Patterns of Opioid Use, Misuse, and Abuse in the U.S. Population, the VA Population, and the Military

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Photo courtesy of The Herb Museum, Vancouver, BC

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Collaborators

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"Among the remedies which it has pleased Almighty God to give to man to relieve his sufferings, none is so universal and so efficacious as opium." Sydenham, 1682

Key Points

- Opioid use for Chronic Non-Cancer Pain (CNCP) is a two-edged sword
  - Pain relief
  - Addiction, overdose, increased health costs
- Opioid use for CNCP is increasing rapidly
- Often those receiving opioids for CNCP are those most likely to abuse them

Key Points continued

- Use of opioids is heavily concentrated
- Once on Chronic Opioid Therapy (COT), most patients remain on COT for years.

Major Caveat

- Will not be presenting data on COT benefits or appropriateness

Background On Prescribed Opioids

- 20% of general population significantly affected by CNCP.
- 40% to 50% of OEF/OIF Veterans significantly affected by CNCP.[1, 2-3]
- Although combat injuries are common, musculoskeletal issues unrelated to combat trauma (e.g., back pain) are the most common causes of pain in military personnel.[4]

1. Gironda RJ, *Pain Medicine* 2006.
2. Leland A, http://www.fas.org/sgp/crs/natsec/RL32492.pdf
3. Gironda RJ, *Rehab Psychol* 2009.
4. George SZ, *PLoS One* 2012

Background (continued)

- Following successful cancer pain initiatives, efforts have been made to liberalize the use of opioids for the treatment of these individuals
- These efforts are based on the belief that patients with CNCP deserve pain relief as much as those with cancer and that sustained pain relief is possible with stable doses of opioids.

Background (continued)

Opioid prescribing has been rapidly increasing in the past twenty years

Background (continued)

- By 2010, enough opioid pain relievers were sold to medicate every American adult with a typical dose of 5 mg of hydrocodone every 4 hours for 1 month.

Background (continued)

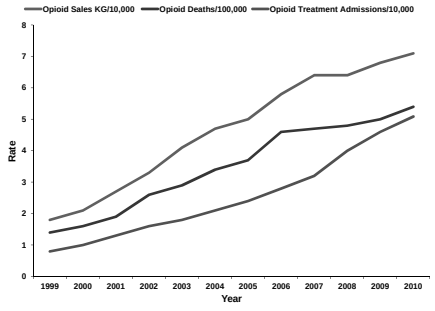
While some see the growth in opioid prescribing as evidence of better attention to the problem of unrelieved pain,[1] others have expressed concern that we have not had adequate trials to prove the "safety and effectiveness of long-term opioid therapy." [2]

1. Portenoy RK. *Lancet*. 2004.
2. Von Korff M, *Pain* 2004.

Clinical Trials Evaluating Opioids for CNCP

- Lack of long-term studies
- Often excluded individuals with serious physical health disorders, other comorbid pain conditions, or mental health and substance use disorders.

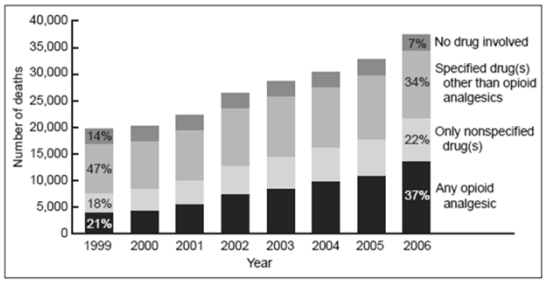
U.S. Opioid Rates, 1999–2010



CDC. *MMWR* 2011. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm60e1101a1.htm?s_cid=mm60e1101a1_w

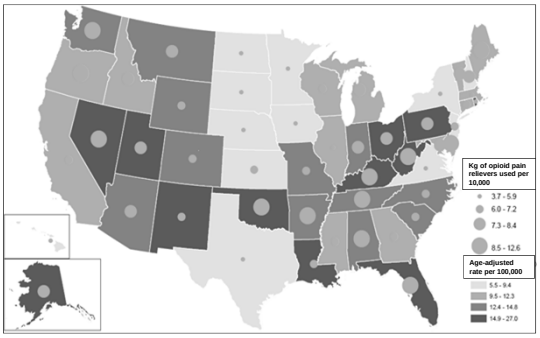
The number of poisoning deaths and the percentage of these deaths involving opioid analgesics increased each year from 1999 through 2006.

