The Illusion of Opioids: The truth about their efficacy and risks.

DON TEATER MD
Don Teater MD
Teater Health Solutions

Meridian Behavioral Health Services
Waynesville, NC

Masters student
UNC Gillings School of Global Public Heath

teaterhs.com
don@teaterhs.com
Opioid facts

The United States has 4.6% of the world’s population.

- We use 80% of the world’s opioids!\(^1\)
- Because of our use, 83% of the world’s population has no access to any opioids.\(^2\)
Opioid increase

Drug distribution through the pharmaceutical supply chain was the equivalent of 96 mg of morphine per person in 1997 and approximately 700 mg per person in 2007, an increase of >600%.
“Pain affects millions of Americans; contributes greatly to national rates of morbidity, mortality, and disability; and is rising in prevalence.”
The State of US Health

Years lived with disability (in thousands)

- Low back pain
- Other MS disease
- Neck pain
- Osteoarthritis

Comparison between 1990 and 2010.
United States of America

Opioid Consumption in Morphine Equivalence (ME), Mg/person

Data sources:
Consumption data - International Narcotics Control Board;
Population – United Nations;
ME conversion factors – WHOCC Centre for Drug Statistics Methodology

Late 1990’s Intractable Pain acts
Early 2000’s aggressive marketing
1996 APS/AAPM Consensus Statement
1986 Portenoy Foley article
1990's
The Promotion and Marketing of OxyContin: Commercial Triumph, Public Health Tragedy

Art Van Zee, MD

Feb. 2009
The problem:

Prescriber knowledge

- Very little education on pain.
  - Average medical school provides 9 hours of education on pain.⁴
- Very little education on addiction.
- Very little education on opioids.

Between 40-60% of people with back pain will get opioids at some time.⁵,⁶

- The American Academy of Neurology recommends against using opioids for back pain.⁷
Societal cost

$55.7 billion per year.\textsuperscript{6}

$184 per person per year.

28 cents per mg (morphine equivalent)

- Bottle of Percocet 5 mg, #30:

Cost to society is $63

\textsuperscript{**} 2007 study of societal cost of opioids by Birnbaum et al: $55.7 billion per year

2007 U.S. population: 301.2 million people

2007 per capita consumption of opioid = 662 MME

$55.7 \text{ billion} \div (301.2 \text{ million x 662 MME}) = 0.289
Rates of opioid overdose deaths, sales and treatment admissions, US, 1999-2010.7

- Opioid Sales KG/10,000
- Opioid Deaths/100,000
- Opioid Treatment Admissions/10,000

National Vital Statistics System, DEA’s Automation of Reports and Consolidated Orders System, SAMHSA’s TEDS
Deaths are just the tip of the iceberg

For every 1 opioid overdose death in 2010 there were...

- 15 abuse treatment admissions
- 26 emergency department visits
- 115 who abuse/are dependent
- 733 nonmedical users

$4,350,000 in healthcare-related costs

SAMHSA NSDUH, DAWN, TEDS data sets
Opioid pain reliever-related overdose deaths increasing at a faster rate than deaths from any major cause

% change in number of deaths, United States, 2000-2010

- Rx opioid overdose: 276%
- Alzheimer’s: 68%
- Hypertension: 47%
- Parkinson’s Disease: 40%
- Nephritis: 36%
- Suicide: 31%
- Liver Disease: 20%
- Chronic Lower Respiratory disease: 13%
- Septicemia: 11%
- HIV: 7%
- Malignant Neoplasms: 4%
- Pneumonitis: 2%
- Diabetes Mellitus: 0%
- Homicide: -3%
- Perinatal Period: -14%
- Heart disease: -16%
- Motor vehicle traffic: -22%
- Cerebro-vascular: -23%
- Influenza & Pneumonia: -23%
- Aortic Aneurysm: -34%

WISQARS, 2000 and 2010; CDC/NCHS, National Vital Statistics System
Poppy plant
Pain

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

International Association for the Treatment of Pain
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Pain

Acute pain: Pain < 3 months
Chronic pain: Pain > 3 months
Acute vs. chronic pain

Healthy brain vs. chronic pain brain.

Acute pain:
- Tissue Input
- Thoughts
- Emotions

Chronic pain:
- Thoughts
- Tissue Input
- Emotions
Acute pain: treatment

Acetaminophen (Tylenol®)
NSAIDs (ibuprofen, naproxen, etc.)
Opioids
Topical agents
Nonpharmacologic (PT, ice, heat, etc.)
Side Effects

Acetaminophen
  ◦ Liver
  ◦ Mood?
  ◦ GI?

