

OPIOIDS OF THE MASSES: CONTROLLING A DEVASTATING EPIDEMIC:

Anthony L. Rosner, Ph.D, LL.D.[Hon.], LLC

August 5, 2016

The “opium of the masses” that Karl Marx once made reference to has taken on a new meaning when one witnesses what has happened in the past 30 years with opioids, natural opium-extracted semi-synthetic and synthetic substances derived from the poppy (*Papaver somniferum*). While we may look with some degree of gratification at the disappearance of the notorious opium dens, they may have taken on a more insidious, lethal reincarnation with the alarming statistic telling us that U.S. sales of prescription opioids has increased 4-fold from 1999 to 2010 with sharp increases in deaths and emergency room visits associated with the use of fentanyl, hydrocodone, oxycodone, and other opioid medications.¹

What death increases? FIGURE 1 shows that statistics from the National Institutes of Health indicate that in the U.S. there were approximately **20,000** deaths in 2014 alone, or **over 165,000** in just the decade preceding from the overuse of prescription opioid pain relievers. For 2014, the opioid death rate was *twice* that of heroin, or *370% greater* than that of heroin over the past decade.²

National Overdose Deaths Prescription Opiates (left) and Heroin (right)

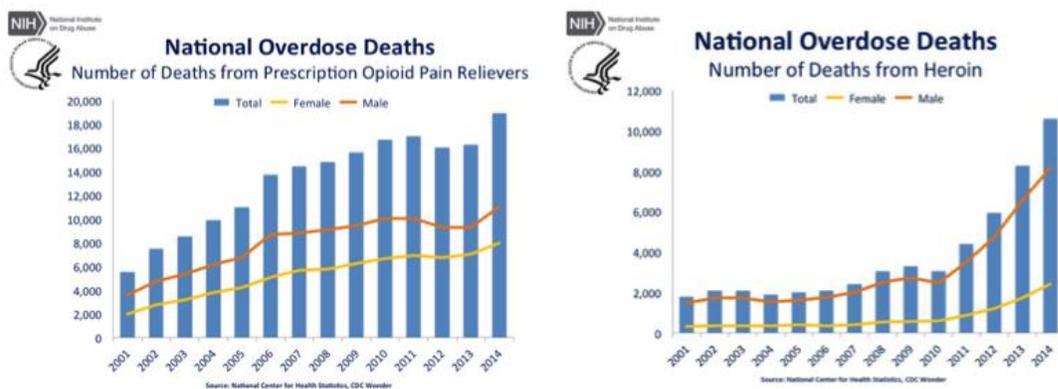


FIGURE 1: National deaths due to overdose of opioids or heroin

As a haiku review on mechanisms of action, let it be said that opioids act through μ opioid receptors which are found in pain-modulating, descending pathways, including the medulla locus coeruleus and periaqueductal gray area. Expression also occurs in the limbic, midbrain, and cortical structures. Activation of these receptors inhibit neurons, the analgesic effect being the inhibition of spinal cord pain transmission,^{3,4} as illustrated in FIGURE 2:

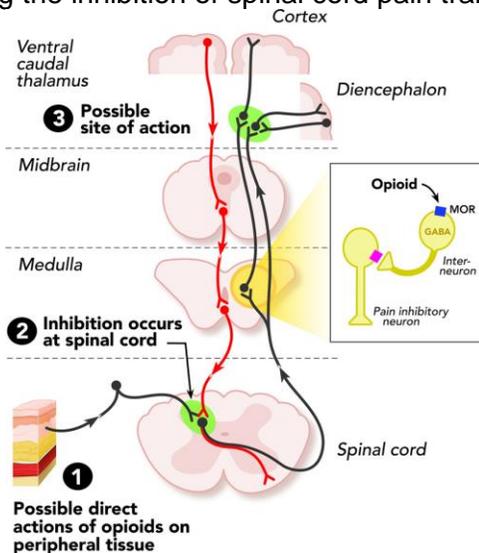


FIGURE 2: Overall mechanism of action of opioids in pain modulation⁵

Causes of the opioid epidemic may have begun with the liberalization over the past 20 years by state medical boards of laws governing the prescribing of opioids for treating chronic non-cancer pain. Add to that (i) the introduction of new pain management standards by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) in 2000, (ii) the increased awareness of the patient's right to pain relief, (iii) support from a variety of organizations promoting the use of opioids in large doses, and finally (iv) aggressive marketing by the pharmaceutical industry. All these pillars have been excoriated as being based on unsound science, blatant misinformation, and assumptions that opioids are effective and safe—especially when prescribed by physicians. Even more frightening is the fact that opioid analgesics are currently causing more deaths than the number of deaths from suicides and motor vehicle crashes combined. Furthermore, 60% of deaths have been found in patients when they are given prescriptions based on prescribing guidelines by medical boards.⁶ As Beauchamp *et al* have stated so succinctly, “We have moved beyond questions of nonmedical use, abuse, and diversion to highlight the role of prescription opioids in causing addiction *even when prescribed and used appropriately* (italics mine).⁷ In other words, efforts to restrain nonmedical opioid use have failed to address the addiction occurring in medical opioid users as well.⁸

Compounding the problem is that a series of semistructured open-ended telephone interviews with patients discharged from a single urban academic emergency department having experienced pain from fracture, renal colic, or musculoskeletal back injury revealed that emergency physicians typically failed to discuss the risks of opioid dependence, let alone mentioning anything about alternative pain management options. Those patients experiencing negative experiences related to pain management pointed out deficiencies in communication with the provider, leading to the misunderstanding of clinical diagnoses, fragmentation of care among their healthcare providers, and a desire to be involved in the decision-making process concerning their pain management.⁹

What are the costs associated with opioid use and adverse events?¹⁰

1. Sales of opioids, in the U.S., pegged at \$3.97 B in 2001, rose 110% to \$8.34 B in 2012.
2. Opioid hospitalizations, numbering 299,498 in 2004, rose to 885,398 in 2011.
3. At the workplace, average claim costs without the use of opioids was reported to be \$13,000, with short-acting opioids like Percocet, that figure inflated to \$39,000—and with long-acting opioids like Oxycontin the cost skyrocketed to \$117,000.

What efforts have been made to corral this runaway stallion?

1. One initiative was to introduce what was called an abuse-deterrent formulation of OxyContin. Problem was that not only did the initial reduction of 45% in the first month level off with a persistence of 25-30%, but more importantly, *there was a migration to other opioids, particularly heroin*.¹¹ One could almost imagine that the solution was worse than the problem here.
2. Given what is now apparently the strong correlation between therapeutic exposure to opioid analgesics and their abuse, an alternative proposal recommended in Ontario has involved what is mainly methadone maintenance treatment for prescription opioid disorders, but this has been considered to be a last resort for treatment in Canada.¹²
3. The introduction of training programs for anesthesia providers, introduction of specific standards of patient safety, and anesthesia monitoring have been shown to produce significant declines in anesthesia-related mortality. Given that anesthesiologists have widely prescribed opioids for acute and chronic pain,¹³ these steps have been proposed as measures to apply to the use of opioids as well.¹⁴
4. Anesthesiologists may have taken a step further, in that the American Society of Anesthesiologists Task Force on Acute Pain Management has come out with a recommendation to apply *multimodal analgesia*, in addition to weighing the benefits and risks of systemic opioids.¹⁵

Given the fact that orthopedic surgeons have been identified as the third highest prescribers of opioid analgesics among physicians in the United States,¹⁶ a massive opportunity has been created to propose chiropractic as arguably the least invasive, less costly, and clearly nonaddictive alternative for managing musculoskeletal pain. Indeed, a great deal of heft has been given to this suggestion by the very recent report that the per-capita supply of chiropractic and per-capita Medicare spending on chiropractic manipulative therapy were both inversely associated with any use of opioids. Even though these factors were not associated with the mean daily dosage of opioids among those who had *already* obtained opioid prescriptions, the implications of this study are clear: that

having a chiropractor nearby may reduce the number of opioid prescriptions being issued—and thus one could anticipate decreases in opioid-related hospitalizations, expenses, and even death. Although it would be desirable to confirm these results with further outcome studies and randomized controlled trials, they already emphasize what we believe is the strong potential of increased chiropractic care to alleviate the current rampant overuse and abuse of opioids, leading to increased disability and healthcare costs.¹⁷ In the meantime, it would be foolish to discourage the use of chiropractic manipulative therapy whose effectiveness in alleviating musculoskeletal pain has been supported in an abundance of studies. With this modicum of common sense, we may yet be able to retire or at least diminish the protestations of Karl Marx.

