Non-Surgical Periodontal Therapy

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Instructions for Use

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Related Dental Policies

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Coverage Rationale

Scaling and Root Planing

Scaling and Root Planing is indicated for the treatment of the following:

- Stage II-Stage IV Periodontitis with Grade B or Grade C Progression
- Periodontal abscess

Scaling and Root Planing is not indicated for the following:

- For the removal of heavy deposits of calculus and plaque in the absence of clinical attachment loss
- Gingivitis as defined by inflammation of the gingival tissue without clinical attachment loss

Localized Delivery of Antimicrobial Agents

Localized Delivery of Antimicrobial Agents is indicated as an adjunct to Scaling and Root Planing in patients with pocket depths ≥ 5mm.

Periodontal Maintenance

Periodontal Maintenance is indicated for the following:

- To maintain the results of surgical and non-surgical periodontal therapy
- As an extension of active periodontal therapy at selected intervals

Periodontal Maintenance is not indicated for the following:

- If there is no previous history of Scaling and Root Planing (SRP) or surgical periodontal therapy
- Gingivitis

Scaling in Presence of Generalized Moderate or Severe Gingival Inflammation – Full Mouth

Scaling in presence of generalized moderate or severe gingival inflammation is indicated for the removal of plaque, calculus, and stains from supra- and sub-gingival tooth surfaces when there is generalized moderate or severe gingival inflammation in the absence of increased sulcus depth due to loss of attachment and alveolar bone.

Gingival Irrigation

Gingival Irrigation is not indicated due to insufficient evidence of efficacy.

Definitions

Staging and Grading Periodontitis (AAP):

- Stage I
  - 1-2 mm clinical attachment loss (CAL)
  - Radiographic bone loss (RBL) of < 15%
  - No tooth loss
  - Complexity
    - Maximum probing depth ≤ 4mm
    - Mostly horizontal bone loss
- Stage II
  - 3-4 mm interdental CAL
  - RBL of 15-33%
  - No tooth loss
  - Complexity
    - Maximum probing depth ≤ 5 mm
    - Mostly horizontal bone loss
- Stage III
  - ≥ 5 mm CAL
  - RBL extends to middle third of root and beyond
  - Loss of ≤ 4 teeth
  - Complexity includes all of criteria for Stage II as well as:
    - Probing depths ≥ 6 mm
    - Vertical bone loss ≥ 3 mm
    - Class II or III Furcation involvement
    - Moderate ridge defects
- Stage IV
  - ≥ 5mm CAL
  - RBL extends to middle third of root and beyond
  - Loss of ≥ 5 teeth
  - Complexity includes all of criteria for Stage III as well as:
    - The need for complex rehabilitation due to:
      - Masticatory dysfunction
      - Secondary occlusal trauma (tooth mobility ≥ 2)
      - Severe ridge defects
      - Bite collapse, drifting and/or flaring
      - < 20 remaining teeth (10 opposing pairs)
- The extent and distribution for each stage is described as:
  - Localized (< 30% of teeth involved)
  - Generalized; or
  - Molar/incisor pattern
- Grading indicates the rate of disease progression, the response to standard therapy and the potential impact on systemic health. (Clinicians should initially assume moderate disease grading (B) and seek specific evidence to shift to slow (A) or rapid (C) grading)
- Progression:
  - Grade A (Slow):
    - No bone or CAL loss over 5 years
    - Indirect evidence of progression
      - < 0.25 % bone loss/age
      - Heavy biofilm deposits with low levels of destruction
    - Risk factor modifiers
      - Non-smoker
      - Not diabetic
  - Grade B (Moderate):
    - Direct evidence of progression
      - < 2 mm bone or CAL over 5 years
    - Indirect evidence of progression
      - 0.25 to 1.0% bone loss/age
      - Destruction commensurate with biofilm deposits

        - Risk factor modifiers
            - < 10 cigarettes/day
            - HbA1C < 7 in diabetics
    - Grade C (Rapid):
        - Direct evidence of progression
            - ≥ 2 mm bone or CAL over 5 years
        - Indirect evidence of progression
            - > 1.0 % bone loss/age
            - Destruction exceeds expectations given biofilm deposits
            - Specific clinical patterns suggestive of periods of rapid progression and/or early onset disease
        - Risk factor modifiers
            - > 10 cigarettes/day
            - HbA1C ≥ 7 in diabetics

Furcation: The anatomic area of a multirooted tooth where the roots diverge. A Furcation involvement refers to loss of periodontal support in a Furcation (ADA, 2016). The Glickman Classification of Tooth Furcation Grading (Sims, 2015):

