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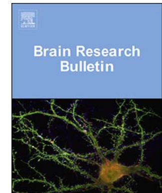

Research report

The opioid epidemic is an historic opportunity to improve both prevention and treatment

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A R T I C L E I N F O

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A B S T R A C T

The current narrative describing the national opioid epidemic as the result of overprescribing opioid pain medicines fails to capture the full dimensions of the problem and leads to inadequate and even confounding solutions. Overlooked is the fact that polysubstance use is nearly ubiquitous among overdose deaths, demonstrating that the opioid overdose death problem is bigger than opioids. The foundation of the nation's opioid overdose crisis – and the totality of the nation's drug epidemic – is widespread recreational pharmacology, the use of drugs for fun or "self-medication." The national focus on opioid overdose deaths provides important new opportunities in both prevention and treatment to make fundamental changes to the way that substance use disorders and related problems are understood and managed.

The first-ever US Surgeon General's report on addiction provides a starting point for systemic changes in the nation's approach to preventing, treating and managing substance use disorders as serious, chronic diseases. New prevention efforts need to encourage youth to grow to adulthood not using alcohol, nicotine, marijuana or other drugs for reasons of health. New addiction treatment efforts need to focus on achieving long-term recovery including no use of alcohol, marijuana and other drugs.

1. Defining the nation's drug problem

The narrative often heard today is that opioids are the crucial element of the nation's drug problem, that prescription opioids are the cause of the tragic drug overdose epidemic and that almost anyone who uses an opioid pain medicine can slip into addiction to heroin. In reality, the nation's drug problem is far more complex. It extends well beyond the opioids. Even deeper, the opioid overdose epidemic itself is not just about opioids. Further, taking opioid pain medicine is seldom a route to addiction for people who do not have prior histories of misuse of alcohol and other drugs.

The foundation of the nation's opioid overdose crisis – and the totality of the nation's drug epidemic – is recreational pharmacology, the widespread use of chemicals that seductively stimulate brain reward for pleasure and "self-medication." Drugs of abuse are chemicals that produce intense reward in the human brain. Many substances from a wide variety of chemical classes stimulate brain reward, especially when they are used by routes of administration that produce rapidly rising and falling blood levels, including snorting, smoking, shooting and vaping. The illegal supply of addicting chemicals has become increasingly globalized and efficient. Drugs, including opioids, are now delivered in higher potency, at lower prices and with greater convenience than ever before. Additionally, illegal drug suppliers are moving away from agriculturally produced drugs such as marijuana, cocaine and heroin to purely synthetic drugs such as synthetic cannabis, methamphetamine and fentanyl. These synthetics do not require growing fields which are impossible to hide, farmers, or complex, clandestine and vulnerable transportation. Instead these new drugs are easily synthesized in small and mobile laboratories located in any part of the globe and delivered anonymously, often by mail, to the users' addresses. Additionally, there remains ample illegal access to the older addicting agricultural chemicals and access to the many addicting chemicals that are widely used in the practice of medicine (i.e., prescription opioids). These abundant and varied sources make addicting drugs available to millions of people. The drug epidemic, including the opioid overdose epidemic, is not a temporary problem. Not only is the drug epidemic here to stay, it is growing more malignant.

2. A closer look at overdose deaths

While the US Centers for Disease Control and Prevention (CDC) offers the best picture of the national drug overdose epidemic – with an estimated 52,000 overdose deaths in 2015 (Rudd et al., 2016) – these data are restricted to the facts reported on routine death certificates. Many death investigations involve only limited drug testing. Worse yet, many medical examiners report very little information about toxicology

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or the specific cause of the death. This means that the national data now available about overdose deaths, while useful, is sadly limited. In contrast, data from the Florida Drug-Related Outcomes Surveillance and Tracking System (FROST) at the University of Florida are consistently reported and include systematic toxicology. This unique data set shows that, in this large segment of national overdose deaths, over 90% of opioid overdose deaths in the state of Florida include other, non-opioid, drugs (University of Florida College of Medicine, 2017). Among deaths caused by opioids such as fentanyl, heroin, hydrocodone, and oxycodone, an average of 2–3 drugs other than the opioids were identified among decedents, with some having as many as 11 additional drugs identified at autopsy. This finding of the near ubiquity of multiple drugs in opioid overdose deaths is also true of deaths caused by drugs other than opioids. The most common co-occurring drugs differ between prescription opioids and the purely illegal opioids. Among fentanyl-caused deaths in 2015, 39.9% were also positive for cocaine; the top co-occurring drugs among heroin-caused deaths were morphine (68.1%) and cocaine (43.7%). In contrast to these purely illegal opioids, the large number of prescription opioid-caused deaths had greater co-occurrence of other prescription drugs. Among hydrocodone-caused deaths, the top co-occurring drugs were alprazolam (38.6%), alcohol (33.5%) and hydromorphone (29.2%), and among oxycodone-caused deaths, the top co-occurring drugs were alprazolam (38.1%), oxymorphone (34.3%) and ethanol (28.1%).

