

Knowledge and Practices of Dentists Regarding Antibiotic Prescription During Endodontic Treatment in Nepal

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Abstract

Introduction: Inappropriate use of antibiotics in endodontics plays a substantial role in the development of antimicrobial resistance. Despite the availability of established guidelines, antibiotics are frequently prescribed in situations where local treatment alone would be adequate. This study aimed to evaluate the knowledge and prescribing practices of Nepalese dentists regarding antibiotic use in endodontic therapy.

Methods: A cross-sectional online survey was conducted among dentists registered under the Nepal Dental Association from December 2025 to January 2026. A structured questionnaire comprising 14 close-ended questions was distributed to 500 participants via social media platforms, with 410 responses received. Data were analyzed descriptively using frequencies and percentages.

Results: Antibiotics were appropriately prescribed by most respondents for acute apical abscess with systemic involvement (94.9%), progressive infections (93.2%), and persistent infections (78.3%). However, a considerable proportion still prescribed antibiotics for non-indicated conditions, such as chronic apical abscess (39.3%) and acute apical abscess without systemic involvement (37.8%). Amoxicillin with metronidazole (65.1%) and clindamycin (57.8%) were the most frequently prescribed regimens for non-allergic and penicillin-allergic patients, respectively. Most dentists prescribed antibiotics for 5 days (87.8%), while only 33.2% used a loading dose. About half (51.2%) reported having antibiotic prescribing guidelines. Prophylactic antibiotics were widely used for patients at risk of infective endocarditis (96.1%), with majority of dentists (72%) following the recommended regimen.

Conclusion: Although antibiotic prescribing practices were appropriate in certain clinical scenarios, inappropriate use persists in non-indicated conditions. There is a need for improved adherence to evidence-based guidelines to promote rational antibiotic use and combat antimicrobial resistance.

Keywords: Antibiotic prescription; Antimicrobial resistance; Endodontics; Nepalese dentists; Practice patterns.

Introduction

The position statement, developed by the American Association of Endodontists (AAE) and European Society of Endodontology (ESE), presents a consensus on the use of antibiotics in endodontics. It integrates current scientific evidence with

expert opinion to establish evidence-based guidelines on the appropriate use of antibiotics in endodontic infections, dental trauma, revascularization of immature teeth with pulp necrosis, and prophylaxis in medically compromised patients. Furthermore, it emphasizes the responsibility of dental professionals in minimizing unnecessary antibiotic use.^{1,2}

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Odontogenic infections, including endodontic infections, are polymicrobial involving a combination of gram-positive, gram-negative, facultative anaerobes and strict anaerobic bacteria, thus, antibiotic prescription is often empirical.³ This practice has contributed to the widespread use of broad-spectrum antibiotics, even in situations where they are unwarranted, such as symptomatic irreversible pulpitis, pulpal necrosis, and localized acute apical abscesses. Most endodontic infections remain localized within the tooth and can be effectively treated through conventional operative procedures, drainage, or extraction, without requiring either local or systemic antibiotics.² Therefore, the use of adjunctive systemic antibiotics in endodontic therapy is not recommended.

The dentists and endodontists must weigh the benefits and risks of antibiotics and make an informed decision with their patients on the appropriateness of using antibiotics. Several surveys have investigated the knowledge and practices of antibiotic prescription among dental practitioners worldwide and concluded dentists are prescribing antibiotics inappropriately to treat endodontic infections.⁴⁻⁸ However, there is a paucity of literature on the knowledge and practices of Nepalese dental practitioners. Hence, the aim of this study was to obtain current information on the antibiotic prescribing knowledge and practices of dental practitioners in Nepal during endodontic treatment.

Methods

Following the approval of the Institutional Review Committee of Kathmandu University School of Medical Sciences (Ref. No. 267/25), this online cross-sectional study was carried out for the duration of 1 month (31st December 2025 to 31st January 2026) among dentists working across various provinces in Nepal registered under Nepal Dental Association.

