

Pain and Addiction Challenges in 2013



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IntNSA Webinar Series

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Pain and Addiction Clinical Challenges in 2013

International Nurses Society on Addictions

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2013 Webinar Courses on Addiction Medicine

Disclosures

- Anthony Dekker, DO, presenter, has disclosed that he does not have a conflict and has no business affiliations to pharmaceuticals. The program is supported with an educational grant from the Centers for Substance Abuse Treatment,(CSAT) a division of the Substance Abuse and Mental Health Services Administration (www.samhsa.gov). The opinions of Dr Dekker are not necessarily the opinions of the Indian Health Service, the HHS, the USPHS or the Department of Defense.

Opioids: a Public Health Crisis

- In 2009, 39,147 Americans died from drug poisonings
 - Nearly 14,800 deaths involved prescription opioid analgesics

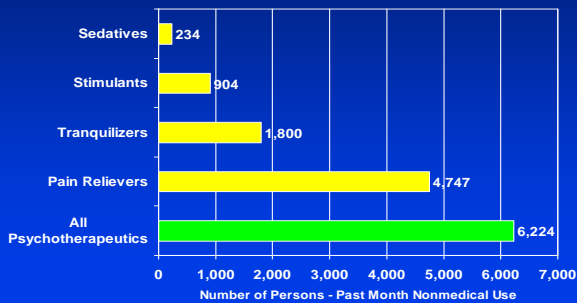
For every 1 death there are:



- 10 treatment admissions for abuse
- 32 emergency department visits for misuse or abuse
- 130 people who abuse or are addicted
- 825 nonmedical users

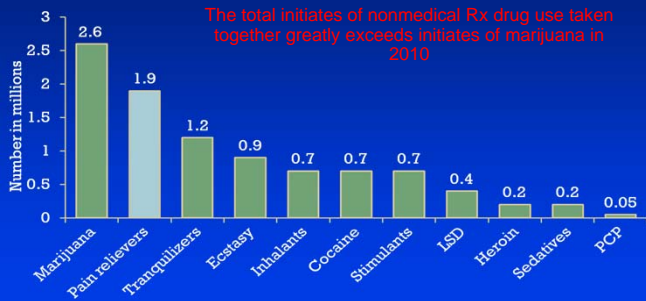
Warner M, et al. *Drug poisoning deaths in the United States, 1990-2006*. NCHS data brief, no 61. Hyattsville, MD: National Center for Health Statistics. 2011. National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention. *Policy Impact. Prescription Painkiller Overdoses*. Nov 2011.

Past Month Nonmedical Use of Psychotherapeutics among Persons Aged 12 or Older: 2008



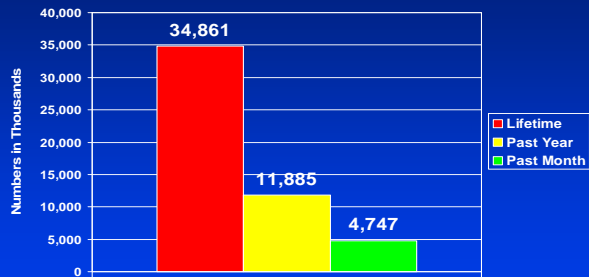
Source: NSDUH 2008

Past-Yr Initiates of Specific Drugs Among Persons Age ≥12 Yrs in 2011



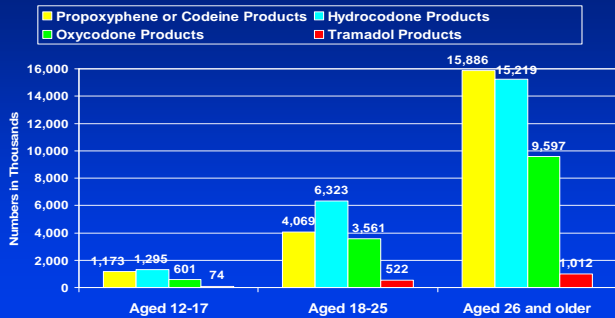
SAMHSA. (2012). Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings, NSDUH Series H-44, HHS Publication No. (SMA) 12-4713, Rockville, MD.

