

100 million prescription opioids go unused each year following wisdom teeth removal, study estimates

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More than half of opioids prescribed to patients following surgical tooth extraction – such as the removal of impacted wisdom teeth – were left unused by patients in a new study from researchers at the University of Pennsylvania's Perelman School of Medicine and School of Dental Medicine. The authors say the surplus is troubling given the ongoing opioid epidemic and evidence showing that individuals who abuse prescription opioids often use leftover pills that were prescribed for friends or family members. The study, published in *Drug and Alcohol Dependence*, suggests the availability of prescription disposal kiosks in pharmacies and small financial incentives may increase proper disposal of opioids by more than 20 percent.

"When translated to the broad U.S. population, our findings suggest that more than 100 million opioid pills prescribed to patients following surgical removal of impacted [wisdom teeth](#) are not used, leaving the door open for possible abuse or misuse by patients, or their friends or family," said lead author Brandon C. Maughan, MD, MHS, MSHP, an emergency physician and health services researcher at The Lewin Group, a health policy consulting firm, who conducted the study while serving as a Robert Wood Johnson Foundation Clinical Scholar at the Perelman School of Medicine at the University of Pennsylvania. "Given the increasing concern about prescription opioid abuse in the United States, all prescribers – including physicians, oral surgeons and dental clinicians – have a responsibility to limit opioid exposure, to explain the risks of

[opioid misuse](#), and educate patients on proper drug disposal."

In the study, researchers examined prescription opioid use for 79 patients after dental impaction surgery, and how a small financial incentive and information about a pharmacy-based drug disposal program would affect patients' willingness to properly dispose of unused medications. Researchers also tested the effectiveness of using a text message-based platform to collect data on pain and prescription medication use.

During enrollment, participants received a debit card preloaded with \$10. Surveys assessing pain levels and medication use were delivered via text message every day for the first week following surgery, and again on days 14 and 21 following surgery. For each survey completed, the participant would receive an additional \$3 credit on the debit card (a possible \$27 total). Patients who completed a follow-up health interview received an additional \$10.

Just 24 hours after surgery, patients reported an average pain score of 5 out of 10 while taking pain medication. By the second day, more than half (51 percent) reported a low pain score (0-3 out of 10), and by the fifth day, almost 80 percent had a low pain score.

The majority of patients (94 percent) received a prescription for an [opioid medication](#) to manage pain, with 82 percent also receiving a prescription-strength nonsteroidal anti-inflammatory drug (NSAID), and 78 percent received a prescription antibiotic. On average, participants who did not have post-surgical complications (93 percent) received prescriptions containing 28 opioid pills, but three weeks following surgery had only used 13, leaving more than 1,000 unused opioid pills. Only five patients used all of the prescribed pills.

"Results of our study show within five days of surgery, most patients are

experiencing relatively little pain, and yet, most still had well over half of their opioid prescription left," said Elliot V. Hersh, DMD, MS, PhD, a professor in the department of Oral & Maxillofacial Surgery and Pharmacology at Penn Dental Medicine, and a co-author on the study. "Research shows that prescription-strength NSAIDs, like ibuprofen, combined with acetaminophen, can offer more effective pain relief and fewer adverse effects than opioid-containing medications. While opioids can play a role in acute pain management after surgery, they should only be added in limited quantities for more severe pain."

Additional results showed that offering information specific to a drug disposal program led to a 22 percent increase in the number of patients who had either properly disposed of or planned to properly dispose leftover opioids. Patients in the control arm received routine postoperative instructions with a controlled substance information sheet including details about the risks of keeping unused opioids and explained that a study hotline was available for information on drug disposal. Comparatively, participants in the intervention arm received the same instructions along with a one-page overview of a pharmacy-based drug disposal program.

"Expanding the availability of drug disposal mechanisms to community locations that patients regularly visit – such as grocery stores and retail pharmacies – may substantially increase the use of these programs," Maughan said. "By providing a one-page information sheet coupled with a small financial incentive patients were significantly more interested in proper disposal of unused opioid pills. The results suggest that future trials might also use similar low-intensity and low-cost interventions to reduce the misuse of opioid medications."

Provided by Perelman School of Medicine at the University of Pennsylvania

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