CDSBC | College of Dental Surgeons of British Columbia

From Pain to Wellness

Opioids and Beyond

Pacific Dental Conference
9 March 2017

Dr. Paul Farnan, MD, FCFPC, ABAM dipl
Occupational and Addiction Medicine

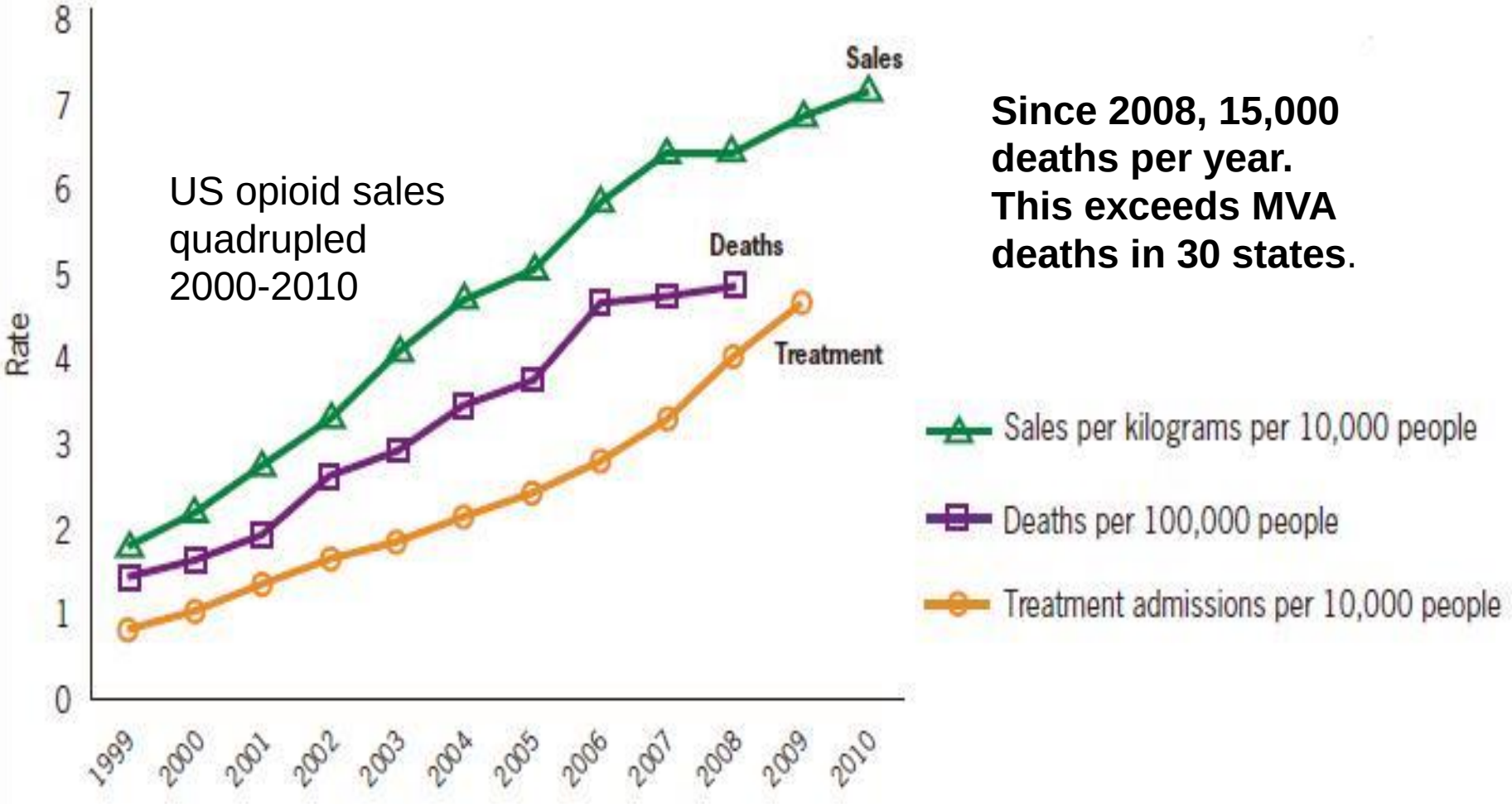
Key Points

- Opioid Addiction ‘Epidemic’
- Fentanyl ‘Crisis’
- Addiction?
- Health Professionals – Dentists
  - Prescribers?
  - Patients?
- Potentially impairing conditions
- Safe and sustainable return to work

Opiates… Opioids

- Endogenous opioids - ’endorphins’
- Opium alkaloids e.g morphine and codeine – ‘opiates’
- Semi-synthetic ‘opioids’ - heroin, oxycodone, hydromorphone and buprenorphine
- Fully synthetic ‘opioids’ - methadone, fentanyl that have structures unrelated to the opium alkaloids

Rates of prescription painkiller sales, deaths and substance abuse treatment admissions (1999-2010)



US opioid sales quadrupled 2000-2010

Since 2008, 15,000 deaths per year. This exceeds MVA deaths in 30 states.

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

Slide courtesy Mark Sullivan

How did we get here?

Industry-funded "education" emphasized

- Opioids are extremely safe and effective for treatment of chronic non-cancer pain.
- Opioid addiction is extremely rare in patients with pain - less than 1% (CR safer than IR)
- Opioid therapy can be easily discontinued.
- Because of "opioiphobia", physicians are allowing patients with pain to suffer needlessly

New York Times – May 20, 2007

‘In Guilty Plea, Oxycontin Maker to Pay $600M’

'three current and former executives pleaded guilty today in federal court to criminal charges that they misled regulators, doctors and patients about the drug’s risk of addiction and its potential to be abused'

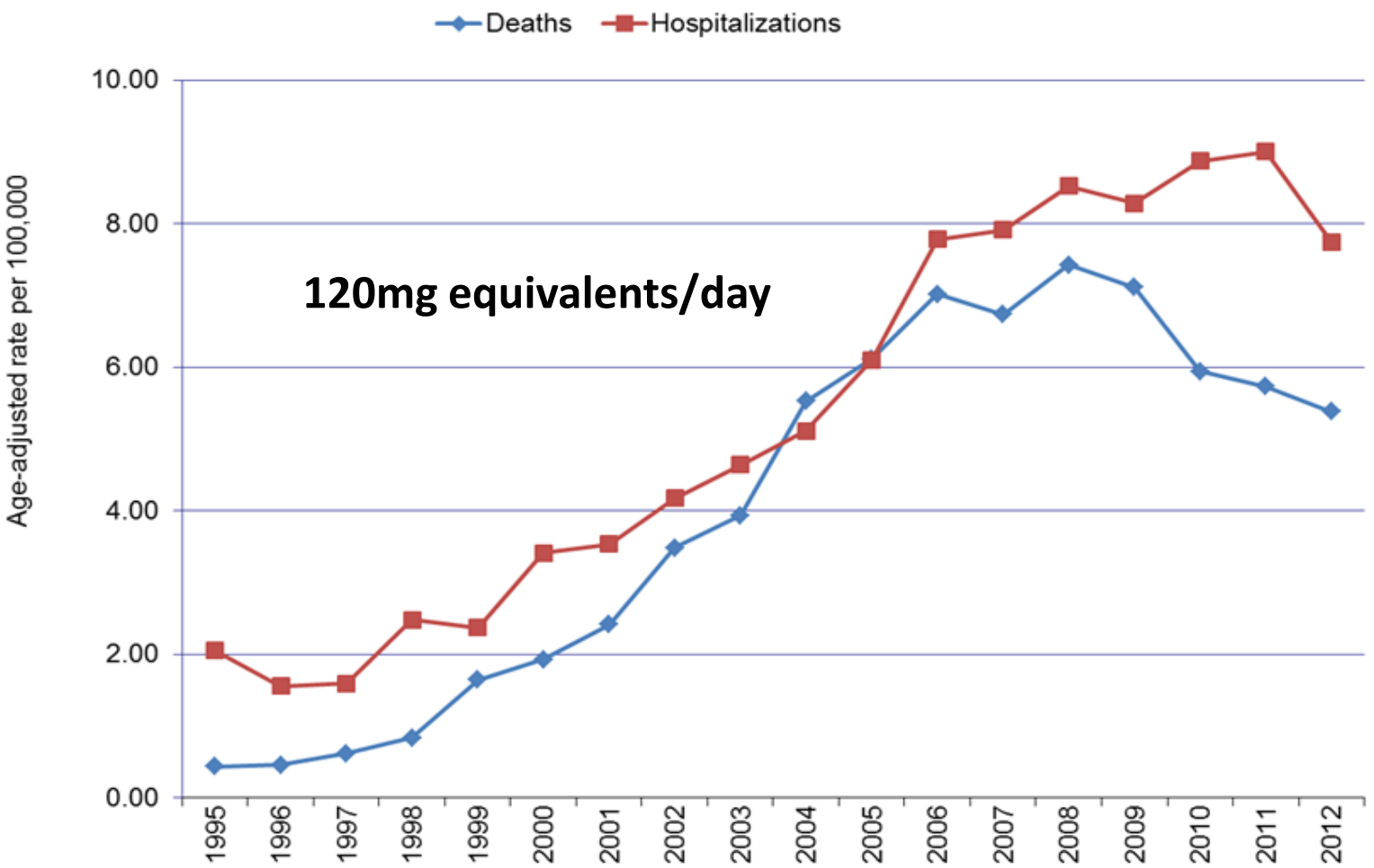
Canada & Opioids?

- 2nd highest opioid consumption among developed countries
- Rate of pharmaceutical use tripled over past decade
- BC dispenses more than double the amounts of opioids compared to Quebec
- ‘Opioid Addiction Epidemic’, ‘Fentanyl Crisis’

Efficacy of Long-term Opioids?

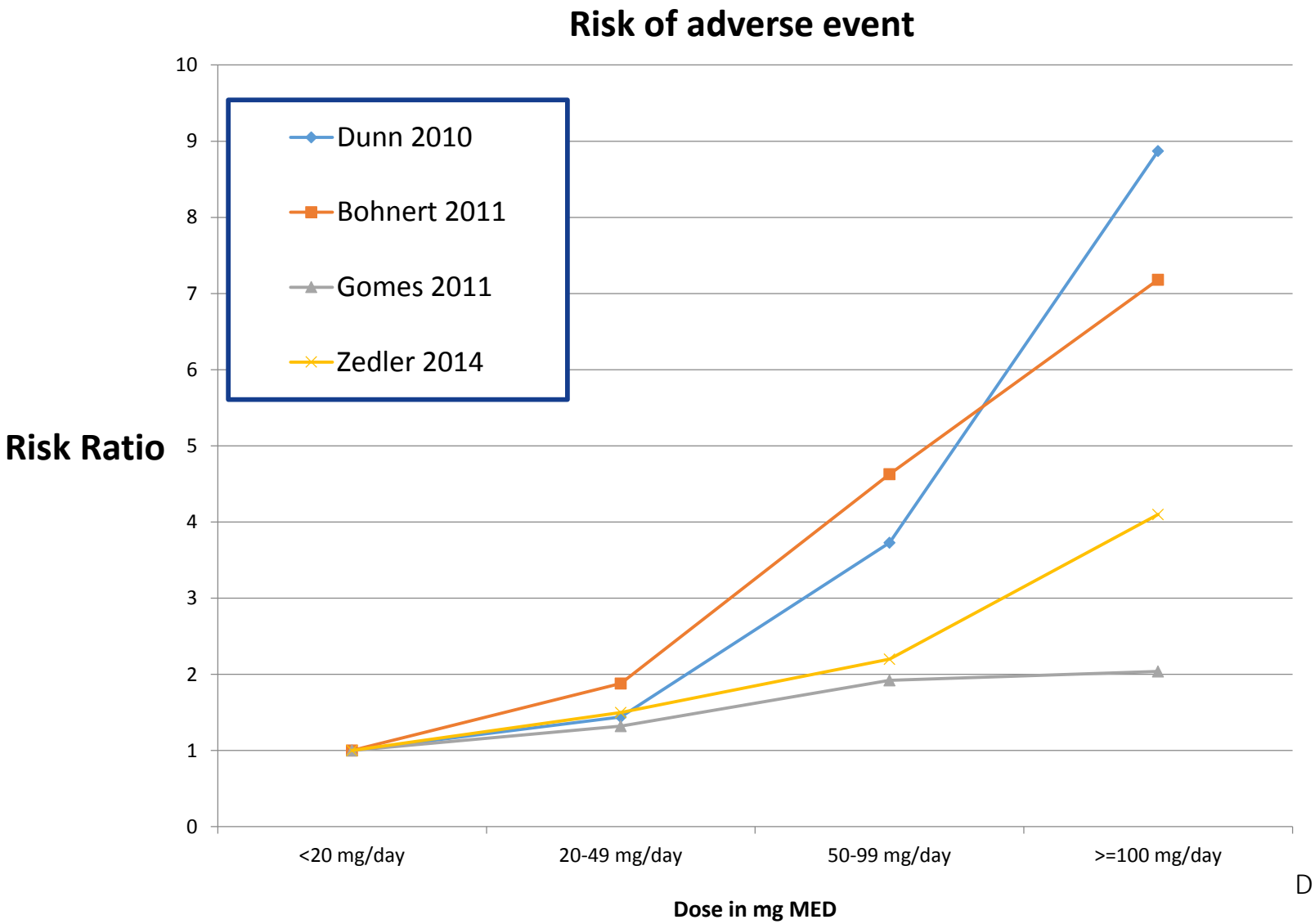
- No study evaluated effects of long-term opioid therapy (>1 year) versus placebo or no opioid therapy for outcomes of pain, function or quality of life for ANY type of painful condition
- Evidence on long-term opioid therapy for chronic pain is very limited but suggests an increased risk of serious harms that appears to be dose-dependent
- Risk of Overdose
- Risk of Addiction