- Grade I
    - Incipient
    - Just barely detectable with examination hand instruments
    - No horizontal component of the Furcation is evident on probing
- Grade II
    - Early bone loss
    - Examination hand instrument goes partially into the Furcation, but not all the way through
    - Furcation may be grade II on both sides of the tooth, but are not connected
- Grade III
    - Advanced bone loss
    - Examination hand instrument goes all the way through Furcation, to other side of tooth
    - Furcation is through-and-through
- Grade IV
    - Through-and-through, plus Furcation is clinically visible due to gingival recession

Gingival Irrigation: Irrigation of gingival pockets with a medicinal agent. Not to be used to report use of mouth rinses or non-invasive chemical debridement. (ADA)

Gingivitis: Inflammation of gingival tissue without loss of connective tissue. (ADA)

Localized Delivery of Antimicrobial Agents: FDA approved subgingival delivery devices containing antimicrobial medication(s) that are inserted into periodontal pockets to suppress the pathogenic microbiota. These devices slowly release the pharmacological agents so they can remain at the intended site of action in a therapeutic concentration for a sufficient length of time. (ADA)

Periodontitis/Periodontal Disease: Inflammatory process of the gingival tissues and/or periodontal membrane of the teeth, resulting in an abnormally deep gingival sulcus, possibly producing periodontal pockets and loss of supporting alveolar bone. (ADA)

Periodontal Maintenance: This procedure is instituted following periodontal therapy and continues at varying intervals, determined by the clinical evaluation of the dentist, for the life of the dentition or any implant replacements. It includes removal of the bacterial plaque and calculus from supragingival and subgingival regions, site specific Scaling and Root Planing where indicated and polishing the teeth. If new or recurring Periodontal Disease appears, additional diagnostic and treatment procedures must be considered. (ADA)

Root Planing: A definitive treatment procedure designed to remove cementum and/or dentin that is rough, may be permeated by calculus, or contaminated with toxins or microorganisms. (ADA)

Scaling: Removal of plaque, calculus, and stain from teeth. (ADA)

Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Guidelines may apply.

CDT Code	Description
D4341	Periodontal scaling and root planing – four or more teeth per quadrant
D4342	Periodontal scaling and root planing – one to three teeth per quadrant
D4346	Scaling in presence of generalized moderate or severe gingival inflammation – full mouth, after oral evaluation
D4381	Localized delivery of antimicrobial agents via a controlled release vehicle into diseased crevicular tissue, per tooth
D4910	Periodontal maintenance
D4921	Gingival irrigation with a medicinal agent - per quadrant

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Description of Services

The American Academy of Periodontology (AAP) guidelines stress that periodontal health should be achieved in the least invasive manner. With non-surgical periodontal therapy, many patients can be treated and maintained without the need for surgical intervention, however patients with advanced and aggressive forms of disease may require periodontal surgery. Non- surgical periodontal therapy includes localized or generalized Scaling and Root Planing, the use of antimicrobials and ongoing Periodontal Maintenance.

Pursuant to CA AB2585: While not common in dentistry, nonpharmacological pain management strategies should be encouraged if appropriate.

Clinical Evidence

Arnett et al. (2023) conducted a randomized controlled trial on the effects of SRP vs SRP plus minocycline hydrochloride microspheres (MM) on periodontal pathogens and the clinical outcomes in Stage II-Stage IV Grade B periodontitis. Seventy participants were randomized 1:1 to receive SRP or SRP+MM. Saliva and clinical outcomes were collected for both groups at before SRP, 1 month reevaluation, and at 3- and 6-month periodontal maintenance visits. MM was delivered to pockets ≥ 5 mm immediately after SRP and immediately after the 3-month periodontal maintenance in the SRP+MM group. The results showed significant reduction in several pathogens at one month follow up and at 6 month follow up following reapplication at 3 months. Furthermore, there were significant clinical improvements in pocket depth reduction at all follow up points as well as gains in clinical attachment loss seen at the 6-month point.

