



Abusing Prescription Drugs

Problems with the abuse of prescription drugs has been on the rise for several years. In a May 2010 study US hospital admissions due to poisoning by prescription drugs (opioids, sedatives and tranquilizers) reportedly rose from 43,000 to 71,000 between 1999 and 2006. That is a 65% increase; about double the increase observed for poisoning by other drugs and medicines. The largest increase in hospitalizations for poisonings was for methadone (400%). The abuse and trafficking of prescription drugs appears to be ready to surpass illicit drug abuse worldwide.

More and more studies have noted issues such as: the rise of overdose deaths from prescription drugs; while Americans constitute only 4% of the world's population, they consume 80% of the global supply of opioids; despite the alleged under-treatment of pain, it appears that opioids are overprescribed.

The following is a compilation and summary of several articles I have read on the issue of prescription drug abuse. After reading the summaries, you can typically follow the links for further study and reading on your own. I will periodically add to the summaries as I become aware of new information.

Prescription Drug Abuse Facts and Fallacies

There is a comprehensive review of the problem of prescription drug abuse by Dr. Laxmaiah Manchikanti available at: PainPhysicianJournal.com. The article was well researched and is a gold mine of information. What follows is an edited version of the information found there with some additions and commentary.

An amazing statistic noted by Manchikanti was that while Americans constitute only 4% of the world's population, they consume 80% of the global supply of opioids; 99% of the global supply of hydrocodone (Vicodin); and two-thirds of the world's

illegal drugs. In a July 2005 editorial, Joseph Califano commented that while the US population increased 14% between 1992 and 2003, “the number of people abusing prescription drugs jumped 81%.” Prescription drugs are now the fourth most abused substances in America, behind marijuana, alcohol and tobacco. See the [2007 National Survey on Drug Use and Health \(NSDUH\)](#) to explore this claim further.

Particularly disturbing was Manchikanti’s comments on opioids: “Opioids are used extensively despite a lack of evidence of their effectiveness in improving pain or functional status with potential side effects of hyperalgesia, negative hormonal and immune effects, addiction and abuse.” Keep in mind this is someone who is the CEO of the American Society of Interventional Pain Physicians and the Medical Director of the Pain Management Center of Paducah, KY. He went on to note that despite the alleged under-treatment of pain, it appears that opioids are overprescribed. The widely quoted literature on the under-treatment of pain pertains to *terminal illness, malignancy, postoperative pain and AIDS*.

Opioid prescriptions overall have increased substantially from 1997 to 2006.¹ Manchikanti’s original table showing the increases from 1997 to 2005 was modified here to include data for 2006. The amounts shown below are in total grams of medication sold. Methadone prescriptions have increased by 1,176%, oxycodone (OxyContin) prescriptions by 732%, and hydrocodone prescriptions by 244%. Codeine and Meperidine–Demerol–have decreased (See Table 1 below). “The increase in the legitimate use of opioids has been paralleled by a rise in abuse of these drugs with a 62.5% increase in opioid deaths during the 5-year period from 1999 to 2004.”

Multiple investigators have found that around 20%–and as high as 58%–of the patients receiving opioids for chronic pain abusing the drugs. “The explosion of opioid use and abuse along with illicit drug use in chronic pain patients is sadly coupled with a lack of evidence of their long-term effectiveness in these patients.”

(Mis)education about the under-treatment of pain, the prevalence of pain itself and increasing comfort levels among physicians prescribing opioids has fueled increased prescriptions of opioids. In turn, there has been a parallel growth in the unintentional consequences of misuse, abuse and death associated with opioid use. But remedial education of physicians and the public with reference to the these harmful effects of

¹ Retail sales data for opioid medications is available on the DEA [Office of Diversion Control](#) website.

opioids, the non-opioid management of chronic pain, abuse and addiction, has not been effectively implemented.

Table 1

	1997	2005	% of Change since 1997	2006	% of Change since 1997
Methadone	518737	5362815	933%	6621685	1,176%
Oxycodone	4449562	30628973	588%	37037218	732%
Fentanyl Base	74086	387928	423%	428665	478%
Hydromorphone	241078	781287	244%	901660	274%
Hydrocodone	8669311	25803544	198%	29856366	244%
Morphine	5922872	15054846	154%	14996146	153%
Meperidine	5765954	4272520	-26%	4160030	-27%
Codeine	25071410	18960038	-24%	18762918	-25%

Manchikanti then described the current state of illicit drug use, citing information from the 2005 National Survey on Drug Use and Health (NSDUH). His discussion will be skipped here; see the write up of the 2007 National Drug Use Survey on this website for more current information.