Prescription Opioid Involved Overdoses Washington State



Franklin

Dose-related risk of Opioid Overdose



Dr Gary Franklin

Dose threshold policies

2007: Washington Agency Medical Directors' Opioid Dosing Guidelines

- 120 mg MED/day threshold dose
- Re-evaluation and pain management consultation if needed

2009: APS/AAPM guideline

- 200 mg MED/day "watchful" dose
- Based on doses evaluated in trials and observed in observational studies
- Recommended re-evaluation for appropriateness of therapy, enhanced monitoring, consider consultation

2010 Canadian Guidelines for Opioids in Non-Cancer Pain

- Watchful dose 200 mg MED/day

Subsequent policies have generally recommended dosing thresholds of 80-120 mg/day MED;

CDC Guidelines for Prescribing Opioids for Chronic Pain - US 2016

- Preference 'non-pharmacological …non opioid pharmacological therapy' for treatment of pain
- Prescribe 'immediate-release...instead of extended-release/long-acting opioids'
- 'lowest effective dosage of opioids', in 'no greater quantity than needed', to address 'pain severe enough to require opioids'
- 'avoid... **> 90mg** ME/day' dosing
- 'evaluate benefits and harms' of opioid therapy
- 'avoid prescribing (opioids) and benzodiazepines concurrently'

Others

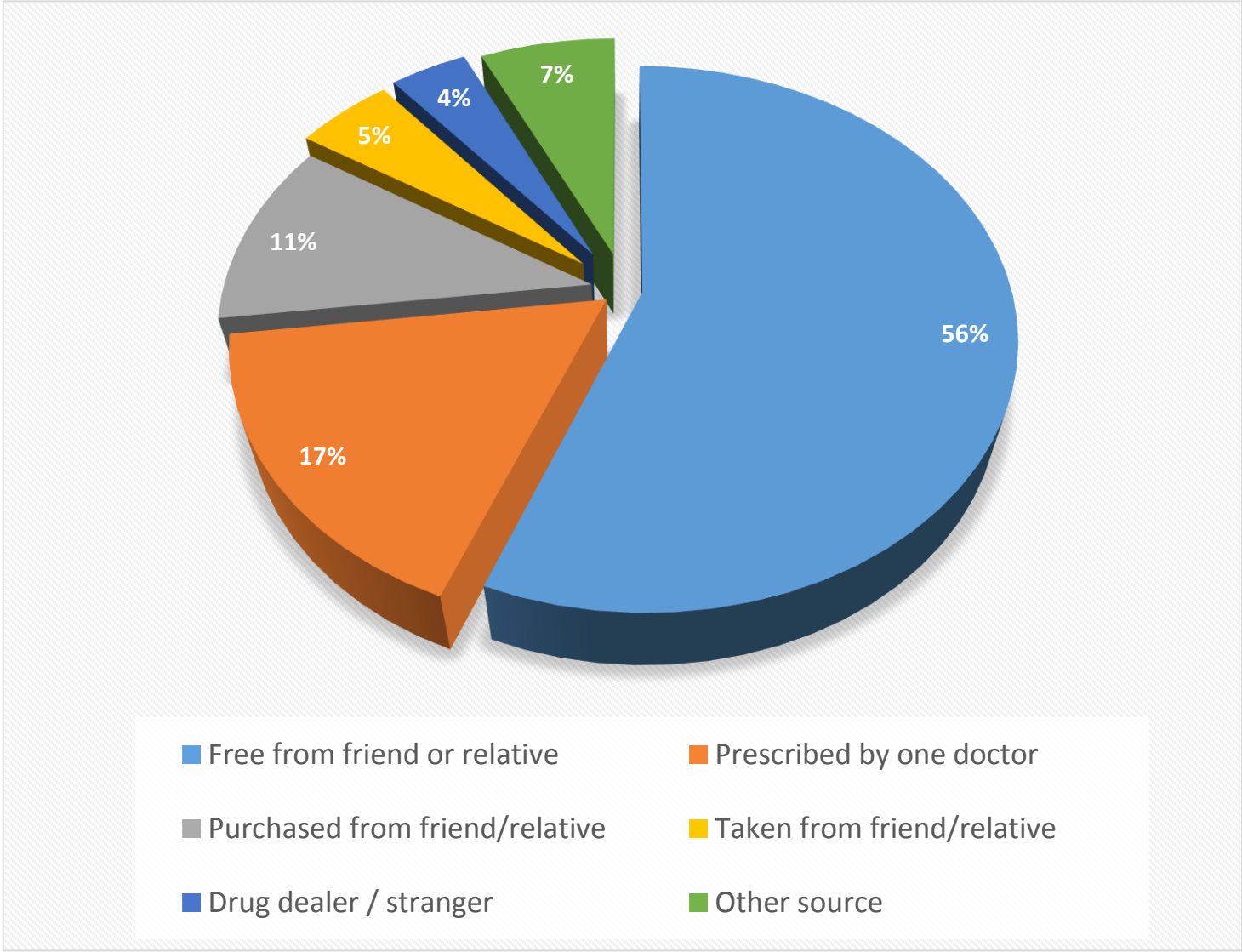
- **College of Physicians & Surgeons of BC**
  - Professional Standards and Guidelines: Safe Prescribing of Drugs with Potential for Misuse/Diversion
  - 50 mg/day careful reassessment and documentation
  - 90 mg/day substantive evidence of exceptional need & benefit
  - Effective June 1, 2016 & Revised August 5, 2016
- **American College of Occupational and Environmental Medicine** – 50 mg/day MED
- **2017 Draft recommendations for the Use of Opioids in Chronic Non-Cancer Pain – National Pain Centre –** < 50 mg/day MED

Six Steps to Safe and Effective Prescribing Opioids IF prescribed

1. Thoughtful patient selection
2. Care with dose size – ?50 mg MED
3. Don't stock medicine cabinets (3 days dosing)
4. Avoid prescribing combinations e.g. BZDs
5. Prescribe lifestyle interventions
6. Use pharmacovigilance – Pharmanet, UDT, pill counts etc

Chadha

Sources of prescription opioids for those that abuse them (adapted from SAMHSA 2010)



Opioid Abuse and Addiction is Dose Dependent

Long-term prescribed opioid use (>90 days supply) associated with increased risk of an opioid abuse or dependence diagnosis vs. no opioid treatment

- Low dose (1-36 mg MED/day): OR 15
- Moderate dose (36-120 mg MED/day): OR 29
- **High dose (≥120 mg MED/day): OR 122**

(Edlund 2014)

Prescription Opioids in adolescents

Legitimate opioid use before high school graduation is associated with 33% increase risk of opioid misuse by age 23

Limit acute prescriptions for teens to 3days/10tabs short acting opioids

R. Miech et al. Prescription Opioids in Adolescence and Future Opioid Misuse, Pediatrics (2015). DOI: 10.1542/peds.2015-1364

Opioid prescribing ….and illicit market filling a vacuum

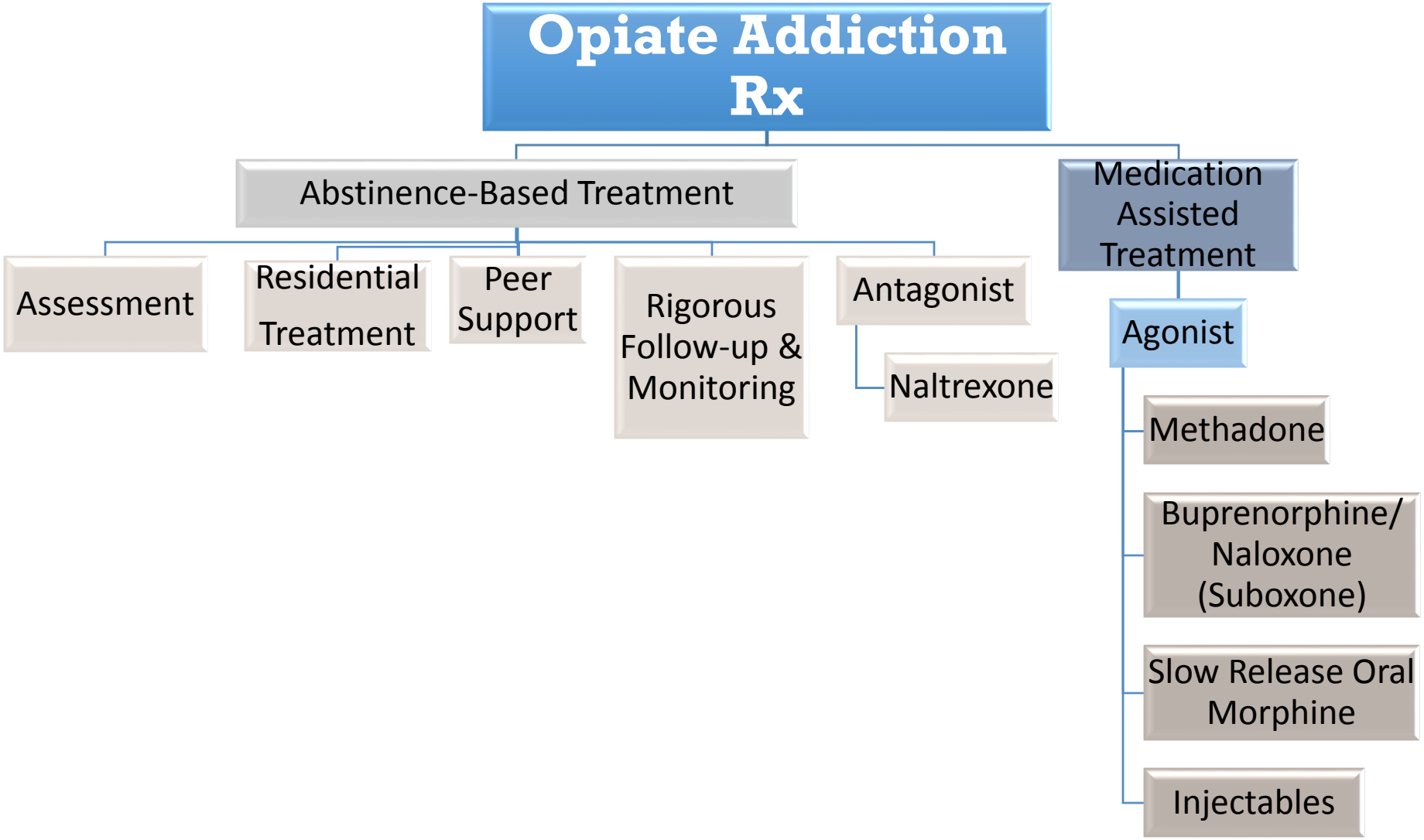
"This has been a problem in the making for a decade. The main driver is that we have prescribed too many prescription opioids for too long."

Benedikt Fischer, senior scientist at CAMH
The Current

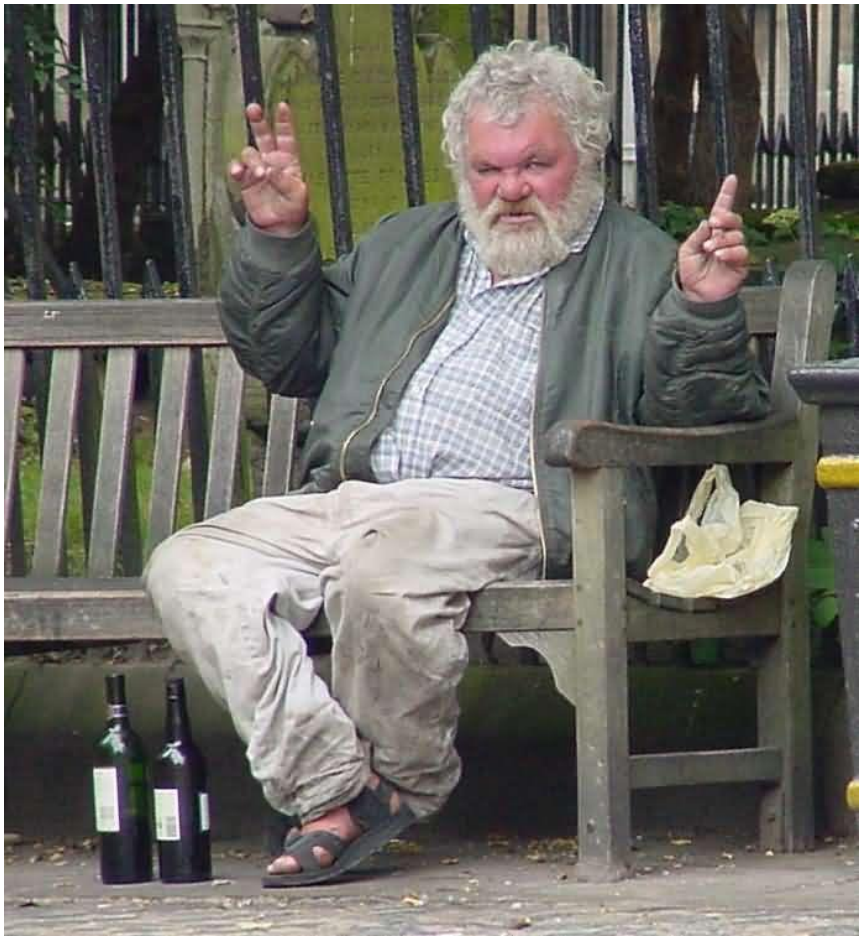
Controlling an Opioid epidemic - oversimplified?:

Four pillar approach to addiction?

- **Prevent** new cases of opioid addiction.
- **Treatment** for people who are already addicted
- **Harm Reduction -** policies, programmes and practices that aim to **reduce** the harms associated with the use of psychoactive drugs in people unable or unwilling to stop
- **Enforcement -** Provincial Colleges & law enforcement efforts to reduce over-prescribing and black-market availability.


