



# Role of Dentists in Prescribing Opioid Analgesics and Antibiotics

## An Overview

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### KEYWORDS

- Dentistry • Dental public health • Antibiotics • Opioids • Prescription drugs
- Antibiotic stewardship

### KEY POINTS

- Opioid analgesics and antibiotics as an adjunct or as a definitive treatment for common dental diseases is a useful and cost-effective measure when prescribed appropriately.
- Common dental conditions are best managed by extracting the offending tooth, restoring the tooth with an appropriate filling material, performing a root canal therapy, and/or by fabricating a prosthesis for the edentulous space.
- Appropriate and inappropriate use of antibiotics and opioid analgesics can lead to serious adverse drug events.
- Opioid analgesics prescribed as predefinitive and postdefinitive treatment for dental pain have the potential for misuse, abuse, or addiction.
- Opioid misuse and abuse are strong predictors for adverse events, including overdose.

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## INTRODUCTION

Opioid analgesics and antibiotics prescribed by dentists either as an adjunct or as a definitive treatment for common dental diseases is a useful and cost-effective measure when prescribed appropriately. However, many common dental conditions are best managed by extracting the offending tooth, restoring the tooth with an appropriate filling material, performing a root canal therapy, and/or by fabricating a prosthesis for the edentulous space. The appropriate and inappropriate use of antibiotics and opioid analgesics can lead to serious adverse drug events. For example, the use of antibiotics for dental infection prophylaxis has been associated with *Clostridium difficile* infection<sup>1,2</sup> and the development of antibiotic resistance.<sup>3–5</sup> Additionally, antibiotics are frequently associated with hypersensitivity reactions.<sup>3–5</sup> Opioid analgesics prescribed as predefinitive and postdefinitive treatment for dental pain have the potential for misuse, abuse, or addiction. Opioid misuse and abuse are strong predictors for adverse events, including overdose.<sup>6</sup>

Wall and colleagues<sup>7</sup> reported that antibiotics and pain medication accounted for 3 out of 4 drugs prescribed by dentists to patients. It is estimated that dentists prescribe about 10% of all antibiotics and opioid analgesics nationally,<sup>8–10</sup> and these prescriptions could contribute to the opioid analgesic epidemic, including cases of overdose in the United States.<sup>6,11–15</sup> Dental patients are particularly vulnerable to misuse because they regularly have leftover opioid analgesics that serve as a source for nonmedical use.<sup>8,11–18</sup> Persons experiencing antibiotic- and opioid-related adverse outcomes are more likely to visit the emergency department, and it is one of the leading causes of emergency department visits.<sup>19–21</sup> Furthermore, there is a linear relationship between inappropriate antibiotic and opioid analgesic use and adverse drug reactions.<sup>22,23</sup> Therefore, dentists must exercise caution in how they prescribe antibiotics and opioid analgesics. Unnecessary and excessive prescribing of opioid analgesics and antibiotics have considerable economic implications. It is estimated that treatment of opioid analgesic overdose, misuse, abuse, and diversion cost public and private insurance companies about \$72.5 billion dollars annually.<sup>24,25</sup> Furthermore, the prescription of antibiotics is among the top therapeutic categories by expenditures in a majority of health care settings.<sup>26,27</sup>

Dentist prescribing practices of opioid analgesics and antibiotics have continued to receive attention from policymakers, clinicians, and patient care advocates owing to the secondary impact of these medications on population health. Unnecessary prescribing of opioid analgesics is a growing public health concern, and they are the most commonly abused prescription drug prescribed by dentists.<sup>28</sup> Opioid analgesic misuse often starts with either a valid opioid analgesic prescription and/or acquisition of leftover drug from a family member or friend.<sup>6,17,18,28,29</sup> To highlight and ascertain the state of the science of opioid analgesics in dentistry, a joint meeting was organized by the National Institute of Drug Abuse and the National Institute of Dental and Craniofacial Research.<sup>30</sup> At the meeting, it was concluded that data on dentist prescribing practices of opioid analgesics are scarce and that further investigations are required to better understand the role dentists play in adolescent opioid analgesic prescribing and the risk and safety associated with adolescent opioid use, as well as identifying potential roles for dentists in terms of how to prevent the opioid analgesic misuse and abuse by adolescents.<sup>30</sup>

Despite this meeting and seminars organized by dental professional organizations, more research is needed to demonstrate specifically the efficacy of nonopioid analgesics in the management of dental pain. In addition, innovative strategies directed specifically at dental professionals will be required to help them to reduce the prescription

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