

Calculating the Real Costs of the Opioid Crisis

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The statistics regarding the opioid crisis in the United States are staggering, have been the focus of the media for more than a decade, and show no signs of improving. In 2016, 2.4 million Americans were estimated to have an opioid use disorder, ranging from the misuse of prescription opioids to the abuse of heroin and other illicit opioids.¹ This includes 0.6% of adolescents 12 to 17 years of age and 1.1% of young adults 18 to 25 years of age. In 2015, 50 000 Americans died of overdose, of which 33 000 (63%) were from opioids.² Despite policies to regulate drug supplies and increase access to treatment, overdose death rates have doubled in the past 10 years and have continued to rise for adults.³

Although the death rate from overdose has plateaued recently for those younger than 18 years and the rate of prescription opioid misuse has dropped significantly among 12th graders over the past 5 years,⁴ hospitalizations for opioid poisonings are increasing, especially among preschool children and adolescents. Gaither et al⁵ reported in 2016 that the annual rate of hospitalizations for opioid poisonings almost doubled from 1997 to 2012, with the greatest increases in those 1 to 4 years old and 12 to 17 years old.

To develop and implement effective prevention, mitigation, and intervention policies, we must understand the true costs of this epidemic. Researchers have shown that prescription opioid abusers use health care resources at much higher rates than their nonaddicted peers. Other researchers have documented

higher costs across the health care and criminal justice systems and from lost productivity. These researchers have not focused on children and adolescents, however. In this issue of *Pediatrics*, Kane et al⁶ describe critical care resource use among patients admitted to the PICU for opioid overdose. Using a national sample of children's hospitals, they show that PICU admissions for opioid overdoses doubled from 2004 to 2015. Overall, 37% of patients required mechanical ventilation and 20.3% required vasopressors. In 1- to 5-year-olds, methadone accounted for 19.5% of the opioids ingested, indicating the increased risk to young children when parents or family members are being treated for their own opioid addiction or abusing methadone themselves.

Kane et al⁶ also add significantly to what we know about the economic burden. Significant increases in the number and costs of adult ICU admissions have been documented, with greater resource use related to mechanical ventilation and vasopressor and naloxone administration. In contrast with adult ICU admissions, the authors also found that the cost per admission decreased over the period of time studied. The authors postulate that this was because of greater efficiencies in health care delivery resulting in lower lengths of stay.

Recently, the Council of Economic Advisers attempted to quantify the total societal costs of opioid overdose and concluded that previous estimates have significantly underestimated the high costs of fatalities due to

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overdose.⁷ The council used the "value of a statistical life" (VSL) analytic method, which is routinely used by federal agencies in cost-benefit analyses of regulations and policies including health-related interventions.⁸ This VSL method considers the costs of "other valuable activities in life other than work" that may be related to the value of nonwork-related activities, such as volunteering and family rearing rather than only lost work productivity and earnings. According to the calculations made with this VSL approach, the true cost to society is close to \$504 billion, with 15% of the total from nonfatal and 85% from fatal overdoses. This represents ~2.8% of the 2015 US gross domestic product.

In addition to the emotional toll on individuals, families, and society, cost analyses highlight the opportunity for primary prevention. Several highly effective, evidence-based programs have been shown to reduce the use and abuse of alcohol and other drugs, including opioids, by adolescents

and young adults.⁹ Findings from the work by Kane et al⁶ highlight the need for pediatricians to engage in this critical work to combat the ongoing opioid crisis in our country.

REFERENCES

1. Substance Abuse and Mental Health Services Administration. Key substance use and mental health indicators in the United States: results from the 2015 national survey on drug use and health. 2016. Available at: <https://www.samhsa.gov/data/sites/default/files/NSDUH-FFR1-2016/NSDUH-FFR1-2016.htm>. Accessed December 6, 2017
2. Center for Disease Control and Prevention. Drug overdose death data. Available at: <https://www.cdc.gov/drugoverdose/data/statedeaths.html>. Accessed December 7, 2017
3. National Institute of Drug Abuse. Overdose death rates. Available at: <https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates>. Accessed December 19, 2017
4. Institute for Social Research, University of Michigan. National adolescent drug trends in 2017: findings released. Available at: <https://goo.gl/w78A5e>. Accessed December 17, 2017
5. Gaither JR, Leventhal JM, Ryan SA, Camenga DR. National trends in hospitalizations for opioid poisonings among children and adolescents, 1997 to 2012. *JAMA Pediatr.* 2016;170(12):1195–1201
6. Kane JM, Colvin JD, Bartlett AH, Hall M. Opioid-related critical care resource in US children's hospitals. *Pediatrics.* 2018;141(4):e20173335
7. The Council of Economic Advisers, Executive Office of the President of the United States. The underestimated costs of the opioid crisis. 2017. Available at: https://www.whitehouse.gov/sites/whitehouse.gov/files/images/The_Underestimated_Cost_of_the_Opioid_Crisis.pdf. Accessed November 29, 2017
8. Aldy JE, Viscusi WK. Adjusting the value of a statistical life for age and cohort effects. *Rev Econ Stat.* 2008;90(3):573–581
9. Hawkins JD, Catalano RF, Arthur MW. Promoting science-based prevention in communities. *Addict Behav.* 2002;27(6):951–976