Scaling and Root Planing: Case Acceptance and Practice Building

A Peer-Reviewed Publication
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Educational Objectives
Upon completion of this course, the clinician will be able to do the following:
1. Comprehend scaling and root planing rationale
2. Understand the barriers to treatment that the clinician may face to achieve case acceptance when treating periodontal disease
3. Understand the role of locally-applied anesthetics when performing scaling and root planing
4. Understand and assess the implications of scaling and root planing and how these procedures impact the clinician’s practice, including productivity and cost factors

Abstract
Periodontal disease and caries are two of the most common diseases known to man. Periodontal disease estimates are indicative of the large clinical need for periodontal therapy to improve oral health. Scaling and root planing is central in the treatment of periodontal disease. Nonetheless, acceptance of treatment is impacted by patient phobias and fears. This results in patients not receiving treatment that will improve their oral health status, and impacts standard and quality of care as well as practice building. Pain management is key to address the patient’s fears and/or needs. In choosing the appropriate pain management technique there are several considerations, including patient and clinician preferences, onset time, depth of anesthesia and duration. From a practice building perspective it is important to consider the time saved by appropriate pain management and by the technique used, and from a broader perspective the ability to retain and attract patients for both essential and elective procedures. Effective Pain Management Techniques contribute to a stable and growing patient base, and effective and productive treatment of these patients.

Introduction
Periodontal disease and caries are two of the most common diseases known to man. Estimates on gingivitis and periodontitis vary. Gingival bleeding and the presence of subgingival bleeding have been estimated at 50 percent and 55 percent of the American population respectively. The estimated prevalence of periodontal disease in adults between 30 to 90 years of age in the U.S. who are affected by attachment loss of greater than or equal to 3mm is 53.1 percent, and a probing depth ≥3mm occurring in 6 percent of those in the same age group. Albander et al. estimated that a minimum of 35 percent of the American dentate population have mild periodontitis, and a further 12.6 percent have moderate or severe periodontitis.

Periodontal disease estimates are indicative of the large clinical need for periodontal therapy to improve oral health. It is also clear from research associating periodontal disease with cardiovascular disease, respiratory disease, diabetes, and other systemic conditions that periodontal therapy is important to improve and maintain systemic health.

Periodontal Therapy
Where patients have only gingivitis, this can be reversed with a professional scaling and prophylaxis, and scrupulous attention to home care. Once periodontal disease is established, treatment can be categorized into surgical and nonsurgical therapies.

Scaling and root planing, or periodontal debridement, is a major component of periodontal therapy. Estimates from 1999, the most recent year for which data is available, show that over 12 million scaling and root planing procedures were carried out in the United States, making it one of the more common dental procedures.

Scaling And Root Planing Overview
Scaling and root planing are performed routinely in the treatment of periodontal disease. The procedure is usually carried out over several visits where full-mouth root treatment is required—one quadrant at a time, or a sextant, or selected teeth at each appointment.

Root planing aims at the successful removal and reduction in the number of periodontal pathogens. Removal of plaque, toxins, calculus, other foreign materials, dead and diseased tissue from the roots of the teeth, periodontal pockets, and adjacent soft tissue are all components of the procedures. Nonsurgical root planing procedures are challenging for the clinician, require a high degree of skill, and are carried out “blind.” They may involve the use of both hand instruments and ultrasonics, or only hand instruments. They can also be challenging for patients, requiring extended chair-side
time and repeat visits, and range from uncomfortable to very painful on the pain scale.

Typically, the dental hygienist is responsible for scaling and root planing procedures. Seventy-five percent of general dentists were estimated to employ dental hygienists in 2003.

Despite the fact that root planing and scaling are nonsurgical procedures that effectively help to restore oral health, a significant number of patients either do not attend for initial therapy or do not return for treatment after the first root planing appointment.

Evidence from the literature shows that for patients, there are many factors that contribute to either a lack of case acceptance or noncompletion of treatment. Overcoming these barriers to treatment represents an opportunity to improve both the patient’s health and the clinician’s practice.

