The Cost of Prescription Drug Abuse: A Literature Review

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Introduction

To gather information on the cost to society of prescription drug abuse, a literature review was conducted of online informational sources, including federal agencies, and numerous electronic databases for scholarly articles (PubMed, EconLit, PsychInfo, JSTOR, CINAHL) published between 2000 and 2010. Categorical search terms employed included prescription drugs, psychotherapeutics, analgesics or opioids, economics or costs, epidemiology, and others.

While some estimates of the overall cost to society of illicit drug use have been published, there is very little research separately accounting for the cost of prescription drug abuse. A handful of studies have estimated health care costs related specifically to the abuse of prescription opioid analgesics (pain relievers), only one category of prescription drugs. Of these studies on prescription opioid abuse, only one study addressed the overall cost to society of this form of drug abuse. There are currently no published studies that estimate the cost of all prescription drug abuse, going beyond opioids to also include tranquilizers, stimulants, and sedatives. Other important limitations, which are presented in this review, must be taken into account when considering current cost estimates.

Cost estimates related to prescription drug abuse are somewhat dated; therefore trend data for the prevalence of prescription drug abuse may help to understand how related costs may have shifted over the same time period. Following a brief review of prevalence data, the literature on available cost estimates will be presented.

Review of prevalence data

- **20.6% of Americans have abused prescription drugs in their lifetimes**
- **Prescription pain relievers have been abused by 13.9% of Americans in their lifetimes, the second most prevalent type of illicit drug use, after marijuana**
- **Prescription pain relievers continue to be one of the two most commonly used illicit drugs by new initiates**
- **The proportion of all substance abuse treatment admissions reporting pain reliever abuse increased more than fourfold between 1998 and 2008, from 2.2% to 9.8%**
- **Emergency department visits involving misuse or abuse of pharmaceuticals increased 98.4% between 2004 and 2009 in the United States**
- **Visits for misused or abused pharmaceuticals now exceed emergency department visits for use of illicit drugs**

The National Survey on Drug Use and Health (NSDUH), conducted annually, showed in 2009 that 20.6 percent of respondents have used psychotherapeutics (prescription drugs) for nonmedical purposes in their lifetimes. Nonmedical use of prescription-type psychotherapeutics includes the nonmedical use of pain relievers, tranquilizers, stimulants, or sedatives and does not include over-the-counter drugs. In 2009, among the US population aged 12 and older, nonmedical use of prescription pain relievers was the second most prevalent type of illicit drug use (after marijuana), reported by 13.9 percent of respondents aged 12 and older. NSDUH data since 2007 has consistently shown nonmedically used pain relievers to have the largest number of new initiates of all illicit drugs (besides marijuana), at around 2.1 million per year (does not include alcohol or tobacco).

Trend data from NSDUH show that, from 1998-2001, the percentage of respondents reporting nonmedical use of prescription opioids increased 67 percent. Between 4 and 5 million Americans had used prescription pain relievers for nonmedical purposes in each of the years between 1992 and 1998. The number increased to around 6.5 million in 1999 and grew dramatically to 8.4 million by 2001 (Birnbaum et al., 2006).

Similar increases in prescription opioid abuse have been demonstrated in SAMHSA's Treatment Episodes Data Set (TEDS). TEDS collects data on primary substance of abuse and up to two additional substances of abuse at the time of admissions to substance abuse treatment. The proportion of all substance abuse treatment admissions aged 12 or older than reported any pain reliever abuse increased more than fourfold between 1998 and 2008, from 2.2 to 9.8 percent. Increases in percentages of admissions cut across age, gender, race/ethnicity, education, employment, and region. Increases of particular note were among admissions with co-occurring psychiatric disorders (more than quadrupled), and among admissions with no prior treatment episodes (more than a fivefold increase). While increases were present for all age groups, admissions were especially pronounced for those aged 18-34 (SAMHSA, 2010).