$$\text{Sample size} = \frac{Z_{1-\alpha/2}^2 p (1-p)}{d^2}$$

Here,

$Z_{1-\alpha/2}$ = Is standard normal variate, at 5% type 1 error ($P < 0.05$) it is 1.96

p = Expected prevalence (assuming a 50% prevalence of appropriate antibiotic prescription)

d = Absolute error or precision = 5%

Thus, the minimum sample size was calculated to be 384.16 ≈ 385

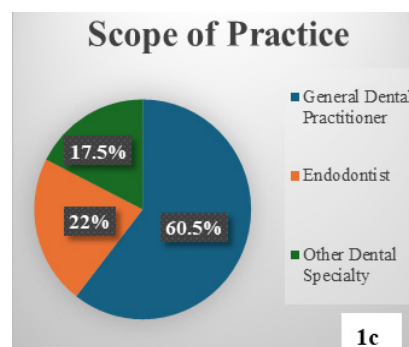
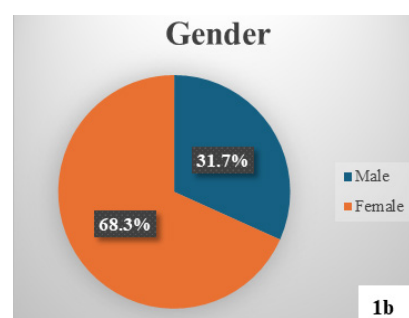
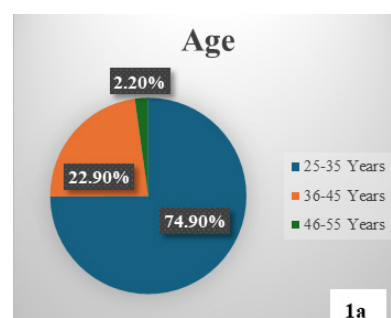
After reviewing relevant literature and the AAE and ESE guidelines on the use of systemic antibiotics in endodontics, specifically designed free-access Google Forms questionnaire was developed in English language. The questionnaire link was randomly sent to 500 eligible participants via various social media platforms, like Facebook Messenger, Viber and WhatsApp. A cover letter was provided at the start of the questionnaire, outlining the instructions and details regarding the purpose of the survey. By selecting "I agree to participate in the study" respondents provided their consent to participate and were guided to the subsequent pages to complete the questionnaire.

In this study, the validated survey instrument adapted from the previously published research was used to investigate

the antibiotic prescribing habits among dentists regarding the requirement of antibiotics for therapeutic treatment and prophylactic purposes in endodontics.^{4,9,10} The questionnaire consisted of 14 closed-ended questions. The first part to collect dentists' socio-demographic data including age, gender, years of practice, working place and the scope of practice. The second part of the questionnaire consisted of multiple-choice questions concerning to indications of the prescription of the various antibiotics for different clinical conditions related to the infections of endodontic origin and other clinical situations, the choices of antibiotic prescribed, prescribing a loading dosage of antibiotic as well as duration of prescription and whether they have guidelines on the use of antibiotics at their clinic, hospital, or college. The third part of the questionnaire included questions about medicinal circumstances and endodontic procedures which could need the prophylactic antibiotics, and the regimens of antibiotics that are used prophylactically.

All responses were automatically recorded and securely stored within the Google Forms platform. Personal identifiers were collected only for record verification and were not used in the analysis. Confidentiality was strictly maintained, and access to the data was restricted to the principal investigator through a password-protected account. Descriptive analysis was performed using Google Forms, generating frequencies, percentages, and graphical representations such as pie charts and bar graphs to summarize the data.

