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The effects of substance abuse on our society are far reaching in scope with definite economic and social ramifications. As members of society and acknowledged drug experts, pharmacists have an obligation to be aware and knowledgeable about the subject matter. This article attempts to shed light on the trends and economic costs of substance abuse as well as draw attention to the issues that are of greatest concern for pharmacists.

Substance abuse is a societal problem. As members of society, and acknowledged drug experts, pharmacists are involved as citizens, educators, practitioners, and, at times, patients. Substance abuse encompasses illegal substances as well as prescription and over-the-counter (OTC) medications. The selection and nature of medications abused is dynamic and changes over time. This article attempts to scope the issues, the current substances of note, and the areas of greatest concern for pharmacy practitioners.

Introduction

Substance abuse, for the purposes of this article, involves the use of illicit drugs, and the misuse of alcohol, prescription medications (most notably opiates), and Over-the-Counter (OTC) medications. Illicit drugs of choice include cocaine/crack, marijuana, heroin, methamphetamine, MDMA (methylenedioxymethamphetamine; often called Ecstasy), PCP, LSD, and the misuse of prescription opiates. Illicit drug use is not a new problem and currently affects 19.5 million Americans 12 years of age and older, which is 8% of the population. While the use of illicit drugs has decreased since the peak in 1979-1980, the age of first use is decreasing. In fact, younger people are using illicit drugs both experimentally and socially.¹

Definitions/Scope of Problem/Data Source

The scope and prevalence of substance abuse is highly dependent on who is measuring the burden of abuse. Although the US govern-

ment is responsible for a significant volume of data, different agencies collect data from various sources. For example, data is reported from the US government, various federal agencies, the states, and numerous networks of health care agencies. The data collection centers focus on emergency department admissions, deaths, admissions to substance abuse centers, or self-reported use. Due to the data collection methodology, data is often conflicting and changes from one period to the next. However, specific trends are reproducible from year-to-year.

Current trends in substance abuse are collected under the purview of the National Institute on Drug Abuse (NIDA) of the National Institutes of Health (NIH). NIDA maintains a network of epidemiologists and researchers called CEWG (Community Epidemiology Work Group) in major cities across the country. CEWG members collect data from treatment facilities, emergency rooms and medical examiners (Drug Abuse Warning Network), the Arrestee Drug Abuse Monitoring Program (of the Department of Justice), the system to Retrieve Information on Drug Evidence from the DEA, drug seizure data from the US Customs Service, and the Uniform Crime Reports from the FBI.²

Current Situation and Trends

The 2003 National Survey on Drug Use & Health indicates that the population dynamics of drug abuse are changing.³ The use of Ecstasy and LSD dropped significantly (41 % and 59% respectively) in 12 to 17 year olds. However, the non-medical lifetime use of prescription pain relievers experienced a 5% increase in the 12 and older population, with the young adults (18-25 years old) experiencing a 15% increase.

Specific medication drug increases are listed in the table below.³ Tramadol™ experienced the largest percentage increase in lifetime non-medical use of 258%, although it has a smaller base of utilizers,

Medication Drug Increases

Prescription Analgesic	% Increase in Lifetime Non-Medical Use 2002-2003	Absolute Lifetime in Non-Medical Increase Use 2002-2003
Vicodin™, Lortab™, Lorcet™ percocet™, Percodan™, Tylox™ Hydrocodone™	20%	13.1M - 15.7M
OxyContin™	27%	4.5M - 5.7M
Methadone™	47%	1.9M - 2.8M
Tramadol™	33%	0.9M - 1.2M
	258%	52K - 186K

186,000 lives, than the other prescription analgesics. OxyContin™ also experienced a large increase of 47%, but it has a much larger base of utilizers of almost three million lives.

Emergency Department and Hospital Trends

Complications involving drug use often result in Emergency Department (ED) and hospital visits. The Drug Abuse Warning Network (DAWN) collects data from emergency departments across the country, while the Substance Abuse and Mental Health Services Administration (SAMHSA) publishes results. According to SAMHSA, there were 601,776 drug-related ED admissions reported in 2000 with over one million drug mentions. Alcohol in combination with other drugs was the most frequently reported (18.6%), followed by cocaine (15.9%), heroin/morphine (8.8%), and marijuana (8.8%). Of particular note, ED visits involving MDMA increased 58% from 1999 to 2000, and visits for heroin/morphine increased 15%. However, the largest increase during that time period involved oxycodone and hydrocodone, which increased 68% and 31% respectively.⁴⁻⁷

On a national level, hospital admissions for narcotic painkillers rose 155% from 1992-2002. This is alarming when you take into account that the proportion of new users increased from 26% in 1997 to 39% in 2002 and that these increases were particularly apparent among 20 to 30 year olds. Data from SAMHSA shows that this increase is further differentiated by population centers. Large urban areas saw a 58% increase, small metropolitan areas saw a 175% increase, and rural areas experienced a 269% increase. With respect to narcotics, these statistics show that the proportion of patients taking opiates by inhalation increased, while those injecting decreased.⁶

Patients Who Do Not Receive Treatment

The "smoking gun" in these statistics is the patients who need but do not receive substance abuse treatment. The National Survey on Drug Use and Health (NSDUH) surveyed individuals 12 and older to determine their need for alcohol or illicit drug treatment within the past 12 months.⁸ Ten percent of surveyed drug abusers did not receive treatment: 2.7% needed but did not receive treatment for illicit drug use, and 7.3% needed but did not receive treatment for alcohol problems. In absolute numbers, six million persons with illicit drug dependence or abuse, and 17 million persons with alcohol dependence or abuse did not receive specialty treatment. Only 6% of persons with illicit drug problems and 4.5% of persons with alcohol problems perceived an unmet need for treatment.⁹

User Profiles

The picture of a typical user is different for each substance, and varies according to the source of data collection, but certain profiles are prevalent. Patients admitted to publicly funded substance abuse

treatment centers in 1995 illustrated this. Individuals in treatment were predominantly white (56%) men (70%). They were admitted for alcohol treatment (54%), and/or illicit drug treatments for cocaine (38.3%), heroin (25.5%) and/or marijuana (19.1%). The majority (59%) was for ambulatory treatment as opposed to inpatient admission.¹⁰

Youth Profile

Substance abuse among children and teens is a mixed picture. NIDA has been studying this phenomenon since 1975 through research conducted

by the University of Michigan's Institute for Social Research. The key findings from the 2003 study are that there are decreases in specific drug use, but absolute rates of use are still high. The 2003 study detected decreases in use among 8th and 10th graders, the lowest since 1993. Drug use decreased for MDMA (ecstasy), LSD, amphetamines and tranquilizers among 10th and 12th graders. The use of OxyContin™, Vicodin™, and alcohol remained stable, but the absolute rates of use are still high and of major concern. Marijuana use decreased among 8th graders. A promising trend is the increase in perceived risk and the decreased availability of some drugs for all three grades of high school. Students indicated that they perceive a higher degree of risk associated with regular marijuana use and the use of Ecstasy. Concomitantly, there was a decline in the perceived availability of illicit drugs, alcohol, cigarettes, and marijuana. Also, the personal disapproval of Ecstasy has risen since 2001. Yet, there is a disturbing trend in the decline of perceived risk for inhalants.^{11, 12}

The National Survey on Drug Use and Health (NSDUH) approaches the youth drug problem from a different perspective.⁹ There were three primary findings from the survey in 2002, namely: more than half of persons aged 12 to 17 felt that marijuana was easy to obtain; 17% reported being approached by someone selling illicit drugs in the past month; those youths who felt that drugs were easy to obtain and had been approached, were more likely to use illicit drugs. The marijuana statistics are alarming. A full 16% of individuals between the ages of 12 and 17 (4 million persons) used marijuana in the past year. Of those individuals, 60% received the marijuana free or shared it with someone else, and the majority received it from a friend.¹³

Pregnancy Profile

Drug use during pregnancy is also a concern. About half of the women who use illicit drugs are in the childbearing age group of 15 to 44. NIDA studies this phenomenon through its National Pregnancy and Health Survey. The most recent data is from the 1992/ 1993 studies. The profile of the pregnant drug user was an unmarried woman; with less than 16 years of formal education; not working; and relying on public sources of funding. There are differences in prevalence of drug use among ethnic groups. Prevalence is highest among white women, but the rate of illegal substance use is highest among African Americans. A primary indicator of illicit drug use was a strong correlation with cigarette and alcohol use. Thirty-two percent of those who reported use of one drug also smoked cigarettes and drank alcohol. Of the 4 million women who gave birth during the study period, 757,000 drank alcohol, 820,000 smoked cigarettes, and 221,000 used illegal drugs during their pregnancies. The most common drug use was for marijuana and cocaine. Marijuana use was highest among those under 25 years old, while cocaine use was higher among those 25 and older.

Societal Cost

Between 1988 and 1995, Americans spent \$57.3 billion on illegal drugs. Of this total, \$38 billion was spent on cocaine, \$9.6 billion on heroin, \$7 billion on marijuana, and \$2.7 billion on other illegal drugs and on the misuse of legal drugs. However, from a societal perspective the numbers are much larger. The National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism commissioned the Lewin Group to study the total economic burden of alcohol and substance abuse, the cost of prevention, and related costs associated with decreased job productivity, lost earnings, crime and societal welfare. In 1992, this cost was estimated to be \$245.7 billion. Of significant concern is that while 46% of these costs are borne by governments, an estimated 44% is the responsibility of abusers and the members of their households.¹⁵

The 1992 cost estimate represented a 50% increase over a similar cost estimate from 1985. The major contributors to the increase were recognized as:

1. An epidemic of heavy cocaine use
2. The HIV epidemic
3. An 800% increase in state and Federal incarcerations for drug offenses
4. A 300% increase in crimes attributed to drugs

A major consideration in the societal cost is that over half is associated with drug-related crime. A partial breakdown of these costs is: 20.4% for lost productivity of victims and perpetrators, 19.7% lost legitimate work due to drug-related careers, 18.4% to crime-related costs (property damage, police, legal, corrections services, Federal traffic control), 14.9% cost associated with premature deaths, 14.5% to the lost productivity of drug-related illnesses, and 10.2% to healthcare expenses.

A SAMHSA study of treatment costs from 1996 and 1999 puts the cost of substance abuse in another perspective.¹⁶ The mean cost per admission for outpatient methadone treatment was \$7,415 as compared to \$1,433 for outpatient treatment without methadone. Non-hospital residential care had the highest costs at \$76.13 per client per day, as compared to \$17.78 for outpatient methadone treatment and \$26.72 for outpatient treatment without methadone. Recent costs using newer treatments have not yet been done. This information provides a perspective on the impact of treatment, notably methadone. Specifically, the daily cost is less per day, but the duration of treatment is greater leading to a higher overall cost for patients treated with methadone.

Conclusion

Substance abuse surrounds all of us, both nationally and globally. It cannot be ignored as a problem without a solution, as it occurs in all societies worldwide. The effects on the individual, their family and society can be devastating. This mandates that all healthcare professionals take the responsibility for education, vigilance in screening for substance abuse, and urging patients to seek treatment. It is not enough to say that others will help solve this rapidly growing problem. Each of us must take personal and professional responsibility to help "stem the rising tide" of substance abuse.

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