Opiate Addiction Rx
Abstinence-Based Treatment
Medication Assisted Treatment
Assessment
Residential Treatment
Peer Support
Rigorous Follow-up & Monitoring
Antagonist
Naltrexone
Agonist
Methadone
Buprenorphine/ Naloxone (Suboxone)
Slow Release Oral Morphine
Injectables

We see what we want to see



Substance Use Disorders DSM IV TR

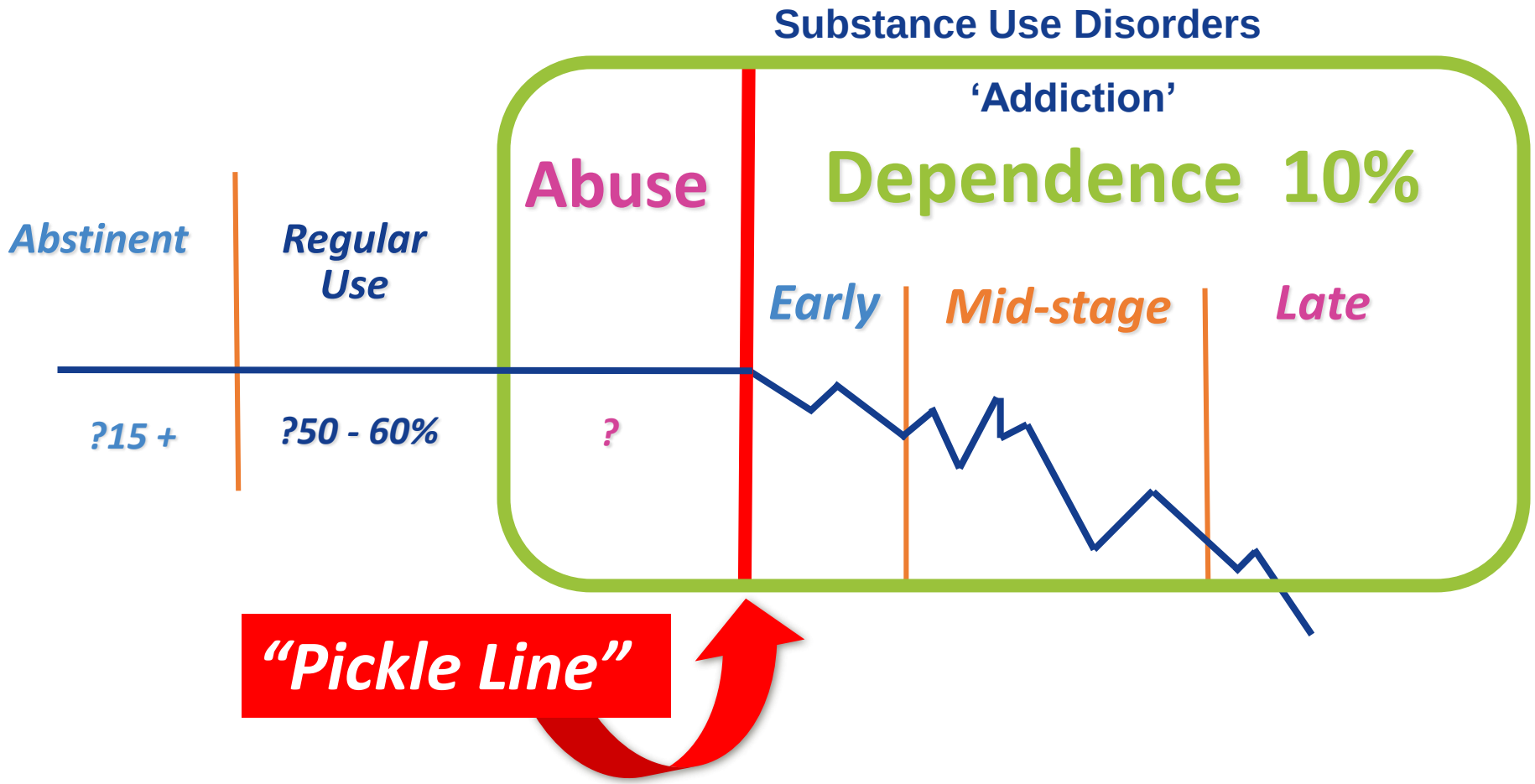
Substance (alcohol) **Abuse**

- Hazardous or harmful use with potentially negative consequences - dumb drinking and drugging

Substance Dependence ('Addiction') (3 C's)

- Loss of **C**ontrol
- Negative **C**onsequences
- **C**ompulsive use

Alcohol & Drug Use



Baker

Before ‘Rock Bottom’

Emotional/Spiritual

‘Psychiatric’

Medical

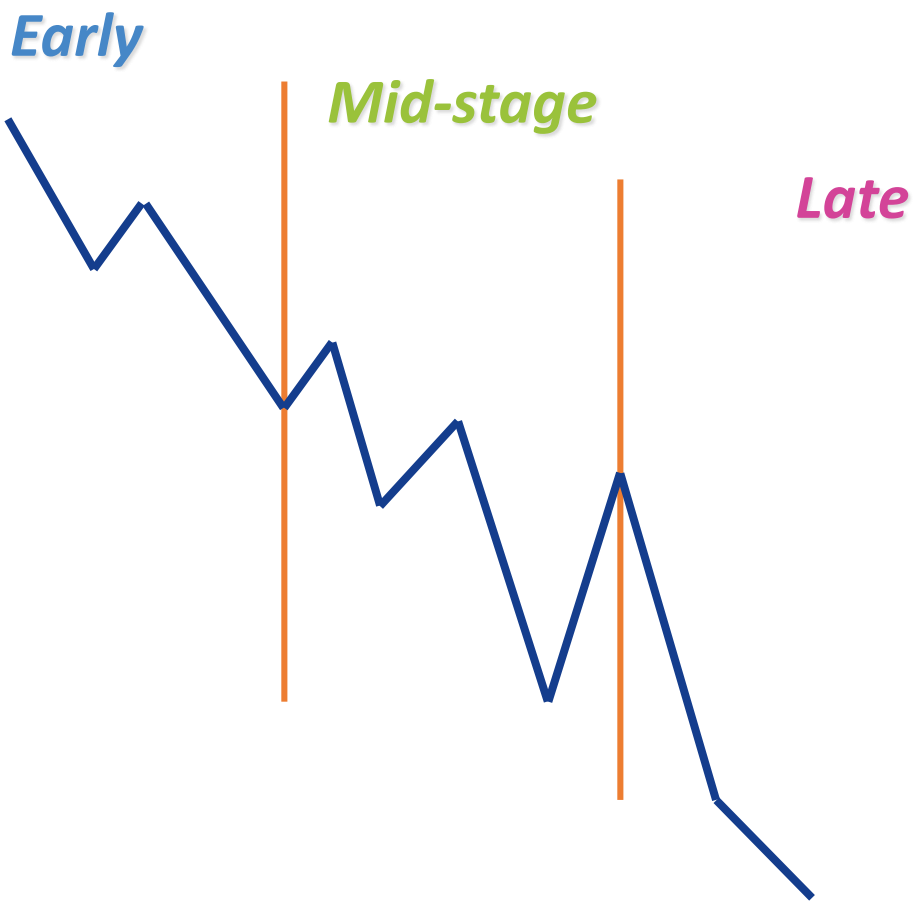
Family

Social

Financial

Legal

Work



Dental profession

Competitive
Compulsiveness
Perfectionism
Caring
Solo Practices & Isolation
Owners

How do Health pros 'do' illness?

- Life long tendency to self-reliance
- Denial
- Difficulty 'surrendering'
- Arrogance
- Worry about confidentiality and privacy

- Especially 'brain' illness

What Drugs?

- Alcohol
- Opiates
- Cocaine
- Benzodiazepines
- Nitrous Oxide

The role of occupational stress in the maladaptive use of alcohol by dentists: A study of South Australian general dental practitioners

'High levels of stress/burnout, consistent with other studies of dentists' stress, were recorded. Hazardous levels of alcohol consumption, which were between two and four times higher than the normative South Australian population, were also reported, particularly among males and rural dentists'.

PC Winwood[1,], AH Winefield[2], K. Lushington[3]* ***Australian Dental Journal Volume 48, Issue 2*** *pages 102–109, June 2003*

‘Invisible Patients’

UK Dept of Health-appointed Professor Alastair Scotland 2010

- ‘Thousands of doctors and dentists are putting patients at risk because they are addicted to alcohol’
- ‘As many as 15 % of dentists (1:7) may have an alcohol problem, while some 7 % of doctors (1:15) have been addicted to alcohol or drugs at some point in their career.’
- ‘Medical professionals often fail to seek help because they fear they will be stigmatized or could lose their jobs. Others simply remain in denial’

Continuum

- Identification
- ‘Intervention’
- Comprehensive Assessment
- Primary Treatment
- ‘Aftercare’
- Medical Monitoring
- Return to Work
- ‘Recovery’

Identification?

'Impaired' dental practice

- *.. a dentist's inability to perform essential job functions because of chemical dependency on drugs or alcohol or mental illness*
- Many health professionals are not identified as having a problem until patient safety has been compromised (Clark & Farnsworth 2006)
- Most substance dependent dentists are excellent clinicians & many are 'workaholics'

The Problems with Addictions

- Mimic other psychiatric and medical conditions
- Don’t get diagnosed by HCPs, in HCPs – no index of suspicion
- Colleagues, physicians, friends, families look the other way, cover up for, make excuses for
- Hence - They resist detection

Signs?

- Physical signs?
- More likely signs?
- More likely Behaviours?
- Diverting drugs at work?

Barriers to asking for help?

- The distorted thinking of the disease - DENIAL
- Rationalizing/Minimizing
- Seeking help is a personal failure
- Lack of knowledge regarding help
- Insurance discrimination
- Fear of Confidentiality/Practice/License
- ‘Pedestal effect’
- Shame and Stigma

Barriers to dealing with drug and alcohol problems in peers?

- No index of suspicion!
- Hoping it will go away, not confronting, covering up
- Fear of reaction
- Pressure of time
- Lack of interest/ general pessimism
- Fear of having to notify CDSBC
- Co-dependency & Enabling - *Killing with Kindness*

Identification of Problem?

- Rarely Self
- Colleagues
- Family
- Staff
- Friends
- Patients
- Law
- College
- Coroner

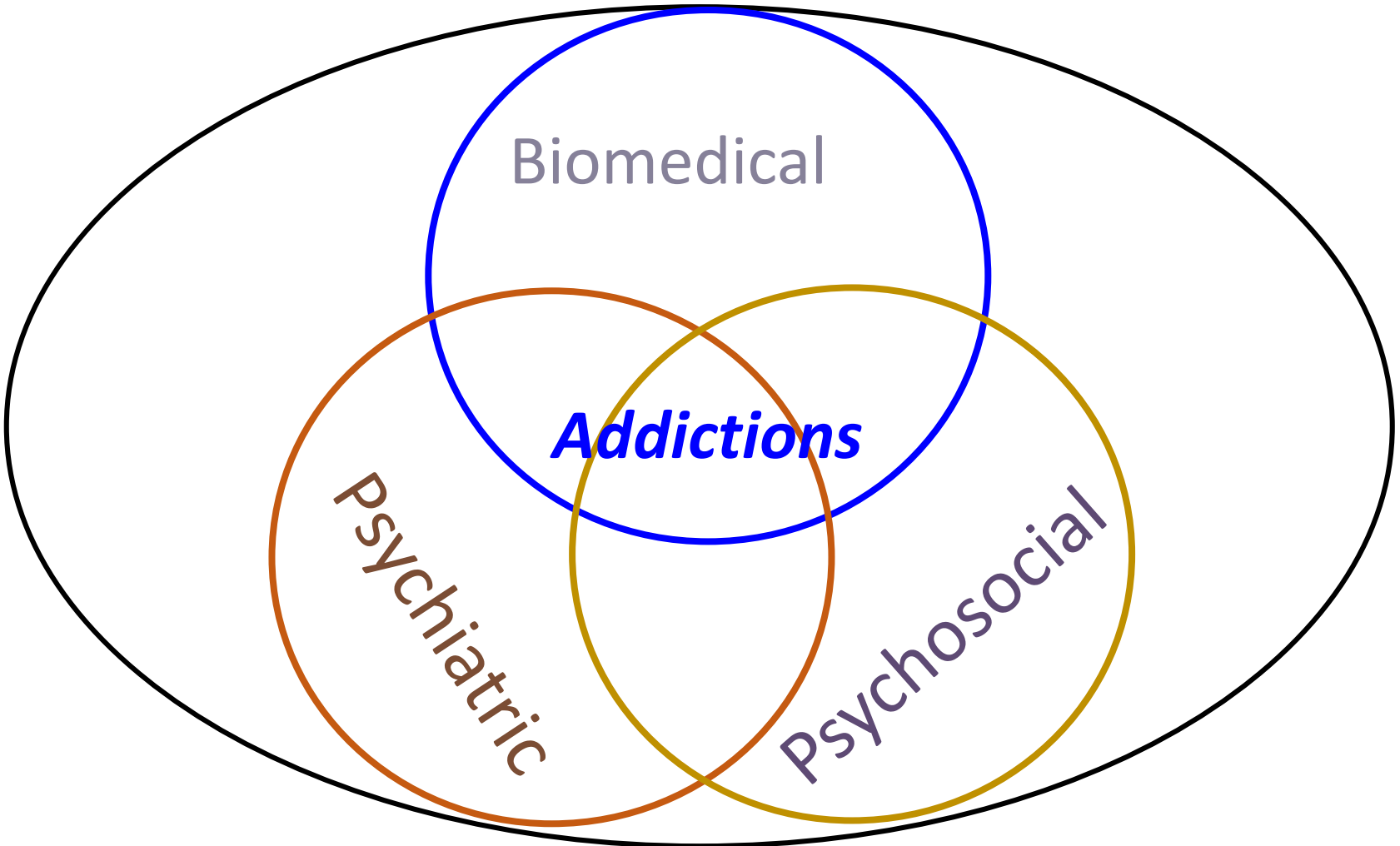
‘Intervention’ = doing something

- Individual confronted by important people in his/her life with the help of experienced intervener
- Compassion & Caring
- Compelled to face the facts of dependency/behavior
- Agreed Outcome, e.g. DPAP, Stop Work, Proper Assessment
- No ‘Splitting’
- ‘Benevolent Coercion’
- Err on the side of action

