Antibiotic Resistance and Stewardship for Minnesota’s Dental Professionals

Room for Improvement in Dental Antibiotic Prescribing

- Dentists prescribe approximately 10% of all antibiotics in U.S. outpatient settings\(^1\).
- Dentists most commonly prescribe penicillins. This is consistent with dental prescribing guidelines\(^2\). However, dentists also prescribe a large amount of more broad-spectrum antibiotics, including macrolides (e.g. azithromycin) and quinolones (e.g. ciprofloxacin). Some of these have limited indications in dental practice.
- A 2015 survey conducted in Minnesota revealed that dentists prescribe in more situations than recommended by professional practice guidelines\(^3\).

Antibiotic Resistance

- Antibiotic resistance is one of our most serious health threats.
- CDC estimates that each year in the U.S., 2 million people develop infections from antibiotic-resistant bacteria and 23,000 die from associated causes.
- The major driver of antibiotic resistance is our widespread antibiotic use.
- An essential part of modern medical care, antibiotics are used routinely to prevent and treat bacterial disease. However, the effectiveness of these important drugs is declining, as more bacteria develop resistance to antibiotics.

Other Consequences of Antibiotic Use

- Antibiotics have an effect on healthy gastrointestinal bacteria that can last after patients have finished the prescription. This leaves patients at risk for *Clostridium difficile* disease, a toxin-associated illness caused by the *C. difficile* bacterium which is able to thrive after antibiotic exposure.
- *C. difficile* can be acquired in health care settings and in the community.
- Antibiotics also carry a risk of side effects, including allergies and organ damage.
- Because of increasing resistance, some of the only antibiotics available to treat infections caused by resistant bacteria must be given intravenously and have a risk of toxic effects.

Antibiotic Stewardship

Antibiotic stewardship is the process of improving how we use antibiotics. Key elements of antibiotic stewardship include the five “D”s:

**Diagnosis**: using an antibiotic only when clinically indicated

**Drug**: choosing the right antibiotic for the infection and the patient

**Dose**: giving the right amount of antibiotic

**Duration**: giving the antibiotic for the right amount of time

**De-escalation**: switching to an antibiotic choice that is better-targeted to the infection when possible, and switching from intravenous to oral administration when possible.

Minnesotans from animal, human, and environmental health are working together to be smart about antibiotic use and preventing antibiotic resistance!

www.health.state.mn.us/onehealthabx
CDC’s Core Elements of Outpatient Antibiotic Stewardship

The core elements can guide facility efforts to improve antibiotic use4.

- **Core Element 1: Commitment**
  Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety.

- **Core Element 2: Action for policy and practice**
  Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working, and modify as needed.

- **Core Element 3: Tracking and reporting**
  Monitor antibiotic prescribing practices and offer regular feedback, or have clinicians assess their own antibiotic prescribing practices.

- **Core Element 4: Education and expertise**
  Provide educational resources to clinicians and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing.

Antibiotic-Use Guidelines for Dentistry


References