Prescription Drug Abuse:
An Illinois Public Health Crisis
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Prescription drug abuse is a growing problem in Illinois, reaching all corners of our state. As the president and CEO of the Metropolitan Chicago Healthcare Council (MCHC), I have watched the health care community struggle to combat this epidemic in the greater Chicago region, but it continues to persist. The Illinois Poison Center (IPC), a program of MCHC, has received a growing number of calls regarding prescription painkillers. In 2012, the IPC received more than 2,600 calls on opioid medications (an increase of more than 9 percent from 2011), with a majority of those calls coming from health care organizations.

As the state’s first responder in poison emergencies, the IPC receives more than 80,000 calls a year and plays a critical role in identifying emerging public health threats. The IPC’s expert staff comprised of specially-trained pharmacists, doctors and nurses offer trusted information and treatment advice on potentially harmful substances 24-hours a day via a free, confidential hotline. More than a quarter of the calls to the IPC come from health care providers across the state, looking for advanced toxicology advice as they care for patients who have ingested a harmful substance.

As the number of prescription drug calls increases, the IPC is continuing to advocate for more comprehensive tactics to reduce prescription medication misuse and abuse, working closely with state and national leaders to bring best practices from across the country to Illinois. MCHC and the IPC are proud to partner with the Illinois Department of Public Health on this report, Prescription Drug Abuse: An Illinois Public Health Crisis, which outlines strategies to reduce the abuse of prescription painkillers in the state as it has become evident that a broader prevention approach is required to prevent this trend from growing.

Kevin Scanlan
President/CEO
Metropolitan Chicago Healthcare Council
Deaths from prescription drug overdoses have increased by more than 400 percent among women and 265 percent for men according to recent estimates by the Centers for Disease Control and Prevention (CDC). When it comes to prescription pain medications, abuse of opioids, for example, has reached epidemic rates and constitutes an emerging public health crisis. In fact, deaths due to prescription pain medication have surpassed deaths due to the illicit street drugs cocaine and heroin combined and are second only to motor vehicle fatalities, surpassing deaths caused by firearms in 2005. Significantly, for every one death there are 10 treatment admissions for abuse, 32 emergency department visits for misuse or abuse, 130 people who abuse or are dependent, and 825 nonmedical users (see figure inset).

**Introduction**

IN 2008, THERE WERE 14,800 PRESCRIPTION PAINKILLER DEATHS

For every 1 death there are...

- 10 treatment admissions for abuse
- 32 emergency department visits for misuse or abuse
- 130 people who abuse or are dependent
- 825 nonmedical users

Figure 1*
In June 2013, the Association of Territorial and State Health Officials (ASTHO), the national organization representing state health directors and commissioners, held a conference with several state and federal officials to discuss ways to combat the public health problem of prescription drug abuse. Illinois was one of a handful of states chosen to participate. I convened a team which included delegates from my department, the Attorney General’s Office, the Department of Human Service Division of Alcohol and Substance Abuse, Senator William Delgado, and the Illinois Poison Center, a program of the Metropolitan Chicago Healthcare Council. During our meetings, teams discussed strategies for combating this epidemic and concluded that coordinated efforts should include expanded awareness and prevention, promotion and better use of prescription drug monitoring, proper drug storage and disposal, safe prescriber programs and enhanced education for physicians and pharmacists, and expanded treatment programs for those addicted or at-risk.

This white paper offers a more in-depth look at the problem of prescription drug abuse, its rapid growth and the suggested ways to reduce the problem of abuse while still being proactive in treating acute and chronic pain conditions. Given this emerging public health crisis, I would encourage state and health officials, health care providers, law enforcement, legislators, and advocates to become better informed about prescription drug misuse and abuse and to work collaboratively to develop a statewide action plan to reverse this trend in Illinois.

Sincerely,

LaMar Hasbrouck, MD, MPH
Director, Illinois Department of Public Health
What Are Prescription Opioids?