Comprehensive Independent Bio-psycho-social **Assessment**

- Medical, psychiatric, psychosocial, addiction medicine, pain evaluation (include PharmaNet and collateral info) performed skilled addiction medicine physician
- Always includes lab work
- Result in itemized diagnoses , stressors and problems due to absent coping skills
- Produces a detailed, stepwise treatment plan

Comprehensive Independent Bio-psycho-social **Assessment**



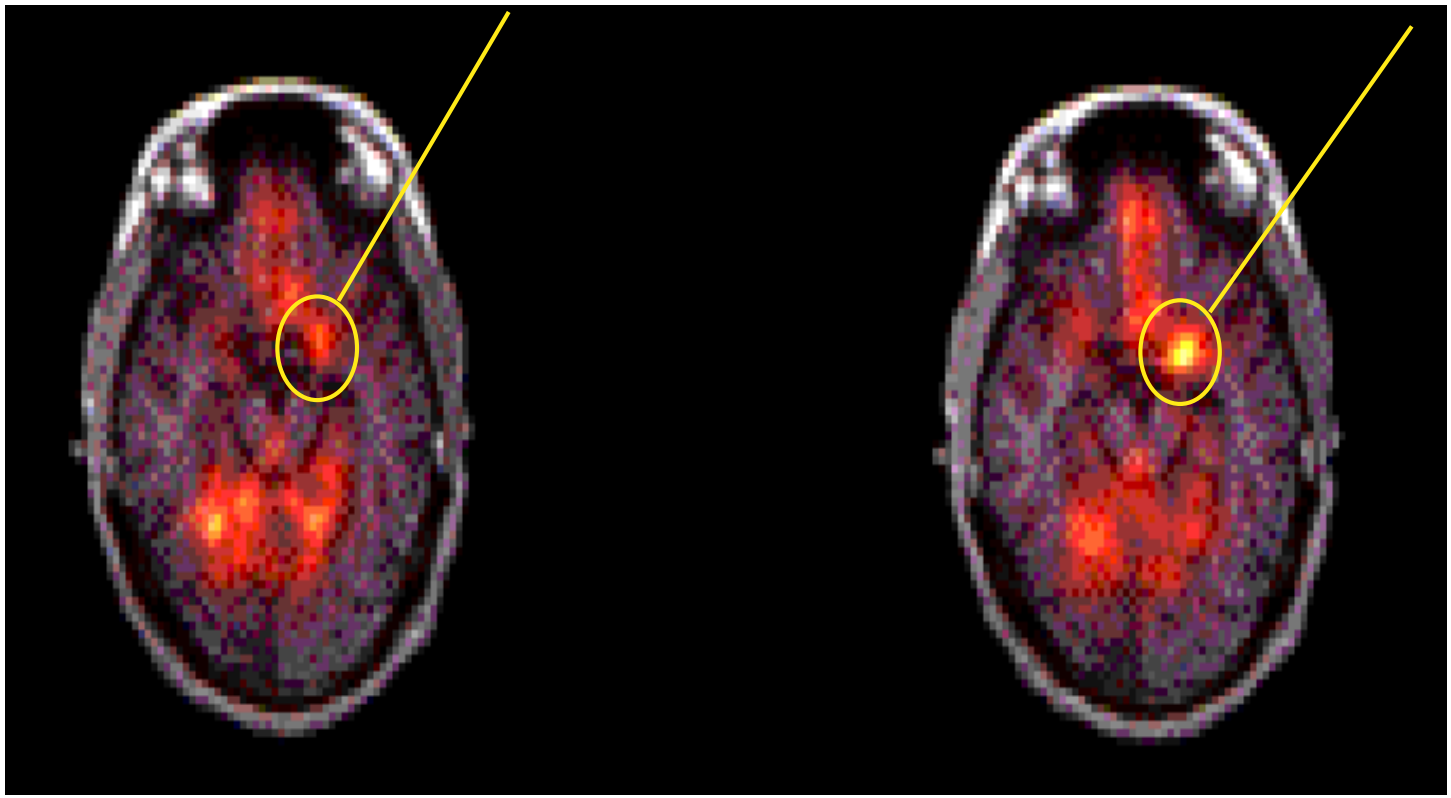
Treatment

- Right Place!
- Opportunity for prolonged inpatient care
- Psycho-educational emphasis
- Reconnecting with anesthetized feelings
- Introduce - Mutual Support concept
- Develop relapse prevention strategies
- Develop detailed ‘Aftercare’ Plan
- Coordinate monitoring, plan safe return to work, etc.

Relapse - a defining feature

- ‘The return of signs and symptoms of a disease after a patient has enjoyed a remission’.
- *Recurrence of psychoactive substance dependent behaviour in an individual who had previously achieved and maintained abstinence for a significant period of time beyond withdrawal*. (ASAM)

Relapse prevention – Isn't he fixed



Nature Video *Cocaine Video*

Factors contributing to relapse

- Failure to understand and accept the illness - Denial
- Poor mechanisms to deal with stress
- Poor relationship skills
- Inability to accept feedback
- Social and professional isolation
- Setting unrealistic goals
- Complacency & Overconfidence
- No ongoing recovery program

Roadblocks to Recovery

- Denial/sabotage by the addicted dentist
- Enabling by GP, family, employer, insurer, assn.
- Lack of baseline bio-psycho-social assessment
- Incomplete treatment
- Lack of contingency management & medical monitoring

Addicted MDs – What did we learn?

Using comprehensive monitoring, coordinated by an experienced Physician Health Program, reports demonstrate that over 70% of addicted physicians achieve five years of sobriety, are able to return to work, and resume a functional lifestyle.

- Smith and Smith-Oklahoma
- Canavan- New Jersey
- Talbott-Georgia
- Mansky-New York

* **Under written agreement (MONITORED)**

Contingency Management

- Evidence based
- Consequences/rewards for behaviour
- Couple benefits (licensure, disability insurance, employment, freedom) with attempted adherence
- Physicians, dentists, pilots, drug courts, driver diversion programs
- Support & Accountability
- The opposite to “enabling”
- Early Warning signs

'What is Medical Monitoring'

- 'Compulsory' Supervision of patients who have completed comprehensive IME, and (satisfactory) primary treatment for Substance Dependence; and currently stable
- Monitors **Compliance** with ongoing treatment recommendations as detailed in written **Relapse Prevention Agreement**
- Assess quality of recovery
- Essential for safe RTW for SS workers with SD's (and some mental disorders e.g. bipolar)
- It is not just 'Pee-Testing' by GP or 'counsellor'

Physician Health Program Monitoring:

- **Rigorous**
  - Comprehensive, no attrition
- **Biological**
  - Random or “for cause” biological testing
- **Behavioural**
  - Observations of treatment team, others
- **Contractual (RPA)**
  - With contingencies
- **Accountable**
  - Reporting on “need to know” basis
- **Minimize relapse or Identify early**

Re-evaluation/Fitness to Work

- Comprehensive Evaluation
- Appropriate Primary Treatment completed
- Reassuring Medical Monitoring in place
- Feel confident about timely reporting
- Contingency Behavioural Management
- Return to work planning integrated into a balanced recovery lifestyle
- Workplace conditions, restrictions and accommodations
- Transfer of information to workplace? College?

Facts of Addiction Treatment

- ‘Addiction’ is a progressive brain disease
- Chronic pattern of Remission & Relapse
- Identify & Intervene early
- Assessment & Treatment
- Not ‘curable’ but responds to treatment
- When you get the switch switched off – Keep it off!
- Monitored Aftercare works
- Medical Monitoring is not tyranny – It is part of therapy

Some Nuggets

- Alcohol is by far the most likely drug affecting workplace health, safety & morale (10%)
- Most clinics have no index of suspicion, no process
- Individual becomes progressively more ill for many years before ‘impairment’
- Regulatory body can make a huge difference and save lives
- Colleagues can often intervene earlier and save careers

Dealing With The Chemically Dependent Health Professional?

- Because the illness is often progressive and potentially lethal in Health Professionals, early diagnosis is important.
- Self diagnosis would be great but true ‘self-referral’ is rare
- Because of Denial, waiting for the impaired colleague to “get it” is unconscionable.
- Death from suicide or lethal overdose may be the initial presentation of substance use disorder.
- Early Identification, Timely Intervention, Comprehensive Assessment, Specialized Treatment and Monitoring works!
- ‘Community served – Career saved’
- Don’t take it personally

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Practitioner Health

Ensuring public protection/assisting colleagues

Dr. Cathy McGregor, DMD
CDSBC Health & Directed Education, Program Head

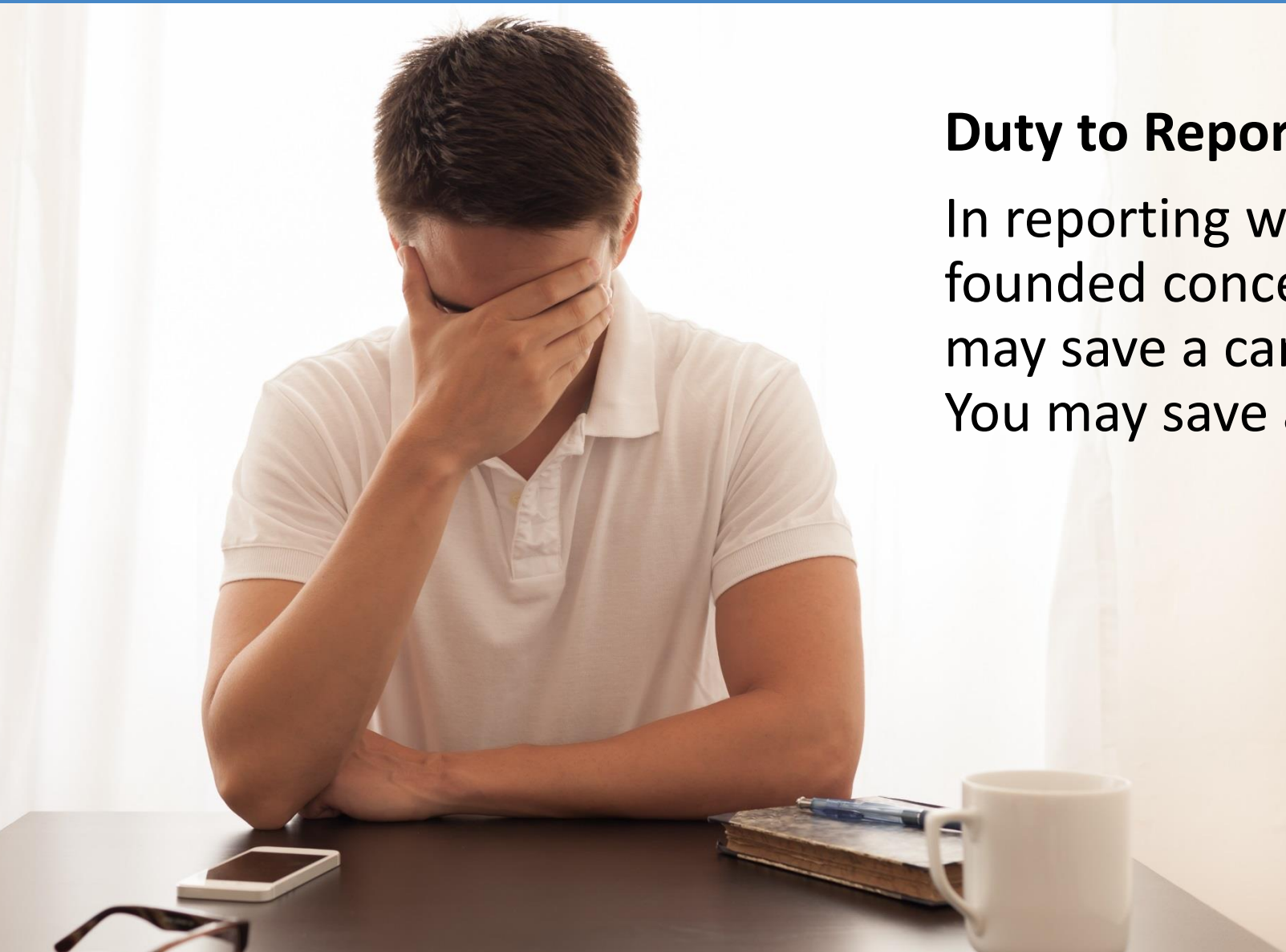
Outline

- The College's role
- Professional responsibility
- CDSBC Wellness Program
- Successes

Why is the College involved?

- Protection of the public is our mandate
- As a self-regulating health profession, we make a commitment to protect the safety of the people we treat

Professional responsibility



Duty to Report

In reporting well founded concerns you may save a career. You may save a life.

Health Professions Act

Extraordinary action to protect the public

35(1) If the inquiry committee considers the action necessary to protect the public … it may, by order,

(a) impose limits or conditions on the practice of the designated health profession by the registrant, or

(b) Suspend the registration of the registrant

Current approach

All health and wellness matters are handled in a separate, non-disciplinary stream whenever possible.