In addition to recognizing that the drug problem – including the overdose death problem – is bigger than opioids, the nation must face the painful reality that simply doing more of what we are doing now is both inadequate to the public health threat and a misuse of the unique opportunity presented by the ongoing tragedy of addiction and drug overdose deaths. Now that there is massive bipartisan support to turn back the nation's drug epidemic it is the time for new and better ways to both prevent and to treat addiction. This article lays out several new and better strategies.

3. How can prevention be improved?

The clear majority of all substance use disorders, including opioid use disorders, can be traced to adolescent use of alcohol and other drugs. The younger a person initiates the use of any addicting substance and the more chronic that use, the greater the likelihood of subsequent substance use problems persisting, or reigniting, later in life. This later addiction risk resulting from adolescent drug use is no surprise given the unique vulnerability of the adolescent brain, a brain which is especially vulnerable to addicting chemicals and which is not fully developed until about age 25. Effective addiction prevention – i.e., helping youth grow up drug-free – can dramatically improve public health by reducing the lifetime prevalence of substance use disorders, including opioid addiction.

Youth prevention efforts today vary tremendously in message and scope. Often prevention messages for youth are limited to specific drugs (e.g., nonmedical use of prescription drugs or tobacco) to specific situations (e.g., drunk driving), or to specific amounts of drug use (e.g. binge drinking) when in reality all substance use among youth is linked and all use poses health risks during adolescence and beyond. Among youth aged 12–17, the use of any one of the three gateway drugs – alcohol, nicotine and marijuana – increases the likelihood of using the other two gateway drugs as well as other illicit drugs (Substance Abuse and Mental Health Services Administration, 2016). Similarly, youth not using any alcohol, nicotine, or marijuana decreases the likelihood of using the others, or of using other illicit drugs. A new and better vision for addiction prevention must focus on the single, clear goal of *no use of alcohol, nicotine, marijuana or other drugs for health by youth under age 21* (DuPont, 2015).

Some good news for prevention is that for the past three decades a slow but steadily increasing percentage of American high school seniors have reported abstinence from any use of alcohol, cigarettes, marijuana and other illicit drugs (Monitoring the Future, 2014). In 2014, 25.5% of high school seniors reported lifetime abstinence, and fully 50% reported past month abstinence from all substances. These figures are dramatic compared to abstinence rates during the nation's peak years of youth drug use. In 1978, among high school seniors, 4.4% reported lifetime abstinence from any use of alcohol, cigarettes, marijuana and other illicit drugs and 21% reported past month abstinence. Notably, similar increasing rates of abstinence have been recorded among 8th and 10th graders. This encouraging and largely overlooked reality demonstrates that the no-use prevention goal for youth is both realistic and attainable.

A recent clinical report and policy statement issued by the American Academy of Pediatrics (AAP) affirms that it is in the best interest of young patients to not use any substances (Levy and Williams, 2016; AAP Committee on Substance Use and Prevention, 2016). The screening recommendations issued by the AAP further encourage pediatricians and adolescent medicine physicians to help guide their patients to this fundamental and easily-understood health goal.

4. How can treatment be improved?

Now, when there is a loud cry for "more access to treatment," the goal of substance use disorder treatment remains dangerously undefined. While only about 10% of individuals with substance use disorders now receive treatment each year, the reality is that the large majority of people who would benefit from addiction treatment, but do not receive it, do not think that they have a substance use problem and do not want treatment (Substance Abuse and Mental Health Services Administration, 2014). Further, among those individuals who do enter addiction treatment, a minority complete an episode of treatment, with many patients dropping out of treatment early. Even upon successful completion of an episode of addiction treatment, relapse to the addictive use of alcohol and other drugs is so frequent that it is commonly defined as a characteristic of addiction itself. For individuals with opioid use disorders, the return to opioid use after a period of abstinence puts them at heightened risk of overdose. Another problem plaguing many addiction treatment programs is continued use of alcohol and other drugs while in treatment.

Families suffer from the addiction of their family members. Increasingly families must be encouraged to bring addicted family members to treatment. All too often, there is an expectation that treatment "fixes" the addicted person. Families want this and so do the addicted patients. The reality is quite different. No treatment is ever a fix. Addiction, like other serious chronic diseases, is an ongoing health threat for years – usually for the lifetime of the addicted person. This disease can be controlled and the addicted person can live a healthy life by not using alcohol or other drugs (i.e., by becoming and staying drug-free).

People in recovery from addiction have sobriety dates, the date on which they last used any alcohol or other abused drug. Recovery from addiction requires abstinence from alcohol and other drug use. But recovery is more than abstinence. Recovery requires character development and good citizenship. Recovery requires work by addicted people and by their families. Recovery is not easy and it is not quick, but it is all the more precious for the work required to achieve and sustain recovery. There are now more than 23 million Americans in recovery from addiction to alcohol and other drugs (State of New York Office of Alcoholism and Substance Abuse Services, 2012). They are the inspiration for treatment and for the nation's efforts to turn back the current drug epidemic. For these new treatment efforts to succeed, families must insist on the goal of stable, long-term recovery. They must support the long-sustained work of recovery. Families must insist that all addiction treatment programs be evaluated on their ability to establish stable recovery in the patients treated.

Sustained recovery can be an expected outcome of treatment. The better way to achieve lasting recovery has been pioneered by the

nation's state physician health programs (PHPs) which have been extensively studied (DuPont et al., 2009a,b). Comprehensive evaluation and high quality initial treatment are standard in PHP care management. PHP participants are immersed in recovery support, mostly, but not only, Alcoholics Anonymous (AA) and Narcotics Anonymous (AA), and Al Anon for their family members. But there is more. In the PHP care model there is intensive random testing for alcohol and other drug use, typically for five years, with prompt intervention upon any relapse to alcohol or other drug use. The PHP care management system produces impressive outcomes, including long-term recovery, for substance use disorders, including opioid and alcohol use disorders (McLellan et al., 2008; Merlo et al., 2016). A national study of physicians enrolled in 16 PHPs showed that over five years of monitoring following initial treatment, 78% of participants never had a positive test for alcohol or other drugs (McLellan et al., 2008). Among those who did relapse, 14% had only one positive test, 3% had two positive tests and 5% had three or more. Now that it has been shown that sustained recovery can be achieved, an essential part of developing a better drug policy is to evaluate all treatment against a single standard of five-year recovery (DuPont et al., 2015; DuPont, 2016).

5. The importance of the Surgeon General's historic report

The landmark report *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs and Health* called for a continuum of health care extending from prevention to early identification and treatment of substance use disorders and long-term health care management with the goal of sustained recovery (U.S. Department of Health and Human Services (HHS) Office of the Surgeon General, 2016). A growing number of pioneering programs within the criminal justice system (e.g., Hawaii's HOPE Probation, South Dakota's 24/7 Sobriety Project, and Drug Courts) are using innovative monitoring strategies for individuals with substance use problems, including providing substance use disorder treatment, with results showing reduced substance use, reduced recidivism and reduced incarceration (Kilmer et al., 2017). There also is a growing potential to harness the latent but enormous strength of the families that have confronted and are continuing to confront addiction in a family member.

Key constituencies – especially families and insurance companies – must recognize the true basis for our growing national opioid problem and associated polysubstance use, and the importance of systematically assessing success and failure in achieving five-year recovery.

As a nation we have turned a blind eye to the public health threats posed by recreational pharmacology, especially for youth, the most vulnerable segment of the population. Now is the time for meaningful change. There are debates about adult use of alcohol, marijuana and other drugs. There are no constituencies that favor youth use of alcohol, nicotine, marijuana or other drugs. On that crucial point there is no dispute. We also need to do a far better job of managing the medical use of opioids and other controlled substances and of prosecuting all those involved in illegal drug trafficking.

Legislators and leaders at both the federal and state level of government, as well as the health care community, must be educated about these facts. The news and entertainment media need to come on board with these ambitious new goals for improving addiction prevention and treatment. The public needs to be educated. Enacting laws educating physicians about opioid prescribing practices is only one part of a comprehensive response to the current drug epidemic. The later consequences of early experimentation with drugs in the teenage years, including subsequent heavy use and increased risk of addiction in adulthood, have profound impacts on individuals, families, and on our entire society, including the health and economic strength of our nation.

Addiction to alcohol and other drugs is a cruel teacher – for the individuals suffering from addiction, for their families, for their communities, and for our country. Addressing the current opioid overdose epidemic will require a comprehensive understanding of the addiction problem, as well as major improvements in both prevention and treatment.

Conflict of interest

None.

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