Results



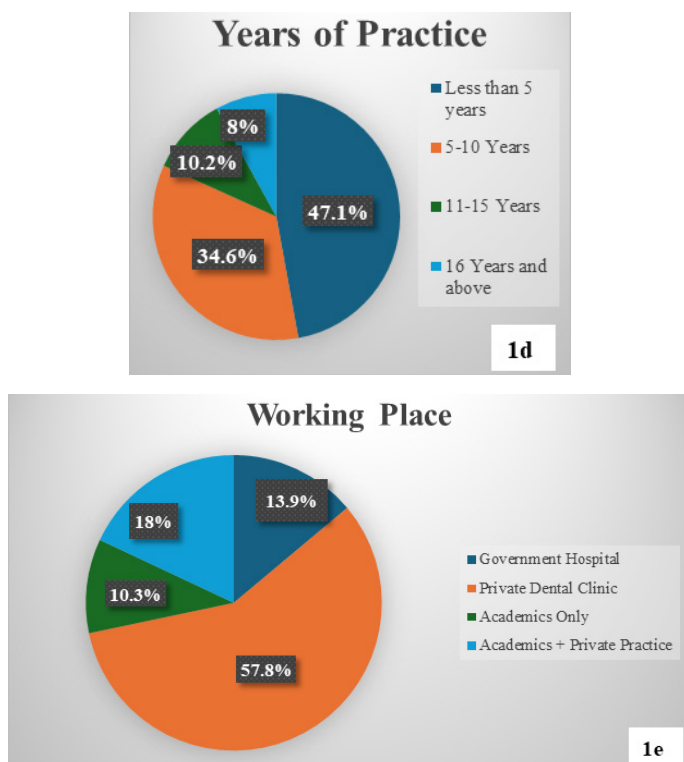


Fig 1: the age (a), the gender (b), the scope of practice (c), the years of practice (d) and the working place (e) of the participants

Out of 500 dentists invited to participate in the study, 410 responded, yielding a response rate of 82%. The baseline demographic characteristics of the participants are presented in Figure 1 (a–e). The age distribution revealed that the majority of respondents, 307 (74.9%), were between 25 and 35 years. Female dentists predominated, accounting for 280 (68.3%) of participants. Regarding the scope of practice, 248 (60.5%) were general dental practitioners, 90 (22%) were endodontists, and the remaining 72 (17.5%) were other dental specialists. Nearly half of the respondents (193, 47.1%) had been practicing for less than five years, and more than half (237, 57.8%) were employed in private dental clinics (Figure 1a-1e).

1a. Antibiotic Prescription for Pulpal and Periapical Diagnoses

Antibiotic prescription patterns varied depending on the pulpal and periapical diagnosis. The highest proportion of respondents reported prescribing antibiotics for acute apical abscess with systemic involvement (94.9%), followed by progressive infection (93.2%) and persistent infection (78.3%). Additionally, 71% of dentists prescribed antibiotics for acute apical abscess in medically compromised patients.

For localized infections, the prescription rates were comparatively lower. Antibiotics were prescribed for chronic apical abscess by 39.3%, and acute apical abscess without systemic involvement by 37.8% of respondents. Similarly, antibiotics were less frequently prescribed for symptomatic apical periodontitis (11.5%), symptomatic irreversible pulpitis (7.8%), and pulp necrosis (4.4%).

1b. Antibiotic Prescription in Other Clinical Situation

Among other endodontic clinical situations, incision and drainage (I&D) of diffuse intraoral edema with external edema had the highest antibiotic prescription rate (84.9%), followed by

endodontic surgeries (75.1%).

Antibiotics were prescribed for I&D of diffuse intraoral edema without external swelling by 55.9%, and replantation of avulsed permanent teeth by 54.9% of respondents.

Lower prescription rates were reported for incision and drainage of localized intraoral edema (38.5%), soft tissue trauma requiring treatment (21%), retreatment cases (20%), and post-operative pain after instrumentation or obturation (16.6%). The lowest prescription rate was observed for perforation repair (11.7%).

Table 1: Clinical situations in which antibiotics are prescribed

a. Pulpal and periapical diagnoses	n (%)
Symptomatic Irreversible Pulpitis	32 (7.8%)
Pulp necrosis	18 (4.4%)
Symptomatic Apical Periodontitis	47 (11.5%)
Acute Apical Abscess without Systemic Involvement	155 (37.8%)
Chronic Apical Abscess	161 (39.3%)
Acute Apical abscess in Medically Compromised Patients	291 (71%)
Acute Apical Abscess with Systemic Involvement	389 (94.9%)
Progressive Infection	382 (93.2%)
Persistent Infection	321 (78.3%)
b. Other clinical situations	
Replantation of avulsed permanent teeth	225 (54.9%)
I & D of localized intraoral edema, without external edema	158 (38.5%)
I & D of a diffuse intraoral edema, no external edema	229 (55.9%)
I & D of a diffuse intraoral edema + external edema present	348 (84.9%)
Soft tissue trauma requiring treatment	86 (21%)
Postoperative pain after instrumentation or obturation	68 (16.6%)
Retreatment Cases	82 (20%)
Perforation repair (post-op or prior to)	48 (11.7%)
Endodontic surgeries (post-op or prior to)	308 (75.1%)

2a. Antibiotic Preference in Patients Without Penicillin Allergy

Among patients with no known penicillin allergy, combination antibiotic therapy was commonly prescribed, with amoxicillin + metronidazole being the most frequently reported (65.1%), followed by amoxicillin–clavulanic acid + metronidazole (52.4%). Single antibiotic regimens were also frequently reported, particularly amoxicillin–clavulanic acid (52.7%) and amoxicillin 500 mg (49.5%). Other antibiotics were prescribed less frequently, including metronidazole alone (34.6%), clindamycin (5.6%), azithromycin (3.9%), and cephalexin (2.9%).