- It is a **confidential process**
- You don’t automatically lose your license

CDSBC Wellness Program

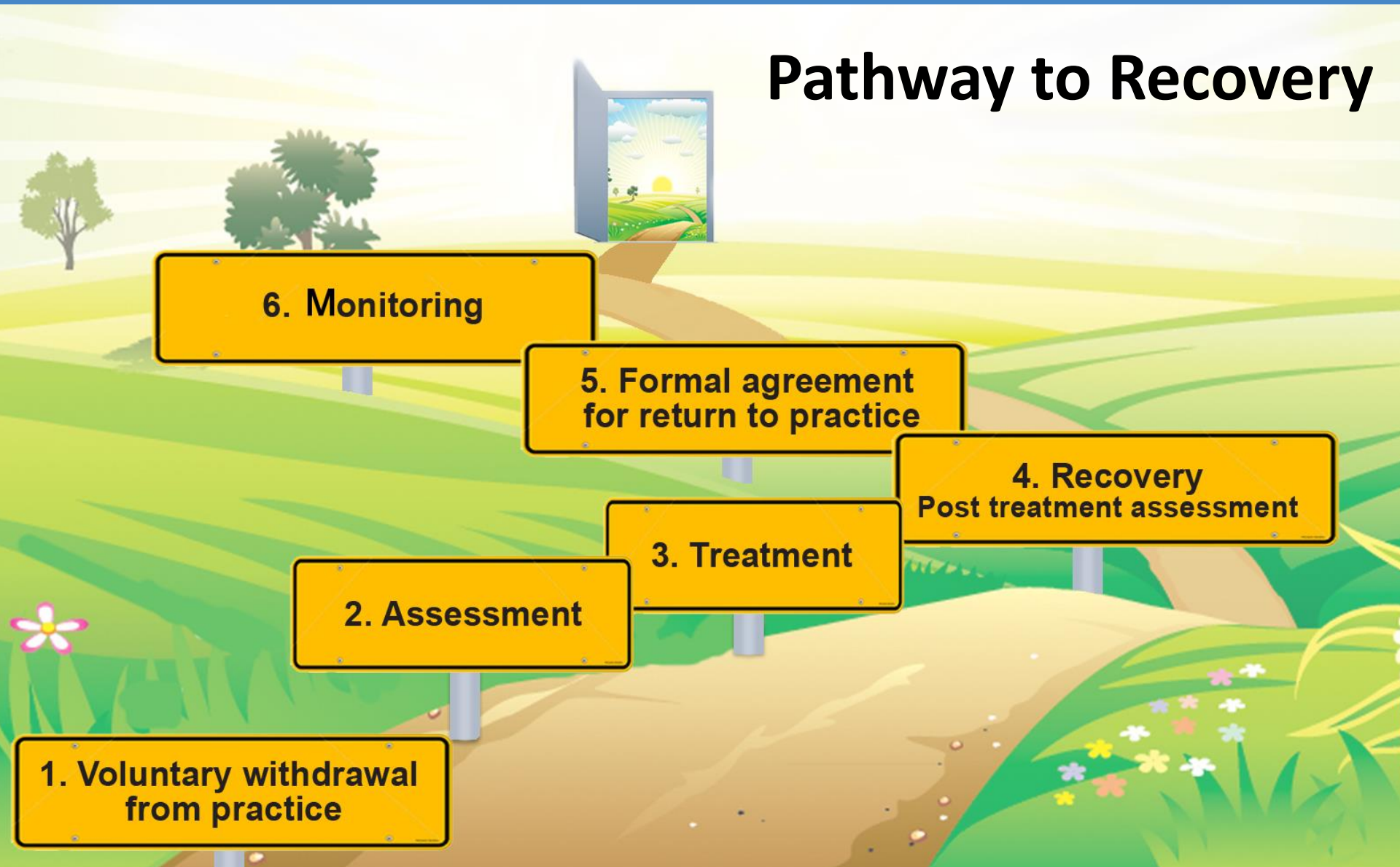
55 health files

- Half were self-referred
- Half are addictions cases
- Half are a variety of other health concerns that can affect safety to practise

A recent experience

Patients must be able to **trust** they will be cared for by their dentist, CDA or dental therapist.

CDSBC Wellness Program



CDSBC Wellness Program

Voluntary Withdrawal from Practice

What happens at the …

College

- Registration changed to Temporary Leave of Absence
- Name will not appear on the CDSBC website's Registrant Lookup
- Insurers and CDSPI advised

Practice

- Will not be covered for malpractice
- Billings under the dentist's unique identification number will not be honoured
- Locum

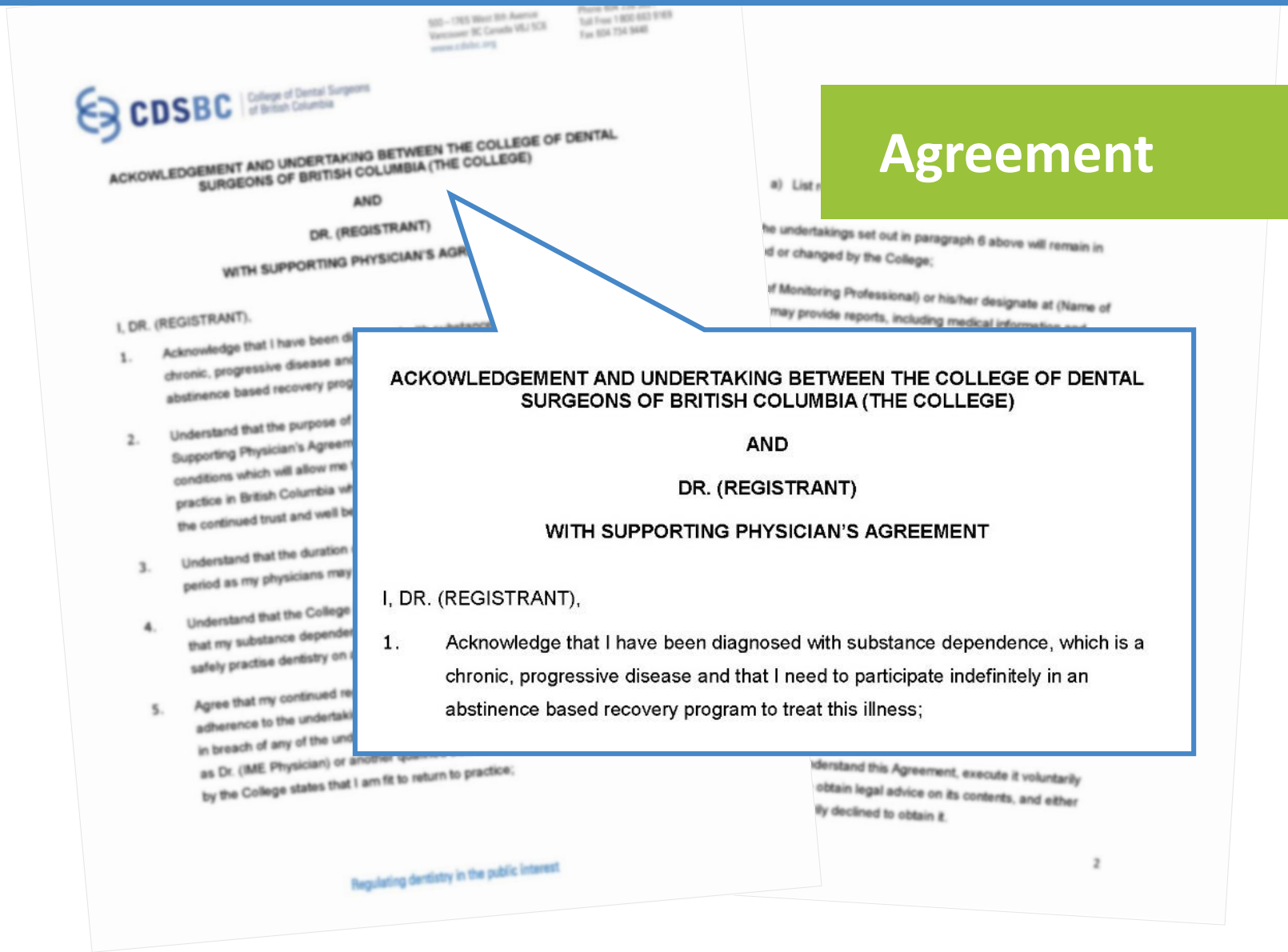
CDSBC Wellness Program

CDSBC Wellness Program

Recovery & Post-treatment Assessment

CDSBC Wellness Program

Agreement



ACKOWLEDGEMENT AND UNDERTAKING BETWEEN THE COLLEGE OF DENTAL SURGEONS OF BRITISH COLUMBIA (THE COLLEGE)

AND

DR. (REGISTRANT)

WITH SUPPORTING PHYSICIAN'S AGREEMENT

I, DR. (REGISTRANT),

1. Acknowledge that I have been diagnosed with substance dependence, which is a chronic, progressive disease and that I need to participate indefinitely in an abstinence based recovery program to treat this illness;

CDSBC Wellness Program

Back to Practice with Monitoring

- College receives regular reports of compliance by a monitoring service
- Monitoring period typically a 5 year minimum

Myth of invincibility

‘Illness doesn’t belong to us. It belongs to them, the patients. Doctors need to be taught to be ill. We need permission to be ill and to acknowledge that we are not superhuman.’

McKevitt C, Morgan M.

Illness doesn’t belong to us

J R Soc Med 1997;90: 491 -495

Success Story

CDSBC | College of Dental Surgeons of British Columbia

Appropriate analgesic prescribing for orofacial pain

Dr. Mark Donaldson, BSP, RPH, PHARMD, FASHP, FACHE
Senior Executive Director, Vizient Advisory Solutions
drmarkdonaldson@gmail.com

Less Tolerant Public

The number of overdose deaths from painkillers more than tripled over a decade – a trend that a U.S. health official called an epidemic.

November 1, 2011
Associated Press

Less Tolerant Public

Opioids are the most prescribed medication of any drug category in the United States, exceeding 250 million prescriptions annually.

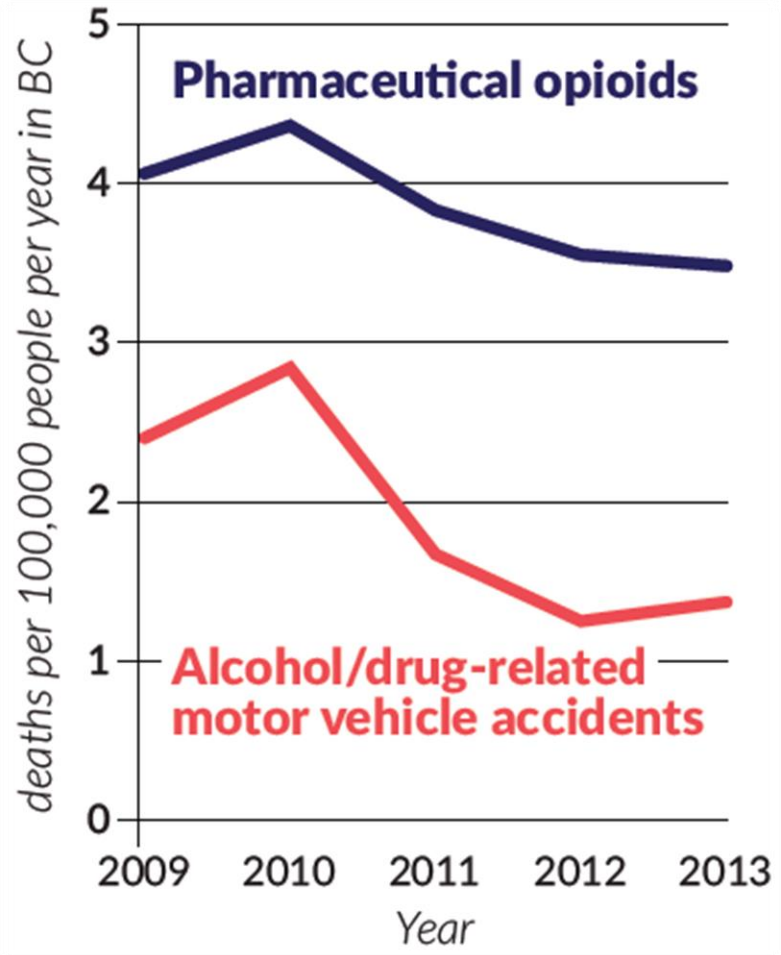
Volkow ND, McLellan TA. Curtailing diversion and abuse of opioid analgesics without jeopardizing pain treatment. J Am Med Assoc. 2011;305(13):1346-1347.

Less Tolerant Public

Results from a 2014 analysis indicate that emergency department visits related to opioid overdose quadrupled over the past 2 decades.

Hasegawa K, Espinola JA, Brown DF, et al. Trends in U.S. emergency department visits for opioid overdose, 1993-2010. Pain Med. 2014;15(10): 1765-1770

Less Tolerant Public



"The number of pharmaceutical opioid related deaths exceeds the number of deaths from motor vehicle accidents involving alcohol in BC."

Gladstone EJ, Smolina K, Morgan SG. Trends and sex differences in prescription opioid deaths in British Columbia, Canada. Inj Prev 2015.

Less Tolerant Public

Dentists follow primary care physicians as the second-leading prescribers of immediate-release opioids and, as such, dentists have been identified as having an important role in opioid abuse prevention efforts.

Denisco RC, Kenna GA, O'Neil MG, et al. Prevention of prescription opioid abuse: the role of the dentist. JADA. 2011;142(7):800-810;

Oakley M, O'Donnell J, Moore PA, et al. The rise in prescription drug abuse: raising awareness in the dental community. Compend Contin Educ Dent Suppl. 2011;32(6):14-16,18-22.