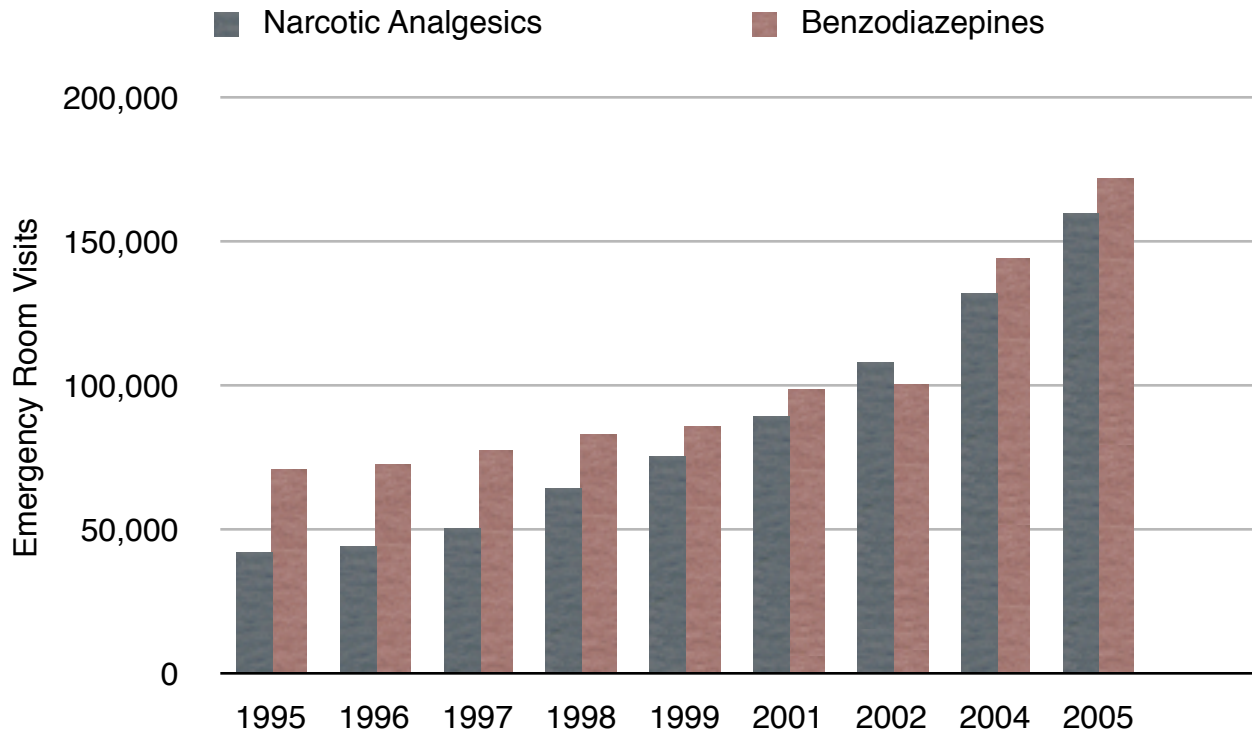
Unintentional drug poisoning mortality rates increased an average 5.3% from 1979 to 1990; and then 18.1% from 1990 to 2002. “In 2004, unintentional drug poisoning was second only to motor-vehicle crashes as the cause of death from unintentional injury in the United States. The number of unintentional poisoning deaths increased from 12,186 in 1999 to 20,950 in 2004.”²

Emergency room visits involving the non-medical use of narcotic analgesics and benzodiazepines have been increasing since 1995. Methadone, oxycodone and

² See the original CDC report, “[Unintentional Poisoning Deaths---United States, 1999-2004](#)” for further information.

hydrocodone were the most frequently abused opioids. Benzodiazepines were the most frequently occurring psychotherapeutic agents. See Figure 1 below.