2b. Antibiotic Preference in Patients with Penicillin Allergy

For patients allergic to penicillin, clindamycin was the most frequently prescribed antibiotic (57.8%), followed by azithromycin or clarithromycin (48.3%).

Other alternatives included metronidazole (17.8%), cephalexin (15.4%), and erythromycin (14.4%).

Table 2: Antibiotic Selection

a. Antibiotic preference with no medical allergies	n (%)
Amoxicillin- 500mg	203 (49.5%)
Amoxicillin + Clavulanic acid- 625mg	216 (52.7%)
Azithromycin- 500mg	16 (3.9%)
Clindamycin- 600mg	23 (5.6%)
Cephalosporins (Cephalexin)	12 (2.9%)
Metronidazole- 400mg	142 (34.6%)
Amoxicillin- 500mg and Metronidazole- 400mg in combination	267 (65.1%)
Amoxicillin + Clavulanic acid- 625mg and Metronidazole- 400mg in combination	215 (52.4%)
b. Antibiotic preference with penicillin allergies	
Cephalexin- 2gm	63 (15.4%)
Clindamycin- 600mg	237 (57.8%)
Azithromycin/Clarithromycin- 500mg	198 (48.3%)
Erythromycin- 500mg	59 (14.4%)
Metronidazole- 500mg	73 (17.8%)

3a. Prescribe a loading dose of antibiotics?

Regarding the prescription of a loading dose of antibiotics, most respondents (66.8%) reported that they do not prescribe a loading dose of antibiotics, while 33.2% stated that they prescribe a loading dose when initiating antibiotic therapy.

3b. Duration of Antibiotic Prescription

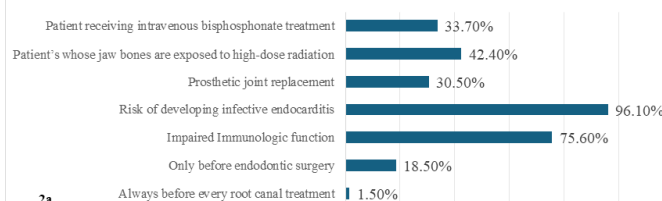
Most dentists prescribed antibiotics for 5 days (87.8%), while 10% prescribed a 7-day course and only 2.2% prescribed antibiotics for 3 days.

3c. Guidelines on the use of antibiotics at your clinic?

Regarding the availability of antibiotic use guidelines, 51.2% of respondents reported having guidelines for antibiotic use at their clinic, while 48.8% responded that no such guidelines were available.

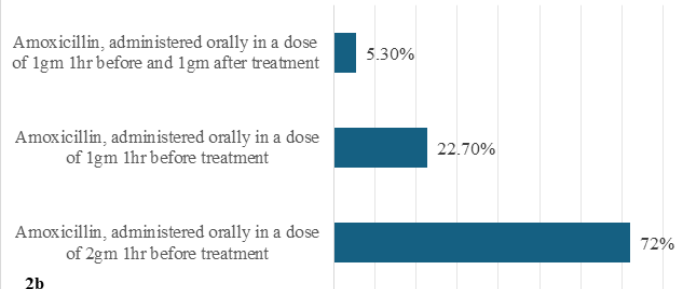
Table 3: Antibiotic prescribing practices

a. Do you prescribe a loading dosage of antibiotics?	
Yes	136 (33.2%)
No	274 (66.8%)
b. Duration of Antibiotic Prescription	
3 days	9 (2.2%)
5 days	360 (87.8%)
7 days	41 (10%)
c. Do you have guidelines on the use of antibiotics at your clinic?	
Yes	210 (51.2%)
No	200 (48.8%)

In which of the following conditions, do you prescribe antibiotics prophylactically**Fig 2a: Prophylactic Antibiotic Use**

The most common indications for antibiotic prophylaxis were patients at risk of infective endocarditis (96.1%) and patients with impaired immunologic function (75.6%).