Killeen et al. (2018) conducted a two-year randomized clinical trial of the role of adjunctive minocycline microspheres in periodontal maintenance. The authors evaluated the effects of repeated scaling and root planing (SRP), with or without locally delivered minocycline microspheres (MM) on residual pockets in patients undergoing periodontal maintenance (PMT). Patients on PMT were randomized into two groups for treatment of one posterior interproximal inflamed pocket (≥ 5 mm) with a history of bleeding on probing every 6 months: SRP plus MM (n = 30) or exclusively SRP (n = 30). Baseline and 24-month measurements included radiographic interproximal alveolar bone height, probing depths (PD), clinical attachment level (CAL), bleeding on probing (BOP), gingival crevicular fluid (GCF), and salivary interleukin (IL) - 1β, (24 month only). Results were analyzed for baseline data or change in measurements after 24 months of treatment between different treatment groups, as well as whether significant changes occurred after 24 months of treatment for each treatment group individually. The results showed alveolar bone height and GCF IL-1β remained stable over the 24 months. The SRP + MM and SRP groups each demonstrated reduced PD, CAL, and BOP. However, there were no differences between groups over the 24-month study period. The authors concluded that SRP alone, of moderately inflamed periodontal pockets at 6-month intervals, produced stable interproximal alveolar bone height as well as sustained improvements in probing depths, clinical attachment level, bleeding on probing over 24 months, and minocycline microspheres were not shown to enhance these results.

The American Dental Association Council on Scientific Affairs (2015) published the results of a 4-year systematic review and meta-analysis on the nonsurgical periodontal treatment for patients with chronic periodontitis via scaling and root planing (SRP) with and/or without adjunctive services. The group included 72 articles gained from a search on PubMed/Medline. The authors approached the review for evidence showing the results of patients treated with scaling and root planing (SRP) resulted in greater improvement in clinical attachment levels (CAL) compared to no treatment, prophylaxis, and debridement and if the use of local antimicrobials/antibiotics resulted in better improvement in periodontal condition. Full Mouth Debridement (D4355) was not considered “active treatment” for the purposes of this systematic review, as the procedure does not focus on removal of rough cementum or dentin imbedded with biotoxins. Additionally, the research panel excluded studies that did not specifically include the term “root planing.” This review concluded that while studies showed improvement in CAL following SRP procedures, there is little evidence to support the efficacy of localized antimicrobial delivery. Only one delivery system, PerioChip® showed a moderate benefit in this regard. The other 2 FDA approved localized delivery medicaments, Arestin® and Atridox® showed unclear benefits due to small number of studies as well as the unclear risk of bias.

Matesanz et al. (2013) conducted a systematic review to update the existing scientific evidence on the efficacy of local antimicrobials as adjuncts to subgingival debridement in the treatment of chronic periodontitis. Fifty-six papers were selected, reporting data from 52 different investigations. All the studies reported changes in probing pocket depth (PPD) and clinical attachment level (CAL) and most in plaque index (PI) and/or bleeding on probing (BOP). Meta-analyses were performed with the data retrieved from the studies fulfilling the inclusion criteria. Subgingival application of tetracycline fibers, sustained released doxycycline and minocycline demonstrated a significant benefit in PPD reduction. The local application of chlorhexidine and metronidazole showed a minimal effect when compared with placebo. This systematic review showed that the scientific evidence supports the adjunctive use of local antimicrobials mostly when using vehicles with proven sustained release.

Sadaf et al. (2012) conducted a controlled clinical study to compare the efficacy of scaling and root planing (SRP) alone versus tetracycline fiber therapy used adjunctively in the treatment of chronic periodontitis sites in maintenance patients. A total of 30 patients with a diagnosis of chronic periodontitis were selected. None of these patients had received any surgical or non-surgical periodontal therapy and had sites of periodontal pockets measuring 4—7 millimeters clinically and demonstrated radiographic evidence of moderate bone loss. Plaque indexes (PI) and Gingival-bleeding index (GBI) were measured at baseline and 15th, 30th, 60th, and 90thday. Clinical pocket depth (PD) and microbial analysis (MA) were analyzed at baseline and 90th day. At 3 months adjunctive tetracycline fiber therapy was significantly better in reducing PI, GBI than SRP alone. In comparison, the reduction in the PD was non-significant. The microbial analysis showed significant reduction in Porphyromonas gingivalis and Prevotella subgingival flora. The researchers concluded that the results indicate that fiber therapy significantly enhanced the effectiveness of SRP in the management of chronic periodontitis due to the reduction of colonized subgingival bacterial flora.

Bland et al. (2010) conducted a multicenter, single blind randomized study to investigate the association between the antimicrobial and clinical efficacy of minocycline hydrochloride microspheres when used adjunctively with scaling and root planing. 127 subjects with moderate-to-advanced chronic periodontitis were randomly assigned to receive minocycline microspheres plus scaling and root planing or scaling and root planing alone in each periodontal pocket ≥ 5mm. Clinical data was obtained at baseline and 30 days after treatment. End points included changes in the mean sum of red complex bacteria, pocket depth, number of deep pockets, bleeding on probing, and clinical attachment level from baseline to day 30. This study showed minocycline microspheres plus scaling and root planing reduced pocket depth, the number of deep pockets and bleeding on probing, and increased clinical attachment level significantly more than scaling and root planing alone. Additionally, the pocket depth reduction correlated significantly with a decrease in the numbers and proportions of red complex bacteria. Minocycline microspheres significantly improved all clinical parameters compared to scaling and root planing alone. The authors concluded that the addition of minocycline microspheres to scaling and root planing led to a greater reduction in the proportions and numbers of red complex bacteria.