REFERENCES:

http://www.nytimes.com/interactive/2013/06/23/sunday-review/the-soaring-cost-of-the-opioid-economy.html?_r=0

¹Cobaugh DJ, Gainor C, Gaston CL, Kwong TC, Magnani B, McPherson ML, Painter JT, Krenzelok EP. The opioid abuse and misuse epidemic: implications for pharmacists in hospitals and health systems. Am J Health Syst Pharm 2014; 71(18): 1539-54.

²Regier P. Drug epidemics: Now and then. <https://addictionunscripted.com/drug-epidemics-now-and-then/> Accessed 08/05/2016.

³Ahlbeck K. Opioids. A two-faced Janus. Curr Med Res Opin 2011; 27: 439-48.

⁴McNicol E, Horowicz-Mehler N, Fisk RA, Bennett K, Gialeli-Goudas M, Chew PW, Lau J, Carr D. Management of opioid side effects in cancer-related and chronic noncancer pain: A systematic review. J Pain 2003; 4: 231-56.

⁵Al-Hasani R, Bruchas MR. Molecular mechanisms of opioid receptor-dependent signaling and behavior. Anesthesiol 2011; 115(6): 1363-81. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3698859/figure/F1/> Accessed 08/05/2016.

⁶Manchikanti L, Helm S, Fellows B, Janata JW, Pampati V, Grider JS, Boswell MV. Opioid epidemic in the United States. Pain Physician 2012; 15(3 Suppl): ES9-38.

⁷Beauchamp GA, Winstanley EL, Ryan SA, Lyons MS. Moving beyond misuse and diversion: the urgent need to consider the role of iatrogenic addiction in the current opioid epidemic. Am J Public Health 2014; 104(11): 2023-9.

⁸Kolodny A, Courtwright DT, Hwang CS, Kreinder P, Eadie JL, Clark TW, Alexander GC. The prescription opioid and heroin crisis: a public health approach to an epidemic of addiction. Ann Rev Public Health 2015; 36: 559-74.

⁹Smith RJ, Rhodes K, Paciotti B, Kelly S, Perrone J, Meisei ZF. Patient perspectives of acute pain management in the era of the opioid epidemic. Ann Emerg Med 2015; 66(3): 246-52.e1.

¹⁰http://www.nytimes.com/interactive/2013/06/23/sunday-review/the-soaring-cost-of-the-opioid-economy.html?_r=0. Accessed 08/04/2016.

¹¹Cicero TJ, Ellis MS. Abuse-deterrent formulations and the prescription opioid abuse epidemic in the United States: Lessons learned from OxyContin. JAMA Psychiatry 2015; 72(5): 424-30.

¹²Fischer B, Kurdyak P, Goldner E, Tyndall M, Rehm J. Treatment of prescription opioid disorders in Canada: looking at the 'other' epidemic. Subst Abuse Treat Prev Policy 2016; 11: 12.

¹³Alam A, Juulink DN. The prescription opioid epidemic: an overview for anesthesiologists. Can J Anaesth 2016; 63(1): 61-8.

¹⁴Kissin I. Opioid prescriptions for pain and epidemic of overdose death: can the dramatic reduction in anesthesia mortality serve as an example? J Pain Res 2016; 9: 453-6.

¹⁵Kelly MA. Current postoperative pain management protocols contribute to the opioid epidemic in the United States. Am J Orthop (Bele Mead NJ) 2015; 44(10 Suppl): S5-8.

¹⁶Morris BJ, Mir HR. The opioid epidemic: impact on orthopaedic surgery. J Am Acad Orthop Surg 2015; 23(50): 267-71.

¹⁷Weeks WB, Goertz CM. Cross-sectional analysis of per capita supply of doctors of chiropractic and opioid use in younger Medicare beneficiaries. Journal of Manipulative and Physiological Therapeutics 2016; 39(4): 263-266.