Norco, Vicodin, Percocet, Oxycontin, MS Contin, Dilaudid, Methadone...
These are just a few of the brand names of opioid prescription pain medications prescribed by health care providers to treat severe pain.

Opioids can be broken down into naturally occurring opiates (derivatives related to heroin) such as morphine and codeine, semi-synthetic compounds that are man-made derivatives of natural opiates (e.g. hydrocodone and oxycodone) and fully synthetic compounds (e.g. methadone and fentanyl).

All of these compounds impact the brain receptors that are responsible for pain perception by interfering with the transmission of pain signals. These compounds also increase the brain’s levels of dopamine, a powerful neurotransmitter that is involved in the sensations of pleasure. The use of opioids can decrease pain, change the perception of pain and increase the sensation of well-being and pleasure in those who take these narcotic medications.

Unfortunately, these characteristics cause prescription opioids to have a high rate of misuse and abuse and, for susceptible individuals, they can be highly addictive. Because of these traits and resulting abuse, data from the CDC shows that prescription drug abuse is now the second leading cause of unintentional injury death in the United States (see Figure 4).
Data of Use and Abuse:

There is a great deal of research showing that patients with acute and chronic pain are often undertreated.\(^1\) In the 1990’s, the under-treatment of pain concerned many health care providers and professional governing bodies, including the Institute of Medicine and the U.S. Department of Health and Human Services (HHS), as some research indicated that people who did not receive adequate pain control did recover as well as those whose pain was treated. In response to these concerns, beginning in the late 1990’s, providers and hospitals were encouraged to more thoroughly assess and treat pain in patients. In 2000, The Joint Commission, an independent not-for-profit organization that accredits and certifies health care organizations and programs, unveiled its first standards in the treatment of pain. At the same time, pharmaceutical companies developed broad-reaching marketing campaigns geared towards both patients and providers touting prescription opioids as safe to use in the treatment of both acute and chronic pain.

In the years since the changes in pain management and the pharmaceutical marketing push, the amount of opioids prescribed by weight has increased threefold. As the number of opioid medication prescribed and dispensed increases, admissions to rehabilitation for prescription opioid addiction and deaths from unintentional overdoses is also climbing.

### COMMON PRESCRIPTION OPIOIDS

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>SELECTED BRAND NAMES</th>
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<tbody>
<tr>
<td>Oxycodone</td>
<td>Oxycontin, Percodan, Percocet</td>
</tr>
<tr>
<td>Propoxyphene</td>
<td>Darvon, Darvocet</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>Vicodin, Norco, Lortab, Lorcet</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>Dilaudid, Exalgo</td>
</tr>
<tr>
<td>Morphine</td>
<td>MS Contin, Kadian, Roxanol, Morphine Sulfate ER</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>Duragesic, Sublimaze, Actiq</td>
</tr>
<tr>
<td>Methadone</td>
<td>Dolophine, Methadose, Diskets</td>
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*Common street names for these drugs include: hillbilly heroin, oxy, OC, oxy cotton, percs, vikes, happy pills.*
Unintentional death from prescription pain medications is now the second leading cause of injury related death after motor vehicle accidents, surpassing deaths caused by firearms in 2005.

Deaths due to prescription pain medication have surpassed deaths due to the illicit street drugs cocaine and heroin combined.

Deaths, however, are only part of the story. For those who are addicted to prescription opioids and survive, personal impact can be measured in other ways, such as rehabilitation admissions and emergency department (ED) visits as demonstrated in the figure on page one.
What are the Clinical Effects of Prescription Opioids?

Opioid medications work by binding to specific areas of the brain, spinal cord and other areas of the body called opioid receptors. When these chemicals bind to the body’s opioid receptors, pain messages to the brain are reduced so the sensation of pain is altered. Opioid painkillers can also cause an increase in dopamine, which is perceived as an increase in pleasure through the brain’s reward pathway. Repeatedly seeking to experience the feeling of pleasure brought on by these medications can quickly lead to addiction.