The Drug Abuse Warning Network (DAWN) monitors drug-related visits to hospital emergency departments (EDs) and drug-related deaths investigated by medical examiners and coroners. According to the 2010 DAWN report, "ED visits involving misuse or abuse of pharmaceuticals increased 98.4 percent between 2004 and 2009, from 627,291 visits in 2004 to 1,244,679 visits in 2009" (SAMHSA, 2010: 4). Visits for misused pharmaceuticals now exceed emergency department visits for use of illicit drugs" (SAMHSA, 2010). The estimated number of emergency department (ED) visits involving nonmedical use of narcotic pain relievers rose from 144,644 in 2004 to 397,160 in 2009, an increase of 175 percent (SAMHSA 2010). The estimated number of emergency department visits involving nonmedical use of benzodiazepines, drugs prescribed to treat insomnia and anxiety, increased 160 percent from 2004–2009 (from 143,546 to 373,328 visits) (SAMHSA 2010; SAMHSA 2009).

Overall, prevalence data on prescription drug abuse shows a continually increasing trend, particularly in the abuse of prescription opioid pain relievers and benzodiazepines.

The cost of substance abuse in general

- **2005 federal, state and local government spending as a result of substance abuse and addiction was at least $467.7 billion**

- **Almost three-quarters (71.1%) of total federal and state spending on substance abuse is in two areas: health care and justice system costs**
- **Almost half (47.3%) of government spending on substance abuse and addiction cannot be disaggregated by substance**
- **Of the spending that can be disaggregated by substance, an estimated $18.7 billion is spent on illicit drugs (not alcohol or tobacco)**

The National Center on Addiction and Substance Abuse at Columbia University (CASA) released in 2009 the most current comprehensive estimates on the overall cost of substance abuse to society. This report is now listed in the ONDCP list of publications online, replacing previous reports on the same topic which cited lower overall estimates (ONDCP 2004; ONDCP 2001). According to this report, in 2005 federal, state and local government spending as a result of substance abuse and addiction was at least $467.7 billion: $238.2 billion, federal; $135.8 billion, state; and $93.8 billion, local. The figures are based on 2005 spending, the most recent year for which data were available over the course of the study, but prevalence data suggests that any changes to costs since then have been increases (CASA, 2009). Due to data limitations, the CASA report does not include estimates on private sector losses (higher insurance rates, increased security and lost productivity) or higher education costs.

Almost three-quarters (71.1 percent) of total federal and state spending on substance abuse is in two areas: health care and justice system costs. The largest share of federal and state spending for substance abuse and addiction is in health care costs (58.0 percent). At the federal level, 74.1 percent of all substance abuse related spending is in the area of health care.

While it is important to know the costs associated with specific types of substance abuse, the CASA report notes that almost half (47.3 percent) of government spending on substance abuse and addiction cannot be disaggregated by substance, primarily because most individuals with substance use disorders use more than one drug. Of the $248 billion in government spending that can be linked to specific drugs of abuse, 92.3 percent is linked to the legal drugs of alcohol and tobacco. According to CASA, the breakdown of total government spending as a consequence of other drug use (illicit) that can be differentiated by substance is an estimated $18.7 billion:

- $16.4 billion in federal spending: $7.8 billion in dedicated drug enforcement, $39.5 million in drug court costs, $2.6 billion for drug interdiction, $2.5 billion for prevention, treatment, research and evaluation, and $3.8 billion in health care costs.
- $1.9 billion in state spending: $336 million for public safety costs for drug enforcement programs, $138 million for drug courts, and $1.5 million linked to illicit and controlled prescription drugs in state spending on Medicaid.
- $342.3 million in local health care spending (CASA, 2009: 17).

Cost estimates specific to prescription pain reliever abuse

- **Prescription pain relievers are the most abused prescription drugs**
- **The costs of prescription opioid abuse in the United States was $8.6 billion in 2001**
- **Of the $8.6 billion spent annually on prescription pain reliever abuse, $2.6 billion were healthcare costs, $1.4 billion were criminal justice costs, and $4.6 billion were workplace costs**

Extensively cited, the only research that specifically estimates the broad societal cost of prescription drug abuse is Birnbaum et al. (2006), which focused exclusively on the cost of prescription opioid abuse.

The conservative estimate of the costs of prescription opioid abuse in the United States was 8.6 billion dollars in 2001 (or 9.5 billion dollars in 2005 dollars). Of this amount, 2.6 billion dollars were healthcare costs (including treatment), 1.4 billion dollars were criminal justice costs, and 4.6 billion dollars were workplace costs (Birnbaum, 2006). Due to data limitations, Birnbaum's cost estimates do not include the following: diversion of prescription opioids from their legitimate use (e.g., fraudulent prescriptions, pharmacy theft, selling of drugs by patients for whom they were prescribed), and related insurance payments for illegitimate prescriptions as well as legitimate but diverted prescriptions; costs associated with state prescription drug monitoring programs created to curb diversion and other diversion control efforts; impact of prescription opioid abuse on workplace presenteeism and productivity, fringe benefits, and household productivity; prevention efforts undertaken by governmental and private sources; costs associated with private legal defense or property lost to crime; adverse social and clinical effects of prescription opioid abuse beyond economic costs (e.g., family disruption, under-prescribing for legitimate pain management).

