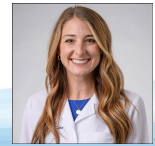


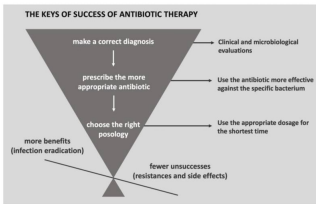
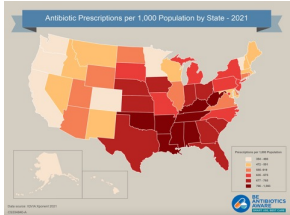
# Parents' Perception of Antibiotic Use for the Treatment of Dental Caries in Pediatric Patients

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## INTRODUCTION

Antimicrobial resistance is defined as the ability of microorganisms to survive and be viable under the influence of antimicrobial agents. According to the Centers for Disease Control and Prevention (CDC), at least 30% of antibiotics prescribed in the United States are unnecessary (1). Nearly 3 million antibiotic-resistant infections occur yearly, resulting in more than 35,000 deaths in the United States alone (1). The overuse of antibiotics is now regarded as a worldwide health challenge. Dental practitioners play a role in this over-prescribing crisis. About 80% of prescriptions for antibiotics before dental procedures are unnecessary (2). Antibiotics are an essential part of patient care in Pediatric Dentistry when prescribed and administered correctly. As dental practitioners, our primary focus should be on the prevention of disease and the maintenance of good oral healthcare habits. Many parents are not aware of the risks associated with the overuse of antibiotics. Insufficient knowledge about the indications of antibiotics could lead to inappropriate prescribing by dentists and inappropriate requests by parents.



**Figure 1:** The figure shows community antibiotic prescriptions by state. Kentucky is one of the highest prescribing states, with a rate of approximately 938 prescriptions per 1,000 persons. (4)

**Figure 2:** Successful antibiotic therapy can help decrease antibiotic-resistant pathogens. Image obtained from "Antibiotics in Dentistry: A Narrative Review of the Evidence Beyond the Myth." (5)

## OBJECTIVE

This study aims to assess parents' knowledge of antibiotic resistance and antibiotic therapy regarding the treatment of dental caries.

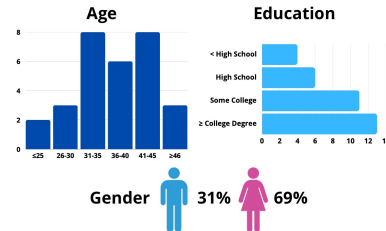
## MATERIAL AND METHODS

A survey was administered to parents of ASA I, English-speaking or Spanish-speaking patients presenting to the pediatric dental clinic for routine dental care. This study was approved by the Institutional Review Boards at the University of Kentucky (#92528). The data was collected through a questionnaire using the REDCap platform. The questionnaire contained two sections. Section I had nine questions addressing parents' opinions on antibiotic use in the dental setting while Section II assessed parents' knowledge of antibiotic resistance. All the respondents had access to the consent statement before giving implied consent by completing the survey. To ensure the anonymity of each respondent, no identifying information was collected.

## RESULTS

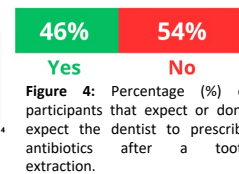
Survey responses were summarized using counts and percentages for categorical variables and means and standard deviations for quantitative variables. To analyze the association between antibiotic expectations and other factors of interest, a Chi-square test, Fisher's exact test, or two-sample t-test was used as appropriate. There were a total of 35 survey respondents. 89% of respondents spoke English as their primary language, while 11% of respondents spoke Spanish as their primary language. 46% expected antibiotics to be prescribed after a tooth extraction, 87% expected antibiotics for a tooth infection, and 29% expected antibiotics to be prescribed if their child has tooth pain. There was not a significant relationship between education level, age, gender, or primary language spoken and antibiotic expectations after a tooth extraction.

### Section I Demographics



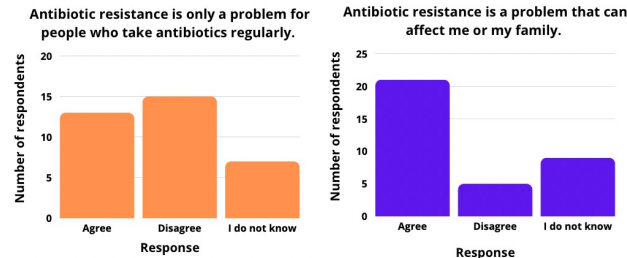
**Figure 3:** Number of participants according to age, education level, and gender.

When your child has a tooth extracted, do you expect the dentist to prescribe antibiotics?



**Figure 4:** Percentage (%) of participants that expect or don't expect the dentist to prescribe antibiotics after a tooth extraction.

### Section II

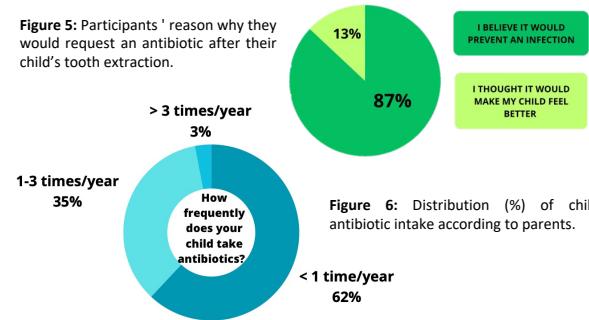


**Figure 7:** Number of participants who agree/disagree/or do not know if antibiotic resistance is only a problem for people who take antibiotics regularly.

**Figure 8:** Number of participants who agree/disagree/or do not know if antibiotic resistance is a problem that can affect them or their family.

The relationship between antibiotic expectations and the frequency of their child's annual antibiotic use was also evaluated. There was no significant difference between the two. 63% of respondents indicated they are aware that many bacteria are becoming increasingly resistant to antibiotic therapy, and 37% believe this is only a problem for those who take antibiotics regularly. 40% of respondents do not realize that antibiotic resistance is a problem that can affect their family.

If yes, why?



**Figure 5:** Participants' reason why they would request an antibiotic after their child's tooth extraction.

**Figure 6:** Distribution (%) of child's antibiotic intake according to parents.

## DISCUSSION

Antibiotic-resistant infections are a substantial health burden to the U.S. healthcare system, patients, and their families. Incorrectly prescribed antibiotics contribute significantly to this problem. Approximately half of the survey respondents indicated that they expect antibiotics for their children after a routine tooth extraction. Most respondents believe this would help prevent an infection and 30% indicated they would expect antibiotics if their child had a toothache. These results show that the general population has limited awareness concerning antibiotic use in the dental setting. Additionally, antibiotic resistance appears to be a topic that is misunderstood among survey respondents.

## CONCLUSIONS

Antibiotic therapy and antibiotic resistance are two topics that are widely misunderstood among the general population. The results from this survey confirm that dental practitioners must better educate patients and their families on the proper indications of antibiotics, along with their risks and benefits. Adequate education on antibiotic use may help mitigate undue requests and pressure on practitioners to prescribe antibiotics in situations where they are not indicated.

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