Opioids can provide an intoxicating high when taken in therapeutic as well as higher-than-prescribed doses. These feelings of pleasure can be increased when insufflated (snorted into the nose) or injected into a vein. Opioids are also powerful anxiety relievers. For these reasons, prescription opioid abuse is one of the most common forms of drug abuse in the U.S.

What is the Difference between Prescription Opioid Abuse, Dependence and Addiction?

There are several levels of drug misuse, from abuse to addiction, that have varying physiological and psychological implications. An abuser may take an opioid medication for recreational (non-prescribed) purposes once in a while, whereas someone who is dependent on opioids has a physical reaction when they do not have the drug, and an addict has both physical and mental side effects during withdrawal.

- **Opioid abuse**: Abuse is the deliberate use of prescribed opioids beyond a provider’s prescription with the intent to get high.

- **Opioid dependence**: Dependence occurs when tolerance to opioids occurs in a person. This means that increasing amounts of the drug are needed to create the desired effect. If the person stops taking the drug, they may develop withdrawal symptoms.

- **Opioid addiction**: An addicted person is dependent on opioids, but also suffers from severe psychological and physical effects due to the need to have the drug. These effects include:
  
  > intense craving for the drug
  
  > compulsive or dangerous behavior to get the resources to obtain the drug
  
  > continued use despite negative consequences such as loss of family, friends, losing a job or legal problems
What Are the Signs and Symptoms of Opioid Abuse?

Signs and symptoms of opioid use and abuse may include:

- Sedation, lethargy, sleepiness
- Euphoria (feeling high)
- Analgesia (decreased pain sensation)
- Respiratory depression (shallow or slow breathing)
- Slurred speech
- Confusion or poor judgment
- Small pupils
- Nausea, vomiting
- Constipation

What are the Signs and Symptoms of Opioid Drug Withdrawal?

If a person uses opioids for an extended period, it is possible to develop physical dependence and tolerance. When this occurs, opioid abusers will need to take more of the drug in order to achieve the same level of a pleasurable high. If a person who is physically dependent upon the drug stops using opioids, they will develop withdrawal symptoms that may include:

- Anxiety
- Irritability
- Craving for the drug
- Rapid breathing
- Yawning
- Runny nose
- Salivation
- Piloerection (goosebumps)
- Diaphoresis (sweating)
- Myalgias (achy muscles)
- Decreased appetite
- Abdominal cramping
- Vomiting
- Diarrhea
- Confusion
- Enlarged pupils
- Tremors
How do Prescription Opioids Cause Death?

Prescription opioid painkillers work by binding to opioid receptors in the brain to decrease the perception of pain. However, resulting side effects of these drugs are sedation and respiratory depression—side effects that can be deadly. The breathing of a person who has ingested a large dose of opioids can slow dramatically and even stop, potentially causing irreversible brain damage or death.

What Factors have Influenced the Increase in Opioid Drug Misuse and Abuse?

The current prescription opioid epidemic has in part been driven by a perfect storm of incomplete science, aggressive and potentially inaccurate marketing by pharmaceutical companies that make prescription painkillers and the concomitant rollout of The Joint Commission’s pain management initiatives in 2000.

Incomplete science: In the 1980’s and 1990’s, studies showed that some patients did not have their pain managed well and that insufficient pain management resulted in delayed healing, longer hospital stays or delayed progress in physical therapy which significantly added to medical costs. There were also emerging small-scale studies that seemed to indicate that tolerance and addiction to opioids was unlikely to occur in appropriate pain patients.8-9 A host of other studies indicated that physicians, nurses and other health care providers had concerns of addiction, tolerance and respiratory depression with regards to opioid therapy in these patients that were considered to be exaggerated and inaccurate by proponents of pain management.10-11

With the CDC reporting 14,800 prescription opioid-related deaths in 2008 alone, it appears that some of these studies underestimated the adverse consequences of these drugs as only addiction was used as the measurement endpoint of adverse effects of the therapy. More recent studies have included abuse (which occurs at a much higher rate than addiction) as an additional study measurement of adverse consequences of prescription opioids.

