

Factors Associated with Opioid and Antibiotic Prescribing in the United States Academic Dental Setting

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Background and Objectives: In the United States of America (USA), dentists are the leading prescribers, responsible for millions of opioid and antibiotic prescriptions annually. Clinically, opioids and antibiotics are frequently inappropriately prescribed for managing acute dental conditions where they may be of little clinical benefit, thereby contributing to the opioid crisis and antimicrobial resistance. The objective of this research was to identify clinical factors associated with opioid and antibiotic prescribing and to examine the patterns and trends in prescribing of these drugs between the years 2011 – 2020 in dental academic setting in the US.

Methods: To attain this objective, a quantitative analysis was conducted using data obtained from electronic dental records across 9 academic dental institutions through the BigMouth dental data repository. Data analysis was conducted using multi-level mixed effects logistic regression models.

Results: A total of 5,720,166 patient encounters having at least one dental procedure associated with 905426 patients and 16,395 dental care providers from 9 dental institutions across the USA between the years 2011 – 2020 were included in this study. Between 2011-2020, the opioid prescribing rate was 2.00% and antibiotic prescribing rate was 2.70%. Dental visits had greater odds for opioid prescriptions when patients were between 15-24 years of age and dentists were Oral Surgeons; and had greater odds for antibiotic prescription when patients were more than 65 years old and dentists were Periodontists and Implant specialists. Additionally, the odds of opioid and antibiotic prescription being made were greater if the dental visit had at least one post-operative dental pain-associated procedure performed and when multiple dental procedures were performed at the same visit.

Conclusion: This research provided a comprehensive understanding of the factors associated with prescribing and the trends in prescribing of opioid and antibiotic medication that could be identified from the electronic dental record system.

This research was done as a part of doctoral dissertation research and was supported with funding received from Dr. Muhammad Walji's Dental Informatics Laboratory.