Nonmedical Use of Pain Relievers in Lifetime, Past Year, and Past Month: 2008



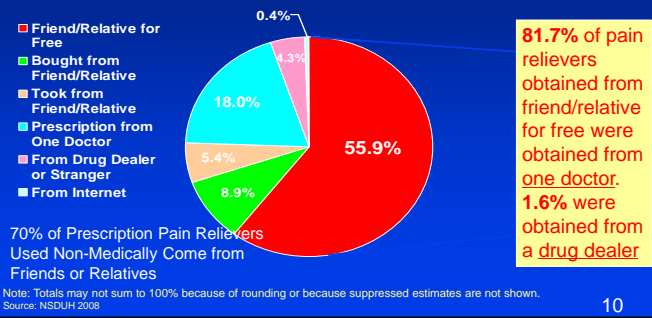
Source: NSDUH 2008

Nonmedical Use of Selected Pain Relievers in Lifetime by Age Group, Numbers in Thousands, 2007

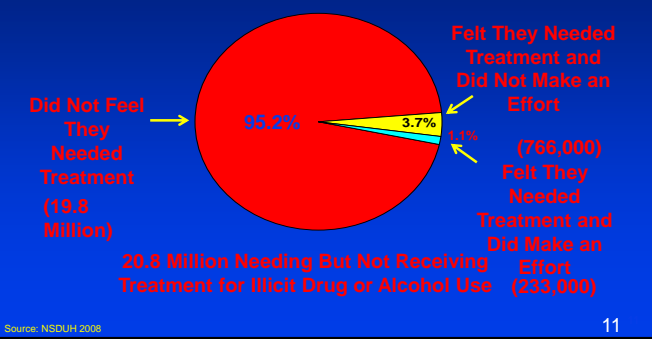


Source: NSDUH 2008

Source Where Pain Relievers Were Obtained for Most Recent Nonmedical Use among Past Year Users Aged 12 or Older: 2008



Past Year Perceived Need for and Effort Made to Receive Specialty Treatment among Persons Aged 12 or Older Needing But Not Receiving Treatment for Illicit Drug or Alcohol Use: 2008



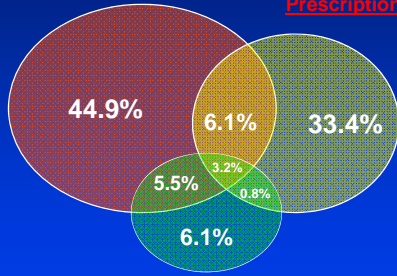
Medical Marijuana

- Confusion in regard to medication management and dosing schedules (forgetting doses and med locations)
- Drug interactions appear to be minimal but contaminants are still an issue
- Changes in time and space perception may increase accidental injuries (CA study 40% of impaired MVA)
- Science needs to clarify the indications of CB1 and CB2 receptor agonism

Type of Illicit Drugs Used in Past Year: Adults 50 or Older

Marijuana Use

Nonmedical Use of Prescription-type Drugs

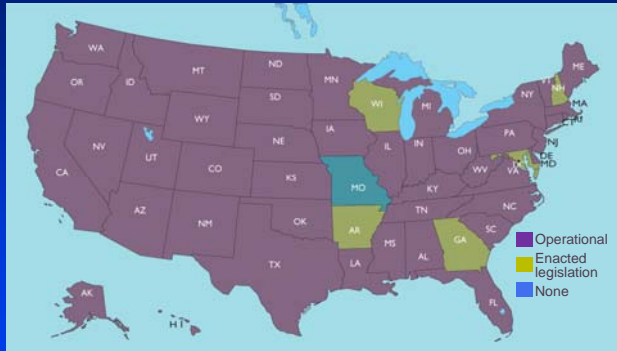


Other Illicit Drug Use

Source: 2006-2008 NSDUH

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2013 Status of State PDMPs



National Alliance For Model State Drug Laws. Status of

The Problem of Pain

- Costs US economy estimated \$100 billion/year
 - Healthcare
 - Welfare & disability payments
 - Lost tax revenue
 - Lost productivity (work absence)
- 40 million physician visits annually
 - Most common reason for medical appointments
- Push toward opioid maintenance therapy in non malignant pain