Other indications included patients exposed to high-dose radiation to jaw bones (42.4%), intravenous bisphosphonate therapy (33.7%), and prosthetic joint replacement (30.5%). Only 18.5% prescribed prophylaxis before endodontic surgery, and 1.5% reported prescribing antibiotics before every root canal treatment (Figure 2a).

Antibiotic prophylaxis regimens recommended for prophylactic use**Fig 2b: Antibiotic Prophylaxis Regimen**

Regarding prophylactic regimens, the majority of dentists (72%) recommended 2 gm of amoxicillin administered orally 1 hour before treatment, 22.7% prescribed 1 gm of amoxicillin 1 hour prior to treatment, while 5.3% recommended 1 gm before and 1 gm after the procedure (Figure 2b).

Discussion

This online questionnaire-based, cross-sectional study assessed the knowledge and practices of Nepalese dentists regarding antibiotic prescription during endodontic treatment. This study utilized a simple random sampling method, in which 500 members of the Nepal Dental Association were randomly selected and invited to participate. The response rate for this Google Forms survey was 82%, which is considered satisfactory for online surveys and substantially higher than the 22.86% reported by Germack et al. or an email-based survey.^{7,11} The higher response in the current study may be attributed to the distribution of the questionnaire through multiple social media platforms, including Facebook Messenger, Viber, and WhatsApp, which provided more immediate and convenient access to participants, encouraging prompt responses in this gadget-friendly era, unlike email, which can be overlooked or filtered out.

Additionally, the present study included participants ranging from general dental practitioners to endodontists and other dental specialties working in various private clinics, teaching

hospitals and government hospitals, representing a wide spectrum of clinical practice. This diversity enhances the versatility and representativeness of the study findings across different clinical settings. A notable finding was that female participants constituted the majority of respondents (68.3%), which may indicate the growing feminization of the dental workforce in Nepal in recent years, a trend also reported globally within the dental profession.¹²

In addition to conventional endodontic treatment, antibiotics may be required as an adjunctive measure in certain conditions such as acute apical abscess with systemic involvement, progressive infections, persistent infections, and acute apical abscess in medically compromised patients. In the present study, 94.9% of respondents reported prescribing antibiotics for acute apical abscess with systemic involvement, 93.2% for progressive infections, 78.3% for persistent infections, and 71% for acute apical abscess in medically compromised patients. The prescription of antibiotics in these conditions can be considered appropriate and aligns with the recommendations of the AAE and ESE.

Antibiotics as an adjunctive therapy are generally not indicated in conditions such as symptomatic irreversible pulpitis, pulp necrosis, symptomatic apical periodontitis, acute apical abscess without systemic involvement, and chronic apical abscess. Although the prescription rates were relatively lower in these situations, the present study found that 39.3% of respondents still prescribed antibiotics for chronic apical abscess and 37.8% for acute apical abscess without systemic involvement. Similarly, 11.5% reported prescribing antibiotics for symptomatic apical periodontitis, 7.8% for symptomatic irreversible pulpitis, and 4.4% for pulp necrosis. Thus, the prescription of antibiotics in these conditions is not supported by the guidelines of the AAE and ESE, and the treatment should be limited to non-surgical root canal treatment. Inappropriate antibiotic prescribing in endodontic conditions has also been reported in previous studies. A survey by Katta and Telsang reported unnecessary antibiotic prescriptions in cases of irreversible pulpitis (50.3%), necrotic pulps without systemic complications (97%), acute apical abscess with sinus tracts (65.3%), and acute apical abscess without any systemic complications (53%).⁹

Similarly, another study found that 37.6% of dentists prescribed antibiotics for irreversible pulpitis with moderate to severe pre-operative symptoms, 71.6% for irreversible pulpitis associated with acute apical periodontitis and moderate to severe symptoms, 38.2% for necrotic pulp with chronic apical periodontitis without swelling and mild or no pre-operative symptoms, 59.1% for necrotic pulp with acute apical periodontitis without swelling but with moderate to severe symptoms, and 46.9% for necrotic pulp with chronic apical periodontitis presenting with a sinus tract and mild or no pre-operative symptoms.⁵

Current guidelines recommend the use of systemic antibiotic therapy for patients with avulsion of a permanent tooth, which is replanted.¹³ In the present study, 54.9% of respondents reported prescribing systemic antibiotics during the replantation of avulsed permanent teeth. This rate is higher than that reported by B. Abraham S et al. (29%) but lower than the rate observed in the study by Germack M et al. (70.26%).^{7,14}

Additionally, luxation injuries accompanied by soft tissue trauma

that require interventions such as suturing or debridement warrant the use of systemic antibiotics. Furthermore, the patient's medical status may necessitate antibiotic coverage.¹⁵ In the current study, 21% prescription rate was noted for soft tissue trauma requiring treatment.