Pharmaceutical marketing: As the recommendations for pain management transformed, pharmaceutical companies began producing newer, more potent forms of opioid pain medication. Comprehensive marketing campaigns were launched with advertisements, new studies and speaking engagements targeting both patients and health care providers. As an example, Purdue Pharma produces one of the most well-known products, Oxycontin (oxy, hillbilly heroin), a drug that initially debuted in 1995. The drug was aggressively marketed as less addictive with a lower abuse potential than similar drugs. Post-marketing data and internal documents showed these claims to be untrue, however, the company continued to market the drug as safe with a low abuse potential. In 2007, Purdue Pharma and its three top executives were fined nearly $635 million for false advertising and marketing.12 In 2012, Kentucky filed a lawsuit against Purdue Pharma seeking reimbursement for all the state’s costs related to caring for those addicted to Oxycontin, including the costs of medical and rehabilitation care.

2000 Joint Commission pain management initiatives: With the assistance of multiple consultants and previously published guidelines from the American Pain Society, The Joint Commission developed and released new pain management standards to help health care organizations develop comprehensive approaches to better treat their patients in 2000. These standards left the important medical decisions of when to treat and what treatment to use to the provider, with the continued >
understanding that not all pain can be completely eliminated. The Joint Commission’s initiatives led to advances in addressing pain, such as the patient’s right to immediate assessment and enhanced management of pain.

With the release of The Joint Commission’s guidelines in 2000 came a major educational push in patients’ rights for pain management. A few authors provided reviews that went so far as to say that if physicians or other providers did not adequately manage a patient’s pain, they could be held accountable in professional liability lawsuits.\textsuperscript{13-14} This regulatory push, along with marketing from pharmaceutical companies, changed the historical prescribing practices of physicians and other prescription-writing providers who may have been previously concerned about addiction, abuse and other side effects of these medications.

These three converging issues helped to rapidly reshape the opioid prescribing patterns of physicians and other providers, as the risk of addiction to these drugs was touted as minimal. What was not discussed, or perhaps even understood, was the risk of abuse, which is different than addiction and the development of related behaviors in a subset of patients treated with opioids. Not fully understanding the risk of abuse has, in part, led to the current prescription abuse epidemic.

In response to the prescription drug crisis, The Joint Commission took various steps to ensure health care quality and patient safety, including working with a variety of medical experts to update its pain management standards using the best-evidence based requirements. In August 2012, The Joint Commission released \textit{Safe Use of Opioids in Hospitals}\textsuperscript{15}, as a response to the increasing incidence of addiction and overdose deaths due to opioid analgesics. This initiative helped draw attention to the risks of opioid side effects and encouraged a multimodal treatment plan to manage pain. In another effort to reduce the inappropriate use of opioids, The Joint Commission worked in conjunction with the CDC and Prevention and the American College of Emergency Physicians (ACEP) to offer providers additional education about the safe use of these medications in emergency departments.
How to Reduce Prescription Opioid Abuse and Remain Proactive in Treating Pain

Professional education: Many of the widespread regulatory changes in pain management that began in 2000 were initiated without ensuring adequate physician education in pain management. Enhanced provider education would provide an opportunity to review appropriate opioid prescription writing, improve the identification of patients with developing abuse/addiction issues and implementing non-pharmacological pain management solutions. A few ways to improve provider knowledge of opioid prescription writing include:

- Increasing the availability of continuing medical education (CME) on current proper prescribing guidelines.
- Requiring that practitioners who request the required registration from the U.S. Drug Enforcement Administration (DEA) to prescribe controlled substances show documentation of ongoing CME in appropriate prescribing practices.
- Educating on and implementation of standardized pain assessment tools to facilitate appropriate opioid prescribing practices.
- Developing and broadly disseminating guidelines on best practices for treatment of pain, including the prescribing of prescription opioids.
- Developing and implementing curricula for medical students on the effective treatment of pain, including appropriate use of opioids.

