

Antibiotic and Opioid Stewardship in Dentistry

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Introduction

Medication stewardship refers to efforts by frontline healthcare providers (e.g., hospitals, doctors' offices, dental offices, etc.) to promote the safe and appropriate use of medications. Stewardship not only ensures that the appropriate drug is prescribed, but also that it is prescribed at the right dose and for the right duration.¹ Antibiotic and opioid stewardship programs are the most common types of stewardship programs. Antibiotics are a powerful tool that have made once deadly infections easily treatable. However, overuse of antibiotics can lead to bacterial resistance, in which bacteria that were once responsive to antibiotic treatment become less susceptible, leading to diseases that are harder to treat, with potentially poorer outcomes. Antibiotic overuse can also lead to other adverse events and health complications like infection with *Clostridioides difficile*. Similarly, while opioids can be an important tool in the treatment and management of pain, their overprescribing can result in prescription misuse, opioid use disorder, and overdose. Between 1999 and 2018, more than 232,000 individuals in the United States died because of an overdose involving a prescription opioid.²

Dentists are high prescribers of antibiotics and opioids, accounting for 10% of opioids³ and 10% of antibiotic prescriptions⁴ in the United States. Many of these prescriptions are suspected to be inappropriate or unnecessary,^{4,5} such as antibiotics recommended by other medical doctors for dental infections and procedures,⁶ with overlap existing between the highest prescribers of opioids and the highest prescribers of antibiotics.⁷ However, antibiotic and opioid stewardship programs are nascent in the dental setting, making this an area with a lot of opportunity to improve prescribing practices. In developing and implementing stewardship programs, there are a number of challenges unique to dentistry that have to be recognized.

Challenges Faced in Dentistry

Dentists face many of the same challenges experienced by other care providers in medicine when it comes to implementing impactful stewardship programs, such as resource limitations and challenges identifying appropriate metrics.⁸ However, dentistry is unique in several key ways that can impact providers' ability to

identify overprescribing and implement effective stewardship.

One critical challenge dentists face relates to their experiences using the electronic health records (EHRs). Dental practices have not had the same experiences, or been held to the same requirements, as physician practices with regard to data collection, reporting, and use of data to track and assess performance. EHR adoption rates have been slower, and lower, than in physician practices.⁹ Further, many dental EHR platforms operate as practice management software, rather than as a comprehensive EHR seen in other medical settings. The lack of comprehensive patient-level health and treatment data limits a practice's ability to collect data on specific practices, such as antibiotic prescribing, for the purpose of improvement.

An additional challenge is that identifying adverse events and defining what constitutes high quality dental care has lagged behind medical care, resulting in a dearth of quality measures available for dentistry reporting.¹⁰ As a result, dentists are not optimally positioned to collect and use critical opioid and antibiotic prescribing information. Further, dentists' access to other aspects of the patient medical record can vary greatly. This means dentists may not have access to the patient's medical history, including antibiotic or opioid prescribing information, from other settings, and must rely on accurate patient self-reporting. Critically, this can also lead to incomplete or inaccurate information from patient self-reporting of any allergies, which can impact the types of antibiotics that are prescribed.

A final consideration is the size and organization of the majority of dental practices. While the number of dentists still operating private practices is in decline, in 2015 80% of dentists owned a private practice.¹¹ Not only does this mean that resources are limited for adopting an EHR and associated data collection tools, but the dentist also has responsibilities beyond clinical care related to running the practice that can make it difficult to prioritize identifying and implementing a stewardship program.

Stewardship Initiative Resources

Despite these challenges, there are effective stewardship approaches dental practices can take to improve prescribing practices and reduce unnecessary, or inappropriate, prescriptions for antibiotics and opioids.

Opioid Stewardship

Prior to issuing a prescription, dentists should review their state's prescription drug monitoring program (PDMP) database. A state's PDMP contains information from dispensing pharmacies and tracks controlled substance prescriptions. These databases can provide dentists with critical information about any past opioid prescriptions the patient may have received and perhaps indicate a pattern of behavior indicative of substance abuse.¹² Unfortunately, PDMP databases are only effective if the system is checked before prescribing. Historically, dentists have reported infrequent use of the PDMP databases, which has been linked to more frequent opioid prescribing.¹³ However, many states have recently passed legislation requiring that they complete substance use disorder training (including training on the use of PDMPs), that they register with the PDMP if they have prescribing authority, and consultation of the PDMP.¹⁴ Even if not required to do so, dentists should consider their state's PDMP a critical resource for opioid prescribing and consult the database for every issued opioid prescription.

The American Dental Association (ADA) is currently [developing guidelines](#) to support dentists in the treatment of pain. However, in addition to proactively reviewing a patient's opioid prescription history, dentists should actively engage in patient counseling and risk screening prior to prescribing an opioid.¹⁵ Prescribing non-opioid analgesics with a clear escalation plan in place with patients, should pain continue or worsen may also be an effective approach to reduce opioid prescribing within individual practices.

Antibiotic Stewardship

The Centers for Disease Control and Prevention (CDC) [Core Elements of Outpatient Antibiotic Stewardship](#) provides a core framework for outpatient clinicians. This includes clinician and facility checklists to assess baseline policies and procedures and identify where improvements can be made. Dentists can use the Core Elements document to ensure they are tracking and monitoring antibiotic prescriptions to the best of their practice's capabilities and consider education campaigns for both patients and dentists that align with Core Elements principles. The CDC also has a number of [education materials](#) that can be used in dental practices.

In addition to CDC resources, several professional societies have guidance available to dentists to help guide appropriate antibiotic prescribing. The ADA has an [antibiotic stewardship](#) reference page dentists may consult, as well [clinical practice guidelines](#) for pain management. Further, the American Academy of Orthopaedic Surgeons (AAOS) has developed [appropriate use criteria](#) for the use of prophylactic antibiotics in patients with orthopaedic implants undergoing dental procedures, including a [care decision tree](#), a [shared decision making tool](#), and [online interactive decision tool](#). The [American Heart Association](#) has also published recommendations regarding antibiotics prior to dental procedures for patients at highest risk of infective endocarditis.

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