The Opioid Crisis and Orofacial Pain Management

Course Material

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Introduction

This course will present information about the opioid crisis and how this crisis impacts the management of orofacial pain by oral health care providers.
Resources are becoming available on guidelines for prescribing medications for the management of acute and chronic pain.

These resources are readily available online, some of which may be mentioned in this course.

This course is not designed to recapitulate these guidelines, but more to give an overview of the opioid epidemic and what a dentist needs to consider before prescribing medication for the pain management.
Introduction

• At the end of the material by Dr. MacKie, Drs. Miller and Berman comment on potential lessons from this material that might be of particular interest to dentists.

• Finally, Drs. MacKie, Miller, and Berman prepared hypothetical cases to illustrate some of the issues that are involved in pain management of patients, given the current opioid epidemic.
Objectives

- Review DEFINITIONS pertaining to the opioid crisis (epidemic)
- Review DATA about mortality and morbidity associated with the opioid crisis and data on substance use disorders (SUD) and the opioid use disorder (OUD)
- Review RISK FACTORS for SUD and OUD, including demographic factors associated with these disorders
- Review RESPONSES to this crisis by health care providers, legislatures, medical and dental boards, and organizations
- Review MANAGING PAIN in the context of the current opioid crisis
Definitions

• Addiction
  • vs. dependence
  • Vs. tolerance

• Substance Use Disorder (SUD)
  • Opioid use disorder (OUD)
What is drug addiction?

- Addiction is a chronic relapsing brain disease.
- Addiction is characterized by compulsive drug seeking and use, despite harmful consequences.
- Drugs of abuse change the structure and function of the brain.
- These brain changes can be long-lasting and can lead to harmful behaviors.
What is drug addiction?

Neurobehavioral condition with genetic and environmental factors

- Chronic
- Craving
- Compulsive
- Continues despite harm
What is drug addiction?

Addiction

• Neurobehavioral syndrome with genetic and environmental influences that result in psychological dependence for psychic effects
• Addiction is characterized as **chronic**, associated with **craving**, being **compulsive** and **continuous** despite harm

Dependence

Neuro-adaptation characterized by withdrawal syndrome if substance is stopped or lowered abruptly
What is drug addiction?

Tolerance

Physiologic state resulting from regular use of drug in which the dose must be increased to achieve the same clinical response

Pseudo-addiction (totally discredited)

Behavior pattern exhibited “drug seeking” by patient who is receiving inadequate pain management as a result of too few opioids.
What is a substance use disorder?

Problematic pattern leading to clinically significant impairment or distress, including at least two of the following and occurring within 12 months:

- Larger amounts than and longer than intended
- Persistent desire or unsuccessful efforts to cut/control use
- Seeking time and energies increases
- Craving/desire for substance
- Use associated with failure to fulfill roles, work, interpersonal/social, family, school
- Giving up important activities due to use
- Hazardous situations related to use
Substance Use Disorder DSM-V

Maladaptive pattern leading to clinically significant impairment or distress within a year including two or more of:

1. **Tolerance**
2. **Withdrawal signs**
3. Substance taken in larger amounts/longer period of time than intended
4. Unsuccessful efforts to quit/cut back
5. Energy, time and effort to obtain, use or recover from substance
6. Strong desire/craving for substance
7. Use interferes with major role obligations: work/school/home
8. Continues despite impact on social and interpersonal relationships
9. Used in situations where it may be physically hazardous
10. Social, occupational, recreational activities reduced or eliminated
11. Use despite knowledge of medical or psychological harm

**not criteria when on Rx opioids**
Mortality and Morbidity Data
Mortality
Deaths from drug overdose
Increase in Unintentional Overdose Deaths Involving Opioid Analgesics, 1999–2008

Unintentional Overdose Deaths

<table>
<thead>
<tr>
<th>Year</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>2,901</td>
</tr>
<tr>
<td>2000</td>
<td>3,140</td>
</tr>
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<td>2001</td>
<td>3,994</td>
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<td>2002</td>
<td>5,547</td>
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<td>2003</td>
<td>6,524</td>
</tr>
<tr>
<td>2004</td>
<td>7,547</td>
</tr>
<tr>
<td>2005</td>
<td>8,541</td>
</tr>
<tr>
<td>2006</td>
<td>10,986</td>
</tr>
<tr>
<td>2007</td>
<td>11,499</td>
</tr>
<tr>
<td>2008</td>
<td>11,882</td>
</tr>
</tbody>
</table>

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, accessed through CDC WONDER Online Database, released 2011.
Iatrogenic Opioid Epidemic
Tragic Update on OD Deaths

• 2010: 12.3/100,000
• 2015: 16.3/100,000
• 30 states had increase
• 52,404 deaths from overdose of all kinds
• 63% involved an opioid= 33,000 in 2015
• Illicitly manufactured
  – 72% due to fentanyl
  – 20% due to heroin
• Increase of OD deaths in 2015 despite decrease in Rx opioids and methadone

Source: MMWR 2016 Dec16; 65:1-8
Overdose Deaths Involving Opioids, United States, 2000-2015

- Any Opioid
- Commonly Prescribed Opioids (Natural & Semi-Synthetic Opioids and Methadone)
- Heroin
- Other Synthetic Opioids (e.g., fentanyl, tramadol)

INDIANA
Deaths from drug overdose
Percent Change in Leading Causes of Injury Death*— Indiana, 1999–2009

Homicide Firearm  -11.1%
Unintentional Fall     22.5%
Suicide Firearm       13.9%
Unintentional MV Traffic  -30.8%
Unintentional Poisoning  501.5%

*Age-adjusted rates

Source: WISQARS

Source: Centers for Disease Control and Prevention, WISQARS Database
Drug poisonings between 2012 and 2015.

- Greater than 60% of all recent deaths in Indiana are opioid related.
- 13 or more counties had the highest rate (24-39 per 100,000).
Overdoses in Children
with or without resulting OD Death

Pediatric Opioid Rx Overdoses: 2001-2008

- Emergency department visits for opioid overdose rose 101%
- Admissions related to Rx opioid overdoses rose 86%

Source: J Pediatr 2012;160:265-70)
Opioicentric Pain Care: Medicine’s Greek Tragedy

Good intentions gone awry
Opiophilia: Morbidia & Mortalicus
The Cast and Stage

The Chorus: Providers, advocates, patients
Hero: Dr. A. Skip Aleze
Heroin: Ann O. Dyne
Titans: Big Pharma, Medicalization, Pain “Experts”
The Plague: Iatrogenic Opioid Epidemic
Time Period: 1992-201_?

Ann: A tragic case

• Age 17: Alcohol and marijuana
• Age 17-19: Aches and pains from motor vehicle accident and soccer
  – *Soma* and *Vicodin* from Dr. Skip Aleze
  – *Percocet* from friend and college doctor

Why did she keep getting refills?
Ann O. Dyne 6/06/84
123 Diversion Way 1/16/03

Vicodin 5 mg

Sig.- 1-2 po each 6 hrs prn pain
Disp.- 84

Skip Aleze, MD
Ann: More meds, less help

Age 17: Alcohol and marijuana
Age 17-19: Aches and pains from MVA and soccer
  • Soma and Vicodin from Dr. Skip Aleze
  • Percocet from friend and college MD
Age 21: Fatigue, pain and dysfunction
  • Anxiety worse and leave of absence
  • Xanax added to mix by Dr. Holly Trinity
Age 22: Unintended pregnancy
  • Dr. Aleze delivers her daughter, Sophia

Note: This combination of drugs would have a euphoric effect desirable by drug abusers
Ann and Sophia: New Beginnings …

• Sophia was in the hospital for six days, crying, not eating.