Figure 1



Is pain undertreated? Manchikanti acknowledged this is a controversial issue. But he goes on to assert that not only is the prevalence of pain over-reported, but “there is no single, reliable objective report of the undertreatment of chronic, non-cancer pain.” He pointed out that unproven JCAHO mandatory standards for pain management have been widely adopted by many health care licensing organizations. But these standards are only meant for acute and postoperative pain; not the broader settings of chronic non-cancer pain. In pain management settings, as many as 90% of patients have been reported to receive opioids for chronic pain management. After reviewing a few studies on the effectiveness of opioid treatment for chronic pain over time, Manchikanti said:

Overall the evidence supporting the long-term analgesic efficacy is weak based on the present evidence. Epidemiological studies are less positive with regards to function and quality of life and report failure of opioids to improve quality of life in chronic pain patients.

Manchikanti also addressed additional topics such as the diversion of prescription drugs to illicit use and existing national drug control strategies. He then proposed a revised national drug control strategy with a 3-pronged approach. First, the immediate implementation of the National All Schedules Prescription Electronic Reporting (NASPER) Act of 2005, with certain enhancements. NASPER is a law that provides for the establishment of a controlled substance monitoring program in each state, with communication between state programs. It was signed into law on August 11, 2005, but has not had any funding committed to its implementation in each of preceding years, 2006, 2007 or 2008. Suggested NASPER enhancements included prescription controlled drug committees at State Health and Humans Services Departments, Boards of Medical Licensures, and local Drug Enforcement Agencies.

The illicit diversion and theft of pharmaceuticals from legitimate supplies is currently at very high national levels. It has been curbed somewhat in states such as Kentucky, Michigan, Nevada, and Utah, through education, sustained law enforcement pressure, reduced access in pharmacies, and the implementation of prescription monitoring programs.

A second need is widespread educational programs for physicians, pharmacists, and the general public to understand the functions and role of the DEA, the functions and role of the monitoring programs, the appropriate prescription of opioids, the harmful effects of opioid use and abuse, and the management of chronic pain with non-opioid techniques.

Lastly, there should be a coordination of efforts among the various federal, state and local agencies attempting to address the “epidemic” of prescription drug abuse; along with a more effective synthetic drug control strategy. I’m not sure of exactly what Manchikanti is suggesting here. He said that uncontrolled methadone clinics should be limited to treat and manage only heroin addicts. That is clear enough, but then he goes on to say that the methadone clinics should emphasize preventive addiction by substituting “high dose methadone for low dose hydrocodone with the addition of reporting requirements. The next step is addiction management and availability of these treatment modalities on an outpatient basis to as many patients as possible such as wide spread training for buprenorphine administration.” That was as clear as mud to me.

“High dose methadone” is imprecise; does it mean 60-120 mg/day? More if needed for fully effective treatment that leads to “staying in treatment longer, using less heroin and other drugs, and lower incidence of HIV infection?”³ These are widely accepted treatment protocols for methadone maintenance treatment (MMT). In one study, methadone patients receiving 100 mg a day, but unable to control their heroin use, were increased until they no longer felt discomfort or had the need to supplement their methadone dose with heroin. Doses rose to an average of 211 mg a day until heroin use was eliminated.⁴ This seems to be a method that will promote the abuse and dependence of prescription drugs rather than curtail it. I know of a MMT client who nodded out in the middle of a community college class on drug addiction while discussing the benefits of MMT.

Clarification of what is meant by “reporting requirements” is needed. Does it mean requiring MMT clients to meet with clinic staff outside of receiving their methadone? My experience with clinic guidelines is that is already being done. But sometimes reluctant clients have a “hold” put on their receipt of methadone until they actually meet with a staff member. This behavior in and of itself suggests this “reluctant” MMT client is only coming to the clinic for one thing: methadone. Does it mean they must come to a designated clinic to receive their methadone? Unless the protocols have changed, that is required practice. Office-based methadone maintenance is not allowed in the U.S.

Is he suggesting that buprenorphine administration be done at clinics rather than in an office-based setting? That flies in the face of all the efforts to provide an alternative to clinic-based methadone maintenance treatment with office-based buprenorphine treatment. There are even further questions I’d have, but these three illustrate the potential confusion in what was stated. With the exception of what is meant by “a more effective synthetic drug control strategy,” Manchikanti has given a thorough assessment of the facts and fallacies of prescription drug abuse.