National Institutes of Health. *New Directions in Pain Research*. Sept 1998. PA-98-102.

Aberrant Drug Related Behaviors - Predictive of an Addiction

1. Selling prescription drugs
2. Prescription forgery
3. Stealing or "borrowing" drugs
4. Obtaining prescription drugs form non-medical sources
5. Concurrent abuse of alcohol or illicit drugs
6. Multiple dose escalations or other non-compliance with therapy
7. Aberrant administration of medications

Aberrant Drug Related Behaviors - Predictive of an Addiction

1. Multiple episodes of prescription "loss"
2. Prescriptions from other clinicians/EDs without seeking primary prescriber
3. Deterioration in function that appears to be related to drug use
4. Resistance to change in therapy despite significant side effects from the drug

Differential Diagnoses of Aberrant Drug Related Behaviors

1. Addiction
2. Pseudoaddiction
3. Other psychiatric disorder
4. Encephalopathy
5. Family disturbance
6. Criminal intent
7. Exacerbation of pain syndrome
8. Side effect(s) of the opioid

Differential Diagnosis of Functional Downturn

1. Syndrome of opioid abuse/dependence
2. Other substance use disorder
3. Other psychiatric disorder
4. Exacerbation of pain syndrome
5. Other medical problem
6. Side effect of opioid-hyperalgesia

Buprenorphine: Considerations for Pain Management

Rolley E Johnson et al. Journal of Pain and Symptom Management, Vol 29, No 3, March 2005, pp297-326

Buprenorphine: Considerations for Pain Management

Rolley E. Johnson, PharmD, Paul J. Fudala, PhD, and Richard Payne, MD
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Abstract
New effective analgesics are needed for the treatment of pain. Buprenorphine, a partial mu-opioid agonist which has been in clinical use for over 25 years, has been found to be amenable to new formulation technology based on its physico-chemical and pharmacological profile. Buprenorphine is marketed as parenteral, sublingual, and transdermal formulations. Unlike full mu-opioid agonists, at higher doses, buprenorphine's physiological and subjective effects, including euphoria, reach a plateau. This ceiling may limit the abuse potential and may result in a wider safety margin. Buprenorphine has been used for the treatment of acute and chronic pain, as a supplement to anesthesia, and for behavioral and psychiatric disorders including treatment for opioid addiction. Prolonged use of buprenorphine can result in physical dependence. However, withdrawal symptoms appear to be mild to moderate in intensity compared with those of full mu agonists. Overdoses have primarily involved buprenorphine taken in combination with other central nervous system depressants. J Pain Symptom Manage 2005;29:297-326. © 2005 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

American Journal of Therapeutics 12, 379-384 (2005)

Sublingual Buprenorphine Is Effective in the Treatment of Chronic Pain Syndrome

Herbert L. Malinoff,^{1*} Robert L. Barkin,² and Geoffrey Wilson¹

- Open label study 95 consecutive patients on long term opioid therapy (LTOA) failing treatment based on:
 - Increased pain
 - Decreased Functional Capacity
 - Emergence of opioid addiction (8%)
- Induced on buprenorphine 4-16mg (8mg mean dose)
- 86% Experienced moderate to substantial pain relief
 - Mood and function improved
- 8% Discontinued due to side effects or increased pain

