

Opioid Addiction: Addressing the Crisis of a National Opioid Overdose Epidemic

Rose Berkun^{1*}, Benjamin Khechen¹ and Ryan Berkun²

¹Department of Anesthesiology, State University of New York at Buffalo, USA

²Department of Anesthesiology, University of Miami, USA

*Corresponding author: Rose Berkun, Department of Anesthesiology, Jacobs School of Medicine and Biomedical Sciences President Elect, State University of New York at Buffalo, New York State, USA, Tel: 716-839-1700; E-mail: rbmd96@gmail.com

Rec date: September 27, 2016; Accp date: October 05, 2016; Pub date: October 10, 2016

Copyright: © Berkun R, 2016. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Short Communication

The abuse of and addiction to opioids such as heroin, morphine, and prescription pain relievers is a serious global problem that affects the health, social, and economic welfare of all societies. It is estimated that between 26.4 million and 36 million people abuse opioids worldwide [1], with an estimated 2.1 million people in the United States suffering from addiction to prescription opioid pain relievers and 467,000 addicted to heroin [2]. The consequences of this abuse have been devastating and are on the rise. The number of unintentional overdose deaths from prescription pain relievers has quadrupled since 1999. In the United States, 78 people die daily from opioid overdose. Opioid related drug overdose has become the leading cause of accidental death, surpassing fatalities from automobile accidents, firearms and slip and falls. In 2014, 7 in 10 opioid overdoses treated in emergency departments involved prescription opioids, not illegal opioids like heroin, as reported in JAMA Internal Medicine in October 2014. The nonmedical use of opioid pain relievers costs insurance companies up to \$72.5 billion annually in health-care costs [3].

So how did we, as a society, get here? In 1996, the American Pain Society (APS) introduced the phrase “Pain as the Fifth Vital Sign”. The intention was to better address and bring attention to patients’ pain complaints. In 2001, The Joint Commission rolled out its Pain Management Standards and named pain the “Fifth Vital sign”. In order to adhere to the new standards, healthcare providers were now required to ask every patient about their pain level, regardless of the reason for seeking medical help; thus, creating the perception that pain was undertreated. In 2006, the Centers for Medicare and Medicaid Services (CMS) implemented the “Hospital Consumer Assessment of Healthcare Providers and Systems” (HCAHPS) survey in which patients were asked to provide feedback regarding the hospital care and its provider services. The management of pain was included in the survey and payments to providers and institutions were based on survey scores. If patients reported that pain was undertreated, physicians were financially penalized. The result was an overwhelming increase in prescription opioids without deliberation of the possible effects attributable to the addictive nature of opioid narcotics.

Pharmaceutical companies took advantage of the regulatory changes and began an aggressive marketing campaign. In 1996, Purdue Pharma introduced a new oral opioid, OxyContin. In its first year, OxyContin earned Purdue Pharma \$45 million in sales. By 2001, that number ballooned to \$1.1 billion. By 2011, sales of OxyContin accounted for 30% of the total painkiller market and totaled \$3.1 billion [4]. The reason for OxyContin’s popularity was Purdue’s claim that one dose of the opioid relieved pain for up to 12 hours and

provided “smooth and sustained pain control all day and all night”. Another advantage of OxyContin, according to Purdue, was that the risk of addiction from this particular opioid was extremely small, “less than 1%”. The company targeted primary care physicians who were high prescribers of opioids and encouraged them to switch to OxyContin. By 2003, nearly half of all physicians prescribing OxyContin were primary care physicians [4].

Contrary to Purdue’s claims, OxyContin did not last nearly as long as the advertised 12 hours. Patients complained of breakthrough pain and needing more frequent doses. Some experienced symptoms of withdrawal. Purdue continued to insist on the long action of OxyContin and recommended higher doses instead. They still claimed that the risk of addiction remained low even with the higher doses, contrary to multiple studies that documented the risk of drug related adverse events, including overdoses, among individuals treated for chronic non cancer pain which increased with opioid doses equivalent to 50 mg/day of morphine or more [5-11].

