

**Presentation Type:**

Poster Presentation - Oral Presentation

**Subject Category:** Antibiotic Stewardship

**Situations Predisposing Primary Care Patients to Use Antibiotics Without a Prescription in the United States**

Lindsey Laytner, Baylor College of Medicine, Department of Family and Community Medicine; Barbara Trautner, Baylor College of Medicine; Susan Nash, Baylor College of Medicine; Fabrizia Faustinella, Baylor College of Medicine; Roger Zoorob, Baylor College of Medicine; Kiara Olmeda, Baylor College of Medicine; Michael Paasche-Orlow, Baylor College of Medicine and Larissa Grigoryan, Baylor College of Medicine

**Background:** Using antibiotics without medical guidance (non-prescription use) is a potential safety threat to individual and public health. Patients' situations can impact their intentions to use non-prescription antibiotics in the future (intended use). This survey (1) explores the dimensionality of 13 predefined situations to identify 'summary factors,' which include conceptually similar situations that influence patients' intended use of non-prescription antibiotics, and (2) identifies the socio-demographic predictors associated with these summary factors. **Methods:** A cross-sectional survey was conducted from January 2020–June 2021 in the waiting rooms of six safety-net primary care clinics and two private emergency departments. We used principal component analysis as a data reduction technique and confirmed the factor structure of the situations (identifying three situational summary factors). Multivariate linear regression identified the sociodemographic predictors (e.g., age, gender, race, education, insurance, healthcare system, language preference, birth country, and health literacy) associated with each summary factor. **Results:** Of the 564 patients surveyed, the majority were female (72%), Hispanic or Latinx (47%), college-educated (44%), and received public health insurance (e.g., Medicaid or County Financial Assistance) (56%). The largest proportion of patients endorsed intended non-prescription antibiotic use for situations involving high doctor visit costs (29.8%), having leftover prescription antibiotics (50.4%), and experiencing symptom relief with prior use of antibiotics (47.5%) (Figure 1). We identified three situational summary factors: (1) perceived barriers to a doctor visit and receiving a prescription (Cronbach's alpha [α]=0.96), (2) convenience and accessibility of non-prescription antibiotics (α=0.81), and (3) previous symptom relief with antibiotics (α=0.95). After controlling for gender, race, education, insurance, language preference, birth country, and health literacy, our multivariate regression results revealed that younger patients ( $P < 0.04$ ) and patients attending the safety-net health system ( $P < 0.001$ ) had more intended use of non-prescription antibiotics for all three summary factors (Figure 2). **Conclusions:** Our study revealed that younger patients and individuals receiving care from the safety-net clinics had an increased risk of intended non-prescription antibiotic use across all summary factors. Future stewardship interventions should consider the types of situations that drive patients' decisions to use antibiotics without a prescription. Interventions aimed at reducing barriers to healthcare (e.g., high costs and long waits associated with doctor appointments) and educating individuals on the risks associated with inappropriate antibiotic use while providing alternative (non-antibiotic) treatment options may reduce antibiotic use and antimicrobial resistance.

Figure 2. Multivariable linear regression results for each situational summary factor

	Intended use of non-prescription antibiotics by situational summary factor:					
	Summary factor 1: Barriers to a doctor visit and prescribed medicines		Summary factor 2: Convenience and accessibility of non-prescribed antibiotics		Summary factor 3: Previous symptom relief with antibiotics	
Sociodemographic Factors*	β (Std. Error)	P value	β (Std. Error)	P value	β (Std. Error)	P value
Age	-0.02 (0.01)	P=0.03	-0.02 (0.01)	P=0.004	-0.01 (0.003)	P<0.004
Healthcare System						
Public Safety-Net Clinics (vs. Private EDs)	1.34 (0.24)	P<0.001	0.83 (0.16)	P<0.001	0.46 (0.10)	P<0.001

\*All models were adjusted for age, sex, race/ethnicity, education, insurance, healthcare system, birth country, survey language, and health literacy. Patient sex, race/ethnicity, education, insurance, survey language, and health literacy were not significant in any of the models.  
 †Columbia, 1 Costa Rica, 6 Cuba, 1 Dominican Republic, 14 El Salvador, 6 Guatemala, 15 Honduras, 131 Mexico, 2 Nicaragua, 1 Panama, 1 Peru, 3 Venezuela (countries are listed in alphabetical order)