NSAIDs
  ◦ GI
  ◦ Renal
  ◦ Cardiac
Opioids

Side Effects:
- Mentally impairing.\textsuperscript{8,9}
- Delay recovery.\textsuperscript{10,11}
- Increase medical costs.\textsuperscript{12}
- Opioid hyperalgesia.\textsuperscript{13,14}
- Double the chance of disability.\textsuperscript{15}
- Increase falls.\textsuperscript{16}
- Cardiac, GI?\textsuperscript{17,18}
- Treat depression.\textsuperscript{19}
- Brain changes.\textsuperscript{20}
- Addiction.\textsuperscript{21,22}
Opioid receptors

Enable us to achieve a goal (short term).^{23,24}

◦ Decrease pain (minimal effect).
◦ Increase motivation.
◦ Increase confidence.
◦ Increase reward. Dopamine.
◦ Reduce depression and anxiety.
◦ Increase pleasure in current activity.
◦ Increase “warmth-liking”.^{25}
  ◦ Liking warm things.
  ◦ Love.
  ◦ Interpersonal bonding.
Efficacy of pain medications

Acute pain\textsuperscript{26,27}

Percent with 50\% pain relief

<table>
<thead>
<tr>
<th>Medication</th>
<th>Percent with 50% pain relief</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibuprofen 200 mg</td>
<td>37</td>
</tr>
<tr>
<td>Acetaminophen 500 mg</td>
<td>28</td>
</tr>
<tr>
<td>Ibuprofen 400 mg</td>
<td>40</td>
</tr>
<tr>
<td>Oxycodone 15 mg</td>
<td>21</td>
</tr>
<tr>
<td>Oxy 10 + acet 1000</td>
<td>37</td>
</tr>
<tr>
<td>Ibu 200 + acet 500</td>
<td>62</td>
</tr>
</tbody>
</table>
Renal colic

A 2005 Cochran review concluded:

NSAID medications and opioids have equal effectiveness in treatment of acute renal colic...

but opioids have more side-effects.\textsuperscript{28}
Single Dose Analgesic Efficacy of Tapentadol in Postsurgical Dental Pain: The Results of a Randomized, Double-Blind, Placebo-Controlled Study.

Kleinert, Regina; Lange, Claudia; MD, MSc; Steup, Achim; Black, Peter; Goldberg, Jutta; Desjardins, Paul; DMD, PhD

Doctors overestimate the efficacy of opioids and underestimate the impact of safer alternatives.

Percent with 50% pain relief

**Opioid medications**

- **Acetaminophen 500 mg + ibuprofen 200 mg**
  - Actual Efficacy: 62%
  - Prescribers rank as most effective: 1%

- **Ibuprofen 400 mg**
  - Actual Efficacy: 40%
  - Prescribers rank as most effective: 4%

- **Ibuprofen 200 mg**
  - Actual Efficacy: 37%
  - Prescribers rank as most effective: 1%

- **Acetaminophen 500 mg + oxycodone 10 mg**
  - Actual Efficacy: 37%
  - Prescribers rank as most effective: 6%

- **Morphine 10 mg IM**
  - Actual Efficacy: 34%
  - Prescribers rank as most effective: 55%

- **Acetaminophen 500 mg**
  - Actual Efficacy: 28%
  - Prescribers rank as most effective: 4%

- **Oxycodone 15 mg**
  - Actual Efficacy: 21%
  - Prescribers rank as most effective: 19%

- **Acetaminophen 300 mg + codeine 30 mg (Tylenol #3)**
  - Actual Efficacy: 14%
  - Prescribers rank as most effective: 4%

- **Tramadol 50 mg**
  - Actual Efficacy: 12%
  - Prescribers rank as most effective: 4%

74% believe these opioids to be the most effective way to treat pain.

Source: (Blued) Cochran research cited in the NSC white paper, Evidence for the efficacy of pain medications

(Total -n=201)

Doctors overestimate the efficacy of opioids and underestimate the impact of safer alternatives.
99% of doctors prescribe opioids for longer than the CDC guideline for acute pain relief (3 days).

Source: NSC Rx Study – Q10. For what period of time do you ordinarily prescribe opioid pain medication? (Total - n=201)
Acute prescriptions

Approximately 30% of ALL ER visits end with a prescription for a opioid.

Approximately 60% of patients going to the ER with back pain will get an opioid prescription.

- Primary care doctors give opioids to about 35% of their patients presenting with back pain.

Pain is the most common reason for people to go to the ER or to their primary care doctor.
One opioid prescription after an injury:

- Increases medical costs by 30%
- Increases the risk of surgery by 33%
- Doubles the risk of being disabled at one year


Chronic pain

No evidence that opioids are effective for long-term treatment of chronic pain.\textsuperscript{30}

“Safe and effective” use of opioids for chronic pain is an invalid concept.