Barriers To Treatment
From the patient’s perspective there are several potential barriers to treatment, all of which can affect not only the patient’s willingness to be treated and his health, but also the ability of the dental office and the clinician to build a practice and provide a high standard of care.

Environmental Factors
Lack of time, scheduling issues, cost, and low regard for oral health are some of the environmental factors that negatively influence a patient’s decision. Low regard for oral health is best addressed by impactfully and repeatedly educating patients when they attend in the hope of changing their attitudes and encouraging them to care about and take responsibility for their oral health, resulting in acceptance of nonselective treatment. Other issues, such as lack of time or financial concerns, might be legitimate or could be substitute reasons given for a covert fear to avoid confronting the real issue. If cost is indeed the reason and no method can be found to finance the treatment, it is important to communicate with the patient and ensure that he still attends for recalls, at which time his situation may have changed. In one study of a non-American population, lack of time and “treatment not needed” were given by over 30 percent of respondents as reasons for not attending. If lack of case acceptance is due to a misperception on the part of the patient that the treatment is not urgent or necessary, good communication techniques may prevent or correct the situation. Moreover, effective communication helps to elicit the underlying reasons, if any, why patients are rejecting treatment.

Fear Factors
Fear factors may be purely psychological or based upon a past experience and represent a problem for patients and dental professionals alike. Irregular dental attendees are more likely to suffer from fear or anxiety than regular ones, further compounding the problem. The largest sources of anxiety around dental visits are fear of the drill (noise and sensation), fear of needles, and fear or anticipation of pain.

Up to 28 percent of patients in the United States fear injections. In one survey, 5 percent of patients claimed that they had either not attended or not scheduled appointments because of anxiety over this issue. This survey covered all treatment categories, including but not limited to SRP (scaling and root planing).

Substantial documentation exists concerning fear and anticipation of pain. Fear of pain was given by 21 percent of respondents as a reason they avoided dental care in general in an ADA survey. Other research has quantified SRP patient intentions related to pain, anesthesia, and fear of needles, and responses from participating patients indicated that almost one-fifth of patients did not intend to return for further SRP; 19 percent and 11 percent of these, respectively, were due to needle fear and discomfort. Fear affects acceptance of nonelective procedures and treatment such as scaling and root planing. A fearful patient is typically more difficult to treat, and the time involved to achieve a satisfactory result may be greater, resulting in a higher cost.

Practice building can be enhanced by encouraging patients to attend for treatment and by providing pain-free and patient-friendly treatment which makes patients more likely to attend and return (for scaling and root planing and other nonelective and elective procedures). By reducing the length of time it takes to carry out procedures, whether through patient management or the use of a variety of techniques, productivity can be increased.

Management Of Anxiety And Pain

Anxiety Management
Anxiety management techniques include counseling and education; good communication, which builds a
trusting relationship with the patient; the use of tranquilizers and sedatives; hypnosis, and, as recently reported, virtual reality and noise masking during treatment. The choice of technique depends upon the philosophy of clinician and patient, the procedure, the patient’s systemic health status, and the severity of anxiety experienced by the patient. Adequate pain management also relieves anxiety. Conversely, pain management is important regardless of the patient’s general anxiety level.

Pain Management
Effective pain management results in reduced anxiety, increased comfort, and more frequent case acceptance, especially with regard to further or repeat procedures after the initial experience. It may also reduce the time required for procedures. In this scenario, the clinician can provide the highest standard of care. Communication and pain management are cornerstones in practice building and will encourage case acceptance. A further aspect is the management of postoperative pain for procedures in general, which can cause patients not to return.

Pain management is typically achieved through the use of anesthesia. This can be general, local, or topical, depending upon the procedure, setting, and the patient’s health status. Less common methods include the use of electronic anesthesia and hypnosis. Regarding scaling and root planing, with few exceptions the choice has typically been local or topical anesthesia (benzocaine), or both.

Anesthetics and Their Role in Scaling and Root Planing
Local and topical anesthetics provide pain relief during scaling and root planing procedures. The choice depends upon preference, degree of anesthesia required and duration of, state regulations, the affected area, and the patient’s medical status.

Injectable Local Anesthetics
Local anesthetics were first introduced in 1884 when cocaine was used in ophthalmic surgery, and amino ester anesthetics were invented in the 1930s. The amino amides local anesthetics were introduced between 1898 and 1972 and include the local anesthetic compounds currently in use. The amino amides have been proven effective and safe, provided they are used appropriately after consideration of the patient’s medical status and medication usage.

Commonly used local anesthetics in the United States are lidocaine, articaine, bupivacaine, mepivacaine, and prilocaine. The length and profundity of anesthesia obtained will depend upon the anesthetic and whether or not vasoconstrictors are used. When used with a vasoconstrictor, lidocaine will provide profound anesthesia for 60 to 90 minutes, depending on the site. Lidocaine provides a lighter, less-effective anesthesia without the use of a vasoconstrictor. Mepivacaine and prilocaine provide about 20 minutes of anesthesia with infiltration in the maxillary arch, and 50 and 40 minutes respectively if used in conjunction with a vasoconstrictor. Bupivacaine is longer-lasting and provides prolonged anesthesia without the addition of a vasoconstrictor.

In the maxillary arch, infiltration is given in the sulcal region buccally or labially to produce anesthesia. For scaling and root planing, it may be necessary to supplement this with palatal anesthesia. Other than a feeling of numbness, few side effects will be noticed by patients with maxillary infiltration anesthesia. In the mandibular arch, inferior dental blocks for lower quadrant root scaling are given. Side effects include numbness, a thick feeling of the tongue and lip area, and a lopsided smile until the anesthesia starts to wear off. More recently, computer-controlled devices have been introduced that regulate delivery of the anesthetic. These have been reported to reduce pain associated with injections and, in the maxillary arch, they were found to result in better anesthesia.

Regardless of the local anesthetic used, anesthesia will be profound enough for excellent pain control during scaling and root planing for a minimum of 40 minutes, with an onset time of up to 5 to 10 minutes depending upon the site and the patient.

Topical Anesthetics
Gels, pastes, wafers, and sprays are all vehicles for topical anesthetics used in scaling and root planing. Pastes and gels available include 5 percent lidocaine and 20 percent benzocaine. These are held in place at the site and typically take effect after approximately one minute. Gels and pastes have been used with varying degrees of success as topical anesthetics around individual teeth during scaling and root planing. Pain relief from the application of topical anesthetics such as benzocaine is inconsistent and varies greatly. While a rare side effect, the use of benzocaine sprays has been found to be associated with methemoglobinemia. With the advent of bio-adhesives, topical anesthetic patches have become available. Transoral lidocaine patches have been found to be more effective than benzocaine gel in relieving pain associated with scaling and root planing in the maxillary arch, although not in the mandibular arch. Of all the options for scaling and root planing, traditional topical anesthetics offer the least reliability of pain control, the weakest pain control, and the shortest duration of anesthesia.
Locally-Applied Noninjectable Anesthetic

A recent innovation in the field of topical anesthetics is a thermogel containing 2.5 percent lidocaine and 2.5 percent prilocaine (Oraqix, Dentsply). This works transmucosally by utilizing a blunt cannula device to place the anesthetic directly into the pocket adjacent to the soft tissue in the area being treated without injecting it. The onset time is 30 seconds. Oraqix is specific to the sites where it is applied and is not associated with any lingering numbness. Numerous studies have found 2.5 percent lidocaine/2.5 percent prilocaine to be effective in reducing pain during intraoral procedures, and several studies found that it was preferred over local anesthesia by patients. One blind study compared 20 percent benzocaine with 2.5 percent lidocaine/2.5 percent prilocaine for their efficacy in reducing pain from needle stick penetration every minute for 7 minutes with one medicament applied in one area of the mouth and the other in another in the same individual. At least 87.5 percent of study participants consistently reported that the side where the lidocaine/prilocaine had been applied was less painful. This suggests that patients could benefit from the use of lidocaine/prilocaine for more relief from discomfort in procedures in which the clinician would otherwise use 20 percent benzocaine.