By 2004, OxyContin had become the leading drug of abuse in the United States. The high availability of OxyContin correlated with the increased abuse, diversion and addiction [12]. According to the government’s National Survey on Drug Use and Health, more than 7 million Americans have abused OxyContin over the last 20 years in the US.

On May 10, 2007, Purdue Frederick Company, Inc., an affiliate of Purdue Pharma, along with three company executives, pled guilty to criminal charges of misbranding OxyContin by claiming that it was less addictive and less subject to abuse and diversion than other opioids. The charges resulted in fines totaling \$634 million, but the consequences of the fraudulent actions remained. Since 1999, more than 190,000 lives were claimed due to overdoses involving OxyContin and other painkillers. Opioid prescriptions for pain management have increased by over 300%, coinciding with a proportional increase in opioid-related adverse effects [13].

CDC study titled “Increases in Drug and Opioid Overdose Deaths in US 2000-2014” [14], released in January 2016, found that opioid prescribing and sales increased in parallel with overdoses involving opioid pain relievers. Since 2000, the rate of deaths from drug overdoses involving opioids has increased by 200%. In New York State, the Department of Health Office of Comptroller’s 2016 data shows that between 2010 and 2014 opioid related deaths were up by 47%, and opioid related Emergency Department visits were up by 73%. As of 2014, in 26 of 62 counties opioid related deaths doubled and Naloxone was dispensed in 12,000 emergency calls [15]. The Opioid overdose crisis was becoming a nationwide epidemic. Drug users no longer fit the addict stereotype and opioid addiction was no longer a problem of

low socioeconomic urban settings, as reported by SAHMSA in 2014. Heroin and illegal prescription opioid usage was now among average, suburban, middle-class individuals.

In order to limit diversion and decrease the availability of illegal prescription opioids, states began enacting measures such as Prescription Monitoring Programs (PMP) and limiting the number of pills per prescription with no automatic refills. Unfortunately, the access to opioid addiction treatment programs or the funds necessary to support medication assisted addiction treatments were not addressed. That lead millions of opioid addicted patients to seek other means of avoiding withdrawal. Heroin became the easy substitution. Drug overdose deaths involving heroin continue to climb sharply, with heroin overdoses more than tripling in the last 4 years [16].

Several major studies were undertaken to examine the extent of opioid addiction and the availability of medication assisted addiction treatment. The National Center on Addiction and Substance Abuse conducted a study at Columbia University, published in 2012, titled "Addiction Medicine: Closing the Gap between Science and Practice" [13]. The study found that only 10% of 22 million patients with alcohol and drug addictions received treatment. Most treatment programs were not based on medical knowledge and lacked medical professionals. 29% of physicians asked about alcohol and drug use during a routine physical exam and only 6% of patients in treatment programs were referred there by physicians.

1200 out of 985,375 practicing physicians were trained in addiction medicine as of 2014. Researchers further concluded that the disease of addiction was estimated to be responsible for 20% of deaths in the U.S, as well as for one-third of hospital inpatient costs and that addiction contributed to more than 70 conditions that required medical care of local, state, and federal government spending on addiction, 95% went to paying for the consequences of addiction, not prevention and treatment. The authors concluded that opioid addiction was the costliest and the most preventable public health issue.

The Substance Abuse and Mental Health Services Administration (SAMHSA) reported that in 2013, 22.7 million people needed drug and alcohol treatment, but only 2.5 million received it, with opioid use disorder accounting for 2.3 million of those needing but not receiving treatment, 34.8% made an effort to find treatment but were unable to obtain it. In 2015, 1380 opioid treatment programs in the U.S. were able to prescribe either methadone or buprenorphine.