• Ann and Sophia move home with Ann’s mom.
Ann: Hibernation then Relapse

- Counseling helps Ann adjust to life
- Age 25: Stable Job, good daycare and new boyfriend
  - Xanax (2-4/wk) and just social EtOH
- Fell while being “social,” fractured wrist
  - Norco from ED and post-op Percocet
- Hibernation Ended

** Iatrogenic Relapse **
Ann: Guided further down the wrong path

- 2008-2011 Ann remained on opioids and Xanax
- Saw Dr. Skip Aleze and others
  - Norco 10 mg 4-5/day, Xanax 1 prn #90/mo
- 2010- Sales Rep. showed him convenience,
  - point of care (poc) Urines, $ and benefit to urine toxicology done in office
  - Dr. Aleze began poc Urine Drug Monitoring (UDM) in 2010
- 2011 he sent urine for confirmation to Ameritox
  - Morphine, hydrocodone and alprazolam

What does this likely mean?
Athens, Indiana

Ann O. Dyne
1984-2011
Daughter, Mother, Friend
Pain Free
Morbidity with SUD / OUD
Harm Caused by Drugs

- Alcohol
- Heroin
- Crack Cocaine
- Methamphetamine
- Cocaine
- Tobacco
- Amphetamine
- Cannabis
- GHB
- Benzodiazepines
- Ketamine
- Methadone
- Mephedrone
- Butane
- Qat/Khat
- Anabolic Steroids
- Ecstasy
- LSD
- Buprenorphine
- Mushrooms

*With a maximum possible harm rating of 100

Lancet. 2010; 376(9752):1558-65
We treat, but do we help?

Aggressive use of opioids and interventional technologies has been brought to bear between 1997 and 2005 (~ 65 % increase in expenditures) without evidence of improvement in self-assessed health status and pain.

Many outcomes were worse.

Source: JAMA 2008; 299(6):656-664
Points to Note

• Pain care and opioid use did not seem to help people have less pain or improvements
• Practices were not evidence based
• Opioid Rx 112/100 Hoosiers in 2012
• “Pseudo-addiction” was introduced and drove increases in use. There is **NO** evidence that pseudo-addiction is real.
• Many teenagers take opioids illicitly
Morbidity with SUD / OUD \{ Harm to Neonate \}
Neonatal Opiate Withdrawal

Riley Network (2001-2010)

Cases/10,000 LBS

NAS – Neonatal Abstinence Syndrome

3900% Increase

NAS – Neonatal Abstinence Syndrome

NENRx

Iatrogenic
Opioid Misuse During Pregnancy

- Human epidemiological studies have reported an association between opioid use during pregnancy and an increased risk of neural tube defects and other birth defects.

- The opioid system is implicated in bonding between mother and infant – opioid use during pregnancy could theoretically disrupt attachment between women and their babies.

- Cognitive impairments have also been reported in children and young people born to women who misused opioids during pregnancy.

Much remains to be learned.
Perspective and Wisdom

“The possibility that health care might cause net harm is increasingly important given the sheer magnitude of the modern health care enterprise ... these issues will likely challenge assumptions about the value of many current health care practices.”

—JAMA 2009; Vol 302.(1):89-91
SUD
• OUD

Data

Prevalence (Burden)
Prescription Drug Misuse

- **USA <5% of world population**
- **Consumes 99% global hydrocodone**
- **Consumes >80% global opioid**

Note: These statistics raise “safety issues” related to prescribing controlled substances:
1. What we wish to prescribe, based on our assessment
2. What the patient may be receiving from other MDs and dentists
3. What the patient may be using illicitly

Source: NSDUH 2009
Number of Americans on opioids long-term

10 Million

Opioid overdose deaths rose 28 percent in 2016, to 42,000 men, women and children

NSDUH (SAMSHA) Data 2015

• National survey of 51,200 people from 50 states and D.C. in 2015
• Survey results indicated that 38% of U.S. population used an opioid in 2015 (i.e. approx. 91.8 million people)
• Among Adults with opioid Rx
  – 12.5% reported misuse
  – Among these 12.5%, 16.7% indicated they had a OUD
• Of all adults who reported misusing opioids
  – 40% with a Rx, and 60% without an Rx
  – Among the 60%, 41% obtained free opioids illicitly from friends and family
• Among adults who misused opioids 63% reported pain relief as motivation

Source: Ann Intern Med. 2017;167(5):293-301
Lifetime Prevalence of SUD

- 12-15% of Americans
- 30% of children of alcoholics
- 28-33% of people on chronic opioids

Source: J Addictive Dis 2011; 30:185-194
Figure 4. Percentage of Treatment Admission with Reported Use of Substances (TEDS-A, 2013)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Indiana</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>57.3%</td>
<td>54.1%</td>
</tr>
<tr>
<td>Cocaine</td>
<td>12.2%</td>
<td>19.0%</td>
</tr>
<tr>
<td>Marijuana</td>
<td>48.3%</td>
<td>37.3%</td>
</tr>
<tr>
<td>Heroin</td>
<td>12.0%</td>
<td>22.4%</td>
</tr>
<tr>
<td>Opiates/Synthetics</td>
<td>22.0%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Meth</td>
<td>13.4%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Other</td>
<td>17.2%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

Note: Reported use of various substances by individuals admitted for treatment to hospitals (Indiana vs. U.S.)
Past-Year Use of Various Drugs by 12th Graders (Percent)

- Marijuana/Hashish: 35.1%
- Amphetamines: 8.1%
- Adderall: 6.8%
- Synthetic Marijuana: 5.8%
- Vicodin: 4.8%
- Tranquilizers: 4.7%
- Sedatives*: 4.3%
- Cough Medicine: 4.1%
- Hallucinogens: 4.0%
- MDMA (Ecstasy): 3.6%
- OxyContin: 3.3%
- Cocaine (any form): 2.6%
- Inhalants: 1.9%
- Salvia: 1.8%
- Ritalin: 1.8%

SOURCE: University of Michigan, 2014 Monitoring the Future Study
### 2010 Nonmedical Use of Vicodin and OxyContin during past year

<table>
<thead>
<tr>
<th>Medication</th>
<th>8th Graders</th>
<th>10th Graders</th>
<th>12th Graders</th>
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<tbody>
<tr>
<td><strong>Vicodin</strong></td>
<td>2.7%</td>
<td>7.7%</td>
<td>8.0%</td>
</tr>
<tr>
<td><strong>OxyContin</strong></td>
<td>2.1%</td>
<td>4.6%</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

Source: Monitoring the Future (Univ. of Michigan Web Site)
Cost of Opioid Prescriptions in U.S.