The effect of buprenorphine and benzodiazepines on respiration in the rat

Suzanne Nielsen^{a,b,*}, David A. Taylor^a

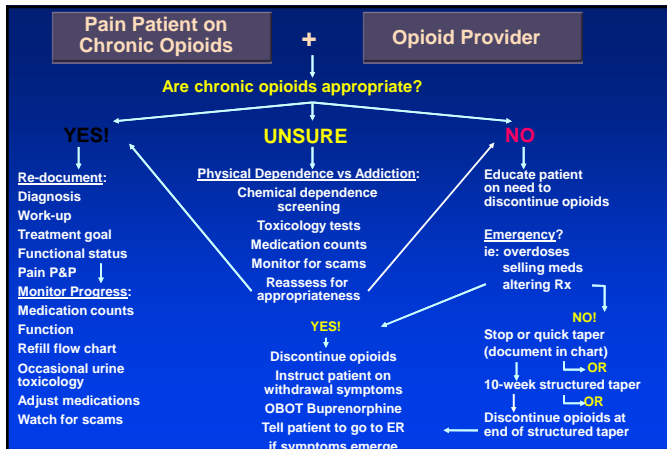
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Received 18 October 2004; received in revised form 10 January 2005; accepted 11 January 2005

- Plateau effect on respiratory depression lost with pre-administered benzodiazepine
- Also looked at methadone which potentiates respiratory depression
- Buprenorphine not worse than methadone

Drug and Alcohol Dependence 79 (2005) 95-101



Example of an Equipotent Dose Tables

Drug	Oral	Parenteral	Conversion ratio to oral morphine
Morphine	30 mg	10 mg	Parenteral morphine: 3 times as potent as oral morphine
Oxycodone	20 mg	NA	Oral oxycodone: ~1.5 times as potent as oral morphine
Hydrocodone	20 mg	NA	Oral hydrocodone: ~1.5 times as potent as oral morphine
Hydromorphone	7.5 mg	1.5 mg	Oral hydromorphone: ~4-7 times as potent as oral morphine Parenteral hydromorphone: 20 times as potent as oral morphine
Fentanyl	NA	15 mcg/hr	Transdermal fentanyl: ~100 times as potent as morphine (based on studies converting from morphine to fentanyl)

Rising Concerns Over Misuse, Abuse, and Diversion

- Concerns about the misuse, abuse, and diversion of buprenorphine are growing
 - DEA recently decided to increase frequency of audits for waived physicians
 - Among users already injecting, estimates of buprenorphine misuse and diversion vary from 20% to 89%¹⁻³
- Press coverage
 - Has drawn attention to the possibility of buprenorphine/haloxone diversion⁴⁻⁵
 - Quoted anecdotal evidence implying increased rates of abuse and diversion
- Scientific literature

DEA=Drug Enforcement Agency

1. Hollanson A et al. *Eur Addict Res*. 2007;13(4):207-215. 2. Allan CK et al. *Drug Alcohol Rev*. 2009;27(2):197-199. 3. Cocro TJ et al. *J Opioid Misuse*. 2007;3(6):302-308. 4. *Milwaukee Journal Sentinel*. April 2, 2009. www.jsonline.com/news/milwaukee/42366057.html. Accessed July 19, 2011. 5. *Baltimore Sun*. December 16, 2007. http://www.baltimore_sun.com/bal/te_bupe16dec16.0.6480686.story. Accessed July 19, 2011.

Fatal Med Errors Increase Domestic Use with Alcohol and/or Street Drugs

- Medication use has shifted
 - Past: Clinically orientated with inpatient, hospital care, supervised medication use
 - Current: Increased OTCs, increased domestic use, polypharmacy
- Consequences
 - Less professional oversight in domestic situation
 - Ease of concomitant use of EtOH and/or Street Drugs
 - Patient has increased responsibility to self-monitor drug consumption

Phillips DP et al. A Steep Increase in Domestic Fatal Medication Errors with use of Alcohol and/or Street Drugs. *Arch Intern Med*. 2008;168(14):1561-66.