Randomized clinical trials and systematic reviews have shown that the use of systemic antibiotics following adequate debridement and drainage in localized endodontic infections does not improve clinical outcomes and is therefore considered ineffective in the absence of systemic symptoms.¹

Adjunctive antibiotic therapy may be necessary to prevent the spread of infection and should be prescribed for dental pain and swelling only in the presence of systemic involvement or evidence of spreading infection, such as diffuse swelling beyond a localized area. In the present study, incision and drainage (I&D) of diffuse intraoral edema with external swelling had the highest antibiotic prescription rate (84.9%). The prescription rate observed in this study was slightly lower than that reported by Germack et al. (95.0%).⁷ Similarly, Abraham et al. reported prescription rates of 84.9%, 95.5%, and 86.7% among general dental practitioners, endodontists, and other dental specialists respectively.¹² However, the present study did not analyze antibiotic prescribing patterns separately according to the respondents' specialties.

In the present study, 55.9% of respondents reported prescribing antibiotics for incision and drainage of diffuse intraoral edema without external swelling, while 38.5% prescribed them for localized intraoral edema. Prescription rates for localized intraoral edema were comparable to those reported by Germack et al. (40.5%), whereas the rate for diffuse intraoral edema was slightly lower than in their study (71.1%).⁷

The prophylactic use of antibiotics to prevent postoperative infections is common in endodontic surgery. In the present study, 75.1% of respondents reported prescribing antibiotics for endodontic surgical procedures, which is considerably higher than the rate reported by Germack et al. (41.69%).⁷

Furthermore, in clinical scenarios where evidence-based indications for antibiotic use are limited, a similar reduction in prescription rates was not evident. Antibiotics were prescribed by 20% of respondents for endodontic retreatment cases, 16.6% for postoperative pain after instrumentation or obturation, and 11.7% for perforation repair. Comparatively, Germack et al. reported lower prescription rates for similar situations, including gutta-percha retreatment (15.60%), postoperative pain control (12.39%), and perforation repair (5.98%).⁷

The present study found that among patients with no known penicillin allergy, the most commonly prescribed antibiotics were combination therapy, particularly amoxicillin with metronidazole (65.1%) and amoxicillin-clavulanic acid with metronidazole (52.4%). A worldwide analysis of antibiotic prescription patterns in endodontic infections reported that, among Asian countries, the combination of amoxicillin and metronidazole was the first-choice antibiotic regimen. A similar trend was observed in the present study.⁸ Amoxicillin, alone or in combination with clavulanic acid, is the preferred prescribed antibiotic in endodontic infections.¹⁶

Metronidazole is often used as a supplemental medication to amoxicillin due to its potent activity against anaerobic bacteria,

hereby broadening antimicrobial coverage and improving therapeutic effectiveness.¹⁶

Previous studies have reported that bacterial susceptibility to metronidazole alone was approximately 45%. However, when used in combination with amoxicillin, the susceptibility increased markedly to nearly 99%, emphasizing the improved antimicrobial effectiveness of this combination in the management of endodontic infections.¹⁷

Furthermore, among single antibiotics, the most frequently prescribed antibiotics were amoxicillin with clavulanic acid (52.7%) and amoxicillin 500 mg (49.5%). Similar findings were reported by Katta et al., in which 44.5% of respondents recommended a combination of amoxicillin and clavulanic acid as the primary drug for endodontic infections, while 36.4% of practitioners preferred amoxicillin alone as the drug of choice.⁹ Likewise, Germack et al. and Abraham et al. also reported that amoxicillin was the most commonly used antibiotic for endodontic infections (60.71% and 43.7%, respectively), whereas the amoxicillin-clavulanic acid combination was prescribed by a smaller proportion of respondents as a first-line drug.^{7,12}

In patients with a confirmed penicillin allergy history, the clinician can switch to other antimicrobial agents such as clindamycin, metronidazole and clarithromycin or azithromycin. Clindamycin is the first drug of choice for patients with a history of hypersensitivity to penicillin drugs. In this study also, for patients allergic to penicillin, clindamycin was the most frequently prescribed antibiotic (57.8%), followed by azithromycin or clarithromycin (48.3%).