• 2006 estimated total cost nonmedical use prescription opioids was $53.4 billion
• $42 billion (79%) to lost productivity
• $8.2 billion (15 %) to criminal justice costs
• $2.2 billion (4%) to drug abuse treatment
• CDC’s estimate for 2009 is $72 billion

2001 (US $25 billion)

- Triptans (Migraine) $2.25 B
- NSAIDs $7.5 B
- COX2 Inhibitors $5.75 B
- Anticonvulsants $2.5 B
- Opioid Analgesics $4.0 B
- Others $3.0 B

2010 (US $41.5 billion)

- NO-Linked NSAIDs $0.8 B
- LOX/COX Inhibitors $0.8 B
- Triptans (Migraine) $4.1 B
- NSAIDs $5.8 B
- COX2 Inhibitors $12.9 B
- Anticonvulsants $4.6 B
- Opioid Analgesics $8.7 B
- Others $3.7 B

Chronic Pain Market (CGX-1160 Opportunity)
Points to Note

- Addiction, morbidity and morality data were not seriously addressed until 2012-2013.
  - Ignoring harm, OD is dose related
- Rx opioid use clearly hurting our economy by 2006.
- Chronic strong opioid use associated with lower quality of life scores, all eight domains in SF-36.
- Neonatal abstinence syndrome rose dramatically in Indiana over a decade.
- National organizations’ attention and regulations arrived too late.
- More than 150,000 died from Rx opioid related death in less than a decade.
Risk factors for:

- Substance Use Disorders (SUD)
  - Opioid Use Disorder (OUD)
- Addiction
- Death from Overdose
Science of Addiction, NIDA, March 2007
Risk factors

“Feel Good”
Why folks try exogenous chemicals

• To feel good and to have “novel”
  – Feelings, sensations experiences and to share
  – Positive re-enforcement

• To feel better by reducing
  – Anxiety, worries, fears, depression, hopelessness
  – Negative re-enforcement
Risk factors

Alleviate Pain
What is Pain?

• An unpleasant sensory and emotional experience associated with *actual* or *potential tissue damage*, or *described* in terms of such damage

• A complex experience embracing physical, mental, social and behavioral processes, compromising the quality of your life
Increase in opioid medications to manage pain

Causes:

- Growing public awareness of the right to pain relief
- Joint Commission Standards – 2000
  - New pain standards
- Liberalization of laws governing opioid prescribing
- Aggressive marketing of long-acting opioids by the pharmaceutical industry
Chronic pain is more complex than acute pain and can be difficult to manage.
Predictors of Opioid Misuse in Patients with Chronic Pain

• 196 patients in academic chronic pain clinic
• Monitored patients for 12 months
• Misuse criteria
  1. - UTS
  2. + UTS (too much)
  3. Multiple providers
  4. Diversion
  5. Rx forgery
  6. Stimulants
• 74% participants were depressed on screening
Some states have more painkiller prescriptions per person than others.

Opioid Prescriptions Dispensed by Retail Pharmacies — United States, 1991–2011

Number of Prescriptions (in millions)

Year
Number of Prescriptions (in millions)
76 78 80 86 91 96 100 109 120 131 139 144 151 158 169 180 192 201 202 210 219

Primary care providers prescribe the most opioids
In 2012 DENTISTS prescribed a lot of opioids

Source: IMS Health, National Prescription Audit, United States, 2012
NOTICE

Patients with overdoses

- Saw multiple doctors, and
- Got higher dose prescriptions

more frequently than patients without overdoses

Source: http://www.cdc.gov/mmwr/preview
Points of Note

- Experts over-stated opioid safety
- Pharma mislead providers and consumers
- Providers felt compelled to increase opioid use despite no solid evidence for chronic pain
- CMS and Joint Commission forced “standards” without evidence
  - Pain as 5th Vital Sign and survey questions
- Providers wrote for ever-increasing amounts of opioids until 2013
AAN - Position paper “Opioids for chronic non-cancer Pain”

"Whereas there is evidence for significant short-term pain relief, there is no substantial evidence for maintenance of pain relief or improved function over long periods of time without incurring serious risk of overdose, dependence or addiction."

—A position paper of the American Academy of Neurology” Neurology 2014; 83(14):1277-84
What is the Addiction Risk?

- Published rates of abuse and/or addiction in chronic pain populations are 3-19%.
- Suggests that known risk factors for abuse or addiction in the general population would be good predictors for future aberrant behavior as well:
  - Past cocaine use, h/o alcohol or cannabis use\(^1\)
  - Lifetime history of substance use disorder\(^2\)
  - Family history of substance abuse, a history of legal problems and drug and alcohol abuse\(^3\)
  - Heavy tobacco use\(^4\)
  - History of BAD and severe depression or anxiety\(^4\)

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\(^1\) Ives T et al. BMC Health Services Research 2006
\(^2\) Reid MC et al JGIM 2002
\(^3\) Michna E et al. JPSM 2004
\(^4\) Akbik H et al. JPSM 2006
ABUSE OF PRESCRIPTION PAIN MEDICATIONS
RISKS HEROIN USE

In 2010 almost 1 in 20 adolescents and adults - 12 million people - used prescription pain medication when it was not prescribed for them or only for the feeling it caused. While many believe these drugs are not dangerous because they can be prescribed by a doctor, abuse often leads to dependence. And eventually, for some, pain medication abuse leads to heroin.

1 IN 15

PEOPLE WHO TAKE NON MEDICAL PRESCRIPTION PAIN RELIEVERS WILL TRY HEROIN WITHIN 10 YEARS

Number of People Who Abused or were Dependent on Pain Medications and Percentage of Them that Use Heroin

- 2004: 1.4 million (5%)
- and the problem is getting worse...
- 2010: 1.9 million (14%)

Heroin users are 3X as likely to be dependent
- 14% of non medical prescription pain reliever users are dependent.
- 54% of heroin users are dependent.

Heroin Emergency Room Admissions Are Increasing

- 2005: 200K
- 2008: 230K
- 2011: 260K
Heroin use is part of a larger substance abuse problem.

Nearly all people who used heroin also used at least 1 other drug.

Most used at least 3 other drugs.

Heroin is a highly addictive opioid drug with a high risk of overdose and death for users.

People who are addicted to...

- Alcohol are 2x more likely to be addicted to heroin.
- Marijuana are 3x more likely to be addicted to heroin.
- Cocaine are 15x more likely to be addicted to heroin.
- Rx Opioid Painkillers are 40x more likely to be addicted to heroin.