Scaling and root planing are routine and common procedures. It is incumbent upon the clinician to provide the best possible level of care, which includes pain control as needed to ensure that the patient is as comfortable as possible.

Scaling and root planing are also important from a practice-building perspective. The question of whether to use an anesthetic (and, if so, which one) has several implications for practice building and individual patients.

Practice Building and Implications

Practice building ultimately depends upon the number of patients attracted and retained, and the clinical cases completed—i.e., productivity. The other consideration is cost.

Productivity and Cost Factors

Productivity derives from the number and type of cases completed. More cases will be completed if patients are willing to return for elective and/or complex procedures following a positive experience during a previous visit. The value generated (revenue) derives from these elective and nonelective cases.

The remaining consideration is the cost associated with the provision of treatment. Many aspects of this are fixed costs and not adjustable. Among the variables is the clinician’s time. Any procedure where clinician time is saved without compromising the patient’s experience or the clinical standard of care is a practice-building mechanism.

The use of anesthesia during scaling and root planing provides comfortable treatment for patients and, by implication, may save time. In this regard, both local anesthetics and 2.5 percent lidocaine/2.5 percent prilocaine are more likely to achieve desired results than the use of topical anesthetics.

State regulations are a further consideration. In states where only the dentist is legally permitted and licensed to give patients injected local anesthetics, the dental hygienist is legally permitted to provide patients with traditional topical anesthetics and noninjectable 2.5 percent lidocaine/2.5 percent prilocaine. The question of whether to use pain control becomes
a choice between stopping (or not starting) the procedure until the dentist can provide local anesthetic to the patient, resulting in a potential loss of productivity for both dentist and hygienist, or using either 2.5 percent lidocaine/2.5 percent prilocaine or topical anesthetics. Either a local anesthetic or 2.5 percent lidocaine/2.5 percent prilocaine will be needed for stronger pain relief.

The final consideration here is the onset time and duration of the anesthetic. In one group of offices surveyed, 75 percent of hygienists indicated that using 2.5 percent lidocaine/2.5 percent prilocaine with its 30-second onset time saved them an average of 52 minutes per week and saved 67 percent of dentists an average of 55 minutes per week. With regard to scaling and root planing procedures, on average an estimated 7 minutes per quadrant were saved, and on average offices performed 7.5 scaling and root planing procedures per week.21 Interestingly, 60 percent of dental offices also found this technique to be useful and efficient for other indications where either no anesthetic or a local anesthetic would otherwise have been used. A pattern of time-saving emerged in the research of 44 minutes weekly on scaling and root planing procedures. For other procedures, the time saved varied from 18 to 48 minutes weekly with procedures cited including pediatric tooth extraction, laser treatment, minor surgical procedures, and placement of retraction cord.

Based upon the ADA 2003 Summary of Fees and these averages, from a practice-building perspective this would be beneficial. Savings associated with root planing and scaling would be as much as $202 per week based upon an average of 7.5 procedures per week and, for other procedures, approximately $51 per week.

Patient retention and attraction are essential to a stable and growing practice. Factors influencing these include the perceived quality of care and a caring attitude on the part of clinicians and staff, including empathy; sympathy; the ability to relate to the patient’s wishes, needs and fears; and effective pain avoidance and management. If the patient has a negative experience, he is likely to choose a different clinician in the future. By extension, providing a patient with a comfortable, relaxed, and relatively painless experience during scaling and root planing is essential to practice building.

