Testimony of

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Trends in Unintentional
Drug Overdose Deaths

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Good afternoon, Chairman Biden, members of the Subcommittee, and members of the Caucus. My name is Dr. Leonard Paulozzi, and I am a medical epidemiologist with the Centers for Disease Control and Prevention (CDC), an agency of the Department of Health and Human Services (HHS). Thank you for the opportunity to appear before you on behalf of CDC to discuss our Agency's research and prevention activities addressing unintentional drug overdose deaths. Thank you also for your continued support of CDC as we work towards becoming the "Healthiest Nation."

Today, our nation and the world are focused on potential threats such as pandemic influenza, natural disasters, and terrorism. While these threats require and deserve our immediate attention, we cannot lose sight of the realities of public health issues that we face every day, such as drug overdoses, which are now the second leading cause of unintentional injury death in the United States, exceeded only by motor vehicle fatalities.

Definitions

Drug overdoses basically are the result of taking too much of a drug. I will use the term to apply to both legal and illegal drugs. I will not include intentional or suicidal drug overdoses or alcohol poisoning in this presentation. I will focus almost exclusively on the "unintentional" or "accidental" drug overdoses. In other settings we have used the phrase, "unintentional drug poisonings," but I will refer to them as "overdoses" today.

The death certificates that are the source of the statistics I cite do not tell us whether the person was abusing the drug, taking it medically, or taking it by mistake. Therefore, the term "overdose" in this context should not be interpreted to mean that all these deaths necessarily resulted from misuse or abuse of drugs. Some of them did not.

I will concentrate on fatal drug overdoses because such events are extensively investigated, coded in a standardized process, and available for analysis in annual mortality files created by

CDC's National Center for Health Statistics (NCHS). I will discuss data through 2005, the latest year for which complete mortality statistics are available for the United States.

Historical Trends in Mortality Rates

The mortality rates from unintentional drug overdose (not including alcohol) have risen steadily since the early 1970s, and over the past ten years they have reached historic highs. Rates are currently 4 to 5 times higher than the rates during the "black tar" heroin epidemic in the mid-1970s and more than twice what they were during the peak years of crack cocaine in the early 1990s. The rate shown for 2005 translates into 22,400 unintentional and intentional drug overdose deaths. To put this in context, just over 17,000 homicides occurred in 2005. The number of drug overdose deaths does not yet exceed the number of motor vehicle crash deaths overall, but for the first time more people in the 45-54 age group now die of drug overdoses than from traffic crashes.

Type of Drugs Involved, 1999-2005

We have the best information about the drugs involved for the seven years of the trend beginning with 1999. In 1999, almost all drug overdose deaths fell into one of three categories. The most common type was called "narcotics," and it included prescription painkillers, called opioids, in addition to cocaine and heroin. OxyContin® and Vicodin® are examples of opioid painkillers. Methadone is also now widely used as a painkiller in addition to its use for treatment of addiction. The second most common was "other and unspecified drugs." The third most common was a group containing sedatives like Valium® and other psychotherapeutic or psychotropic drugs. All three of these categories increased after 1999.

One might assume that the increase in drug overdose deaths is due to an increased use of street drugs like heroin and cocaine, because we have in the past associated such drugs with overdoses. However, in a paper published in 2006, the CDC drilled down to another level to look at the codes given to the specific drugs recorded on the death certificates through 2004. When these more specific drugs were tabulated, we found that street drugs were not behind the increase. The increase from 1999 to 2004 was driven largely by opioid analgesics, with a smaller contribution from cocaine, and essentially no contribution from heroin. The number of deaths in the narcotics category that involved prescription opioid analgesics increased from 2,900 in 1999 to at least 7,500 in 2004, an increase of 160% in just 5 years.1 By 2004, opioid painkiller deaths numbered more than the total of deaths involving heroin and cocaine in this category.

With the latest, 2005 death data, we were able to drill down even further and look at the specific drugs causing the deaths. For deaths with multiple drugs involved, we looked at only the first-listed drug, which is a method to assign responsibility when multiple drugs are involved. This analysis showed that opioid painkillers were still the most commonly found drugs, accounting for 38.2% of the first-listed drugs, with methadone by itself contributing to almost half of these deaths. Benzodiazepine sedatives such as Valium® and antidepressants accounted for 6.5%. Even without including the category of "other specified drugs," which are mostly prescription, the total of prescription opioids, benzodiazepines, and antidepressants (about 45%), exceeds the total of cocaine, heroin, and methamphetamines/amphetamines (about 39%).

Characteristics of Those Dying from Drug Overdoses

The shift in the type of drugs responsible for most overdoses has also changed the demographics of those dying from overdoses. As has historically been the case, men are more likely to be affected than women. However, people in their 40s are more likely than those in their 20s or 30s to die of an overdose. Overdose death rates of whites have passed rates for African Americans in recent years. The highest rates are likely no longer in the inner cities and may well be found in our most rural counties. A map of the United States in 2004 shows an 8-fold variation in overdose death rates among states, with the highest rates concentrating in the more rural Appalachian states, the Southwestern states, and New England.

Why are Deaths Occurring?

The vast majority of unintentional drug overdose deaths are not the result of toddlers getting into medicines or the elderly mixing up their pills. All available evidence suggests that these deaths are related to the increasing use of prescription drugs, especially opioid painkillers, among people during the working years of life. A CDC study showed a correlation on the state level between usage of opioid painkillers and drug overdose death rates.2

Perhaps because of differences in marketing or physician prescribing practices, there were wide differences among states in their per capita use of opioid analgesics. For example, people in Maine were using four times more opioid painkillers than people in South Dakota.

Other evidence also suggests that most of these deaths involve the misuse and abuse of prescription drugs. The strongest evidence of this comes from investigations of these deaths by state medical examiners. Such studies consistently report that a high percentage of people who die of prescription drug overdoses have a history of substance abuse, that many have no prescriptions for their drugs, that many mix prescription drugs with illicit drugs, and that some alter the prescription drugs by crushing and snorting them or dissolving and injecting them.

Although this information refers to fatalities, the same kinds of trends and patterns can be seen in rates of hospitalizations for substance abuse, emergency department visits for overdoses, and self reports of use of drugs in national surveys sponsored by HHS's Substance Abuse and Mental Health Services Administration (SAMHSA).

Projection of Trends Since 2005

Because the process of death certificate completion, collection, correction, and computerization for 2.4 million deaths annually is laborious and time-consuming, final information on mortality for the nation as a whole is only available through 2005. However, the overall drug overdose mortality trend closely correlated with the rapid rise in sales of opioid analgesics per capita reported by the Drug Enforcement Administration (DEA) from 1997 through 2005, and sales of opioid analgesics rose further in 2006, so we expect to see additional increases in the drug overdose mortality rate during 2006. Moreover, the number of emergency department visits for opioid overdoses increased steadily through 2007 in hospitals that participated in SAMHSA's

Drug Abuse Warning Network (DAWN) system. Therefore, it appears that the mortality statistics through 2005 probably underestimate the present magnitude of the problem.

What Can Be Done

Judged by any measure--person years of life lost, health care costs, self reports of drug abuse--the prescription drug problem is a crisis that is steadily worsening. Addressing it requires the fielding and testing of more aggressive measures than have been taken to date.

It is important that state prescription drug monitoring programs share data with law enforcement officials for the purpose of investigating the unlawful diversion or misuse of certain controlled substances. For example, some state prescription drug monitoring programs are administered by a law enforcement agency in conjunction with a state board of pharmacy.

Washington State and a number of others use information about the drug use of their Medicaid populations to identify high-volume users. After further investigation, they have the option of "locking in" such users to a single provider and a single pharmacy to reduce the likelihood of "doctor shopping," when prescription abusers visit multiple doctors until they get the desired amount of drugs.

Insurers can take steps to modify the behavior of patients who use dangerous amounts of prescription drugs. Hospitals may also want to consider requiring their emergency departments to screen patients for a history of substance abuse before dispensing opioid painkillers. Roughly 40% of opioids are dispensed in emergency departments.

Physicians should observe practice guidelines for use of opioids in chronic, non-cancer pain such as those being piloted by the Washington State Agency Medical Directors' Group.3 Guidelines should address criteria to be met before initiating opioid treatment; principles for prescribing opioids, such as use of a single prescriber and a single pharmacy; and when to consult a pain management specialist, e.g., when doses exceed 120 milligrams of morphine per day.

And drug manufacturers should modify opioid painkillers so that they are more difficult to tamper with and/or combine them with agents that block the effect of the opioid if it is dissolved and injected.

CDC Activities

This coming year, CDC will examine the prescription histories of persons who died of prescription drug overdose in one state to see whether their prescription histories vary from the typical histories of other persons using the same class of drugs. We are looking for markers of inappropriate prescription drug use, such as multiple, overlapping prescriptions. Such markers may help identify people at risk of fatal drug overdoses in prescription drug monitoring program records. CDC is also conducting a study that will evaluate prescription drug monitoring programs (PDMPs) nationwide. The study will compare changes in prescription drug sales and overdose rates in states that start PDMPs with changes in states not initiating such programs. Information obtained on program characteristics associated with effectiveness could be used to enhance the effectiveness of PDMPs nationwide.

In addition, CDC is working with the Association of State and Territorial Health Officials to survey a sample of state health officers about their state policy responses to this problem. We plan on publishing the lessons learned from that survey this calendar year.

Conclusion

Prescription drug overdoses are a serious public health problem. CDC continues to respond to this problem through surveillance activities, epidemiologic research and evaluation of potential interventions.

Thank you for the opportunity to discuss this important public health issue today. Thank you also for your continued interest in and support of CDC's injury prevention activities. I will be happy to answer any questions.

1 Paulozzi, LJ, Budnitz, DS, Xi, Y. Increasing deaths from opioid analgesics in the United States. Pharmacoepidemiol Drug Saf 2006; 15: 618-627. (originally published in 2006 and recently updated)

2 Paulozzi, LJ, Ryan, GW. Opioid analgesics and rates of fatal drug poisoning in the United States. Am J Prev Med 2006:31:506-511.

3 Available at: http://www.agencymeddirectors.wa.gov