Overlap of Pain Reliever Misuse and Heroin Use

- 11.5 Million People with Past Year Pain Reliever Misuse (97.4% of Opioid Misusers)
- 641,000 People with Past Year Pain Reliever Misuse and Heroin Use (5.4% of Opioid Misusers)
- 948,000 People with Past Year Heroin Use (8.0% of Opioid Misusers)
- 10.9 Million People with Pain Reliever Misuse Only (92.0% of Opioid Misusers)
- 307,000 People with Heroin Use Only (2.6% of Opioid Misusers)

11.8 Million People Aged 12 or Older with Past Year Opioid Misuse

Source: NSDUH 2016
Select the true statements

A. People suffer not because their discomfort is untreated but because physicians are reluctant to prescribe morphine.

B. When patients take morphine for pain, addiction is rare.

C. Addiction seems to arise only in those who take it for psychological effects. e.g., euphoria or to relieve tension.

D. Patients who take morphine for pain do not develop the rapid tolerance that is often a sign of addiction.

Source: Ronald Melzack: Scientific American, 1990
Select the true statements

A. People suffer not because their discomfort is untreatable but because physicians are reluctant to prescribe morphine.

B. When patients take morphine for pain, addiction is rare.

C. Addiction seems to arise only in those who take it for psychological effects, e.g., euphoria or to relieve tension.

D. Patients who take morphine for pain do not develop the rapid tolerance that is often a sign of addiction.

Source: Ronald Melzack: Scientific American, 1990
Points to Note

• Over 15% of people using opioids with a Rx feel they have an OUD
• Most people who report using Rx opioids, without a Rx, report doing so to control pain
• 40-60% of illicit Rx opioid use comes from friends or family
• Majority of nonmedical Rx opioid use that comes from a provider comes from a single provider
• Many current heroin users began with Rx opioids
• Polysubstance abuse is common in those with SUDs
“Mr. Speaker, will the gentleman from Big Imaging yield the floor to the gentleman from Big Opioid?”
Promotion and Marketing of OxyContin: Commercial Triumph, Public Health Tragedy

- Unprecedented Marketing
- No studies support benefit over other opioids
- Can be crushed, injected, inhaled or swallowed
- Sales Reps trained “Risk of Addiction <1%”
- Original FDA Label- Risk of Abuse/Addiction
- Risk of Abuse consistently minimized
  * Risk deemed “very rare” in 1996
- 2007 Purdue Pharma fined $634M
- 2009 OxyContin Sales $3B

* Source: Business News (Reuters) June 20, 2018
Which is heroin and which is oxycodone?

Similar chemical structure leads to similar biological effect.
A Population-based Study on Chronic Pain – All-Cause Mortality and Treatment with Opioids

FIGURE 1. Hazard Ratios (HR) and 95% confidence intervals for all-cause mortality according to the chronic pain status and the use of opioids in 2000. Clin J Pain 2010; Volume 26, Number 9
Points of Note

• No increase in opioid education for providers
  • e.g. how to write an Rx
• Experts over-simplified opioid use
• Morbidity and mortality data related to opioid use and misuse was largely ignored 2004-2012
  
e.g. opioid related deaths overtaking MVA related deaths (occurred in Indiana 2008)

* In 2012 DENTISTS wrote about 20 million prescriptions for opioid pain medications
  ~ 105 opioid prescriptions *per* dentist

* Source: IMS Health, National Prescription Audit, United States, 2012
Perspective and Wisdom

“Doing everything for everyone is neither tenable nor desirable. What is done should be inspired by compassion and guided by science and not merely reflect what the market will bear.”

— JAMA 1996; 269:3030
Risk factors

Pharmacological Factors
High Opioid Dose and Overdose Risk

## Risk of SUD/Abuse

<table>
<thead>
<tr>
<th>OR (adjusted)</th>
<th>when exposed to:</th>
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<tbody>
<tr>
<td>122</td>
<td>≥120 MED/day</td>
</tr>
<tr>
<td>29</td>
<td>36-120 MED/day</td>
</tr>
<tr>
<td>15</td>
<td>1-36 MED/day</td>
</tr>
<tr>
<td>1</td>
<td>no opioid prescription</td>
</tr>
</tbody>
</table>

(considered non-exposed)

Note: The risk of abusing drugs and developing a SUD dramatically increases with increasing morphine equivalent dose (MED) per day

The Disease Process of Addiction

Substance Use/Experimentation

Abuse

Dependence

Early Addiction (Substance Abuse)

Advanced Addiction (Substance Dependence)

Repetition of adaptive behaviors: eating, sleeping, social, occupational, sexual behavior, etc.

Drug seeking/drug taking

Slide borrowed from Dr. A. Chambers
Miss. B. Havyor                               4/06/86
321 Sobriety Lane                  1/16/18

Oxycodone/APAP 5 mg/325 mg

Sig. 1-2 po each 6-8 hrs for 2 days, 1 po each 6-10 hr for 2
days, 1 po each 8-12 hr as needed for 2 days, stop.
(do not exceed 8/day) Disp.- twenty-four (24)

P. G. Yuan MD
Note: The **active dose / lethal dose** ratio is high for cocaine, morphine and heroin. This indicates the danger of death from the abuse of these drugs is high if an abuser makes an error in the amount consumed.
<table>
<thead>
<tr>
<th>Factor</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication-related</td>
<td></td>
</tr>
<tr>
<td>Daily dose &gt;100 MME*</td>
<td>Overdose, addiction</td>
</tr>
<tr>
<td>Long-acting or extended-release formulation (e.g., methadone, fentanyl patch)</td>
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<tr>
<td>Combination of opioids with benzodiazepines</td>
<td>Overdose</td>
</tr>
<tr>
<td>Long-term opioid use (&gt;3 mo)†</td>
<td>Overdose, addiction</td>
</tr>
<tr>
<td>Period shortly after initiation of long-acting or extended-release formulation (&lt;2 wk)</td>
<td>Overdose</td>
</tr>
<tr>
<td>Patient-related</td>
<td></td>
</tr>
<tr>
<td>Age &gt;65 yr</td>
<td>Overdose</td>
</tr>
<tr>
<td>Sleep-disordered breathing‡</td>
<td>Overdose</td>
</tr>
<tr>
<td>Renal or hepatic impairment‡</td>
<td>Overdose</td>
</tr>
<tr>
<td>Depression</td>
<td>Overdose, addiction</td>
</tr>
<tr>
<td>Substance-use disorder (including alcohol)</td>
<td>Overdose, addiction</td>
</tr>
<tr>
<td>History of overdose</td>
<td>Overdose</td>
</tr>
<tr>
<td>Adolescence</td>
<td>Addiction</td>
</tr>
</tbody>
</table>

# Predictors of Opioid Misuse

## Multivariate Analysis:

<table>
<thead>
<tr>
<th>Model*</th>
<th>Odds Ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.95</td>
<td>0.027</td>
</tr>
<tr>
<td>Drug or DUI Conviction</td>
<td>2.58</td>
<td>0.030</td>
</tr>
<tr>
<td>History of Cocaine Abuse</td>
<td>4.30</td>
<td>0.001</td>
</tr>
<tr>
<td>History of Ethanol Abuse</td>
<td>2.60</td>
<td>0.048</td>
</tr>
</tbody>
</table>

Note: 62/169 met misuse criteria

- Young, male, Etohism

* % = Positive urine cannabinoid and history of cocaine use were strongly correlated.
Risk factors

Biological Factors
Why Do People Abuse Drugs?

Drugs of Abuse Engage Motivation and Pleasure Pathways of the Brain

NIDA
Movement
Motivation
Dopamine
Addiction
Reward & well-being
Effects of Drugs on Dopamine Release

Amphetamine

Cocaine

Nicotine

Morphine

Di Chiara and Imperato, PNAS, 1988
Addiction and Changed Brain Circuits

Why Can’t Addicts Just Quit?