Two studies (McAdam-Marx et al., 2010; White et al., 2005) have begun filling the gaps in our understanding of the costs associated with private or Medicaid insurance payments related to opioid abuse, a limitation noted in the Birnbaum et al. study. Opioid abusers are 4 times as likely to visit the emergency room, 11 times as likely to have had a mental health outpatient visit, and 12 times as likely to have had an inpatient hospital stay. However, abusers have much higher rates of underlying disease, making these results subject to confounding (White, et al., 2005: 473). As noted by Ghate et al. (2010), the prevalence of opioid abuse was estimated to be more than 10 times higher among Medicaid beneficiaries than private insurance populations. The annual medical costs for opioid abusers were $14,054 higher than nonabusers with private insurance and $6650 higher than nonabusers with Medicaid. Medicaid populations have higher overall costs for both abusers and nonabusers, likely indicating lower overall health status (Ghate et al., 2010: 1).

Opioid abuse places a large burden on U.S. society. As indicated by the NSDUH and other federal data sources reviewed in the prevalence section of this paper, prescription pain relievers now account for the largest proportion of abused prescription drugs (over tranquilizers, stimulants, and sedatives). Rates of opioid prescriptions have been dramatically on the rise from 1997 to 2005, with a 933 percent increase in methadone prescriptions, a 588 percent increase in oxycodone prescriptions, and a 198 percent increase in hydrocodone prescriptions (Manchikanti, 2007: 401). At the same time that the supply of prescription opioids was increasing, the abuse of opioids also rose, evidenced by a 62.5 percent increase in U.S. unintentional drug poisoning rates from 1999 to 2004, the vast majority of which were associated with prescription opioids. By 2004, poisoning was second only to motor vehicle crashes as the cause of death from unintentional injury in 2004, and the vast majority of that poisoning has been linked in the research to prescription opioids (Paulozzi, 2007).

Conclusions

While the cost of prescription drug abuse is obviously high, given the available prevalence and economic data, there are no current cost analyses that include opioid as well as non-opioid prescription drugs (tranquilizers, stimulants, and sedatives). This represents a significant gap in our knowledge, given that 20.6 percent of Americans have abused prescription drugs in their lifetimes. More is known at this point about prescription pain killer abuse, the most common type of prescription drug abuse, reported by 13.9 percent of Americans. The cost to society of pain reliever abuse alone was $8.6 billion in 2001. Since that time, the number of Americans who have ever abused prescription pain relievers has

escalated from approximately 22 million in 2001 to roughly 35 million in 2009, an increase of nearly 13 million or 58 percent, and associated costs have presumably risen as well in response (NSDUH, 2009). Costs of non-opioid prescription drugs are likely to vary significantly from opioids, due to different health and social consequences and co-occurring health conditions.

Comparisons of cost estimates among the reports summarized here are difficult, not only because of the different substances included in each analysis, but also because of various data limitations in each. For instance, in cost estimates for prescription opioid abuse, prevention programs are not accounted for, and treatment costs are included in health care costs. The CASA report, which estimated the cost of substance abuse overall, did account for the full array of government programs outside of health care, including prevention, treatment, research, and evaluation, but cannot disaggregate by type of substance for nearly half of all government spending.

There are numerous data gaps which have likely produced significantly low cost estimates, at best, in all of the studies presented here, including the cost of diversion of prescription drugs in terms of lost profits and revenue. While this may be accounted for to some extent in government spending estimates, data suggest that massive quantities of prescription opioids are being stolen prior to being prescribed. Millions of residential burglaries occur in the U.S. each year, and evidence suggests that prescription drugs are a major target in a significant portion of these crimes (Inciardi et al., 2007). There are other methods of prescription drug diversion (e.g., script doctors, illegal sales in small pharmacies, acquaintances who sell their personal prescriptions), and the costs to society of each are not known.

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