³ See “Guidelines for Dosing Methadone.”

⁴ Magura S. et al. Pre- and in-treatment predictors of retention in methadone treatment using survival analysis. *Addiction*, 1998, 93(1) 51–60.

Prescription Drugs Dealers on the Internet

Laxmaiah Manchikanti, who wrote the article reviewed above (“National Drug Control Policy and Prescription Drug Abuse: Facts and Fallacies”) noted that it is as easy to buy prescription controlled drugs over the Internet as it is to buy candy. As long as you have a credit card, you can get whatever you want. With a mere click of the mouse, the Internet offers an easy, private way of purchasing controlled prescription drugs. “Between 1992 and 2002, while the U.S. population increased 13 percent, prescriptions filled for controlled drugs increased 154 percent.” Just check some of your SPAM emails if you want to do some personal research into the availability of prescription drugs on the Internet. The International Narcotics Control Board (INCB) said that the internet has become a major conduit for sales of prescription drugs, and urged all countries to screen incoming and outgoing mail. The INCB estimated that 10 million illegal shipments of prescription drugs enter the U.S. each year.

The National Center on Addiction and Substance Abuse at Columbia University (CASA)⁵ has annually tracked the availability of controlled prescription drugs over the Internet since 2004. In 2007, their findings showed a 70% increase over 2006 in the number of websites advertising or selling controlled prescription drugs. Most of this increase was due to a 135% increase in websites advertising these drugs. Eighty-four percent of the sites do not require a prescription. Of those sites which do require prescriptions, 57% only require the prescription to be faxed to them; allowing the opportunity for multiple prescriptions filled from the same legitimate prescription and other types of fraud. Of the 187 anchor sites identified, only two were certified by the National Association of Boards of Pharmacy to legitimately operate over the Internet as a Verified Internet Pharmacy Practice Site. An anchor site is where the customer places an order and pays to purchase the drugs. A portal site advertises drugs and acts as a conduit to another Web Site that handles the sale. In 2008, CASA identified 365 total Web sites offering controlled prescription drugs for sale—down from 581 in 2007.

The CASA analysis has found that the most frequently offered controlled prescription drugs have been benzodiazepines, with 90 percent of the anchor sites offering these drugs in 2008. The most frequently offered benzos were Xanax (alprazolam) and Valium (diazepam). The second most frequently offered class of drugs

⁵ Most of the information and discussion here was based upon the “You’ve Got Drugs!” white papers from CASA.

(57 percent) in 2008 were opioid drugs including Vicodin (hydrocodone), codeine oxycodone (Percocet) and Darvon, Darvocet (propoxyphene). In 2008, 27 percent of sites offered stimulants, up to the level CASA first found in 2004. The most frequently offered stimulants are methylphenidate (e.g., Ritalin, Concerta) and dextroamphetamine (e.g., Adderall, Dexedrine). Only two percent of the anchor sites offered barbiturates like mebaral and seconal for sale in 2008. See the following Table for Internet availability of controlled prescription drugs by class. It was reproduced from [“You’ve Got Drugs! V: Prescription Drug Pushers on the Internet,”](#) available online through The National Center on Addiction and Substance Abuse.

Internet Availability of Controlled Prescription Drugs by Class

	2004	2005	2006	2007	2008
Benzodiazepines	93% (143)	93% (143)	89% (154)	79% (147)	90% (143)
Opioids	66% (101)	75% (115)	72% (125)	64% (120)	57% (91)
Stimulants	27% (42)	22% (34)	8% (14)	11% (21)	27% (43)
Barbiturates	1% (2)	10% (15)	1% (2)	2% (4)	2% (3)
Total Sites	154	154	174	187	159

Many Internet pharmacies offer controlled drugs (benzodiazepines, opioids, stimulants and barbiturates) by advertising that no prescription is needed, while others dispense them after a patient completes an online questionnaire that may or may not be reviewed by a physician; a “script doctor” whose job it is to write hundreds of prescriptions each day without ever seeing a patient. Such sales are not considered a legitimate doctor-patient relationship, and are widely condemned as unethical. The Federation of State Medical Boards of the U.S. said: “Treatment, including issuing a prescription, based solely on an online questionnaire or consultation does not constitute an acceptable standard of care.” The American Medical Association advised: “Physicians who prescribe medications via the Internet shall establish, or have

established, a valid patient-physician relationship...The physician shall...obtain a reliable medical history and perform a physical examination of the patient...”