FME death rate analysis

- Review of electronic death certificates
 - Jan 1, 1983 thru Dec 31, 2004
- FME definition: *Fatal Preventable Adverse Drug Events*
 - Listed as either primary or secondary cause of death
 - ICD-9/ICD-10 codes for FME
 - Includes Rx and OTC
 - Excludes alcohol and "Street Drugs"
 - Location Code
 - Home
 - If not coded "home" assigned to Non-home
- Four FME groups analyzed
 - Type 1: Home with EtOH/Street Drug
 - Type 2: Home without EtOH/Street Drug
 - Type 3: Non-Home with EtOH/Street Drug
 - Type 4: Non-Home without EtOH/Street Drug

Phillips DP et al. *Arch Intern Med*. 2008;168(14):1561-66.

Overall FME death rate accelerated

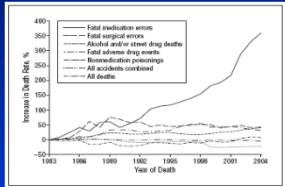
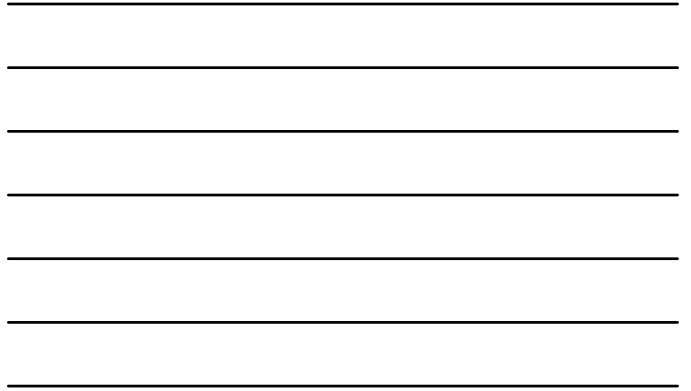


Figure 1. Trends in the US death rate from fatal medication errors and from other causes of death (January 1, 1983–December 31, 2004).

- Overall FME death rate increased by 360% (above; $p < 0.001$) with average age decreasing slightly (not shown)
- Figure 1 additionally demonstrates
 - Surgical errors, adverse effects of Medication and deaths from EtOH/"Street Drugs" show a slight increase
 - Other types of accidents (falls, drowning, poisoning, MVA) show a slight decrease



Upper Graph Fig 2a

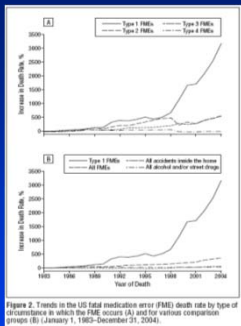


Figure 2. Trends in the US fatal medication error (FME) death rate by type of circumstance in which the FME occurs (A) and for various combination groups (B) (January 1, 1983–December 31, 2004).

- Type 1 (Home with EtOH/Street) has increased by 3196%
 - Steep and accelerating rate ($p < 0.001$)
- Type 2 (Home without EtOH/Street) and Type 3 (Non-Home with EtOH/Street) increased 564% and 555%, respectively
- Type 4 (Non-Home without EtOH/Street) only increased 5%

Lower Graph Fig 2b

- Type 1 has three components:
 - Fatal Medication Errors
 - Occurring at home
 - In conjunction with EtOH/Street drugs
- The 3 components graphed separately show slight increase
- Component combined (Type 1) shows steep increase by 3196%



FME Death Rates Vary by Age

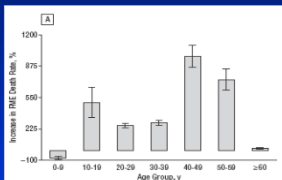


Fig 3a. Increase in US fatal medication error (FME) death rates by age group. 95% CI error bars

Figure 3a demonstrates an increase in fatal medication errors are greater in the teen and middle age.