The lack of medication assisted addiction treatment programs is not the only reason for limited treatment options. A vast gap exists in Graduate Medical Education and Postgraduate Continuous Medical Education pertaining to opioid prescribing and addiction medicine. Medical schools provide inadequate teaching in addiction medicine. As of 2013, there were only 10 accredited Addiction Medicine Residencies and Fellowships and only a handful of U.S. states that required all physicians to receive opioid-related CME. Education is a critical component of any effort to curb the abuse of prescription medications and must target every segment of society, including doctors. National Institute on Drug Abuse (NIDA) is advancing addiction awareness, prevention, and treatment in primary care practices, including the diagnosis of prescription drug abuse, having established four Centers of Excellence for Physician Information. Intended to serve as national models, these Centers target physicians-in-training, including medical students and resident physicians in primary care specialties [17,18].

Addiction is a primary, chronic, neurobiologic disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by behaviors that include impaired control over drug use, craving, compulsive use and continued use despite harm [19]. Drug and alcohol addiction are reward deficit disorders. Negative reinforcement is what drives continued drug use (drive to alleviate negative emotional state). Opioid addiction is associated with other mental disorders and other types of addiction with genetic factors playing a significant role.

The main neurotransmitter involved in the neurobiology of drug abuse is dopamine. Dopamine is responsible for feelings of pleasure and is designed to reinforce positive behavior, such as eating, learning, sex and altruism. Opioids inhibit reuptake of dopamine into the presynaptic neuron causing an increase in the available neurotransmitter with long term opioid use, the number of D2 dopamine receptors on the postsynaptic neuron decreases as well as the amount of available dopamine at the neuronal junction with resultant decrease in available dopamine, the patient feels flat, depressed and lifeless needing more opioids to feel normal.

Organized Medicine as well as government agencies recognize the need for expanded treatment and a wider access to addiction medicine providers. In March of 2016, American Board of Medical Specialties (ABMS) added Addiction Medicine as a new subspecialty under the American Board of Preventive Medicine. In an effort to open the field of addiction medicine to more physicians, the ABMS opened the new subspecialty to any physician certified by any of the 24 Member Boards of ABMS with the first certifying exam anticipated in 2017.

The American Medical Association (AMA), at the 2016 House of Delegates, voted to drop the designation "Pain as Fifth Vital Sign" based on the fact that there is no objective measure to determine the level of pain. AMA also urged the Joint Commission to stop requiring hospitals to ask pain management questions in HCAHPS surveys and for CMS to change the funding formula and remove the financial penalties for perceived under-treatment of pain.

In 2016 CDC published new guidelines for treating chronic non cancer pain. The recommendations include non-pharmacological and non-opioid therapy, establishing realistic treatment goals for pain reduction and function, using immediate release opioids and the lowest dose when starting opioid treatment, accessing PMP, urine drug testing annually to ensure compliance and arranging medication assisted treatment for patients with diagnosed opioid use disorder.

US Congress in 2016 passed the first comprehensive bill that addressed opioid addiction. "Comprehensive Addiction and Recovery Act of 2016" enhances collaboration between criminal justice and substance abuse agencies, allows Physician Assistants to prescribe Buprenorphine and Methadone, mandates a mandatory PMP at all Veterans Administration Hospitals, expands opioid abuse treatment programs and establishes training in opioid reversal drugs for first responders. In 2016, the U.S. Department of Health and Human Services also implemented actions to combat the opioid abuse epidemic. The department increased the allowed limit to prescribe Buprenorphine from 100 to 275 per provider, allocated \$1.1 billion on programs to fight opioid addiction, committed to launching over a dozen scientific studies to fill in the knowledge gap and removed pain management questions from the hospital payment scoring calculation.

Physicians also need to take action to fight the opioid addiction epidemic [20]. We can enhance education on basic pharmacology, physiology and side effects of short- and long-acting opioids, change

opioid prescribing practices, follow CDC guidelines, register and use State's PMP, co-prescribe Naloxone for patients at risk for overdose, participate in waver qualifying medication assisted training programs and speak out against stigma. We can offer alternatives to opioids for pain management or as adjunct measures, such as physical therapy, hypnosis, acupuncture, chiropractic interventions and interventional pain management. However, the most important aspect of treating opioid addiction is understanding that opioid addiction is a chronic disease and requires long term treatment.

