should not be prescribed by dental providers.

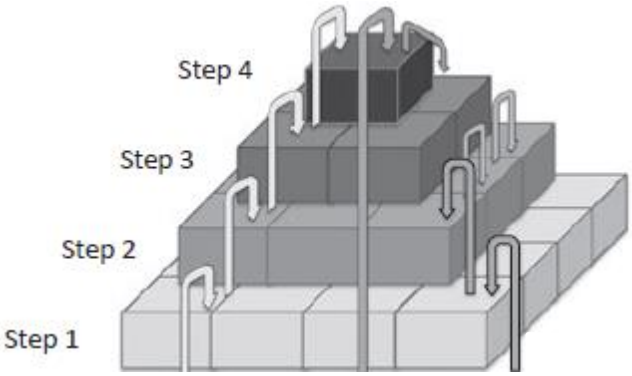
15. Intramuscular or intravenous opioids should not be administered by a dentist except during the course of administering sedation according to the practitioner's anesthesia permit.

The Oregon approach recognizes that caution should be the guiding principle when prescribing to those with histories of substance use disorders. The Oregon approach also addresses the issue of dosage and duration, the issue raised by the findings of BCBS.

IV. The Use of Non-Opioid Analgesics in the Treatment of Pain

In 1986, the World Health Organization (WHO) suggested a stepwise approach to the treatment of pain. This approach, a 3-Step Ladder, was based on the patient's level of pain (e.g., mild, moderate or severe). It recommended that physician should begin to treat a pain patient using non-opioid analgesics prior to moving up the ladder to treat more severe pain using opioids. Raffa and Pergolizzi argued that the ladder approach should be replaced by a pyramid approach in part because the concepts of pain physiology have evolved since the WHO's initial guidance. Raffa and Pergolizzi believed that proper matching achieves the same effect with lower doses, better outcomes , fewer adverse effects and be opioid sparing.

Figure 4



Raffa and Pergolizzi believe that the above "pyramid" reflects the advances made in understanding the physiology of pain and provides clinical flexibility. Furthermore, individualized patient care strategy to achieve better pain management would be more possible than a simple "ladder" approach as suggested by WHO in 1986. The figure above suggests different trajectories of care including the options for analgesics switching on the same step such as switching to a different NSAID, or opioid rotation. In addition, movement down steps from immediate post-operative transition to maintenance therapies would be possible. Adjuvant and non-pharmacologic interventions such as injections and nerve blocks allow for broadening the use of a wide range of strategies to address pain. [See Raffa and Pergolizzi (2014) Journal of Clinical Pharmacy and Therapeutics, 39, 4-6]

As a conceptual model, the Raffa and Pergolizzi model can be applied to the range of pain issues that fit into the dental/oral conditions seen by dentists from acute pain to chronic pain. The underlying theme, of course, is to do no harm to the patient, while promoting a reduction in risks of opioid use disorders.

The growing literature and regulatory guidelines suggests that dentists have a role in reducing prescription opioid abuse through patient education,, patient assessment and the choice of therapies that range from non-opioid medications to opioid medications. However, it should be noted that non-opioid medications also have limitations, especially in situations requiring chronic administration of pharmaco-therapy. See the modified Dionne and Gordon table above. Acetaminophen, Aspirin and other NSAIDs have great utility, but also some limitations. Dentists should be aware of both.