Non-Addicted Brain

Control → Drive → Memory

Addicted Brain

Control → Drive → Memory → GO

Because Addiction Changes Brain Circuits

Adapted from Volkow et al., Neuropharmacology, 2004.
The corticolimbic system

- **Anterior cingulate cortex**
  - Affect, selective attention and social interactions

- **Dorsolateral prefrontal cortex**
  - Motivation/executive function

**Amygdala**
- Emotional stress and learning

**Hippocampus**
- Learning and memory

**Brain Disease**
Plasticity: Hard Wired Addiction

• Conditioning triggered by drug causes enhanced DA signaling when the addict experiences conditioned cues (seeking cues)
• This drives motivation to seek out and procure
• Activation of PFC and striatal regions
• Therefore, regional deficits induced by drug use link PFC/striatal to loss of control and compulsive drug intake when he/she is exposed to and or takes drug
• Deficits reduce addicts’ sensitivity to natural reinforcers (harder to find pleasure/satisfaction)
Not a failure of morals or character

- Environment
- Genetic
- Mental illness
- Youth to 25

- Neuroplastic
- Chronic
Dopamine Pathways

- Functions
  - Reward (motivation)
  - Pleasure, euphoria
  - Motor function (fine-tuning)
  - Compulsion
  - Perseveration

Serotonin Pathways

- Functions
  - Mood
  - Memory processing
  - Sleep
  - Cognition

Frontal cortex

Striatum

Substantia nigra

VTA

Nucleus accumbens

Hippocampus

Raphe nucleus

NIDA
Risk factors

SUD and Age
The Earlier Teens Use Any Substance, the Greater the Risk of Addiction

- First Used Before 15: 28.1%
- First Used 15 to 17: 18.6%
- First Used 18 to 20: 7.4%
- First Used 21+: 4.3%

Percent of Population 12 & Older with a Substance Use Disorder

Source: CASA analysis of the National Household Survey on Drug Use and Health (NSDUH), 2009.
Adolescent Brain (<25 years old)

- 90% adults with substance abuse began smoking, drinking or using drugs < 18 yo (tobacco, alcohol, and drugs)
  - Primed to take risks, immature decision making, judgment, impulse control

- Addictive substance use physically alter brain structure and function faster and more intensely than in adults
  - Interferes with brain development
  - Further impairing judgment
  - Significantly increase the risk of addiction
Risk factors

SUD and Mental Illness
Overlap of SERIOUS Mental Illness (SMI) and SUD

- 19.0 Million Adults Had SUD
- 10.4 Million Adults Had SMI
- 16.4 Million Adults
- 2.6 Million Adults
- 7.7 Million Adults

2016 NSDUH
Overlap of Mental Illness and SUD

2016 NSDUH

- 19.0 Million Adults Had SUD
- 10.8 Million had SUD, No Mental Illness
- 8.2 Million had SUD and Mental Illness
- 36.4 Million had Mental Illness, No SUD
- 44.7 Million Adults Had Mental Illness

2016 NSDUH
<table>
<thead>
<tr>
<th>Variable</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td></td>
</tr>
<tr>
<td>Spinal pain (lumbar, thoracic, or neck)</td>
<td>2-56</td>
</tr>
<tr>
<td>Neuropathic pain</td>
<td>4-12</td>
</tr>
<tr>
<td><strong>Fibromyalgia</strong></td>
<td>21-83</td>
</tr>
<tr>
<td>Migraine headache</td>
<td>17-28</td>
</tr>
<tr>
<td>Temporomandibular joint disorder</td>
<td>16-65</td>
</tr>
<tr>
<td>Pelvic pain</td>
<td>19-22</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>9-54</td>
</tr>
<tr>
<td>Arthritis</td>
<td>3-39</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
</tr>
<tr>
<td>Spinal pain (lumbar, thoracic, or neck)</td>
<td>1-26</td>
</tr>
<tr>
<td>Neuropathic pain</td>
<td>5-27</td>
</tr>
<tr>
<td><strong>Fibromyalgia</strong></td>
<td>18-60</td>
</tr>
<tr>
<td>Migraine headache</td>
<td>2-45</td>
</tr>
<tr>
<td>Temporomandibular joint disorder</td>
<td>15-65</td>
</tr>
<tr>
<td>Pelvic pain</td>
<td>12-41</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>21-51</td>
</tr>
<tr>
<td>Arthritis</td>
<td>1-35</td>
</tr>
<tr>
<td>Substance use disorder</td>
<td></td>
</tr>
<tr>
<td>Spinal pain (lumbar, thoracic, or neck)</td>
<td>4-14</td>
</tr>
<tr>
<td>Neuropathic pain</td>
<td>1-9</td>
</tr>
<tr>
<td><strong>Fibromyalgia</strong></td>
<td>1-25</td>
</tr>
<tr>
<td>Migraine headache</td>
<td>1-6</td>
</tr>
<tr>
<td>Arthritis</td>
<td>1-12</td>
</tr>
</tbody>
</table>

Current and 12-mo prevalence rates grouped together.
Complicated Associations

- Chronic Pain
- Mental Illness
- Substance Use Disorders (SUD)
- Cause and effect ??
- Need more research
Simplistic, failed and not science-based
Responses by

Health Care Providers

Communities
Responses by Health Care Providers
Difficult Starting Point

• Education deficiency of patients and providers
• Satisfaction surveys encouraging aggressive pain management
• Adoption of pain as 5th vital sign
• Predatory sales and unscrupulous Pharma
• “Eminence” based medicine
  • Reflexive and automated reliance on opioid medications
• Expectation-reality disequilibrium
• Majority people with SUDs do not feel a need to obtain treatment for the SUD
Low Hanging Fruit?
Opportunity for Intervention

- Prevalence of opioid abuse in chronic pain patients ranges between 20-24% across health-care settings.
  

- Lifetime prevalence of DSM-V OUD among those on chronic opioids: 9.7 % moderate OUD & 3.5 % severe OUD
  
  Source Substance Abuse and Rehabilitation 2015:6 83–91

P. MacKie’s opinion for prevalence of OUD among patients on opioids for chronic pain: 10% - 18%
Healthcare Provider Toolbox:
www.bitterpill.in.gov

A comprehensive clinical resource to assist you in managing your patients with chronic pain
Integrative Addiction Care and Methadone

• 2005 study with full complement of behavioral, psychological, medical and social support systems

• $38 benefit for each $1 spent on programs
  1. Less healthcare utilization
  2. Reduced spread of infectious illnesses
  3. Fewer overdoses
  4. Better employment
  5. Reduction in crime
Medicalize SUD

Chronic Brain Disease
Opioid Addiction Treatment Options

- Detoxification
  - Medication-assisted
  - Abstinence-based

- Medication-Assisted Treatment (MAT)
  - Methadone
  - Buprenorphine-w/o naloxone
  - Naltrexone

- Abstinence-based therapy
  - Long-term residential
  - Intensive outpatient
  - Behavioral therapies, (NA)
Naltrexone (Vivitrol)

- Antagonist – blocks all effects of opioids
- Oral and injectable forms (long-lived)
- Must be totally detoxed prior to use
- Effective for opioid and alcohol addiction treatment
- Can “override” blockade with high doses of opioids
- Risk of overdose, hepatotoxicity, injection reactions
- Works best in highly motivated individuals – parole, probation, early release
Medication-Assisted Treatment (MAT)

Buprenorphine \((Subutex/Suboxone)\)