ADA CE Program ARTICLE 1

COVER STORY

Dental opioid prescribing and multiple opioid prescriptions among dental patients

Administrative data from the South Carolina prescription drug monitoring program

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; Kathleen T. Brady, MD, PhD

As the legitimate use of opioids for pain management has increased, so has the incidence of opioid misuse and diversion.[1] The data available from the National Survey on Drug Use and Health indicate that approximately 4.5 million people 12 years or older reported nonmedical use of pain relievers in the past month, including taking more than prescribed, combining with other substances (for example, alcohol, sedatives), taking for reasons other than to reduce physical pain (for example, to reduce anxiety, increase energy, improve sleep), lending to others, borrowing or diverting from others, having multiple requests for early refills, reporting medications

This article has an accompanying online continuing education activity available at: http://jada.ada.org/ce/home.

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ABSTRACT

Background. Despite increased attention to dentists' roles in curbing opioid misuse, abuse, and diversion, information regarding prescribing practices and the frequency of multiple concurrent opioid prescriptions among dental patients is limited.

Methods. The authors reviewed South Carolina prescription drug monitoring program data representing dispensed medication for patients prescribed at least 1 opioid by a dentist during the most recently available 2-year time frame (2012-2013). The authors used descriptive analyses to examine the types and frequency of dental opioid prescriptions and the frequency of existing multiple concurrent opioid prescriptions among dental patients.

Results. Nearly all dispensed dental opioid prescriptions (99.9%; n = 653,650) were for immediate-release opioids and were initial prescription fills (96.2%). Hydrocodone (76.1%) and oxycodone (12.2%) combination products were the most frequently dispensed opioids prescribed by dentists. People younger than 21 years received 11.2% of dentist-prescribed opioids dispensed. Patients with multiple concurrent opioid prescriptions were identified within 30-day (n = 113,818), 90-day (n = 166,124), and 180-day (n = 205,576) time frames.

Conclusions. Dentists prescribed a high volume of the immediate-release opioids dispensed in South Carolina. A notable minority of dental patients had incidents of multiple preexisting opioid prescriptions, a factor implicated in patient misuse, abuse, overdose, and diversion.

Practical Implications. Use of a prescription drug monitoring program before prescribing provides a record of controlled substances dispensed to a patient and may inform prescribing, coordination of care, and addiction screening or referral. Patients should receive information regarding misuse behaviors and their risks, as well as the importance of secure storage and disposal of leftover opioid medications.

Key Words. Oxycodone; patient education; prescriptions; drug.
JADA 2016:147(7):537-544
http://dx.doi.org/10.1016/j.adaj.2016.02.017

Consistent with best-practice recommendations, opioids should be reserved for only a minority of cases of moderate to severe postoperative pain in which all other management options have been exhausted.

McCauley JL, et al. Dental opioid prescribing and multiple opioid prescriptions among dental patients. *J Am Dent Assoc.* 2017;147(7): 537-44.

An average of 20 doses of an opioid analgesic (commonly hydrocodone or oxycodone) are prescribed post-procedure and most dentists expect patients to have leftover analgesics

Cairns BE, et al. The use of opioid analgesics in the management of acute and chronic orofacial pain in Canada: the need for further research. *J Can Dent Assoc.* 2014;80:e49.

The Use of Opioid Analgesics in the Management of Acute and Chronic Orofacial Pain in Canada: The Need for Further Research

Brian E. Cairns, *PhD, ACPR*; Arlette Kolta, *PhD*; Eli Whitney, *DDS, FRCD(C)*; Ken Craig, *PhD*; Nathalie Rei, *DMD, MSD, Cert. médecine buccale*; David K. Lam, *MD, DDS, PhD, FRCD(C), DABOMS*; Mary Lynch, *MD, FRCPC*; Barry Sessle, *MDS, PhD, DSc(hc)*; Gilles J. Lavigne, *DMD, MSc, PhD*

Cite this as: ***J Can Dent Assoc 2014;80:e49***

In late 2013, a focus group met to participate in the Orofacial Pain Team Workshop, held in Montreal, Canada, where the issue of appropriate opioid analgesic prescribing for pain by Canadian dentists was discussed. There was agreement that the use of opioid analgesics by dentists for either acute or chronic orofacial pain conditions has not been investigated satisfactorily in this country.

A number of questions related to the use of opioid analgesics by dentists were raised by the focus group: How well do dentists manage post-operative pain? How often do patients report inadequate analgesia after dental surgery? How often are opioid analgesics prescribed and for which procedures? Do dentists overprescribe? Do they instruct their patients about the risks related to leftover doses? Do dentists monitor the use of opioid analgesics by their patients and, if so, how does monitoring vary in urban compared to rural areas? Is opioid use different in underserved populations? What are the risk factors for problematic use? What is the current level of knowledge about the use of opioid analgesics in populations thought to be more vulnerable to misuse or abuse?

Opioid analgesic prescribing for acute dental pain

The existing literature suggests that the use of opioid analgesics for acute procedural pain varies significantly in different countries. In the UK in 2001, of all prescriptions for analgesics written by dentists, the most commonly prescribed analgesic was ibuprofen, representing 73% of prescriptions. The only commonly prescribed opioid analgesic was codeine, which represented only 19% of prescriptions.[1] One of the most studied acute surgical procedures in dentistry is third molar extraction. Meta-analyses indicate that NSAIDs, like ibuprofen, show the best evidence for efficacy for pain post-extraction (roughly 80% of patients given 600 mg ibuprofen had >50% pain relief), consistent with the use of ibuprofen by UK dentists.[1,2] Use of codeine (60 mg) with acetaminophen (650 mg) is less likely to produce significant pain relief post-extraction, and is associated with a much greater incidence of adverse effects.[1]

In contrast to the modest prescribing rate of opioid analgesics by UK dentists, in the US, 12% of all immediate release opioid analgesic prescriptions are written by dentists (just slightly less than family physicians).[3] An American Dental Association survey from 2006 suggested that while a majority of oral and maxillofacial surgeons (74%) preferred patients to use ibuprofen afterthird molar extraction, 85%


This is the new
“War on Drugs.”

Our Armamentarium

Peripheral Analgesics

- non-opioid analgesics

Central Analgesics

- opioid analgesics

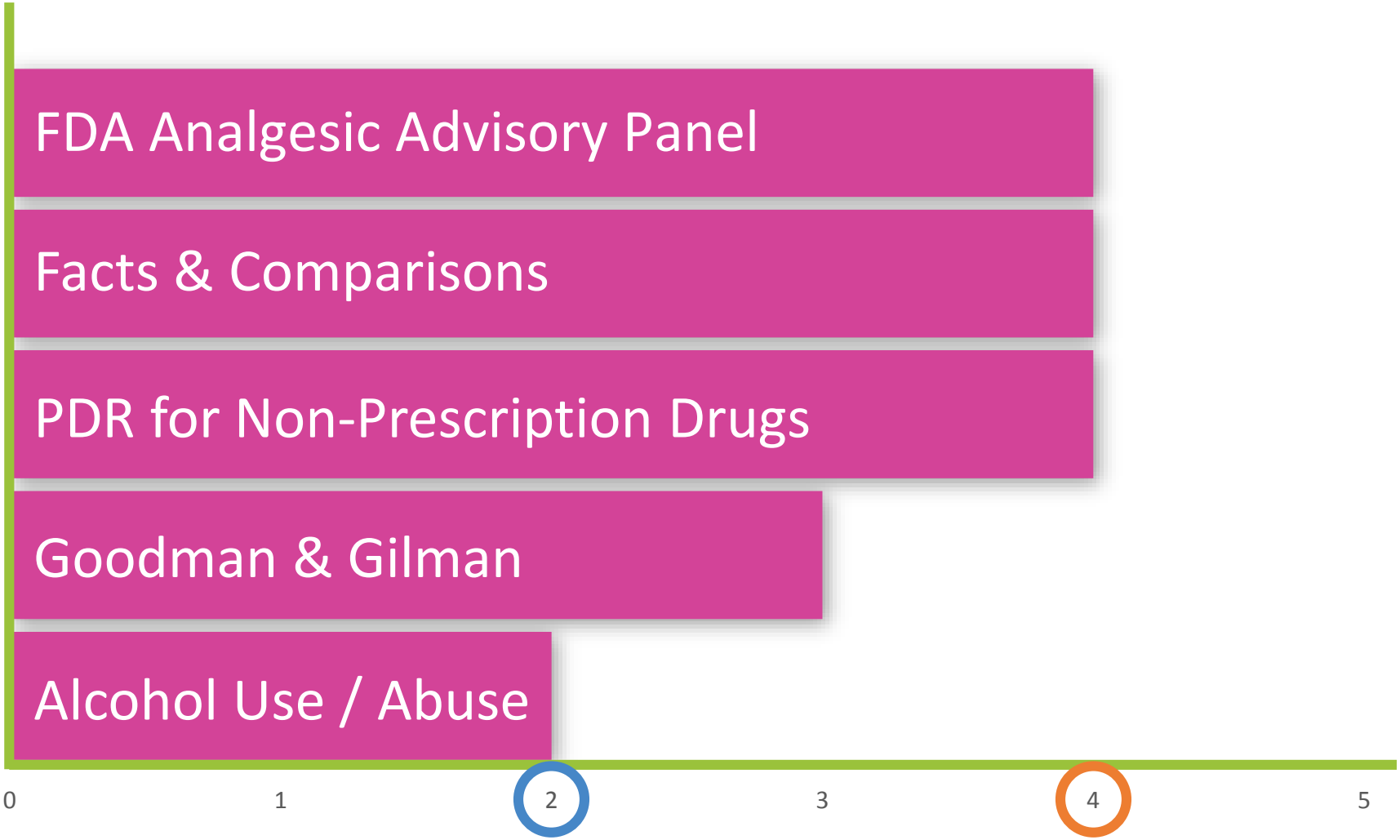
Co-Analgesics

Local Anesthetics

Acetaminophen

- Comparable to ASA and NSAIDs in analgesic & antipyretic activity
- Weak anti-inflammatory activity
- Minimal antiplatelet effect
- Minimal injury to gastric mucosa
- Dose 325mg to 1000mg TID or QID
- Max. dose is 4.0 grams daily to ↓ hepatotoxicity
- increased danger of hepatotoxicity with chronic alcohol consumption (max: 2g/day)

What is the Maximum Daily Dose of Acetaminophen (Tylenol)?



J & J: 3000mg/day Maximum

Tylenol Lowers Dosage to Curb Accidental Overdose

Archived Content

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Search Archive

Drugs

FDA Drug Safety Communication: Prescription Acetaminophen Products to be Limited to 325 mg Per Dosage Unit; Boxed Warning Will Highlight Potential for Severe Liver Failure

SHARE TWEET LINKEDIN PIN IT EMAIL PRINT

Safety Announcement

[1-13-2011] The U.S. Food and Drug Administration (FDA) is asking drug manufacturers to limit the strength of acetaminophen in prescription drug products, which are predominantly combinations of acetaminophen

Acetaminophen

Learn about acetaminophen, how to safely use it and its health risks, including potential overdose.

Overdose

Taking too much acetaminophen, either by accident or on purpose, is called an overdose. With acetaminophen, symptoms don't appear for many hours following an overdose. You could have liver damage and not know it.

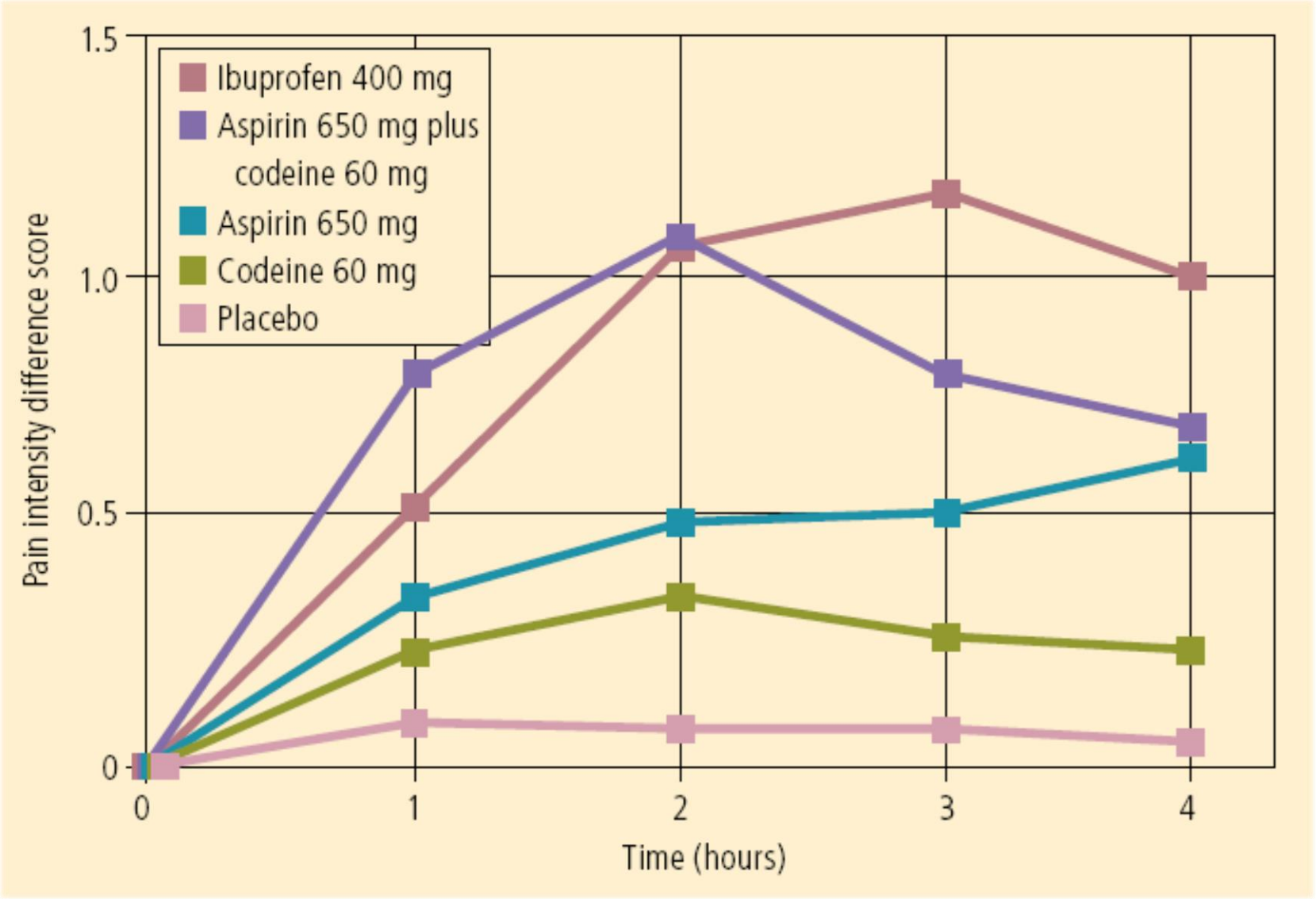
Acetaminophen overdose is a leading cause of acute liver failure in Canada, the U.S. and many other developed countries. The term acute in this context means that the damage takes place rapidly over hours or days. In comparison, the damage from chronic liver failure takes place over many years.