- No evidence that these can be used safely
- No evidence that they can be used effectively

Epidemiologic studies have shown that those on chronic opioid therapy have worse quality of life than those with chronic pain who are not.\textsuperscript{31}

The AAN recommends against using opioids for back pain, headaches, or fibromyalgia.\textsuperscript{36}

A Cochrane review recommends against using opioids for OA of the hip or knee.\textsuperscript{37}
Tapentadol study\textsuperscript{32}
Additional tx in chronic pain

Behavioral tx$^{33}$

Treatment of mood disorders and mental illness

Exercise

PT

Acupuncture

Amitriptyline

Duloxetine (and other antidepressants)

Gabapentin (and other anticonvulsants)
Chronic pain cycle

- Anger, anxiety, fear, distress, etc.
- Impoverished mood
- Depression
- Activity avoidance
- Progressive deconditioning
- Pain with decreasing activity
- Further activity avoidance
- Further deconditioning
- Increased perception of pain

PSYCHOLOGICAL VICIOUS CIRCLE

PHYSICAL VICIOUS CIRCLE
Psychological pain experience

People develop anxiety about pain
Catastrophizing is almost universal
People fear pain
Pain controls life and becomes its focus
Hypervigilance
Psychological results

Anxiety
Depression
Stress response
Maladaptive coping strategies
“Sick role”
Behavioral pain experience

Pain controls life.
Reduced activity level.
Lower quality of life.
More sedentary lifestyle with consequences as a result.
Original Investigation

Effect of Mindfulness-Based Stress Reduction vs Cognitive Behavioral Therapy or Usual Care on Back Pain and Functional Limitations in Adults With Chronic Low Back Pain: A Randomized Clinical Trial

Daniel C. Cherkin, PhD; Karen J. Sherman, PhD; Benjamin H. Balderson, PhD; Andrea J. Cook, PhD; Melissa L. Anderson, MS; Rene J. Hawkes, BS; Kelly E. Hansen, BS; Judith A. Turner, PhD
Mindfulness

- Non-judgmental stance
- Kindliness and friendliness to self
- Awareness of present experience with acceptance
- Find pain less aversive
- Observe pain with less reactivity
Specific CBT tools

Automatic negative thoughts (ANTS!)
Thought distortions
ABC worksheet
Decatastrophizing
Don’t use opioids for back pain!

When used for acute episodes of back pain they result in higher medical costs, increased risk of surgery and delayed recovery. They also double the risk of future disability.

When used for acute exacerbations of chronic low back pain they dramatically increase the risk of future abuse and addiction.

When used prior to back surgery, they result in worse outcomes from surgery.

When used for chronic low back pain the effect on pain is felt to be clinically insignificant and they result in worse outcomes and worse quality of life. In fact, the American Academy of Neurology recommends against using opioids for chronic back pain.
When are opioids useful?

Acute severe trauma (for a short time)
End of life (not necessarily for everyone with cancer)
Treatment of Opioid Use Disorder

Detox and abstinence

Methadone

Buprenorphine (Suboxone®)

Naltrexone injection (Vivitrol®)
Tapering opioids

Opioid taper in people on COT resulted in average pain decrease from 7.1 to 5.4. A 24% decrease in pain. About ½ of patients ended up going back on opioids but their pain was not improved on the opioids.

Taper off of COT reduces pain in all ages. Approximate 20% reduction. Also reduction in depression and pain catastrophizing.
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Taper off of COT reduces pain in all ages. **Approximate 20% reduction.** Also **reduction in depression and pain catastrophizing.**\(^3^5\)
Prescriber behavior

- Initial use
- Extra use
- Abuse
- Addiction
- Criminal Activity
- Overdose
- Death

Treatment
PDMP
Naloxone
Disconnect

Medical Care

Behavioral Care

Public Health
We need to integrate

Medical Care

Behavioral Care

Public Health
Concluding thoughts

1. Pain has both physical and emotional components. While medicine has historically focused on the physical component, it is the emotional component that causes the suffering and should always be addressed.

2. Opioids affect the emotional aspect of pain more than the physical and we must develop a healthy respect for that if we are to use them effectively.

3. Integrated care settings are the ideal place to treat chronic pain.
   A. The physician may be the one who directs the care but should seldom be the one who provides the care.
250,000

Number of deaths in the last 20 years from opioids.

More than 4 times the number of American deaths in the Vietnam war

This is an epidemic. And we are the vector!

This epidemic is completely reversible with a change of behavior that will result in better pain management
“To write prescriptions is easy, but to come to an understanding with people is hard.”

-- Franz Kafka, “A Country Doctor”
Don Teater MD
Teater Health Solutions
teaterhs.com
don@teaterhs.com


References:


