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Opioid Prescribing Patterns and Subsequent Overdose

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Opioids are a cornerstone in the management of severe acute pain. Amid a national overdose crisis, however, opioid prescriptions for children, adolescents, and young adults have steadily decreased.¹ This decline is likely due to the emerging understanding that 5–7% of adolescents and young adults prescribed an opioid will subsequently develop long-term opioid use or an opioid use disorder,^{2,3} and that prescription opioids, particularly when misused or combined with other sedatives, can precipitate overdose.⁴ Sorely missing from the existing literature on opioids and youth, however, is information on which opioids and prescribing patterns contribute to overdose.

In this issue of *JAMA Pediatrics*, Chua et al. address this critical knowledge gap.⁵ The authors studied whether high-risk prescribing patterns that predispose to overdose in adult populations are similarly associated with overdose in youth.⁶ Drawing on a sample of more than 2 million youth aged 12–21 with commercial health insurance, Chua et al. identified individuals without cancer who were dispensed an opioid between 2009 and 2017. The authors found that during the time of their prescription, a small percentage (<0.01%) of youth had a subsequent claim for an overdose involving a prescription opioid. Consistent with findings for adults, prescribing patterns associated with increased odds of overdose were high daily morphine milligram equivalent doses of opioids, concurrent receipt of a benzodiazepine, and use of extended-release and long-acting formulations of opioids. Notably, the authors also found that youth with a mental health condition or history of substance use were more than three times more likely to experience an overdose.

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SEH has no conflicts of interest to declare. SMB has no conflicts of interest to declare.

It would be hasty to conclude based on the authors' findings that we should avoid prescribing opioids altogether. In fact, only 1 in more than 11,000 youth experienced an overdose while prescribed an opioid. Rather, this study informs how we can prescribe opioids more judiciously. Clinicians caring for youth should continue to prescribe opioids for severe acute pain, and when they do so, should be mindful to use the lowest dose needed to control pain, avoid concurrent prescribing of benzodiazepines, and use short-acting opioid formulations.

These approaches should be added to other best practices to mitigate the risk for overdose.⁷⁻⁹ Even before prescribing an opioid, nonpharmacologic pain management approaches (e.g., relaxation, massage, or physical therapy) and other non-opioid analgesics (e.g., nonsteroidal anti-inflammatory drugs, acetaminophen, or topical agents) should be maximized. When an opioid is prescribed, clinicians should check the state prescription drug monitoring program, offer a brief course (3 days or fewer may be sufficient), avoid codeine and tramadol due to risk for sudden respiratory compromise in young and certain high-risk patients, notify minors' parents, discuss safe storage and disposal of unused medication, and co-prescribe naloxone for overdose reversal. Review of these and other recommendations are available through free online training for general¹⁰ and pediatric¹¹ clinicians interested in learning more.

The findings of Chua et al. rightly shift our focus to prescribing patterns that may lead to overdose. However, the finding that youth with mental health diagnoses or preexisting substance use disorder were three times more likely to experience overdose is a critical reminder that overdose risk may actually be more strongly predicted by patient-level factors. Although the authors did not specifically examine the outcome of opioid use disorder following an initial prescription, in addition to following the best practices outlined above, it is critical that clinicians assess patients' risk for developing a use disorder prior to prescribing an opioid. This includes identifying the presence of mental health conditions such as depression, anxiety, and attention deficit hyperactivity disorder; prior substance use, particularly at a young age; prior exposure to opioids; history of trauma, such as physical, emotional, or sexual abuse; family history of addiction; and peers who use substances.^{7,12} The presence of any of these risk factors should not preclude a clinician from prescribing an opioid when a young person is experiencing severe acute pain; instead, their presence should prompt clinicians to ensure that there is close monitoring and clinical follow-up both during and after the time an opioid is prescribed.

Recognizing the numerous risk factors listed above—not only among patients being prescribed an opioid, but among all patients—is critical in the context of the broader national overdose crisis. The vast majority of youth who develop an opioid use disorder or experience overdose will not do so while taking an opioid their physician prescribed them. When youth misuse prescription opioids, they commonly do so long after an initial prescription has run out.^{2,3} Additionally, only about one in four youth who misuse prescription medications obtain them directly from their own physician; more common sources are friends' or family members' prescriptions or the illicit market.¹³ Nationally, prescription opioids are no longer the leading cause of fatal overdose among youth; overdoses involving heroin and illicitly manufactured fentanyl are each now approximately

as common, and many overdoses involve the combination of opioids with other substances such as benzodiazepines, alcohol, cocaine, or other stimulants.⁴

Thus, if the pediatric workforce is to fully address the national overdose crisis, safe opioid prescribing is just one part of the solution; pediatric clinicians need to be prepared to detect and treat substance use disorder more generally. Although the US Preventive Services Task Force has assessed that there is insufficient evidence to recommend routine screening for substance use in adolescents (though appear poised to soon recommend it for young adults 18 and over),¹⁴ the American Academy of Pediatrics recommends that pediatric clinicians use a validated measure such as the Screening to Brief Intervention (S2BI) or the Brief Screener for Tobacco, Alcohol and other Drugs (BSTAD) to identify substance use disorders among youth.¹⁵ Youth reporting substance use should receive a brief intervention, with clinicians using motivational interviewing approaches to help patients identify their own reasons and goals for change. Youth with a substance use disorder should be referred for treatment or, when possible, be offered evidence-based treatment (using, for example, buprenorphine or naltrexone for opioid use disorder) in primary care. All youth who misuse opioids should also receive counseling on how to prevent overdose, including how to use naloxone.¹²

The work of Chua et al. will inevitably inform clinical practice guidelines on safe opioid prescribing for youth. There are still many unanswered questions, however, on how to further reduce the risk for opioid use disorder and overdose when young people receive opioids. Which short-acting opioid products should be preferred—for example, do short-acting oxycodone and hydrocodone carry equivalent risk for addiction and overdose? What is the ‘right’ number of days of opioids for various types of severe acute pain, and how does this differ, for example, following orthopedic, general surgical, dental, and other procedures? Which acute and chronic pain conditions are associated with subsequent opioid use disorder and overdose? Which specific mental health conditions and preexisting patterns of substance use portend greatest risk, and to what extent does appropriate treatment of these underlying conditions mitigate this risk? What existing or new screening tools can identify young people likely to develop opioid use disorder or experience an overdose after receiving a prescription?

Though unknowns abound, as unprecedented opioid-related morbidity and mortality persists in the US, two things are clear. First, pediatric clinicians will need to engage in smarter—not simply less—opioid prescribing. Second, safer prescribing will only be a small part of our needed workforce response; the path forward in averting our young patients from becoming tomorrow’s overdose statistics will require pediatric clinicians to assume a greater role in preventing, detecting, and addressing substance use disorders more broadly.

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