There are approximately 4500 hospitalizations in Canada each year due to acetaminophen overdose. Approximately 700 or 16% of these were reported as accidental or unintentional overdoses. In about 6% of hospitalizations for overdose, patients develop liver injuries, including acute liver failure. This means the liver suddenly stops working, which may:

- require a liver transplant
- lead to death

Peripheral Analgesics: NSAIDs

- Third-molar extraction model
- Probably best overall model for oral analgesics (strongly validated)
- Reliable stimulus for moderate-severe pain
- Healthy young subjects
- Healthy preoperative tissues



Cooper SA, Engel J, Ladov M, Precheur H, Rosenheck A, Rauch D.Analgesic efficacy of an ibuprofen-codeine combination. Pharmacotherapy. 1982 May-Jun;2(3):162-7.

Evidence-based recommendations for analgesic efficacy to treat pain of endodontic origin

A systematic review of randomized controlled trials

Anita Aminoshariae, DDS, MS, Dip ABOE; James C. Kulild, DDS, MS, Dip ABOE; Mark Donaldson, BSP, PharmD, ACPR, FASHP, FACHE; Elliot V. Hersh, DMD, MS, PhD

Historically, extraction of impacted third molars has served as a viable pain model for evaluating analgesic efficacy.[1] Investigators using oral and maxillofacial surgical models predominately have evaluated young healthy patient populations with minimal preoperative pain or concomitant medically compromising conditions. Patients in need of endodontic treatment differ from those patients in several ways. First, the endodontic patient population is generally older with possibly more complicated medical histories.[2] Second, the endodontic population can have preoperative pulpal or periradicular infections, which could influence postoperative pain.[3] Thus, these 2 differences could confound the results of analgesic efficacy and analgesic requirements. Also, preexisting pulpal or periradicular pain and inflammation may result in neuroplastic changes in the spinal and medullary dorsal horn.[4] In animal studies, the peripheral nociceptive barrage from an inflamed pulp is sufficient to cause a 5-fold increase in dorsal horn neuron discharge rate,[5] up to a 3-fold increase in the size of the receptive field of A delta fibers,[6] and sprouting of nerve calcitonin gene-related peptide fibers in inflamed tissue surrounding sites of pulpal injury.[7] Essentially, these inflammatory mediators in pulpitis and periapical anatomy result in central and peripheral sensitization that could increase the severity of the patient's discomfort.[8]

Although various dental pain models possess some biological similarities, including elevated levels of key inflammatory mediators,[9-11] they are likely also dissimilar given the difference in stimulus (postsurgical

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ABSTRACT

Background. The purpose of this investigation was to identify evidence-based clinical trials to aid dental clinicians in establishing the efficacy for recommending or prescribing analgesics for pain of endodontic origin.

Types of Studies Reviewed. The authors prepared and registered a protocol on PROSPERO and conducted electronic searches in MEDLINE, Scopus, the Cochrane Library, and ClinicalTrials.gov. In addition, the authors manually searched the bibliographies of all relevant articles, the gray literature, and textbooks for randomized controlled trials. Two authors selected the relevant articles independently. There were no disagreements between the authors.

Results. The authors analyzed 27 randomized, placebo-controlled trials. The authors divided the studies into 2 groups: preoperative and postoperative analgesic treatments. There was moderate evidence to support the use of steroids for patients with symptomatic irreversible pulpitis. Also, there was moderate evidence to support nonsteroidal anti-inflammatory drugs (NSAIDs) preoperatively or postoperatively to control pain of endodontic origin. When NSAIDs were not effective, a combination of NSAIDs with acetaminophen, tramadol, or an opioid appeared beneficial.

Conclusions and Practical Implications. NSAIDs should be considered as the drugs of choice to alleviate or minimize pain of endodontic origin if there are no contraindications for the patient to ingest an NSAID. In situations in which NSAIDs alone are not effective, the combination of an NSAID with acetaminophen or a centrally acting drug is recommended. Steroids appear effective in irreversible pulpitis.

Key Words. Endodontics; analgesics; pain; flare-ups; randomized controlled trials.
JADA 2016:■(■):■-■
http://dx.doi.org/10.1016/j.adaj.2016.05.010

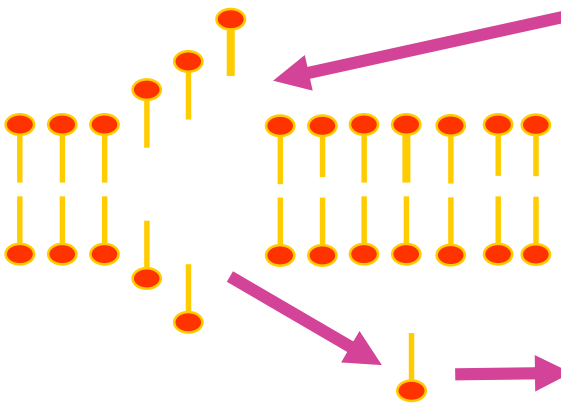
NSAIDs should be considered as the drugs of choice to alleviate or minimize pain of endodontic origin.
In situations in which NSAIDs alone are not effective, the combination of an NSAID with acetaminophen is recommended.

Aminoshariae A, Kulild JC, Donaldson M, Hersh EV. Evidence-based recommendations for analgesic efficacy to treat pain of endodontic origin: A systematic review of randomized controlled trials. J Am Dent Assoc. 2016;147(10):826-39.

Peripheral Analgesics: NSAIDs

- Prostaglandins generated during tissue damage direct some actions of inflammation:
  - Fever
  - Pain
  - Vasodilation
- Inhibiting prostaglandin synthesis leads to a decrease in this response

NSAIDs Mechanism of Action



Injury to cell membrane

Phospholipids

Phospholipase A

Arachidonic Acid

COX-1

COX-2

Cytoprotective Prostaglandins

Maintain normal physiology

- Healthy gastric mucosa
- Platelet aggregation

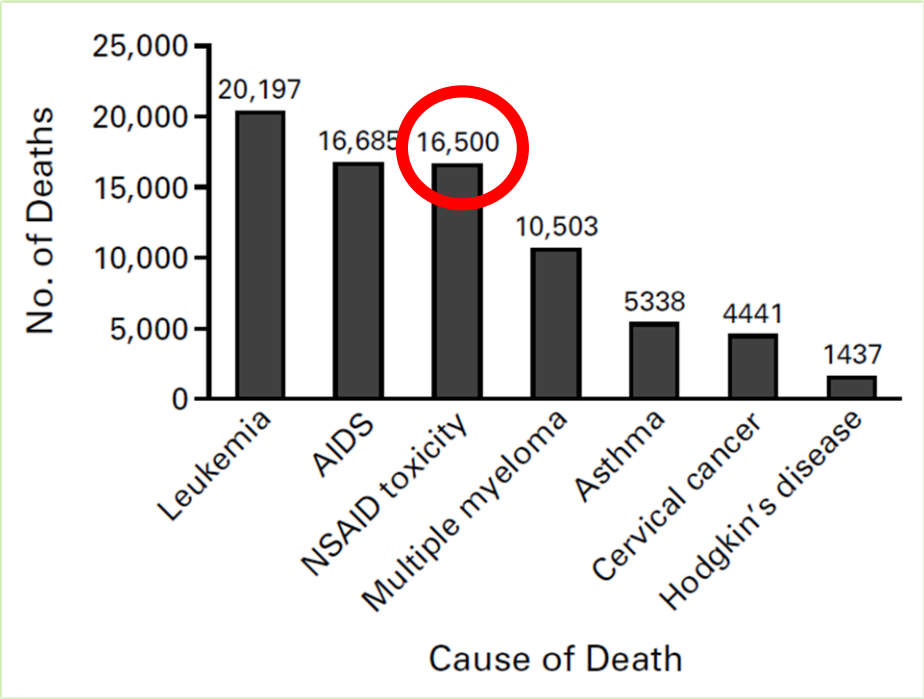
Inflammatory Prostaglandins

Induced with tissue injury

- Pain and tenderness
- Vasodilation
- Fever

NSAID Mortality

U.S. Mortality Data for Seven Selected Disorders in 1997. A total of 16,500 patients with rheumatoid arthritis or osteoarthritis died from the GI toxic effects of NSAIDs. Data are from the National Center for Health Statistics and the Arthritis, Rheumatism, and Aging Medical Information System.



Wolfe MM, Lichtenstein DR, Singh G. Gastrointestinal toxicity of nonsteroidal antiinflammatory drugs. N Engl J Med. 1999 Jun 17;340(24):1888-99.

The use of NSAIDs may be considered relatively safe when prescribed at the most effective dose and for the shortest duration of time, which was defined as 10 days or fewer.

Aminoshariae A, Kulild JC, Donaldson M. Short-term use of nonsteroidal anti-inflammatory drugs and adverse effects: An updated systematic review. J Am Dent Assoc. 2016;147(2):98-110.

Short-term use of nonsteroidal anti-inflammatory drugs and adverse effects

An updated systematic review

Anita Aminoshariae, DDS, MS, Dipl (American Board of Endodontics); James C. Kulild, DDS, MS, Dipl (American Board of Endodontics); Mark Donaldson, BSP, PharmD, ACPR, FACHE

In July 2015, the US Food and Drug Administration (FDA) strengthened warnings about the risk of heart attack and stroke associated with nonsteroidal anti-inflammatory drugs (NSAIDs).[1] In patients with NSAID-exacerbated respiratory disease (NERD), NSAIDs are considered the greatest infractor, with reactions typically occurring within 3 hours of ingestion.[2] Thus, the FDA lists the use of NSAIDs as a contraindication in patients suspected of having NERD.[3]

Although long-term use of NSAIDs may be associated with adverse cardiovascular (CV),[4-7] renal,[8-11] gastrointestinal (GI),[12-14] and respiratory[15] events, preoperative and postprocedural dental pain are usually short-term episodes with the dental procedure itself, or the normal healing process, being the final disease-modifying entities, and therefore requiring limited (fewer than 10 days) NSAID exposure. A systematic review of the peer-reviewed literature focusing on the evidence regarding the CV, renal, GI, and respiratory adverse effects and safety of these medications in patients taking routine NSAIDs for 10 days or fewer, which is within the usual time for dental patients exposed to an NSAID, compared with patients who were not exposed to these medications, has yet to be published.

Because the potential benefits of pain reduction always must be balanced against the potential adverse effects of medications, the goal of this investigation is to report the available scientific evidence regarding potential adverse effects of short-term use of NSAIDs and CV,

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ABSTRACT

Background. In this article, the authors examine the available scientific evidence regarding adverse effects of short-term use of nonsteroidal anti-inflammatory drugs (NSAIDs). Short-term use was defined as 10 days or fewer.

Methods. The authors reviewed randomized controlled clinical trials and cohort and case-controlled clinical studies published between 2001 and June 2015 in which the investigators reported on the safety of nonselective cyclooxygenase inhibitors and of cyclooxygenase-2 selective inhibitor NSAIDs.

Results. The systematic review process according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines allowed the authors to identify 40 studies that met the inclusion criteria.

Conclusions. On the basis of the available scientific evidence, NSAIDs may be considered relatively safe drugs when prescribed at the most effective dose and for the shortest duration of time, which was defined to be 10 days or fewer.

Practical Implications. Although the US Food and Drug Administration recommends the use of NSAIDs beyond 10 days to be accompanied by a consultation with a health care provider, the use of NSAIDs may be considered relatively safe when prescribed at the most effective dose and for the shortest duration of time, which was defined as 10 days or fewer. Exceptions would be for patients at risk of developing NSAID-exacerbated respiratory disease, patients with prior myocardial infarction who are receiving antithrombotic therapy, patients with asthma, and patients with a history of renal disease.

Key Words. NSAIDs; cardiovascular risk; myocardial infarction; gastrointestinal; renal; respiratory; randomized controlled clinical trials; cohort studies; case-controlled studies; vascular events.

JADA 2016:147(2):98-110

http://dx.doi.org/10.1016/j.adaj.2015.07.020

The Perfect Prescription: "2 - 4 - 24"

Ibuprofen 600mg po q6h x24 hours
Acetaminophen 1g po q6h x24 hours

Other thoughts:

Celecoxib 400mg 30 minutes pre-op

ADA CE Program ARTICLE 3

Submucosal injection of dexamethasone reduces postoperative discomfort after third-molar extraction

A systematic review and meta-analysis

Qian Chen, BS; Jin Chen, BS; Bo Hu, BS; Ge Feng, PhD; Jinlin Song, PhD

Surgical extraction of third molars (M_3s) is one of the most frequently performed procedures in oral and maxillofacial surgery clinics because M_3s are the teeth most likely to develop impaction, which may lead to caries of the second molar, pericoronitis, or infection of the maxillofacial regions.[1-3] However, this tooth extraction procedure usually involves flap reflection, bone removal, and root separation, which can cause trauma to the surrounding soft and bony tissues and usually results in postoperative complications, such as edema, trismus, and pain, as well as worsening patient discomfort.[4-6] Clinicians have used various methods to prevent or mitigate these postoperative complications, such as chlorhexidine rinses, topical and systemic antibiotics, low-level laser therapy, and preemptive pharmacotherapies, including corticosteroids, analgesics, and muscle relaxants.[7-13]

For some time, corticosteroids have been used widely to minimize the postoperative complications associated with M_3

This article has an accompanying online continuing education activity available at: http://jada.ada.org/ce/home.

