Following an increase in the prevalence of chronic pain and campaigns denouncing inadequate treatment of pain, the past two decades have culminated in what researchers and healthcare advocates are calling an “opioid epidemic” in Canada and the United States where prescription opioid consumption is highest worldwide. An opioid is a drug that binds to opioid receptors and that primarily produce analgesic or euphoric effects. They are found mainly in the central nervous system and peripheral areas such as the gastrointestinal tract. As a class of drugs, opioids include endogenous opioids produced naturally in the body such as endorphins, opiates or opium alkaloids derived from the opium plant such as morphine and codeine, synthetic drugs such as methadone, and semi-synthetic drugs such as heroin and oxycodone. Physician-prescribed opioid pain relievers (OPRs) are intended to provide relief for patients in chronic noncancer pain. However, the addictive potential of these drugs in conjunction with adverse side effects, such as respiratory depression, nausea and vomiting, constipation, and urinary retention, have gained increasing attention as deaths resulting from the use of OPRs nearly quadrupled for men and increased fivefold for women from 1999 to 2010. Over this same time period, the sale of opioid prescriptions quadrupled. In Canada, the increase in prescription opioid use is even steeper at 203 percent from 2000 to 2010.

**Consequences of Abuse, Misuse, and Overuse**

Opioids are mainly prescribed by primary care physicians such as general practitioners, family physicians, and osteopathic physicians and are being used to treat acute or chronic pain from disease, surgery, or injury, moderate to severe coughs and diarrhea, or, in the case of methadone for example, addiction to other opioids such as heroin. The prescription of opioids increased rapidly when laws restricting the use of opioids for pain management were minimized in the late 1990s to combat the rising prevalence and costs of patients living with chronic pain. Patients on opioids may develop a physical dependence whereby they need higher doses to experience the same effects and adverse symptoms occur upon drug cessation. Without regulations surrounding the prescription of high-dose opioids, which lack scientific support for long-term pain relief that does not pose serious risk of overdose, physical dependence, or addiction, patients were being prescribed ever-increasing doses of opioids. These patients become present in the criminal justice system, worker’s compensation programs, workplace injury or lost productivity, emergency departments, and addiction treatment centers.

With the amount of prescribed high-dose opioids increasing in Canada and the United States, so too are alarming statistics. For example, OPR-related emergency department visits more than doubled amongst women from 2004 to 2010. At the extreme of consequences, in 2008, OPRs were involved in 73.8 percent of prescription drug overdose deaths in the United States. In Ontario, Canada, between 300 and 400 people die each year from prescription opioid overdose.

It is important to note that not all patients on opioids will misuse, abuse, or overuse the drug. However, on the other hand, it is important to note that overdose has occurred in patients taking their physician’s prescribed dose. The incidence of opioid abuse and dependence in patients receiving opioids for chronic noncancer pain depends on the average daily dose. The odds of opioid overdose increase with...
increasing doses and the odds of opioid overdose are high for those taking opioids for chronic pain as opposed to acute pain. Moreover, higher doses of opioids are related to increased risk of substance misuse, abuse, addiction, and overdose morbidity and mortality. Substance misuse, abuse, and overuse are defined as improper use or excessive intake such that it might harm self or others physically, economically, and/or socially. The most high-risk group, being those ages 35 to 54 years, has an opioid prescription-related mortality rate exceeding that of both firearms and motor vehicle-related deaths. The majority of opioid overdoses occur in the home because of respiratory depression, a negative side effect of opioid use whereby the drug depresses the central nervous system, respiration/breathing rate decreases, and the body becomes deprived of oxygen.

Research surveilling opioid prescriptions found that those at a high risk for misuse or overdose were obtaining multiple opioid prescriptions from multiple physicians and pharmacies, a phenomenon titled “doctor shopping.” In other words, a patient may go to two physicians simultaneously to obtain opioids for chronic low back pain without communicating this to the two physicians. The lack of access to pain control clinics also leads to doctor shopping as it poses significant barriers for patients living with chronic pain. For example, a physician decides not to renew a patient’s opioid prescription and, unable to access alternative pain management options, the patient visits another physician to obtain an opioid prescription without identifying this past history to the new physician. Managing their own pain and multiple prescriptions with perhaps varying doses, these patients are very vulnerable to substance abuse, addiction, or overdose.