A loading dose of antibiotics is prescribed to rapidly achieve therapeutic drug levels, ensuring early and effective bacterial suppression, particularly in severe infections or when using drugs with long half-lives. Recommended loading and maintenance doses include amoxicillin (1000 mg loading dose, followed by 500 mg every 8 hours), amoxicillin with clavulanic acid (same regimen), clindamycin (600 mg loading dose, followed by 300 mg every 6 hours), clarithromycin (500 mg loading dose, followed by 250 mg every 12 hours), and azithromycin (500 mg loading dose, followed by 250 mg once daily). In this survey, only 33.2% of dentists reported prescribing a loading dose of antibiotics, whereas a higher proportion (71.68%) was reported in a previous study.⁷

Regarding the duration of antibiotic dosage, the majority of the dentists (87.8%) prescribed a 5-day course. Antibiotics are generally prescribed for 3–7 days. This duration is usually adequate to control the infection, but patients should be re-evaluated after 2–3 days to decide whether to continue or discontinue therapy.¹⁸ In contrast, a previous study reported that over 80% of respondents routinely prescribed a 7-day course, which may be longer than necessary.⁷ Some evidence suggests that shorter courses of antibiotics (2–3 days) may be effective when used as adjuvant therapy. In contrast, longer regimens (7–10 days) are generally based on studies and clinical practices involving infections with unclear etiology or the management of bloodstream infections in hospitalized patients.¹

In this survey, 51.2% of respondents reported having antibiotic prescribing guidelines available at their clinic, whereas a previous study found that 85.2% of respondents had such guidelines in their workplace.⁹ Adhering to antibiotic prescribing

guidelines issued by local or international professional bodies is essential to ensure evidence-based, standardized care, minimize misuse and resistance, and optimize patient outcomes.

Antibiotic prophylaxis in endodontics, for both nonsurgical root canal treatment and endodontic surgery, is recommended for patients with impaired immune function, those at risk of infective endocarditis, individuals with prosthetic joint replacements, and patients whose jaw bones have been exposed to high-dose irradiation. Additionally, patients receiving intravenous bisphosphonate therapy require antibiotic prophylaxis prior to endodontic surgery. The standard prophylactic regimen consists of 2 gm of amoxicillin administered orally 1 hour before the procedure. In the current study, 96.1% of respondents prescribed prophylactic antibiotics for patients at risk of infective endocarditis, while 75.6% prescribed them for patients with impaired immunologic function. The majority of dentists (72%) followed the recommended prophylactic regimen of 2 gm of amoxicillin administered orally 1 hour before the procedure.

This study is subject to selection bias as participants were recruited only from the Nepal Dental Association (NDA) registry, excluding dentists registered solely with the Nepal Medical Council (NMC), which may limit generalizability to all dental practitioners in Nepal. Additionally, only descriptive statistics were used, and inferential analyses were not performed, limiting deeper exploration of associations between variables.

Conclusion

Non-surgical root canal therapy, accompanied by analgesics when required for pain control, is generally sufficient for the management of conditions such as symptomatic irreversible pulpitis, pulp necrosis, symptomatic and asymptomatic apical periodontitis, draining sinus tracts, and localized swelling, without the routine need for antibiotic therapy. The unnecessary use of antibiotics for minor infections, or in some cases in patients without clear evidence of infection, may significantly contribute to the growing global problem of antimicrobial resistance. Therefore, antibiotic prescription should primarily be therapeutic and guided by clear clinical signs, symptoms, and established indications. Prophylactic antibiotic use should be limited to patients with specific risk factors, such as those who are immunocompromised or have predisposing conditions including a history of infective endocarditis or prosthetic joint implant infection. In general, dentists should avoid prescribing systemic antibiotics as primary therapy or first-line treatment for endodontic infections. When therapeutic or prophylactic indications exist, careful consideration should be given to the appropriate antibiotic agent, dosage, and duration to ensure rational and responsible use. Moreover, concerned regulatory and professional authorities should develop, regularly update, and implement clear, evidence-based guidelines for antibiotic use in dental practice. Strengthened regulatory oversight and continuous professional education on antimicrobial stewardship are essential to ensure adherence to best practices and reduce inappropriate antibiotic prescribing.

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