To successfully fight the opioid addiction epidemic, we as physicians need to RETOOL. Recognize that addiction as a chronic disease. Engage primary care physicians, pediatricians and specialists in recognition and screening of addiction. Train physicians, physician assistants and nurses on the topic of addiction. Oust the stigma of addiction among the general public and within the medical community. Optimize resources to expand access to medication assisted addiction treatment programs. Lobby state and federal legislators to fund programs that concentrate on awareness, research, education and treatment for addiction.

References

1. UNODC (2012) World Drug Report.
2. Substance Abuse and Mental Health Services Administration (2013) Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings (SMA) 13-4795.
3. Coalition Against Insurance Fraud (2007) Prescription for peril: how insurance fraud finances theft and abuse of addictive prescription drugs. Washington.
4. Zee AV (2007) The promotion and marketing of oxycontin: commercial triumph, public health tragedy. *Am J Public Health* 99: 221-227.
5. Fishbain DA, Rosomoff HL, Rosomoff RS (1992) Drug abuse, dependence, and addiction in chronic pain patients. *Clin J Pain* 8: 77-85
6. Hoffmann NG (1995) Prevalence of abuse and dependence in chronic pain patients. *Int J Addict* 30: 919-927.
7. Kouyanou K, Charles EP, Wessely S (1997) Medication misuse, abuse, and chronic dependence in chronic pain patients. *J Psychosom Res* 43: 497-504.
8. Chabal C, Erjavec MK, Jacobson L, Mariano A, Chaney E (1997) Prescription opiate abuse in chronic pain patients: clinical criteria, incidence, and predictors. *Clin J Pain* 13: 150-155.
9. Katz NP, Sherburne S, Beach M, Rose RJ, Vielguth J, et al. (2003) Behavioral monitoring and urine toxicology testing in patients receiving long-term opioid therapy. *Anesth Analg* 97: 1097-1102.
10. Reid M, Fanciullo GJ, Fine PG, Adler JA, Ballantyne JC, et al (2002) Use of opioid medications for chronic non-cancer pain. *J Gen Intern Med* 17: 173-179.
11. Michna E, Jamison RN, Pham LD, Ross EL, Janfaza D, et al. (2007) Urine toxicology screening among chronic pain patients on opioid therapy: frequency and predictability. *J Pain* 23: 173-179.
12. Cicero T, Inciardi J, Munoz A (2005) Trends in abuse of OxyContin and other opioid analgesics in the United States: 2002- 2004. *J Pain* 6: 662-672.
13. Altman DE (2012) Addiction Medicine: Closing the Gap between Science and Practice, National Center on Addiction and Substance Abuse at Columbia University 1-573.
14. Rose AR, Aleshire N, Zibbell JE, Matthew Gladden R (2016) Increases in drug and opioid overdose deaths- United States, 2000-2014. *MMWR* 64: 1378-1382.
15. Thomas (2016) Prescription opioid abuse and heroin addiction in New York Office of Comptroller.
16. Cicero TJ, Ellis MS, Surratt HL, Kurtz SP (2014) The changing face of heroin use in the United States: A retrospective analysis of the past fifty years. *JAMA Psychiatry* 71: 821-826
17. Volkow ND (2014) America's addiction to opioids: heroin and prescription drug abuse, senate caucus on international narcotics control.
18. Carly Weeks (2016) College of family physicians rejects call for mandatory course on safe opioid prescribing, *The Globe and Mail*.
19. Squire L, Berg D, Bloom F, Du Lac S, Ghosh A, et al. (2008) Reward, motivation and addiction, *Fundamental Neuroscience*, (3rd edn), pp: 987-1016
20. Davis CS, Carr D (2016) Physician continuing education to reduce opioid misuse, abuse, and overdose: Many opportunities, few requirements, *Drug Alcohol Depend* 63: 100-107.