Figure 1. Poisoning deaths involving opioid analgesics, other drugs, and no drugs: United States, 1999–2006



NOTE: Access data table for Figure 1 at ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/Data_Briefs/db022/fig01.xls.

Drug Overdose Death Rate 2008, and Opioid Pain Reliever Sales Rate 2010



National Vital Statistics System, 2008; Automated Reports Consolidated Orders System, 2010.

What is Causing These Deaths?

- Diversion (patient had no opioid prescription)
- Doctor shopping (several prescribers per patient)
- Use of inherently risky medications

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Diversion and Doctor Shopping

– 295 opioid deaths in 2006 in WV
– 67% men, 92% age 18-54
– Diversion in 63% (no Rx)
– Doctor shopping in 21% (≥5 prescribers)
– Predominantly diversion in men and doctor shopping in women

Hall AJ, *JAMA*. 2008

Inherently Risky Medications

– 9940 persons with ≥3 opioid Rx in 90 days
– 51 opioid overdoses, with 6 deaths
– annual overdose rates by prescribed dose:
  • 0.2% for 1-20mg MED per day
  • 0.7% for 50-99mg MED per day
  • 1.8% for ≥ 100mg MED per day (9x increase)

Dunn KM, *Ann Intern Med.* 2010

Addictive Potential

- The addictive potential of opioids remains a concern.[1-3]

1. SAMHSA 2000.
2. SAMHSA 2001.
3. Zacny J, *Drug Alcohol Depend* 2003.

Prescription Opioid Abuse Increasing

- National Survey on Drug Use and Health
  – Nationally rep. sample of 67,000 >12 yo, 2002-5
  – 5% "non-medical" use Rx opioids in past 12 mo (mostly hydrocodone and oxycodone)
  – More new initiators in 2006 than any other drug (even marijuana)
  – 56% misusers obtained from friends or family
- Monitoring the Future Study
  – 9% of 12th graders misused opioids 2002-2007
- Drug Abuse Warning Network
  – Opioids involved in 33% of drug-related ED visits

Risk Factors for Opioid Abuse Among Users of Opioids for CNCP

Prescribing guidelines stress substance abuse as a risk factor, while recognizing that other factors remain to be identified[1-7]

1. Haddox JD, A Consensus Statement from the American Academy of Pain Medicine and the American Pain Society. 1997
2. American Geriatrics Society. 1998.
3. Drug Enforcement Administration. *J Pain Symptom Manage* 2002.
4. Veterans Health Administration, Department of Defense. 2003.
5. Kalso E, *Pain* 2004.
6. The Pain Society. 2004.
7. National Pharmaceutical Council. 2001.

TROUP Study: Trends and Risks of Opioid Use for Pain

- 2000-2005 claims data from HealthCore and Arkansas Medicaid insurance plans
- Follow patients with tracer CNCP diagnoses:
  - Arthritis/joint pain
  - Back pain
  - Neck pain
  - Headaches/migraines
  - HIV/AIDS

TROUP study, supported by NIDA grant, DA 022560

- Trends in Opioid Use in the TROUP Study

HealthCore percent change in chronic opioid use 2000-2005

Group	% with ≥90d opioids in 2000	Estimated % change 2000-5
Female 18-44	2.7%	24%
Female 45-64	4.4%	34%
Female 65+	6.9%	35%
Male 18-44	2.1%	34%
Male 45-64	3.7%	41%
Male 65+	4.6%	25%

AR Medicaid percent change in chronic opioid use 2000-2005

Group	% with ≥90d opioids in 2000	Estimated % change 2000-5
Female 18-44	12%	54%
Female 45-64	20%	52%
Female 65+	13%	40%
Male 18-44	14%	34%
Male 45-64	21%	52%
Male 65+	12%	41%

Average daily dose in mg morphine equivalents for patients with NCPC and non-zero opioid use.