- Study limitations:
 - Official computerized death certificates do not provide much detail about FME
 - Examination is only of severe (fatal) med errors
 - No coding for medical institution location (restricted to home vs non-home)
 - Does not document type of med error (type of medication, Rx vs OTC, type of street drug)



Pharmacist impact on domestic FME

- Self-administration of medication at home is least likely to have professional oversight
- Improve patient care by:
 - Evaluate patients capacity to manage their own medications
 - Educate patient about risks associated with their medications
 - Monitor patient performance

Phillips DP et al. Arch Intern Med. 2008;168(14):1561-66.

Pharmacist impact on EtOH/Street Drug related FME

- Steep increase in deaths related to combination of medication with alcohol and/or street drugs
- Improve patient care by:
 - Screening patients for use, misuse, or abuse of alcohol and/or street drugs
 - Taking extra precautions when prescribing/dispensing medicines with known dangerous interactions with alcohol and/or street drugs
 - Emphasizing to the patient the risks of mixing their medications with alcohol and/or street drugs

Phillips DP et al. Arch Intern Med. 2008;168(14):1561-66.

Pharmacist impact on EtOH/Street Drug related FME

- Medication reconciliation
 - Inpatient
 - Outpatient
- Written and oral patient education counseling
 - Regardless of distribution method:
 - counsel all new and altered prescriptions
 - Provide annual to quarterly review of all medications
 - Black box warnings on drug information sheets
 - Up-to-date patient education sheets

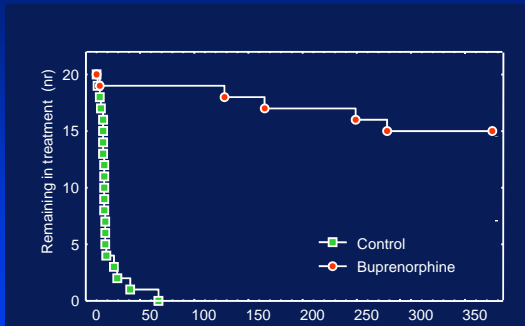
Public Expectations of Substance Abuse Treatment Interventions

- Safe, complete "detox"
- Reduced use of medical services
- Eliminate crime!
- Return to employment/ self support
- Eliminate family disruption
- No return to drug use
- "CURE"

Methadone Maintenance: The "Gold" Standard

- A Comprehensive Rehabilitation Program...
 - Improves overall survival
 - Increases retention in treatment
 - Decreases illicit opioid use
 - Decreases seroconversion of hepatitis and HIV
 - Normalizes immune and endocrine systems
 - Decreases criminal activity
 - Increases employment
 - In Perinatal Addiction: Improves birth outcomes

Buprenorphine Maintenance/Withdrawal: Retention



(Kakko et al., 2003)

Opioid Overdose Deaths Decline 79% After Introduction of Buprenorphine in France



DIVERSION ISSUES OF BUPRENORPHINE

- T Cicero, JAMA, 2006, provided information demonstrating low levels of buprenorphine diversion.
- Finland report of the street value of buprenorphine/naloxone, compared to buprenorphine mono in Finland, once buprenorphine/naloxone was introduced due to buprenorphine mono formulation abuse.
- 80% of Finnish IV users said that the IV buprenorphine/naloxone experience was "bad". The street value of buprenorphine/naloxone was less than 50% of buprenorphine mono formulation.

Buprenorphine 2001-7 John Renner MD Feb 2008 Buprenorphine Summit

- 4.1 million prescriptions
- 585,000 patients treated
- 30% Detox
- 70% Maintenance
- 16,232 Physicians trained
- 13,318 Waivered

Baltimore Sun Articles

- 1-17-08 ...October, its consultants found that half the doctors they surveyed were aware of an illegal trade in Buprenorphine and their numbers have been climbing”
- 1-25-08 “..addicts using the drug on the street mostly say they do so to avoid withdrawal, not to get high.”

Questions and Answers