Public education: Many patients and their caregivers believe prescription opioids to be exceedingly safe with little to no adverse effects as they are medications regulated by the U.S. Food and Drug Administration (FDA) and DEA. As with many psychoactive drugs (substances that impact brain function), public education is important because opioids can negatively affect a user both physically and behaviorally. Public and patient education campaigns that raise awareness on the appropriate use of prescription opioids, the risks associated with them and how to identify patterns of emerging abuse would be a positive step toward reducing harm.

Proper medication disposal: Monitoring the Future, an annual survey of children, adolescents and young adults by the U.S. Substance Abuse and Mental Health Services Administration (SAMSHA), found that the majority of high school drug abuse starts in the family medicine cabinet. In 2009, there were an estimated 2.2 million people in the U.S. that used prescription opioids for non-medicinal purposes for the first time, according to the National Survey on Drug Use and Health; more than 60 percent of those individuals obtained the medication from the homes of family or friends. To address the accessibility of drugs and deter drug misuse and abuse, the following initiatives should be considered:

- Develop and implement a public education program to increase awareness on safe, effective prescription opioid disposal methods.
- Develop robust community medication disposal programs with multiple convenient public sites utilizing a combination of public and private organizations and institutions.
- Engage the public and private sector to support community-based medication disposal programs.
PAST YEAR INITIATES OF SPECIFIC ILLICIT DRUGS AMONG PERSONS AGED 12 OR OLDER: 2009

Note: The specific drug refers to the one that was used for the first time, regardless of whether it was the first drug used or not.

Source: National Survey on Drug Use and Health: Substance Abuse and Mental Health Services Administration (SAMSHA) Center for Behavioral Health Statistics and Quality (September 2010)

Figure 6

PAST YEAR INITIATES OF SPECIFIC ILLICIT DRUGS AMONG PERSONS AGED 12 OR OLDER: 2010

Note: The specific drug refers to the one that was used for the first time, regardless of whether it was the first drug used or not.

Source: National Survey on Drug Use and Health: Substance Abuse and Mental Health Services Administration (SAMSHA) Center for Behavioral Health Statistics and Quality (September 2010)

Figure 7
Prescription drug monitoring programs (PDMP): The Illinois Prescription Monitoring Program is an electronic resource that collects information on controlled substance prescriptions. Dispensing data for controlled substances is provided to the PDMP weekly by retail pharmacies in Illinois. Prescribers and dispensers of controlled substances can obtain secure access through a username/password process managed by the State of Illinois Department of Human Services (IDHS).

The PDMP program helps providers identify a patient’s prescribing physician, amount of prescriptions filled by patients and the dates prescriptions were filled. This helps pinpoint patients who are ‘doctor-shopping’ to obtain large amounts of prescription narcotics. The PDMP managers can also identify suspect patients and alert the patient and the prescribing physicians through written communication. The following chart shows the effect of efforts to curb patients obtaining prescriptions for hydrocodone from more than five physicians and filled at five different pharmacies over the past five years in Illinois:

POTENTIAL HYDROCODONE ABUSERS AND PATIENTS ON MEDICAID IN ILLINOIS

Despite the current success, more work must be done to increase the utilization of this tool by prescribers and dispensers and to use the data to better identify areas of abuse. To maximize the effectiveness of the Illinois PDMP, officials should consider:

- Requiring all prescribers and dispensers to obtain access to the PDMP and to be trained in utilizing the database.
- Incentivizing the use of the PDMP so that prescribers and dispensers use the tool regularly to identify potential dangerous behaviors with regards to prescription medications at the point of care.
- Evaluating existing programs and developing best practices of PDMPs that identify doctor-shoppers and individuals abusing prescription pain medications.
- Encouraging best practices of interventions once problem behaviors are identified and communicating the data and concerns regarding those individuals to their prescribers, pharmacies and insurance providers.
- Researching the expansion of PDMP data to identify potential criminal prescribers and clinics (i.e. pill mills) by the volume of selected drugs prescribed.
- Encouraging research on PDMPs across the country to determine current effectiveness and identify ways to improve effectiveness of data mining within the program.
- Developing interstate operability so that patients who travel to multiple states for pain medication prescriptions can be better identified at the point of care by providers and dispensers.
Law enforcement: Law enforcement plays a critical role in preventing the non-medicinal sale of prescription opioids by both health care professionals and the public. To further curb the misuse of opioid medications, law enforcement officials should:

- Continue to develop and implement enforcement actions against pain clinics and prescribers who are prescribing prescription pain medication outside the usual course of practice and not for legitimate medical purposes.

- Develop and implement state regulatory and/or licensing actions to prevent the prescribing of health care providers and clinics that act outside the limits of accepted medical practice and contribute to prescription painkiller abuse, overdose and diversion (providing opioid pain medication to an individual to whom the medication was not prescribed).

- Develop and implement programs that deter and prevent the diversion and sale of prescription pain medication for non-medical uses.

Treatment: According to CDC estimates, there are more than 12 million abusers of prescription opioid medications and more than two million people who are addicted to these medications in the U.S. While the recommended initiatives above will work to decrease prescription abuse in the future, those who are already addicted will need treatment; without treatment, they will likely transition to other illicit substances such as heroin. This transition is already occurring as the CDC estimates that 80 percent of new heroin users started the road to addiction by misusing prescription pain medications between 2008 and 2010. To prevent further migration of prescription drug abuse to heroin, users should have access to effective, accessible substance abuse treatment programs and rehabilitation to reduce drug overdose, dependence and addiction.
To date, Illinois has done a good job controlling the amount of opioid medication prescriptions written and filled in the state. Illinois currently has the lowest amount of prescriptions by weight per capita than any other state in the nation at 3.7 kg of pain reliever sold per 10,000 people.

The Amount of Prescription Painkillers Sold in States Varies

Kilograms of prescription painkillers sold, rates per 10,000 people

- 3.7-5.9
- 6.0-7.2
- 7.3-8.4
- 8.5-12.6


Figure 9
Unfortunately, the state has not performed as well at identifying at-risk individuals and areas for future improvement. Despite having good control of prescription writing and dispensing within the state, the rate of death due to prescription opioids far exceeds what would be predicted by the prescribing and dispensing data provided by the CDC. This may imply that even though fewer opioid prescriptions are being written in Illinois, there is a higher fatality rate among individuals in the state who misuse these drugs.


Figure 10
Conclusion:
The appropriate and adequate treatment of pain is an ongoing medical concern. Prescription opioids used in the management of pain pose a significant risk of medication abuse and addiction. There have been tens of thousands of deaths and millions of people addicted to these medications in the past decade. Reversing the epidemic while still meeting the pain management needs of individuals will take coordinated, concerted long term efforts of health care providers, public and private partnerships and organizations, drug companies, law enforcement and state and federal agencies working together in collaboration.

About the Author

Dr. Michael Wahl is the Medical Director of Illinois Poison Center. The Illinois Poison Center (IPC) provides comprehensive and trusted information and treatment advice on potentially harmful substances via a 24-hour hotline, receiving more than 80,000 calls annually. The IPC works closely with the state’s health care organizations, EMS and law enforcement agencies to reduce the number of incidences of and injury caused by exposures to harmful substances.

Dr. Wahl serves as an attending physician at Northshore University Health Systems in the Division of Emergency Medicine and provides toxicology consultation service for 4 additional hospitals in the Chicagoland area. Dr. Wahl is an attending physician with the Toxikon Consortium, a regional health care collaboration that educates medical residents and fellows on toxicological procedures. He has authored/co-authored more than 60 journal articles and book chapters on a broad range of toxicology subjects including acetaminophen poisoning, tainted illicit street drugs, bioterrorism agents and botanical poisonings. He also served on Board of Directors of the Illinois College of Emergency Physicians and the American Association of Poison Control Centers.
Citations


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