Choice of anesthesia and patient preference are key considerations in practice building. In one survey, 42 percent of patients surveyed reported SRP to be moderately or very uncomfortable in the absence of anesthetic relief.22 Where profound and prolonged anesthesia is required, the use of local anesthesia would be indicated. However, although anesthesia with 2.5 percent lidocaine/2.5 percent prilocaine is not as profound, 80 percent of patients surveyed conceptually preferred this to an injection offering stronger anesthesia for scaling and root planing procedures.23 In assessing experiential preferences, 70 percent of patients preferred Oraqix to a local anesthetic.24 One multicenter crossover study of patient retention and completion of treatment found that 45 percent of patients were more or much more willing to return if they had received 2.5 percent lidocaine/2.5 percent prilocaine as opposed to an injected anesthetic.25

Summary
Scaling and root planing is central to the treatment of periodontal disease. Nonetheless, acceptance of treatment is greatly affected by patient phobias around
References


4. Ibid.


25. Ibid.

Author Profile

Fiona M. Collins, BDS, MBA, MA

Dr. Fiona M. Collins has over 20 years of clinical, marketing, education and training, and professional relations experience. She has practiced as a general dentist for 13 years, written and given CE courses to dental professionals and students, and conducted market research projects. Dr. Collins is a past member of the Academy of General Dentistry Health Foundation Strategy Board and has been a member of the British Dental Association, the Dutch Dental Association, and the American Dental Association. In her spare time she can be found walking in the foothills of Colorado with her husband and dog, or playing music. Dr. Collins earned her dental degree from Glasgow University and holds an MBA and MA from Boston University.

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1. Gingival bleeding and the presence of subgingival bleeding have been estimated at ___ and ___ of the American population respectively.
   a. 10 percent; 15 percent
   b. 20 percent; 25 percent
   c. 50 percent; 55 percent
   d. 60 percent; 65 percent

2. Periodontal disease estimates are indicative of the large clinical need for periodontal therapy to improve oral health.
   a. True
   b. False

3. Once periodontal disease is established, treatment can be categorized into:
   a. Periodontal therapy and prevention
   b. Anxiety management and pain relief
   c. Surgical therapies and nonsurgical therapies
   d. In-office therapies and at-home therapies

4. Major components of periodontal therapy include:
   a. Scaling and root planing
   b. Tongue cleaning
   c. Patient medical history
   d. a and b

5. The procedure of scaling and root planing is usually carried out in one visit, where full-mouth root treatment is required.
   a. True
   b. False

6. Components of successful removal and reduction in the number of periodontal pathogens includes the removal of:
   a. Periodontal pockets and adjacent soft tissue
   b. Plaque
   c. Tons, calculus, and other foreign materials
   d. All of the above

7. Some of the environmental factors that negatively influence a patient’s decision for treatment are:
   a. Lack of time and scheduling issues
   b. Cost
   c. Low regard for oral health
   d. All of the above

8. If lack of case acceptance is due to a misperception on the part of the patient that the treatment is not urgent or necessary:
   a. Consult the patient about his finances to cut costs, if possible
   b. Good communication techniques may avoid or correct the situation
   c. Persuade the patient to continue recall appointments and postpone treatment to a later date
   d. Discuss alternative home-care therapies that may appear less invasive

9. Fear factors may be purely psychological or based upon a past experience and represent a problem for patient and dental professional alike.
   a. True
   b. False

10. Fear factors include:
    a. Noise and sensation
    b. Anticipation of pain
    c. Vertigo
    d. a and b

11. Fear affects acceptance of noninvasive procedures and treatment such as scaling and root planing. In reference to the practice, a fearful patient:
    a. May cost more money
    b. May involve more time to achieve satisfactory results
    c. May be more difficult to treat
    d. All of the above

12. When assisting fearful patients, practice building can be enhanced by:
    a. Referring the patient elsewhere
    b. Extending the length of time it takes to carry out procedures, expressing the clinician’s concern for the patient
    c. Providing pain-free and patient-friendly treatment
    d. Assuring the patient that he will receive an extra dose of anesthesia during treatment

13. Anxiety management techniques include counseling and education; good communication that establishes a trusting relationship with the patient; and the use of tranquilizers, hypnosis, and virtual reality.
    a. True
    b. False