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ABSTRACT

Background. The authors conducted a systematic review and meta-analysis on the effect of dexamethasone (DX) on edema, trismus, and pain during early and late postoperative periods after third-molar (M3) extraction.

Types of Studies Reviewed. The authors identified eligible reports by searching PubMed, Embase, and the Cochrane Central Register of Controlled Trials up through April 2016. The full text of the studies that met the minimum inclusion requirements were those in which the investigators evaluated the effects of submucosal injection of DX compared with inactive treatments in patients undergoing surgical extraction of an M3.

Results. The authors included 11 eligible trials in this study. Participants receiving DX had significantly less edema during both early (standardized mean difference, 3.28; 95% confidence interval [CI], 2.21-4.36; $P < .00001$) and late (standardized mean difference, 0.56; 95% CI, 0.27-0.86; $P < .00001$) periods after surgery, as well as less trismus than did control participants during the early (standardized mean difference, 5.34; 95% CI, 2.44-8.24; $P = .004$) phase, but there was no strong evidence for the reduction of trismus in the late period. Because of heterogeneity in intervention and outcome assessments across the studies, the authors only qualitatively summarized pain outcomes.

Conclusions and Practical Implications. The findings of this study suggest that submucosal injection of DX reduced not only early and late edema but also early trismus in experimental compared with control participants after M3 extraction, which makes it a likely choice for dental clinical use. However, larger and higher-quality trials are needed to guard against bias to confirm the effect in late trismus and pain.

Key Words. Dexamethasone; third-molar extraction; edema; trismus; pain; meta-analysis.

JADA 2017:148(2):81-91

http://dx.doi.org/10.1016/j.adaj.2016.09.014

Submucosal injection of Dexamethasone reduces early and late edema, as well as early trismus, after third-molar extraction extraction.

Chen Q, Chen J, Hu B, Feng G, Song J. Submucosal injection of dexamethasone reduces postoperative discomfort after third-molar extraction: A systematic review and meta-analysis. J Am Dent Assoc. 2017 Feb;148(2):81-91.

The Perfect Prescription: "1 - 2 - 4 - 24"

Ibuprofen 600mg po q6h x24 hours
Acetaminophen 1g po q6h x24 hours

Other thoughts:

Celecoxib 400mg 30 minutes pre-op
dexamethasone 4-8mg pre-/perioperatively

Donaldson M and Goodchild JH. Appropriate analgesic prescribing for the general dentist. Gen Dent 2010; 58(4):291-7.

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Appropriate analgesic prescribing for the general dentist

Mark Donaldson, PharmD ▪ Jason H. Goodchild, DMD

This article reviews dental and medical literature pertaining to the safety, efficacy, and mechanisms of action of common analgesic treatments for acute postoperative pain. MEDLINE searches were conducted for 2005 through 2009 using the terms "dental analgesia," "postoperative pain," "pain medication," "pathophysiology," "treatment," and "dentistry." Reports selected for further review included those published in peer-reviewed journals. The authors gave preference to articles reporting randomized controlled trials.

Acetaminophen and NSAIDs continue to be the most appropriate choices for the treatment of mild to moderate acute dental pain. The use of selective cyclo-oxygenase (COX)-2 inhibitor NSAIDs may be considered for patients at risk of gastrointestinal sequelae or those taking blood thinners such as warfarin. Whether analgesic medications are used alone or in combination, prescribers must be aware of the potential safety concerns associated with them, especially in light of new information promoting lower doses, shorter treatment durations, and decreased maximum recommended doses.

Received: July 22, 2009
Accepted: October 14, 2009

Pain has both physiological and psychological components, and an experience of poorly managed pain related to dentistry can cause patients to avoid or postpone treatment, as well as make them more difficult to treat and less likely to comply with prescribed regimens.[1,2] Oral medications administered postoperatively that reduce pain improve clinical outcomes, making them an integral part of dental practice.[3-9] Analgesic medications in dentistry are indicated for the relief of acute pain, postoperative pain, and chronic pain and for controlling adjunctive intraoperative pain.[5] In addition, these medications can be given preoperatively to mitigate both postoperative pain and postoperative pain medication requirements.[10-12]

The majority of postoperative dental pain is acute in nature and typically is accompanied by tissue injury or inflammation.[13] While this pain can resolve spontaneously once the underlying cause (for example, inflamed pulp, a carious lesion, or abscessed gingiva) is definitively treated, a pharmacological approach to pain management may be considered the standard of care. The drugs of choice for postoperative dental pain are acetaminophen and NSAIDs, which act by inhibiting cyclo-oxygenase (COX) enzymes that are are responsible for the formation of prostaglandins that promote pain and inflammation.[14] Since opioid-based medications are not anti-inflammatory agents, medications such as morphine, hydromorphone, and oxycodone are not considered the drugs of choice for treating the majority of postoperative dental pain. Rather, these medications should be reserved for the small percentage of dental patients with severe, uncontrolled orodental and postoperative pain, and even then they are best prescribed as combination products that contain an NSAID as well as the narcotic moiety.

In 2005, the FDA began asking manufacturers of all marketed prescription NSAIDs, including COX-2 selective NSAIDs (Celebrex, Pfizer Inc.), to include a boxed warning and a medication guide with the package inserts for their products. The boxed warning highlights the drugs' potential to increase the risk of cardiovascular (CV) events and the well-described and potentially life-threatening gastrointestinal (GI) bleeding associated with their use. The medication guide accompanies every prescription NSAID at the time it is dispensed to better inform patients about the CV and GI risks. At the same time, the FDA asked manufacturers of non-prescription OTC NSAIDs to revise their labeling to include more specific information about the potential GI and CV risks and more information to assist consumers in the safe use of these drugs.[15]

Acetaminophen is found as a single agent and in combination with other ingredients in OTC products; it commonly is combined with narcotic agents in prescription products. In 2005, U.S. consumers purchased more than 28 billion doses of products containing acetaminophen.[16] In

Pain Management: Part 1: Managing Acute and Postoperative Dental Pain

Daniel E. Becker, DDS

Associate Director of Education, General Dental Practice Residency, Miami Valley Hospital, Dayton, Ohio

Safe and effective management of acute dental pain can be accomplished with nonopioid and opioid analgesics. To formulate regimens properly, it is essential to appreciate basic pharmacological principles and appropriate dosage strategies for each of the available analgesic classes. This article will review the basic pharmacology of analgesic drug classes, including their relative efficacy for dental pain, and will suggest appropriate regimens based on pain intensity. Management of chronic pain will be addressed in the second part of this series.

Key Words: Pain management; Analgesics; Postoperative pain; Dental pain.

Pain is a complex experience consisting of a specific sensation and the reactions evoked by that sensation. Conventional analgesics either interrupt ascending nociceptive impulses or depress their interpretation within the central nervous system (CNS). A variety of so-called "analgesic adjuncts" have proven efficacy for managing chronic pain but will not be addressed in this article. They include various antidepressants and anticonvulsants that either enhance descending inhibitory pathways or modulate excitatory neural traffic that amplifies pain interpretation. These agents have marginal benefit in the management of acute pain, and they are not regarded as "analgesics" in the conventional sense. Management of chronic pain will be the topic of a subsequent continuing education article in this journal.

Analgesics are classified as opioids and nonopioids, but dated terms like *narcotic* and *non-narcotic* are used interchangeably. Formerly, it was believed that opioids acted only within the brain and spinal cord, but the action of nonopioids was confined to the periphery (ie, the site of injury). This explanation is no longer tenable, however; both are known to act centrally and peripherally.[1,2] In fact, the feature that best distinguishes these analgesic classes is their mechanism of action. Opioids activate specific receptors in a manner identical to opiates, such as morphine. Nonopioids interrupt prostaglandin synthesis, thereby resembling aspirin in action.

Address correspondence to Dr Becker at debecker@mvh.org.

Anesth Prog 57:67–79 2010
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NONOPIOID ANALGESICS

The nonopioid analgesics include acetaminophen (APAP) and the nonsteroidal anti-inflammatory drugs (NSAIDs). The analgesic efficacy of these agents is typically underestimated. This is unfortunate because they generally are equivalent or superior to opioids for managing musculoskeletal pain, and they produce a lower incidence of side effects, including the potential for abuse. Dental pain is included in the musculoskeletal category, and for decades studies have repeatedly found that NSAIDs are generally superior to opioids at conventional dosages.[3–5] This principle will be revisited during the final portion of this article, but at this time it is important to review essential pharmacological features of the nonopioids.

NSAIDS

Actions and Effects. Ibuprofen is conventionally regarded as the prototype of this large group of synthetic compounds known for their analgesic, antipyretic, and anti-inflammatory efficacy. These therapeutic effects and their most notable side effects can be explained almost entirely by their ability to inhibit the cyclooxygenase (COX) required for synthesis of various families of prostanoids.[6] This action is illustrated and further explained in Figure 1.

Precautions and Side Effects. Clinical use of NSAIDs is predicated on their ability to reduce the

ISSN 0003-3006/10
SSDI 0003-3006(10)

Becker DE. Managing Acute and Postoperative Dental Pain. Anesth Prog 2010; 57(10): 67-79.

Gordon J. Christensen: Clinicians Report. Pain Meds: What Works? February 2015

Gordon J. Christensen
Clinicians Report®
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February 2015, Volume 8 Issue 2
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Pain Meds: What Works?

Gordon's Clinical Bottom Line: Practitioners tend to prescribe analgesics they trust and with which they have had positive patient acceptance. However, over the last short period of time there have been changes that influence choices of analgesics, including new federal rules on prescribing narcotics, positive research on over-the-counter analgesics, and a general trend to avoid contributing to the challenge of prescription drug addiction. *This report demonstrates those changes and will probably motivate you to reconsider your analgesic favorites.*

Because of the major content of this article, this edition of *Clinicians Report* has an additional two pages. Modern dentistry demands adequate pain management by treating pain at the site *peripherally* as well as *centrally*. This article, developed by information from a CR survey, oral surgeon Evaluators, CR staff, and current available literature, will aid the clinician to:

- Understand the physiological pain mechanism
- Learn contraindications to specific drugs
- Avoid and treat analgesic drug complications
- Know when and which narcotics are indicated
- Use an algorithm for pain management
- Recognize the drug seeker
- Apply clinical surgical tips to minimize surgical post-operative pain
- *For more detail regarding pain management and listings of specific NSAIDs, see www.CliniciansReport.org.*

Continued on page 2

Should Indirect Restorations be Pretreated before Resin Cementation?

Gordon's Clinical Bottom Line: It is clear that some dentists do not have an understanding of agents that bond organic and inorganic materials such as resin cements to ceramic. Some of these priming agents are silanes and some are *not* silanes. Some bond relatively well and some do not. Which are the best materials to use? Do the bonds last? When is a high bond afforded by effective pretreatment desirable? *CR Scientists and Evaluators have answered these questions and others for you to help you provide the best bond of resin cements to various indirect restorative materials.*

- **Restoration primers** *(coupling agents)* may be used for: preparing indirect restorations for cementation; repairing/adding to direct or indirect composite materials; repairing ceramic/metal restorations; and bonding posts and cores using resin cements.
- **The application of primers to restoration surfaces is intended to prepare the surface** to be chemically bonded to subsequent resin cement/adhesive.
- **Mechanical retention marks** *(surface roughening)* created before priming *(examples: acid etching, sandblasting, diamond bur)* favorably increases the surface area to be bonded, thus creating additional bond strength.
- **The two most popular active chemicals** used in restoration primers today, in some form, are **silane** and **MDP** *(methacrylated phosphoric acid ester)*. Some primers contain both of these.
- **Most restoration primers are convenient one-bottle products,** but some two-bottle priming systems are still available.

This report provides useful information on restoration primers, including: CR survey results, CR bond strength testing, clinical tips, and CR conclusions.

Continued on page 4

Infection Control Challenges with Dental Loupes and Headlamps

Gordon's Clinical Bottom Line: Dental loupes and headlamps are generally considered "non-critical" because they do not contact mucous membranes directly. As clinicians, however, do we remove our gloves every time we adjust our loupes or manipulate the controls? The result is clear: contamination on dental loupes and headlamp controls. *This report provides some easy alternatives to minimize cross-contamination.*

Loupes and headlamp controls are potential sites for cross-contamination

- CDC *(Centers for Disease Control)* recommends non-critical items be cleaned, or if "visibly soiled," cleaned and disinfected after each use using intermediate- or low-level disinfection depending on the "degree and nature of the contamination."
- According to a recent CR survey, only 16% of clinicians surveyed are cleaning and disinfecting loupes between patients.

Continued on page 6

Products Rated Highly by Evaluators in CR Clinical Trials

The following products were rated excellent or good by CR Evaluator use and science evaluations.

Endo-Eze Find: Reasonably priced apex locator with large, easy-to-read display

MiniCam HD: Lightweight video camera that can be easily mounted on dental loupes

Cavitron FitGrip: Comfortable grip provides improved ergonomics for popular ultrasonic inserts

Quartz Splint: Thin and adaptable Quartz Splint material is easy to place and strong when light cured

Continued on page 8

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