- Partial agonist
- \(Suboxone\) has antagonist
  * naloxone
- Decreased risk of overdose/abuse
- Office-based treatment
- Sublingual dosing
- Physicians DEA training/certification
- Limitations on number of people an individual physician can treat
- Covered by Medicaid
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Methadone</th>
<th>Buprenorphine</th>
<th>Naltrexone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brand names</strong></td>
<td>Dolophine, Methadose</td>
<td>Subutex, Suboxone, Zubsolv</td>
<td>Depade, ReVia, Vivitrol</td>
</tr>
<tr>
<td><strong>Class</strong></td>
<td>Agonist (fully activates opioid receptors)</td>
<td>Partial agonist (activates opioid receptors but produces a diminished response even with full occupancy)</td>
<td>Antagonist (blocks the opioid receptors and interferes with the rewarding and analgesic effects of opioids)</td>
</tr>
<tr>
<td><strong>Use and effects</strong></td>
<td>Taken once per day orally to reduce opioid cravings and withdrawal symptoms</td>
<td>Taken orally or sublingually (usually once a day) to relieve opioid cravings and withdrawal symptoms</td>
<td>Taken orally or by injection to diminish the reinforcing effects of opioids (potentially extinguishing the association between conditioned stimuli and opioid use)</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td>High strength and efficacy as long as oral dosing (which slows brain uptake and reduces euphoria) is adhered to; excellent option for patients who have no response to other medications</td>
<td>Eligible to be prescribed by certified physicians, which eliminates the need to visit specialized treatment clinics and thus widens availability</td>
<td>Not addictive or sedating and does not result in physical dependence; a recently approved depot injection formulation, Vivitrol, eliminates need for daily dosing</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>Mostly available through approved outpatient treatment programs, which patients must visit daily</td>
<td>Subutex has measurable abuse liability; Suboxone diminishes this risk by including naltrexone, an antagonist that induces withdrawal if the drug is injected</td>
<td>Poor patient compliance (but Vivitrol should improve compliance); initiation requires attaining prolonged (e.g., 7-day) abstinence, during which withdrawal, relapse, and early dropout may occur</td>
</tr>
</tbody>
</table>
Access to MAT Saves Lives

A study of heroin overdose deaths in Baltimore between 1995 and 2009 found an association between the increasing availability of methadone and buprenorphine and reduction in mortality with a 50% decrease in fatal overdoses.

— Am J Public Health 2013; 103:917-22
Outcomes far better with MAT

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>No MAT</th>
<th>Methadone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention</td>
<td>154/1000</td>
<td>684/1000</td>
</tr>
<tr>
<td>Morphine + urine</td>
<td>701/1000</td>
<td>463/1000</td>
</tr>
<tr>
<td>Criminal Activity</td>
<td>118/1000</td>
<td>46/1000</td>
</tr>
<tr>
<td>Mortality</td>
<td>17/1000</td>
<td>8/1000</td>
</tr>
</tbody>
</table>
Addiction is Like Other Diseases...

- It is preventable
- It is treatable
- It changes biology
- If untreated, it can last a lifetime

Decreased Brain Metabolism in Drug Abuser

Decreased Heart Metabolism in Heart Disease Patient

Research supported by NIDA addresses all of these components of addiction.
Summary

• OUD and SUD are common
• Risk factors include genetics, chaotic environment, exposure to medications and drugs, youth, and mental illness
• Providers can be judicious with opioids and still provide adequate analgesia
• OUD is present in approximately 10-25 % of those receiving opioids chronically for pain
Summary

• Ask about OUD and use survey tools to help identify those with OUD and use open non-judgmental language
• Knowing current or past OUD may help reduce risk of iatrogenic relapse
• MAT saves lives, money and is underused
Responses by

Health Care Providers

• Legislatures
• Dental boards
• Organizations
eSB 226: 7-Day Emergency Rules

- July 1, 2017
- Exclusions For Emergency Rule
  - MAT, cancer, palliative/hospice
- Adult first time Rx by the prescriber
- All persons < 18 years
- Professional judgment out
- Partial Refill Request
eSB 226: 7-Day Emergency Rules

1. If the prescription is for an adult who is being prescribed an opioid for the first time by the prescriber, the initial prescription may not exceed a seven (7) day supply.

2. If the prescription is for a child who is younger than 18 years of age, the prescription may not exceed a seven-day supply.

- Partial Refill Request
- Professional judgement out & document
eSB 226: 7-Day Emergency Rules

• Partial Refill Request
  • Patient or guardian/legal representative of patient
  • 30 days and then forfeit remainder
  • E.g. may elect to fill 12 of 24 tablet Rx and determine if more is required before 30 days

• Professional judgment out and document
  • If >7 days of opioids are to be given, there must be language in the medical record justifying the professional judgement of longer duration Rx
Medical Licensing Board Rules
Pain’s 10 Commandments

• Thou shall **diagnose** with appropriate care and review old records
• Thou shall do a **psychological assessment**
• Thou shall use a **risk stratification tool**
• Thou shall provide **informed consent** and **prognosis** with:
  - ✔ *Treatment Agreement* and *Functional Goals*, including
    - ✔ Exit strategy/protocol
    - ✔ Cover ETOH and Neonatal Abstinence Syndrome
Medical Licensing Board Rules
Pain’s 10 Commandments

- Thou may use **trial** of opioid therapy and modalities
  - Safe storage of medication
- Thou shall use a **pain assessment tool**
- Thou shall **see the patient** at four months or sooner
- Thou shall employ **drug monitoring and PDMP** (pill counts)
- Thou shall have appropriate and adequate **documentation**
- Thou shall have **formal re-evaluation and education** with MED > 60
Exemptions

Patients that are exempt from monitoring under these rules include those who are:

- Terminally ill
- Involved with a palliative care service
- Managed in a hospice program
- Residents of a registered nursing home
Late to the Dance
Policies and/or initiatives adopted by various organizations

• Eskenazi Health: 2011
• American Academy of Neurology: 2014
• National Safety Council: 2014
• Most legislatures by 2015
• Centers for Disease Control Guidelines: 2016
• IU’s Grand Challenge: 2017 and $ 50 million
• American Dental Association: 2018
  – Supports mandates on opioid prescribing and continuing education
ADA Policy

• The ADA supports mandatory continuing education in prescribing opioids & other controlled substances.
• 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 CDC evidence-based guidelines.
• The ADA supports dentists registering with, and utilizing, prescription drug monitoring programs to promote the appropriate use of opioids and deter misuse and abuse.
Managing Pain

- Alternative Interventions
- Risk Stratification
- Assess for SUD/OUD
- Assess Mental Status
- Informed Consent
- Periodic Visits
- 7-Day Rule
- Availability of naloxone (Aaron’s Rule)
Exit Strategy at Onset
Never start that which you will not stop

*It sort of makes you stop and think, doesn’t it?*
Alternative Interventions

It sort of makes you stop and think, doesn’t it?
Non-Pharmacologic Interventions

- Education
- Ice/Heat
- Exercise
  - Aerobic, ROM
  - Strength
- Yoga, Tai Chi
- Manual
  - Massage
  - Chiropractic
- Acupuncture
- CBT, mindfulness, hypnosis
- Relaxation Response
- Tobacco cessation, weight loss
- Counseling
- Interventional pain modalities
- Education
- PT/OT
- Nutrition
# Non-Opioid Medications

## MSK/Inflammatory pain
- Acetaminophen
- NSAIDS
- Topical anesthetics (lidocaine)
- Anti-inflammatory cream
- Steroid injections
- Muscle relaxants
- Whole food plant-based nutrition