14. Regarding scaling and root planing, the choice has traditionally been:
    a. Local or topical anesthetics
    b. Electronic anesthetics
    c. Hypnosis
    d. a and b

15. The choice for anesthesia depends upon:
    a. Patient and clinician preference
    b. Duration of anesthesia and degree of anesthesia required
    c. The patient’s overall health and medications
    d. All of the above

16. In the United States, commonly used local anesthetics include:
    a. Prilocaine
    b. Articaine
    c. Lidocaine
    d. All of the above

17. The length and profoundness of anesthesia obtained will depend upon the anesthetic and whether or not vasoconstrictors are used.
    a. True
    b. False

18. _____ is longer-lasting and provides prolonged anesthesia without the addition of a vasoconstrictor.
    a. Lidocaine
    b. Cocaine
    c. Mepivacaine
    d. Bupivacaine

19. _____ are vehicles for topical anesthetics used in scaling and root planing.
    a. Gels
    b. Pastes
    c. Sprays
    d. All of the above

20. In noninjectable locally-applied topical anesthetics, injection is neither necessary nor advised, and the onset time is:
    a. 15 seconds
    b. 30 seconds
    c. one minute
    d. 90 seconds

21. Of all the options for scaling and root planing:
    a. Local anesthetics offer the least reliability of pain control and the shortest duration of anesthesia
    b. Topical anesthetics offer the least reliability of pain control and the longest duration of anesthesia
    c. Local anesthetics offer the weakest pain control and the longest duration of anesthesia
    d. Topical anesthetics offer the weakest pain control and shortest duration of anesthesia

22. Which of the following has an onset time of five minutes but is feared by patients?
    a. Topical anesthetic
    b. Local anesthetic
    c. Noninjectable direct application
    d. None of the above

23. Ultimately, practice building depends upon which of the following?
    a. Productivity
    b. Number of patients attracted and retained
    c. Clinical cases completed
    d. All of the above

24. If patients are willing to return for elective and/or complex procedures following a positive experience during a previous visit, more cases will be completed, and therefore, the practice should experience an increase in value generated.
    a. True
    b. False

25. During scaling and root planing, _____ is more likely to achieve desired results than the use of topical anesthetics when attempting to save time.
    a. Local anesthetics
    b. 2.5 percent lidocaine/2.5 percent prilocaine
    c. 20 percent benzocaine
    d. a and b

26. In one group of offices surveyed, ___ percent found the use of 2.5 percent lidocaine/2.5 percent prilocaine to be useful for other indications where either no anesthetic or a local anesthetic would otherwise have been used.
    a. 25
    b. 30
    c. 45
    d. 60

27. For studies on the use of 2.5 percent lidocaine/2.5 percent prilocaine during scaling and root planing procedures, the research showed a pattern of time-saving for the procedure of:
    a. 15 minutes
    b. 44 minutes
    c. 48 minutes
    d. 62 minutes

28. Retention and attraction factors are influenced by the:
    a. Perceived quality of care and a caring attitude on the part of clinicians and staff
    b. Effective pain avoidance and management
    c. Choice of anesthetic
    d. a and b

29. If the patient has a negative experience:
    a. He is likely to choose a different clinician in the future
    b. He is likely to accept a relatively painless experience
    c. He is likely to reschedule for an appointment at a later date
    d. He is likely to refer family and friends to the practicing clinician

30. One multicenter crossover study of patient retention and completion of treatment found that ___ percent of patients were more willing to return if they had received 2.5 percent lidocaine/2.5 percent prilocaine as opposed to an injected anesthetic.
    a. 25
    b. 30
    c. 45
    d. 60
Scaling and Root Planing: Case Acceptance and Practice Building

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Educational Objectives

1. Comprehend scaling and root planing rationale
2. Understand the barriers to treatment that the clinician may face to achieve case acceptance when treating periodontal disease
3. Understand the risk of locally-applied anesthetics when performing scaling and root planing
4. Understand and assess the implications of scaling and root planing and how these procedures impact the clinician’s practice, including productivity and cost factors

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