Doctor shopping poses further criminal issues whereby prescription opioids are sold illegally and used by those without a prescription. With few avenues for prescriptions monitoring, these circumstances continue to persist. Approximately 40 percent of prescription opioid-related deaths occur amongst those who attained the drugs from doctor shopping. This phenomenon is even more severe in cases of worker’s compensation where workers obtain their prescription from an average of 3.3 different physicians as opposed to the 1.9 physicians visited for all other claims. The consequences of this are great; estimates suggest that 76 percent of nonmedical opioid users attain opioids from someone with a physician-authorized prescription for the drug.

**Prevention Strategies**

Despite research highlighting the consequences of high-dose opioids, the United States Food and Drug Administration (FDA), a key agency responsible for ensuring drug safety, has continued to approve high-dose opioids, such as Zohydro, claiming they are continuing to supply the needs of the great amount of Americans living with chronic pain. Until recently, guidelines were lacking that dictated recommendations for maximum dosages. In 2010, Washington released the Interagency Guideline on Opioid Dosing for Chronic Non-cancer Pain and Canadian research teams released the Canadian Guideline for Safe and Effective Use of Opioids. Despite the rate of dispensing high-dose opioids increasing 23 percent from 2006 to 2011 in Canada, it is noteworthy that the rate plateaued in 2009 and 2010 when the guidelines were released.

Although strategies to slow the opioid epidemic via physician education on opioid prescription have been largely ineffective, perhaps it is because the education must be in conjunction with other actions. For example, the White House Office of National Drug Control Policy has put forth a four-pronged approach comprising education, prescription tracking and monitoring, proper medication disposal, and law enforcement. Similarly, in 2012, the Centers for Disease Control and Prevention (CDC) proposed a

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A four-pronged approach: prevent doctor shopping, improve legislation and enforcement of criminal offences pertaining to doctor shopping, enhance physician education on chronic pain treatment options, and involve the public in a harms reduction approach by promoting naloxone. Naloxone, an opioid antagonist, can be administered during an opioid overdose to reverse opioid-induced analgesia and respiratory depression. It requires immediate and continuous administration due to its short half-life, lasting approximately 30 to 45 minutes, but has the potential to prevent death from overdose.

Opioid overdose drugs such as naloxone are receiving greater attention as various groups lobby for its widespread availability. Massachusetts has taken a lead role in advocacy on the opioid epidemic and has programs permitting the administration of opioid overdose drugs by nonmedical personnel, including first responders, family, and friends. Moreover, Massachusetts government, insurance companies, billing data administration, and professional societies have successfully collaborated to track overdose hospitalization and mortality statistics using electronic prescription monitoring programs. Massachusetts pioneered the Opioid Overdose Reduction Act of 2014, exempting individuals, health care professionals, and workers or volunteers of opioid overdose programs from civil liability if they administer a drug to reverse the effects of an opioid overdose, such as naloxone, to someone who is, or appears to be, suffering from an overdose on the condition that said persons have received the drug from a health care professional and have proper education on its administration.

**Conclusion**

The solutions to the opioid epidemic are not easy and will require innovative approaches and involve many players. Opioids are appropriate in many cases and given the limited availability of other pain treatment options, may be among the patient’s best source of relief. However, a balance must be struck between keeping this pain treatment accessible and managing the great potential for abuse. Whether the solution is to restrict opioid prescription, to enact stricter monitoring and cautionary approaches to patients at high risk for abuse, to further research the availability of other treatments for chronic pain such as acupuncture, or to educate physicians, the solution will require the coordination of physicians, regulatory colleges, and the public. Prescription monitoring systems, tracking of overdose deaths, and physician education on the costs and benefits of opioid prescription is pivotal to evaluate and highlight the necessity to act on this issue.

**See Also:** Abuse of Prescription Drugs; Opiate Replacement Programs; Pain Control.

**Further Readings**


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