The American Academy of Periodontology (2005) conducted a systemic review of the published literature regarding supra and subgingival oral irrigation for the treatment of periodontal disease. Studies from 1960-1994 were reviewed and the results published in their Academy Report in 2005.The treatments were reviewed as mono- therapy as well as an adjunct to conventional therapy within each category. Supragingival irrigation with water, water and antimicrobial, and placebo alone and in conjunction with tooth brushing showed no significant evidence in improved outcomes in treating and managing periodontal disease or gingivitis. Subgingival irrigation showed overall reduction but not elimination of pathogens, and the subgingival microflora returned to pretreatment levels within 1-8 weeks. There is overall scant evidence to support the efficacy of a single episode or multiple in office irrigation appointments. The available studies show the greatest problem with irrigation as an adjunctive therapy is that the antimicrobials are quickly eliminated and localized delivery via a controlled release device will allow slow release of medicaments.

In a 2001 randomized controlled trial, Williams et al. assessed the safety and clinical outcomes of minocycline microspheres. Seven hundred and forty-eight patients with moderate to advanced periodontitis were randomized into 3 treatment arms: SRP alone (250), SRP plus vehicle (249), and SRP plus minocycline microspheres (249). Minocycline microspheres or vehicle was administered to all sites with probing depths ≥ 5 mm. The results showed that after 1 month, patients receiving SRP plus minocycline microspheres had a significantly greater mean reduction in pocket depths of 1-2mm when compared with the vehicle and control groups. At 9-month endpoint, this reduction in pocket depths was greater in patients with more advanced disease (≥ 7mm). The authors concluded that SRP plus minocycline microspheres provides significantly greater probing depth reduction than SRP alone and should be incorporated as part of non-surgical therapeutic treatment.

Jeffcoat et al. (2000) expounded on previous multi-center trials that demonstrated the efficacy of a biodegradable chlorhexidine-gelatin chip (CHX) in reducing probing depth in patients with periodontitis. This study utilized a subset of the subjects from the previous studies to determine if the CHX chip was effective in maintaining alveolar bone over a 9-month period. Forty-five subjects with at least four 5 to 8 millimeters pockets were enrolled in this double-blind controlled, placebo-controlled trial. Control groups received either placebo chip plus scaling and root planing (SRP) or SRP alone. Test group subjects received active CHX chip or SRP alone. Standardized radiographs were taken for quantitative digital subtraction radiography at baseline and 9 months. At the 9-month assessment, 15% of SRP treated subjects experienced loss of bone in 1 or more sites, and none of the subjects treated with the active CHX chip combined with SRP lost bone. Also noted were significant differences in the change in probing depth and clinical attachment levels in the subjects treated with both SRP and the CHX chip. The researchers concluded that the data indicates that the CHX chip, when used as an adjunct to scaling and root planing, significantly reduces loss of alveolar bone.

U.S. Food and Drug Administration (FDA)

This section is to be used for informational purposes only. FDA approval alone is not a basis for coverage.

In 2001, Arestin® (OraPharma, Inc.) received FDA approval. Arestin is 1 mg minocycline hydrocholoride microspheres to be used as an adjunct to scaling and root planing procedures for the reduction of pocket depths in patients with adult periodontitis. Refer to the following website for more information: https://www.accessdata.fda.gov/scripts/cder/daf/index.cfm?event=overview.process&ApplNo=050781. (Accessed December 31, 2024)

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Policy History/Revision Information

Date	Summary of Changes
03/01/2025	**Supporting Information** • Updated *FDA* and *References* sections to reflect the most current information • Archived previous policy version DCP004.12

Instructions for Use

This Dental Clinical Policy provides assistance in interpreting UnitedHealthcare standard and Medicare Advantage dental plans. When deciding coverage, the member specific benefit plan document must be referenced as the terms of the member specific benefit plan may differ from the standard dental plan. In the event of a conflict, the member specific benefit plan document governs. Before using this policy, please check the member specific benefit plan document and any applicable federal or state mandates. UnitedHealthcare reserves the right to modify its Policies and Guidelines as necessary. This Dental Clinical Policy is provided for informational purposes. It does not constitute medical advice.