	Health Core			Arkansas Medicaid		
Percentile	2000	2005	2005/2000 Dose ratio	2000	2005	2005/2000 Dose ratio
10th	18.8	18.8	1.000	18.0	16.9	0.937
20th	23.8	24.0	1.009	22.5	21.7	0.965
30th	29.2	30.0	1.029	28.3	26.9	0.949
40th	32.1	33.3	1.037	33.1	30.7	0.927
50th	37.5	38.1	1.015	40.7	37.5	0.921
60th	45.0	45.0	1.000	52.3	44.7	0.853
70th	55.4	54.2	0.979	69.0	55.5	0.804
80th	75.0	71.9	0.959	89.3	75.0	0.840
90th	110.6	100.0	0.905	103.5	98.6	0.952
95th	142.6	138.0	0.968	127.8	127.8	1.000
99th	230.0	230.0	1.000	158.7	191.9	1.209

Days supplied of opioids in a calendar year for patients with NCPC and non-zero opioid use

Percentile	Health Core 2000	Health Core 2005	Health Core 2005/2000 Days ratio	Arkansas Medicaid 2000	Arkansas Medicaid 2005	Arkansas Medicaid 2005/2000 Days ratio
10th	3.0	3.0	1.000	4.0	5.0	1.250
20th	4.0	3.0	0.750	6.0	8.0	1.333
30th	5.0	5.0	1.000	10.0	13.0	1.300
40th	6.0	6.0	1.000	15.0	23.0	1.533
50th	8.0	9.0	1.125	25.0	38.0	1.520
60th	11.0	13.0	1.182	42.0	72.0	1.714
70th	19.0	21.0	1.105	80.0	136.0	1.700
80th	35.0	43.0	1.229	157.0	239.0	1.522
90th	113.0	150.0	1.327	280.0	341.0	1.218
95th	253.0	321.0	1.269	360.0	394.0	1.094
99th	499.0	655.0	1.313	590.0	684.0	1.159

Total opioid dose for calendar year in mg morphine equivalents for patients with NCPC and non-zero opioid use.

Percentile	Health Core 2000	Health Core 2005	Health Core 2005/2000 Dose ratio	Arkansas Medicaid 2000	Arkansas Medicaid 2005	Arkansas Medicaid 2005/2000 Dose ratio
10th	100.0	100.0	1.000	150.0	150.0	1.000
20th	135.0	150.0	1.111	270.0	300.0	1.111
30th	175.0	187.5	1.071	460.0	540.0	1.174
40th	240.0	262.5	1.094	690.0	898.8	1.303
50th	350.0	375.0	1.071	1116.8	1450.0	1.298
60th	540.0	585.0	1.083	1800.0	2620.0	1.456
70th	840.0	900.0	1.071	3136.5	4600.0	1.467
80th	1500.0	1690.0	1.127	6000.0	8162.1	1.360
90th	4200.0	4960.0	1.181	12637.0	15775.0	1.248
95th	9270.0	11700.	1.262	21900.0	28695.0	1.310

Percentage of total population opioid use: total dose

Percentile	Health Core 2000	Health Core 2005	Arkansas Medicaid 2000	Arkansas Medicaid 2005
0-10th	0.3%	0.2%	0.2%	0.1%
10th-20th	0.4%	0.3%	0.4%	0.3%
20th -30th	0.7%	0.5%	0.7%	0.6%
30th-40th	0.8%	0.7%	0.9%	1.0%
40th -50th	1.2%	0.8%	2.1%	1.6%
50th-60th	1.8%	1.5%	2.7%	2.9%
60th-70th	2.7%	1.9%	4.8%	5.0%
70th-80th	4.5%	3.7%	8.7%	8.9%
80th-90th	10.3%	8.4%	17.3%	16.4%
90th-95th	12.6%	11.0%	16.3%	15.1%
95th-99th	27.5%	27.3%	25.5%	27.3%
99th-100th	37.3%	43.3%	20.5%	20.6%