## Neuropathic pain
- TCA’s (SOR-A)
- Topical anesthetics
- Linoleic acid
- Neuropathic creams
- SNRI’s (SOR-A)
- Anticonvulsants

## Visceral pain
- NSAIDS/acetaminophen
- Antispasmodics

## Restore Sleep
- Melatonin
- TCA’s
- Trazadone
- Doxepin
- Aroma therapy
Perform your own evaluation

- Take a thorough history
- Perform a targeted physical exam
- Establish a working diagnosis
- Do appropriate tests
- Obtain & review records of past care
Risk Stratification
More Than Classic Aberrancy

- Physical
- Family history
- Social/Domestic
- Mental Health
- PDMP
- Rx Combinations
- Stable housing?
- Toxicology data
- Discharged ("fired") by previous Providers

- Age <45, esp. < 25
- Tobacco use
- Chaos/ Life Trauma Hx
- Legal history
  - Web inquiries EZ
  - DOC-site
- Abuse (sexual) history
  - Esp. when young
- Repeated traumas
  - Non-sports related
Especially Important

- Assess risk for substance abuse/harm
- Assess mental health status
Assessment for OUD

Screen for prior or current opioid use before starting treatment
Substance Abuse Assessment Survey Tools

Ask patients about any past or current history of **substance abuse** (alcohol, Rx meds, or illicits) prior to initiating treatment for chronic pain with opioids

- **ORT** – Opioid Risk Tool
- **SOAPP** – Screener/Opioid Assessment for Patients in Pain (starting opioids)
- **COMM** – Common Opioid Misuse Measure (pts already using opioids)

These survey tools will be available at: [www.bitterpill.in.gov](http://www.bitterpill.in.gov)
Any truth is better than indefinite doubt

Prescription Drug Monitoring
Check INSPECT
Assessment of mental health status

Screen for mental illness before starting treatment
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Pain and Mental Illness

2011 National Survey

of 41 million people with mental illness

• Mental Illness:
  • Magnifies medical/somatic symptoms
  • Elevates cost of treatment
  • Diminishes success of treatment of pain
• Mental illness can interfere with the treatment of pain
• Mental illness needs treatment for successful pain management
<table>
<thead>
<tr>
<th>Condition</th>
<th>Prevalence Chronic Pain Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>33% - 54%&lt;sup&gt;22,23&lt;/sup&gt;</td>
</tr>
<tr>
<td>Anxiety Disorders</td>
<td>16.5% - 50%&lt;sup&gt;22,24&lt;/sup&gt;</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>31% - 81%&lt;sup&gt;25,26&lt;/sup&gt;</td>
</tr>
<tr>
<td>PTSD</td>
<td>49% veterans&lt;sup&gt;27&lt;/sup&gt;; 2% civilians&lt;sup&gt;24&lt;/sup&gt;</td>
</tr>
<tr>
<td>Substance Use Disorders</td>
<td>15% - 28%&lt;sup&gt;22,25&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

PTSD, posttraumatic stress disorder.

---


SCOPE of Pain Boston University

16% with mental illness get 51% of opioid

J Am Board Fam Med 2017; 30:407–417
Chronic pain may be caused, influenced or modulated by …

- Depression (PHQ-2, PHQ-9)
- Post Traumatic Stress Disorder
- Anxiety/Panic Disorder (GAD-7)

Note: Treat any underlying psychiatric diagnosis first or, at least, concurrently
Informed Consent when prescribing opioid medications

- Discuss the risks and benefits of opioid treatment
- Provide clear explanation to help patients understand key elements of treatment plan
- Counsel women of child-bearing age about the potential for fetal opioid dependence and neonatal abstinence syndrome (NAS)
Informed Decision

Possible Benefits

• Less pain
  – Rarely > 30-50%
  – Only 4 mo.
• Function/QOL
• Getting on Disability

Possible Adverse Rxns

• Disordered sleep
• Gastroparesis
• Hypogonadism
• Osteoporosis/fractures
• Myocardial infarction
• Neonatal Abstinence Syndrome
• OD and death
• Opioid Induced hyperalgesia
• Opioid use Disorder
Review and Sign a Treatment Agreement

- Goals of treatment
- Consent and drug monitoring with random pill counts
- Prescribing policies, prohibition of sharing medications and requirement to take meds as prescribed
- Information on pain meds prescribed by other physicians
- Reasons that opioid therapy may be changed or discontinued
- Counsel women of child-bearing age about the potential for fetal opioid dependence & neonatal abstinence syndrome (NAS).
Periodic Scheduled Visits

- Evaluate patient progress
- Monitor compliance
- Set clear expectations
- Q 4 mo., if stable (minimum)
- Q 2 mo., if changing meds; more often as needed

Affect • Activities (function) • Analgesia • Adverse effects • Aberrant
Reassessment is required when MME ≥ 60

- Face-to-face review to reassess your patient
- Formulate/document a revised assessment and treatment plan
- Discuss the increased risk for adverse outcomes (including death) with higher opioid doses if that is what you plan to do
Opioid Use Disorder and the 7 day Rule

Limits on prescribing opioid medications
The graph shows the probability of continuing use in % over the number of days of the first episode of opioid use. The graph is divided into two main sections:

1. One year probability (brown line)
2. Three year probability (gray line)

At the 12.5% mark on the vertical axis, the graph indicates a specific number of days on the horizontal axis. The source of the graph is MMWR / March 17, 2017 / Vol. 66 / No. 10.
FIGURE 2. One- and 3-year probabilities of continued opioid use among opioid-naïve patients, by number of prescriptions* in the first episode of opioid use — United States, 2006–2015

[Graph showing the probability of continuing use (in %) over the number of prescriptions (0 to 16) for 1-year and 3-year probabilities.]
Points to Note

- If an opioid naïve person is given a 7 day Rx for opioids there is a 12.5 % chance of this person being on opioids @12 months.
- A 21 day Rx is associated with 12.5 % risk of being on opioids at three years.
- Similarly, the more Rxs one receives, the more likely opioid use will continue to 12 months or even 36 months.

Source: MMWR / March 17, 2017 / Vol. 66 / No. 10
General Surgery in Vermont

Opioid Pills

- 127 of 330 patients participated in study
- Pill = 5 mg oxycodone
- Phone survey
- Based on patient recall

Source: Ann Surg 2016

**TABLE 2. Opioid Pills Taken**

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<tr>
<th>Operation</th>
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1.9% obtained a refill
# General Surgery in Vermont Opioid Pills

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Average number of pills used

Source: Ann Surg 2016
Defining Optimal Length of Opioid Pain Medication – Prescription After Common Surgical Procedures

• Cohort study of 215,140
• Median observed prescription lengths were
  – 4 days for general surgery procedures
  – 4 days for women’s health procedures
  – 6 days for musculoskeletal procedures
• Rx lengths associated with lowest refill rates
  – 9 days for general surgery
  – 13 days for women’s health
  – 15 days for musculoskeletal procedures

Post-op Prescription Guidelines – Elective Laparoscopic Cholecystectomy

Reduction in opioid prescribing through evidence-based prescribing guidelines

- University of Michigan
- November 2016 – March 2017
- Change in opioid RX with introduction of guidelines
- Median opioid prescribed reduced from 250 to 75 mg
- Median opioid used reduced from 30 to 20 mg, with no change in Pain Score
- Refill requests reduced from 4.1% to 2.5%
- APAP/NSAID used more often for pain control after guidelines, from 21% to 49%

Source: JAMA Surg 2017
Following the implementation of evidence-based prescribing guidelines, opioid prescriptions were significantly reduced from an equivalent of approximately 45 pills of hydrocodone, 5 mg, to approximately 15 pills (P < .001). The dashed line represents the expected decline in prescribing prior to the study intervention.