Typically, for an online consultation, the consumer fills out an online questionnaire, which is then supposedly evaluated by a physician affiliated with the online pharmacy, who then reviews the questionnaire and then authorizes the pharmacy to send the drug to the patient. Tens of thousands of these “prescriptions” are filled each year for controlled substances through Internet pharmacies which do not require medical records, examinations, lab tests or follow-ups.

One of the ways that the DEA identifies these rogue pharmacies is by their large percentage of scripts for controlled substances. A maximum of about 11% of prescriptions for traditional pharmacies are for controlled substances. In contrast, 95% of prescriptions filled by Internet pharmacies in 2006 were for controlled substances.

Eight-five percent of anchor sites did not require a prescription to purchase a controlled drug online. Amazingly, 42% *explicitly stated* that no prescription was needed; 45% offered an online consultation; 13% made no mention of a prescription. Only 15% of the 159 anchor sites (24) in 2008 required a prescription. Of those 24, 50% asked that the prescription be faxed; potentially allowing a customer to tamper with a prescription or fax a single script to several Internet pharmacies.

Internet Pharmacy Anchor Sites not Requiring Prescriptions

	2004	2005	2006	2007	2008
Anchor Sites not requiring scripts	93% (147)	95% (147)	89% (155)	84% (157)	85% (135)
No script needed	44% (63)	36% (53)	32% (49)	33% (52)	42% (57)
Online consult	53% (76)	57% (84)	58% (90)	53% (83)	13% (17)
No script mentioned	3% (5)	7% (10)	10% (16)	14% (22)	13% (17)
Total anchor sites	154	154	174	187	159

Disturbingly, there is no evidence that these Internet pharmacies have any security mechanism in place to prevent children from purchasing prescription drugs online. In fact, it's even possible to order drugs when you provide true information that should warn legitimate providers against providing the requested drug. A supervised 13-year old ordered and received Ritalin by using her own height, weight and age when filling out the form. "While several Web sites required that purchasers identify their age, CASA's analysis found that access to the site was gained easily by typing in a fake age."

There is an extremely high turnover rate with Internet pharmacies, which may be an attempt to avoid detection by changing their Web names and addresses. It's not unusual for sites to have multiple names or to even disappear entirely. This fluidity makes it difficult to track down and then close rogue sites. "Of the non-VIPPS® anchor sites identified in 2004 (152), only 19 percent (29 sites) remained in business one year later." Only two percent (3 sites) were still operating when CASA conducted the 2008 study.

An emerging issue noted by CASA was the Internet trafficking of prescriptions for controlled drugs through "medical consultation" websites. Instead of selling prescription drugs online, websites sell consultations with a doctor that lead to a prescription for controlled drugs. These scripts are either sent to local pharmacies or to customers who can take them to a local pharmacy to be filled. The process seems to be the Internet version of the "script mill," where doctors see many patients a day to fill or refill prescriptions for addictive drugs without regard to the standards of medical practice.

CASA then recommended the following key actions be taken:

- Congress should clarify federal law to prohibit sale or purchase of controlled prescription drugs on the Internet without an original copy of a prescription issued by a DEA-certified physician, licensed in the state of purchase and based on a physical examination and evaluation. Congress also should impose higher penalties for illegal sale to minors.
- Congress should require that in order to advertise or sell controlled prescription drugs online, an offerer must be certified as an Internet pharmacy. Such certification would identify legitimate online pharmacy practice sites, and by default clearly identify non-certified sites as illegal. Such sites could obtain a special Web domain name so that users can know immediately whether the site is legitimate.

