

## Antibiotic prescribing practice among general dental practitioners

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### Abstract

**Aim:** To assess the antibiotic prescribing practice among general dental practitioners in Chennai.

**Materials and Methods:** Cross sectional survey involving 100 general dental practitioners was conducted through a questionnaire about the prescribing pattern of antibiotics.

**Results:** 71% of the dentists in the study prescribe antibiotics to all the patients. 88% of the participants preferred broad spectrum antibiotics. 97% used antibiotics for prophylaxis.

**Conclusion:** Our study revealed that the antibiotic prescribing practice among dentists in Chennai lack guidelines or protocols leading to its over-usage.

### Introduction

Antibiotics are important in the management and prophylaxis of infections in patients at a risk of experiencing microbial disease. Since most human orofacial infections originate from Odontogenic infections; the prescribing of antibiotics by dental practitioners has become an important aspect of dental practice. The use of antibiotics in dental practice is characterised by empirical prescription based on clinical and bacteriological epidemiological factors. Dentists prescribe between 7% and 11% of all common antibiotics.

Antibiotic prescribing may be associated with unfavourable side effects ranging from gastrointestinal disturbances to fatal anaphylactic shock and development of resistance. The increasing resistance problems of recent years are probably related to over- or misuse of broad-spectrum agents. These serious complications associated with antibiotics use have encouraged studies investigating antibiotic prescribing practices of dentists.

Many developed countries have guidelines towards the prescription of antibiotics. Though there are strict guidelines, the mounting evidence towards the development of resistance to antibiotics indicate the over-use of antibiotics. The situation in a city such as Chennai a metropolitan city in south India is densely populated with diverse ethnic, religious and economic groups could only be worse. General dental practitioners in Chennai have patients reporting to them from different social and economic backgrounds thus the antibiotic prescribing pattern may vary. General practitioners who are not associated with any academic institutions may not be aware of the guidelines, newer generation drugs, development of resistance recent advances and updates. The aim of the present study is to assess the antibiotic prescribing practise among general dental practitioners in Chennai, India.

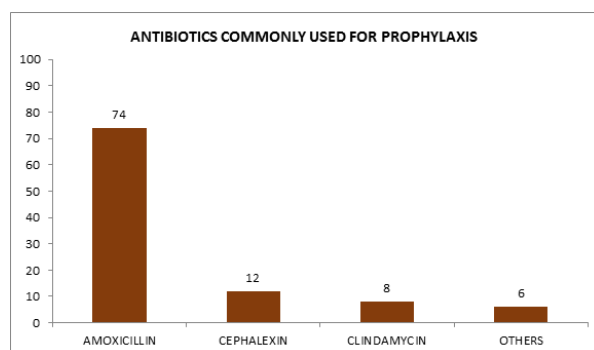
### Materials and Methods

A cross sectional survey was conducted among 100 general dental practitioners from various parts of Chennai, India in June 2015. The participants were full time dental practitioners and were not associated with any academic institutions. Informed consent was obtained from all participants. Data were collected through a questionnaire.

### Results

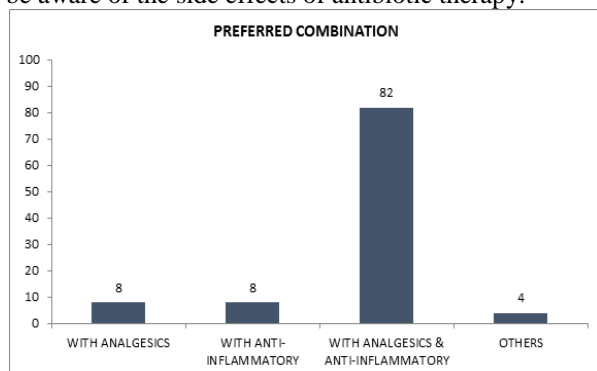
The age of the participants from 24 to 67, the mean age being 41.88. It included 57 male dentist and 43 female dentists. 52% of the participant had a clinical experience of 15 years or more while 14% had 11 – 15 years and 22% had 6 – 10 years followed by 12% with less than 5 years of clinical experience. 92 participants practiced in one or more private setting while 8 of them were associated with hospitals.

71% of the dentists in the study prescribe antibiotics to all the patients. 88% of the participants preferred broad spectrum antibiotics. 97% used antibiotics for prophylaxis.