**Reduction of from 45 to 15 pills per prescription using guidelines**

Source: JAMA Surg 2017
Following the implementation of evidence-based prescribing guidelines, opioid prescriptions were significantly reduced from an equivalent of approximately 45 pills of hydrocodone, 5 mg, to approximately 15 pills (P < .001). The dashed line represents the expected decline in prescribing prior to the study intervention.

This represents 7000 fewer pills among this cohort

Source: JAMA Surg 2017
Points to Note

• Post-op pain can be managed with much less opioids than used in the past.

• Gynecologic, general and orthopedic post-op care can all use less opioids.

• Patients/guardians can request partial fills on Rxs and obtain the balance before 30 days.

• Over seven days of opioids for new patients and for those under 18 requires appropriate documentation in the medical record.
2016 - FDA Black Box Warning

Health care professionals should limit prescribing opioid pain medicines with benzodiazepines (or other CNS depressants) only to patients for whom alternative treatment options are inadequate.

If these medicines are prescribed together, limit the dosages and duration of each drug to the minimum possible while achieving the desired clinical effect. Warn patients and caregivers about the risks of slowed or difficult breathing and/or sedation, and the associated signs and symptoms. Avoid prescribing prescription opioid cough medicines for patients taking benzodiazepines or other CNS depressants, including alcohol.
Opioid SR and Benzo

- Greater pain, pain interference with life, and lower feelings of self-efficacy with respect to their pain
- Being prescribed “higher risk” (>200 MED)
- Antidepressant and/or antipsychotic medications
- Substance use (including more illicit and injection drug use, alcohol use disorder, and daily nicotine use)
- Greater mental health comorbidity and health costs

What about Methadone?

- A complex medication with a long half-life, highly variable pharmacologic properties and many drug-drug interactions
- It represented about 3% of opioid prescribing
- It was responsible for about 30% of opioid-related deaths
- **Be very cautious when co-prescribing**
Assessment for OUD

Screenings for opioid use during treatment
Three Objectives

Any truth is better than indefinite doubt

Prescription Drug Monitoring

INSPECT

Drug Monitoring

Urine
Blood
Saliva

Pill Counting

Early and late

Providers hands-off
Prescription Drug Monitoring Program

• Use PDMP regularly for new and established patients to detect unsafe patterns of medication acquisition.

• PDMP is free and easy to use; www.in.gov/inspect

• CDC recommends using PDMP at least four times per year

Thank you, pharmacists!
Urine Drug Monitoring

- UDM has evolved to become a standard of care when prescribing opioids
- Detecting illicit substances
- Monitoring patient adherence to prescribed medications
- UDM - at initiation of an opioid trial & at least annually (starting 12/2014)
- Interpretation is critical

“You’re in trouble” or urine trouble?
Aaron’s Law

• Named after Aaron Sims, a young Hoosier who lost his battle with heroin addiction in 2013
• April 2015: Aaron’s Law was signed by Indiana Gov. Mike Pence
• Allows anyone to get naloxone and make it legal for anyone to administer the drug
• Allows a pharmacist to dispense naloxone to an individual without a prescription
Some Improvement

Recent changes in the approach to pain management and the reduction on reliance on opioid medications is having an effect.
Indiana
Large drop in opioid prescriptions from 2013 to 2015
# Primary Care Monitoring of Long-Term Opioid Therapy among Veterans with Chronic Pain

## Table 2: Documentation of guideline-concordant opioid management processes

<table>
<thead>
<tr>
<th>Process</th>
<th>Full Cohort (N = 169)</th>
<th>No Opioid Misuse (N = 114)</th>
<th>Any Potential Misuse (N = 55)</th>
<th>P value‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reassessment of pain</td>
<td>105 (62)</td>
<td>66 (58)</td>
<td>39 (71)</td>
<td>0.102</td>
</tr>
<tr>
<td>Assessment of pain-related function</td>
<td>32 (19)</td>
<td>16 (14)</td>
<td>16 (29)</td>
<td>0.019</td>
</tr>
<tr>
<td>Assessment of adherence</td>
<td>40 (24)</td>
<td>24 (21)</td>
<td>16 (29)</td>
<td>0.249</td>
</tr>
<tr>
<td>Assessment of alcohol or drug use</td>
<td>24 (14)</td>
<td>10 (9)</td>
<td>14 (26)</td>
<td>0.004</td>
</tr>
<tr>
<td>Assessment of adverse effects</td>
<td>38 (23)</td>
<td>21 (18)</td>
<td>17 (31)</td>
<td>0.068</td>
</tr>
<tr>
<td>Opioid agreement*</td>
<td>19 (11)</td>
<td>9 (8)</td>
<td>10 (18)</td>
<td>0.047</td>
</tr>
<tr>
<td>Urine drug testing†</td>
<td>25 (15)</td>
<td>6 (5)</td>
<td>19 (35)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

* Counted as present if any agreement was present in the records; † counted as present if ordered by any provider within 12 months; ‡ P value is from chi-square test of comparison between patients with and without evidence of any potential opioid misuse (any combination of serious nonadherence, minor nonadherence, or substance abuse).

Source: Pain Medicine 2011; 12:740-746
Still have many challenges, including ...
People with SUDs may not seek treatment

- Pain as 5th Vital Sign
- HCAHPS/Satisfaction Surveys
- Expectation-Reality Disequilibrium
- Reflexive and Automated Opioidism
- Ignorance = Educational Opportunity
- The majority of people with SUDs do not feel a need to obtain treatment for the SUD and or can’t easily access
Our prime purpose in this life is to help others. If you can't help them, at least don't hurt them.

**HHDL**

- Opioids are helpful in short term
- Opioid use poses risks with acute or chronic use
- Safe and disciplined approach must be employed
- Rx opioid troubles are decreasing
- Polymodal approaches should be used
- Opioid Use Disorder needs to be understood and those with it compassionately and safely helped
The U.S. and Indiana are in the midst of an opioid epidemic. A large and increasing portion of the population are using opioids inappropriately and have an opioid use disorder (OUD).

The patients you treat may be using opioids, either through prescriptions or illicitly.

You can check whether your patients have received prescription medications through pharmacies by using INSPECT.
Lessons Learned

- It is important to obtain an accurate **history of medication and drug use** by your patients as this may influence how you prescribe pain medications.
- Patients with a **OUD** complicate the legitimate management of orofacial pain.
- Individuals who are misusing opioid medications may also have a **mental illness** that needs to be recognized and managed to appropriately and effectively manage their pain.
There are guidelines that have been published (online) by recognized authorities in opioid abuse and pain management that provide specific information about pain management for both acute pain and chronic pain.

Please refer to these guidelines for the latest information on pain management and the role of prescription medications, especially in context to the current opioid epidemic.