Concentration of opioid use among patients with CNCP

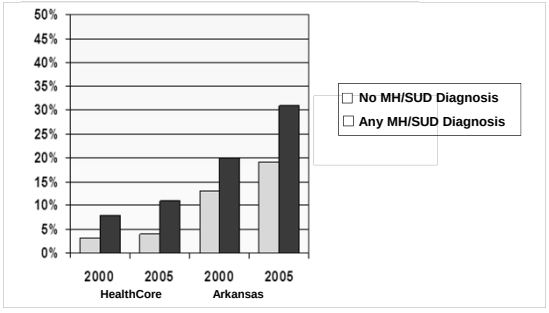
- Yearly total opioid use was highly concentrated in both HC and AR samples
- In HealthCore, 5% of the CNCP patients used 70% of total opioids (in mg. MED)
- In Arkansas, 5% of the CNCP patients used 48% of total opioids (in mg. MED)
- No other prescribed medication shows this degree of concentration among users

Edlund MJ, *Pain Symp Mgmt,* 2010

Which Individuals are Most Likely to Receive Opioids?

- Those with greater number of pain diagnoses
- Those with mental health and substance abuse disorders

Chronic opioid use (>90d/yr) in pts with MH and SUD diagnoses



Among individuals with COT, which are most likely to develop abuse?

- Younger individuals
- Those with MH and SUD disorders

"Adverse Selection"

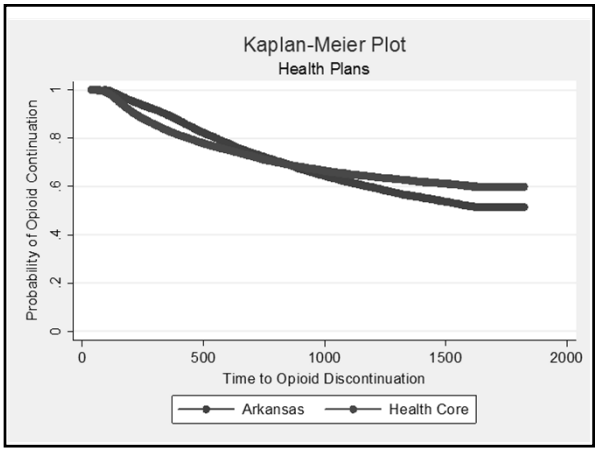
Those individuals who are most likely to receive COT are also those who are most likely to develop opioid abuse/dependence

Why does adverse selection occur?

- Providers want to help patients in pain and have few tools other than Rx pad
- Patients with MH and SA disorders and multiple pain problems are more distressed (pain and psychol symptoms) and more persistent in demanding opioid initiation and dose increases
- Providers use opioid prescriptions as a "ticket out of the exam room"

COT discontinuation

- Once started on a course of COT, how long do patients remain on opioids?
- TROUP study of COT recipients (used at least 90 days without a 32 day gap)
- Outcome: 6 months without any opioid Rx



Opioid Use in Military

- Misuse increased ten-fold 2002 to 2008, from 1% to 10%[1,2]
- This represents 133,000 active duty personnel.
- Chronic pain is prevalent in service members who have survived catastrophic injury
- Chronic pain frequently comorbid with post traumatic stress disorder (PTSD) and traumatic brain injury (TBI),[15] the signature wounds of OEF/OIF.[16-18]
- In a survey of VA patients 13% reported opioid misuse

1. Bray RM, *Mil Med,* 2010
2. Bray RM, in press

Conclusions

- Opioid use for CNCP is a two-edged sword
- Opioid use for CNCP increasing rapidly—but will we soon reach a “Tipping Point”?
- Often those receiving opioids for CNCP are those most likely to abuse them
- Use of opioids is heavily concentrated

More Conclusions

- Once on Chronic Opioid Therapy (COT), most patients remain on COT for years.
- Most importantly, these are complex patients, usually requiring multi-modality treatment. Don’t give up!