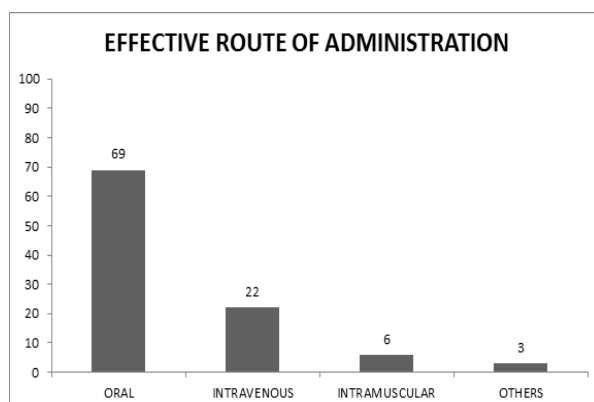
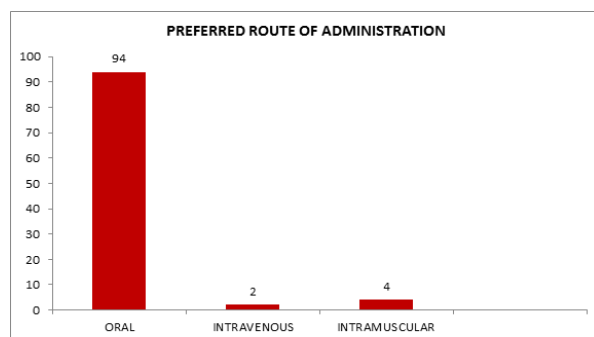
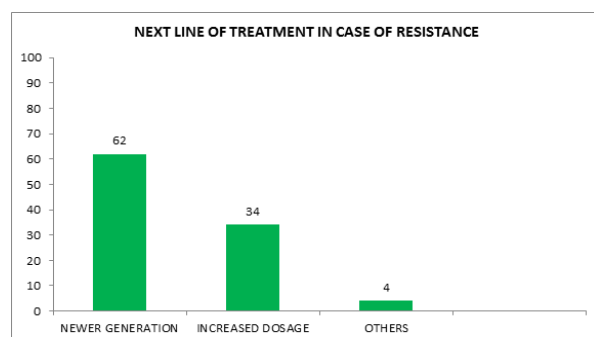


58% used antibiotics only on acute conditions. All the participants prescribed antibiotics for symptomatic relief. Amoxicillin was the most commonly prescribed antibiotic for symptomatic relief; it was the drug of

choice for 66 participants. All participants accepted to be aware of the side effects of antibiotic therapy.



77% of the dentists in the study started with a low dose and increased if necessary. All participants were aware that often antibiotics prescription would lead to development of resistance.



## Discussion

Odontogenic infection is one of the primary causes of oro-facial diseases. Though many dental conditions are of microbial origin, 71% of the general practitioners prescribing antibiotics to all patients is a concern. Age, cost, side effects, systemic conditions and resistance were the factors considered by the dentists before prescribing antibiotics. From the results obtained we infer that majority of the dentist follow an empiric approach as they prefer broad spectrum antibiotics with amoxicillin being the common drug of choice.

Antibiotics are used not only for therapeutic but also for prophylactic purpose with again amoxicillin being the drug of choice followed by Cephalexin; a first generation cephalosporin. Clindamycin and Ofloxacin were the other drugs of choice.

All the participants preferred antibiotics with combination with analgesics and anti-inflammatory regime being prescribed the most. Few practitioners used proteolytic agents such as serratiopeptidase in cases of Suppurative infections.

Even with the availability of newer generation drugs most of the dentists followed low dose regime to begin with and increasing if necessary. Only three participants had advised culture sensitivity tests before prescription only when the patient provided a history of allergy to antibiotics.

97% participants were aware of resistance. In cases of resistance to low dose antibiotics, 62% opted for newer generation antibiotics while 34% preferred to increase the dosage of the same drug. 4 participants suggested culture sensitivity tests.

94% participants preferred oral route of administration, 5% preferred intra-muscular with Gentamycin being the common drug of choice. Only one participant preferred intra-venous route of administration for severe conditions. A significant percentage of the participants – 22% agreed intra-venous being the most effective route of antibiotic administration but that was not the preferred route. Unavailability of the intra-venous setup in a private clinic and the procedure being technique sensitive requiring expertise could be the reason for intra-venous not being the preferred route.

All participants accepted to be aware of the side effects of the antibiotic therapy and on further questioning on willing participants revealed that they would continue to prescribe antibiotics despite the side effects and resistance. Few preferred supplements such as probiotics to manage the side effects of antibiotics.

Antibiotic resistance development is global cause of concern. Though there are guidelines for prescription of antibiotics in developed countries, the awareness of the same is less to nil in developing countries like India. Our study shows that the antibiotic prescription pattern in Chennai, India is far from being evidence based and does not adhere to any established protocol. This could lead to development of resistance to most of the

antibiotics leading to the raise of super bugs that can adapt to resist even the last-line drugs. Therefore a well recognised protocol and strict guidelines for prescription of antibiotics are the need of the day among general dentist in Chennai

### Conclusion

Our study aimed to assess the antibiotic prescribing pattern among general dentists in Chennai revealed the lack of adherence to any protocol or guidelines. To prevent the development of resistance and the advent of superbugs, education and constant updates are required to keep the over usage of antibiotics under control.

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