

D4381 - Localized Delivery of Antimicrobial Agents via a Controlled Release Vehicle into Diseased Crevicular Tissue, Per Tooth

Alternative CDT Code Consideration

D4999 - Unspecified Periodontal Procedure, By Report

Given that the 3D exosome therapy represents a novel approach to periodontal regeneration that may not perfectly fit existing codes, D4999 (unspecified periodontal procedure) could be considered as an alternative. This would require a detailed narrative explaining the procedure and its medical necessity.

For CDT Code D4381:

1. Tooth-Specific Documentation:

- Specific tooth numbers treated with the PEM Paste
- Exact site(s) where the PEM Paste was placed within each pocket
- Pocket depth measurements before treatment (documented in mm)[2](#)

2. Diagnostic Information:

- Detailed periodontal diagnosis
- Comprehensive periodontal charting with probing depths
- Documentation of bleeding points to demonstrate tissue inflammation
- Radiographic evidence showing bone loss patterns[2](#)

3. Treatment Rationale:

- Clear explanation of why exosome therapy was chosen over conventional treatments
- Documentation of previous periodontal treatments and outcomes
- Patient's health history, especially noting any systemic conditions that impact periodontal health[7](#)

4. Procedural Details:

- Specific description of the 3D exosome concentration (8 billion particles/mL; 80 million 3D exosomes)
- Composition of the PEM Paste, noting regenerative components (EGF, bFGF, PDGF, HGF, Collagen type 1, Factor-11)
- Duration of application (10-15 minutes)
- Amount of material used (volume of paste per pocket)
- Location and dosage of the injectable component (0.5 mL at facial mucogingival line)

5. Supporting Clinical Evidence:

- Pre-operative photographs showing clinical presentation
- References to peer-reviewed research supporting exosome therapy for periodontal regeneration[13468](#)
- Explanation of the mechanism of action for exosomes in tissue regeneration

6. Follow-up Documentation:

- Post-treatment evaluation at 4-6 weeks
- Changes in pocket depths following treatment
- Documentation of any subsequent treatments needed for pockets over 8mm

For CPT Code 41899 (if used):

1. Detailed Procedure Report:

- Step-by-step description of the injection technique
- Anatomical location precisely identified
- Volume and concentration of material injected
- Medical necessity justification

2. Comparative Pricing:

- Information about similar procedures and their relative values
- Time, skill, and specialized knowledge required

Conclusion

When filing insurance claims for this innovative periodontal treatment using 3D exosomes and PEM Paste, CDT code D4381 represents the best primary option for the pocket delivery component, reported on a per-tooth basis. For the injectable portion at the muco-gingival line, consider using CPT code 41899 if submitting to medical insurance.

Thorough documentation is critical for reimbursement success with this advanced therapy. Pre-authorization is strongly recommended, particularly given the novel nature of exosome-based treatments. Supporting your claims with current research on exosome therapy in periodontal regeneration will also strengthen the case for medical necessity and improve reimbursement outcomes.

Recommended Fee Structure

Based on the treatment's complexity, material costs, and market positioning, a tiered fee structure is recommended:

Per Quadrant Approach

- **Base treatment fee:** \$1,250-\$2,000 per quadrant
- **Total for full mouth treatment:** \$5,000-\$8,000

Per Tooth Approach

- **Single tooth treatment:** \$350-\$500 per tooth
- **Multiple teeth discount structure:** Consider volume pricing for treating multiple adjacent teeth

The significant cost component in this treatment is the specialized materials - specifically the 3D exosomes (containing 8 billion particles/mL and 80 million 3D exosomes) and the PEM Paste with growth factors. These biological materials substantially increase the cost basis compared to traditional periodontal treatments.

Documentation for Insurance Reimbursement

While this treatment may be too innovative for standard insurance coverage, documentation for potential partial reimbursement should include:

1. **Relevant CDT Code:** D4381 (localized delivery of antimicrobial agents via a controlled release vehicle into diseased crevicular tissue, per tooth) is the closest match, though not exact, and typically reimburses around \$112 per tooth⁸. This code would be appropriate for the PEM Paste application component.
2. **Alternative Code:** D4999 (unspecified periodontal procedure, by report) may be more appropriate given the innovative nature of the treatment.
3. **Required Documentation:**
 - Tooth numbers treated

- Exact sites where PEM Paste was placed
- Periodontal pocket measurements before treatment
- Comprehensive periodontal charting
- Clinical photographs documenting condition
- Detailed narrative explaining the procedure and its medical necessity

Market Positioning Considerations

Given the significant price differential between standard periodontal treatments (\$250 for non-surgical periodontal treatment²) and the proposed exosome therapy, practitioners should emphasize the following value propositions:

1. The non-invasive nature compared to flap surgery or bone grafting
2. The regenerative potential versus merely treating infection
3. The reduced recovery time and minimal discomfort
4. The potential for long-term results with maintenance treatments

Conclusion

The recommended fee range of \$1,250-\$2,000 per quadrant positions this treatment appropriately between standard periodontal treatments and more invasive surgical options while accounting for the premium materials and innovative approach. This pricing aligns with the upper range of non-surgical periodontal treatments while reflecting the added value of exosome therapy's regenerative potential. The practitioner should also consider offering package pricing for patients requiring multiple treatment sessions, as mentioned in the procedure description that 2-3 procedures may be necessary for pockets over 8mm.