- Internet search engines should block all advertisements for controlled prescription drugs that do not come from licensed and certified online pharmacies; screen such sites from Internet searches; and provide warnings that sale and purchase of controlled prescription drugs over the Internet from unlicensed pharmacies and physicians and without valid prescriptions are illegal.
 - The Office of National Drug Control Policy (ONDCP), DEA and the FDA should expand public service announcements that appear automatically during Internet drug searching to alert consumers to the potential danger and illegality of making online purchases of controlled prescription drugs from non-certified sites.
 - The DEA and financial institutions should continue their efforts to restrict purchases of controlled prescription drugs from non-licensed and accredited providers.
 - Postal and shipping services should train counter and delivery personnel to recognize potential signs of pharmaceutical trafficking and know how to respond in the event of suspicious activity.
 - The State Department should negotiate treaties with foreign governments to help shut down Internet trafficking of controlled prescription drugs.
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Consequences of Early Non-medical Prescription Drug Use

The results from a household survey of US residents over 18 indicated that individuals who begin using prescription drugs non-medically at an early age are more likely to abuse or become dependent upon prescription drugs later in life. 42% of adults reporting a diagnosis of prescription drug abuse said they first used prescription drug non-medically (recreationally) at or below the age of 13. In contrast, only 17% reporting a diagnosis of prescription drug abuse first used prescription drugs nonmedically when they were 21 or older. Similar results were found with the diagnosis of prescription drug dependence: 25% of adults reporting a diagnosis of prescription drug dependence began using them recreationally at or below the age of 13; and only 7% began when they were 21 or older. An interesting quirk of the study was that early non-medical users of prescription drugs tended to become abusers of different classes of prescription drugs when they got older. “For example, persons who initiated nonmedical use of prescription sedatives at age 13 or younger were more

likely to eventually report non-medical use of prescription tranquilizers (75%), opioids (72%), or stimulants (70%) than to be diagnosed with a sedative use disorder (43%). The exception was for non-medical users of prescription stimulants, who were more likely to develop stimulant use disorders than to become non-medical users of other prescription drugs.”

More information on this study can be found in the [February 25, 2008 weekly fax](#) of the Center for Substance Abuse Research (CESAR).

Friendly Fire Casualties in the War on Drugs (new information as of April, 2010)

Recent studies indicate that pharmaceutical (opioid) analgesics, such as hydrocodone, oxycodone and methadone, are more likely to be the cause of accidental deaths than cocaine or heroin. Almost 25% of all ER drug-related visits were for the misuse or abuse of prescription and OTC drugs. In a May 2010 study published in the American Journal of Preventative Medicine, Jeffrey Coben and others reported that between 1999 and 2006, US hospital admissions due to poisoning by prescription drugs (opioids, sedatives and tranquilizers) rose from 43,000 to 71,000. That is a 65% increase; about double the increase observed for poisoning by other drugs and medicines. The largest increase in hospitalizations for poisonings was for methadone (400%). Poisonings by benzodiazepines increased 39%, while hospitalizations for poisonings by barbiturates and antidepressants decreased by 41% and 13% respectively.

While the majority of hospitalized poisonings were classified as unintentional, there were significant increases with intentional overdoses as well. Intentional poisonings from prescription opioids, tranquilizers and sedatives increased by 130%; while intentional poisonings from other substances rose by only 53%. According to the lead Jeffrey Cohen,

Deaths and hospitalizations associated with prescription drug misuse have reached epidemic proportions. . . . It is essential that health care providers, pharmacists, insurance providers, state and federal agencies, and the general public all work together to address this crisis. Prescription medications are just as powerful and dangerous as other notorious street drugs, and we need to

ensure people are aware of these dangers and that treatment services are available for those with substance abuse problems.⁶

According to another recent analysis by the National Center for Health Statistics, since 1999 the percentage of drug overdose deaths involving opioid analgesics has been increasing, while those involving cocaine and heroin have been steadily decreasing. In 1999, 28.1% of the deaths examined in this study involved opioid analgesics, compared to 30.9% involving cocaine and 16.7% involving heroin. By 2002, more than one-third (36.5%) of the deaths studied involved opioid analgesics, compared to 25.8% involving cocaine and 12.8% involving heroin. Analysis was limited to 1999 to 2002 because before 1999 heroin and opioid analgesics were not distinguished from each other.

A breakdown of the opioid analgesic poisoning deaths for 2002 shows that more than half (54%) involved drugs such as codeine, oxycodone, hydrocodone, and morphine while nearly one-third (32%) involved methadone. Relatively few (13%) involved the opioids fentanyl and meperidine (Demerol).

Another study from the Drug Abuse Warning Network (DAWN) found that in 2004 more than half (63%) of the nearly 2 million drug-related emergency department (ED) visits were related to the misuse and abuse of drugs. Alcohol was the most frequently abused or misused drug mentioned in these visits (23.1%; 18.2% in combination with other drugs), followed by cocaine (19.2%) and marijuana (10.8%). Heroin was identified in 8.0% of ER visits, while methamphetamine was reported in 3.7% of such visits.

Prescription and OTC drugs were misused or abused in 495,732 (24.8%) of all drug related ER visits. Multiple drugs were involved in more than half (57%) of these ER visits. Opiates were reported in 32% of these prescription drug-related ER visits, while psychotherapeutic agents were involved in 48.3% of the reported incidents. The vast majority of these misused psychotherapeutic agents were antidepressants (12.7%), antipsychotics (6.2%) and anti-anxiety medications (typically benzodiazepines: 29.1%).

⁶ See "[Poisoning by prescription drugs on the rise](#)," on [physorg.com](#); and the original article by Jeffery Cohen et al. cited below.

Prescription Drug Abuse Worldwide

In Canada, methylphenidate (Ritalin and Concerta) and dexamphetamine (Dexedrine) are among the stimulants available in pharmaceutical preparations. The number of prescriptions for methylphenidate in Canada increased by 46 per cent between 1999 and 2003.

In the United States, the abuse of prescription drugs (including stimulants such as Ritalin, Concerta and Aderall) and over-the-counter medications is roughly equal to the level of abuse of illicit drugs such as methylenedioxymethamphetamine (MDMA, commonly known as “ecstasy”), cocaine, methamphetamine and heroin. “The number of Americans who abuse prescription drugs nearly doubled from 7.8 million to 15.1 million from 1992 to 2003.” It has already surpassed traditional illicit drugs such as heroin and cocaine among American teenagers. Abuse of Oxycodone (OxyContin) increased by almost 40 percent (to 5.5 percent) among high school seniors from 2002 to 2005. Hydrocodone (Vicodin) was abused by 7.4 percent of college students in 2005.

Buprenorphine (commonly used as outpatient replacement treatment for opioid abuse in the U.S.) is the main drug of injection in most areas of India. In France and Scandinavian countries it is tracked and abused in tablet form, as Subutex. Between 20 and 25 per cent of all Subutex in France is estimated to be diverted to the illicit drug market. In Nigeria, pentazocine, an analgesic, is the second most common drug injected.

The high demand for these drugs has also led to counterfeit products. According to estimates of the World Health Organization (WHO), at least 10 per cent of the world’s drugs are counterfeit. In Scandinavia, the demand for flunitrazepam (Rohypnol®), a sedative, is increasingly met by illicitly manufactured preparations. In North America, the demand for OxyContin® has led to distribution of counterfeit products containing illicitly manufactured fentanyl.

According to Dr. Philip O. Emafo, the President of INCB, “Most countries do not have any mechanism to systematically collect data to document this abuse, and are not aware to what extent drugs are being diverted and abused. . . . In addition, what abusers do not realize is that abuse of prescription drugs can be more risky than the abuse of illicitly manufactured drugs. The very high potency of some of the synthetic narcotic drugs available as prescription drugs presents in fact a higher overdose risk than the abuse of illicit drugs.”

Adding to this risk is the tendency of drug abusers to create their own recipes. With the help of instructions freely available on Internet sites, they can remove the active substances from high dosage formulations and separate the drugs from inactive ingredients, making them even more potent than they were in their prescribed form.

Some of the above information was found in news bulletins on the [Join Together](#) and the International Narcotics Control Board ([INCB](#)) web sites.

Some of the above information taken from the September 18th and October 9th 2006 weekly faxes of the Center for Substance Abuse Research ([CESAR](#)).

DAWN is a public health surveillance system that monitors drug-related emergency department (ED) visits for the nation and for selected metropolitan areas. To review the original report of the U. S. Department of Health and Human Services, go to the [Drug Abuse Warning Network](#).

Jeffrey H. Coben, MD, Stephen M. Davis, MPA, MSW, Paul M. Furbee, MA, Rosanna D. Sikora, MD, Roger D. Tillotson, MD, and Robert M. Bossarte, PhD. "Hospitalizations for Poisoning by Prescription Opioids, Sedatives, and Tranquilizers." *American Journal of Preventive Medicine*, Volume 38, Issue 5 (May 2010). [doi: 10.1016/j.amepre.2010.01.022](#).