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**Antibiotic Prescribing by General Dentists in the Outpatient Setting — United States, 2018–2022**

Cam-Van Huynh, Centers for Disease Control and Prevention; Katryna Gouin, Centers for Disease Control and Prevention; Sarah Kabbani, Centers for Disease Control and Prevention; Lauri Hicks, Centers for Disease Control and Prevention; Michele Neuburger, Centers for Disease Control and Prevention and Emily McDonald, Centers for Disease Control and Prevention, DHQP

**Background:** Inappropriate antibiotic use impacts patient safety and antimicrobial resistance patterns. In 2013, general dentists in the U.S. prescribed nearly 10% of all outpatient oral antibiotics (24.5 million prescriptions). The American Dental Association (ADA) published guidelines in 2019 recommending limited antibiotic prescribing for the treatment of dental pain and swelling. We characterized dental prescribing during 2018–2022 to assess whether antibiotic use decreased after the guideline's release. In addition, we examined access to dental care. **Methods:** All antibiotic prescriptions dispensed during 2018–2022 were extracted from the IQVIA Xponent database, which captured ≥92% of all U.S. outpatient prescriptions and projected to 100% coverage. Prescriptions by general dentists were compared to total outpatient oral antibiotic prescriptions and summarized by patient sex, patient age, and prescriber geographic region. Census denominators were used to calculate prescribing rates per 1,000 persons. IQVIA general dentist counts were used to calculate dentists per 100,000 persons. **Results:** General dentists prescribed 24.7 million antibiotic prescriptions in 2018 (75 prescriptions per 1,000 persons) compared with 25.2 million (76 prescriptions per

Figure 1. Patient-reported intended use for each situation by the healthcare system. Differences between healthcare systems (P-value<0.05) are significant

Patient Characteristics	Overall (N=564) n (%)	Safety-net clinics (N=489) n (%)	Private EDs (N=155) n (%)	Difference between safety-net and EDs (P-value)
<i>If you were feeling sick, would you take antibiotics in the following situations without consulting a doctor/nurse/dentist/clinic? (Agree)</i>				
<b>Summary factor 1:</b>				
<b>Barriers to a doctor visit and prescribed medicines</b>				
You cannot take time off work.	146 (25.9)	126 (30.8)	20 (12.9)	<.001*
You have no time to go to the doctor because of family responsibilities.	149 (26.4)	126 (30.8)	23 (14.8)	<.001*
You cannot get to the doctor's office because of transportation problems.	144 (25.5)	128 (31.3)	16 (10.3)	<.001*
The doctor's office hours are not convenient for you.	150 (26.6)	135 (33)	15 (9.7)	<.001*
The doctor has no time to see you when you are sick.	154 (27.3)	138 (33.7)	16 (10.3)	<.001*
A visit with a doctor is too expensive.	168 (29.8)	137 (33.5)	31 (20)	0.002*
<b>Summary factor 2:</b>				
<b>Convenience and accessibility of non-prescribed antibiotics</b>				
You have leftover antibiotics at home from a previous prescription.	284 (50.4)	227 (55.5)	57 (36.8)	<.001*
Friends/relatives give you antibiotics.	126 (22.3)	105 (24.9)	20 (12.9)	0.001*
You can buy antibiotics without a prescription in the United States.	108 (19.1)	88 (21.5)	20 (12.9)	0.029*
You can buy antibiotics without a prescription in another country.	101 (17.9)	79 (19.3)	22 (14.2)	0.203
Antibiotics are cheaper than over-the-counter cold and flu medications.	93 (16.5)	78 (19.1)	15 (9.7)	0.009*
<b>Summary factor 3:</b>				
<b>Previous symptom relief with antibiotics</b>				
You got better by taking this antibiotic before.	268 (47.5)	210 (51.3)	58 (37.4)	0.004*
Your doctor prescribed you this antibiotic for the same symptoms before.	280 (49.6)	220 (53.8)	60 (38.7)	0.003*

Figure 1: Outpatient Antibiotic Prescriptions and Percent of Total Antibiotics Prescribed by General Dentists — United States, 2018–2022

