APPLICATION OF DESENSITIZING MEDICAMENTS AND RESINS

Policy Number: DCP034.06
Effective Date: November 1, 2019

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVERAGE RATIONALE</td>
<td>1</td>
</tr>
<tr>
<td>DEFINITIONS</td>
<td>1</td>
</tr>
<tr>
<td>APPLICABLE CODES</td>
<td>2</td>
</tr>
<tr>
<td>DESCRIPTION OF SERVICES</td>
<td>2</td>
</tr>
<tr>
<td>CLINICAL EVIDENCE</td>
<td>2</td>
</tr>
<tr>
<td>U.S. FOOD AND DRUG ADMINISTRATION</td>
<td>4</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>4</td>
</tr>
<tr>
<td>POLICY HISTORY/REVISION INFORMATION</td>
<td>4</td>
</tr>
<tr>
<td>INSTRUCTIONS FOR USE</td>
<td>5</td>
</tr>
</tbody>
</table>

COVERAGE RATIONALE

Application of Desensitizing Medicament or Resin

Application of desensitizing Medicaments or Resins is indicated for teeth with sensitivity that does not resolve with an over the counter desensitizing dentifrice.

Application of desensitizing Medicaments or Resins is not indicated for teeth with asymptomatic erosion, recession, cervical abrasion or abfraction, or as a base or liner prior to restoration placement.

Exclusions

- Procedures that are considered to be Experimental, Investigational or Unproven (any treatment, device or pharmacological regimen that is the only available treatment for a particular condition will not result in Coverage)
- Drugs/medications, obtainable with or without a prescription, unless they are dispensed and utilized in the dental office during the patient visit

DEFINITIONS

Experimental or Investigational Service(s): Medical, dental, surgical, diagnostic, or other health care services, technologies, supplies, treatments, procedures, drug therapies, medications or devices that, at the time we make a determination regarding coverage in a particular case, are determined to be any of the following:

- Not approved by the U.S. Food and Drug Administration (FDA) to be lawfully marketed for the proposed use and not identified in the American Hospital Formulary Service or the United States Pharmacopoeia Dispensing Information as appropriate for the proposed use.
- Subject to review and approval by any institutional review board for the proposed use. (Devices which are FDA approved under the Humanitarian Use Device exemption are not Experimental or Investigational.)
- The subject of an ongoing clinical trial that meets the definition of a Phase I, II or III clinical trial set forth in the FDA regulations, regardless of whether the trial is actually subject to FDA oversight.
- Not demonstrated through prevailing peer-reviewed professional literature to be safe and effective for treating or diagnosing the condition or illness for which its use is proposed.
- Pharmacological regimens not accepted by the American Dental Association (ADA) Council on Dental Therapeutics.

Medicament: Substance or combination of substances intended to be pharmacologically active, specially prepared to be prescribed, dispensed or administered by authorized personnel to prevent or treat diseases in humans or animals. (ADA)

Remineralization: A process enhanced by the presence of fluoride whereby partially decalcified enamel, dentin, and cementum become recalcified by mineral replacement. (Mosby’s)
**Resin, Acrylic:** Resinous material of the various esters of acrylic acid, used as a denture base material, for trays or for other restorations. (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 Clinical Policies and Coverage Guidelines may apply.

<table>
<thead>
<tr>
<th>CDT Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1206</td>
<td>Topical application of fluoride varnish</td>
</tr>
<tr>
<td>D9910</td>
<td>Application of desensitizing medicament</td>
</tr>
<tr>
<td>D9911</td>
<td>Application of desensitizing resin for cervical and/or root surface, per tooth</td>
</tr>
</tbody>
</table>

*CDT® is a registered trademark of the American Dental Association*

### DESCRIPTION OF SERVICES

Many individuals experience significant dental sensitivity. It may be localized to select teeth, or generalized involving the entire dentition. The most common cause is due to exposed dentin (layer of tooth structure under tooth enamel) or cementum (root surface). This may be caused by erosion of tooth enamel, abrasion and abfraction from toothbrushing and traumatic occlusion, as well as systemic factors including diabetes and smoking. Many cases of hypersensitivity respond favorably to over the counter desensitizing products. When sensitivity persists, there is a variety of treatment options available by prescription, or in office application. One of the newest is silver diamine fluoride. This is a topical medicament used to treat dentin sensitivity. For use as a caries arresting medicament, please see the Dental Clinical Policy titled *Topical Fluoride Treatment.*

### CLINICAL EVIDENCE

**Application of Desensitizing Medicament or Resin**

Castillo et al. (2011) conducted a multi-center, randomized clinical trial to assess the effectiveness and safety of topical diammine silver fluoride on tooth sensitivity. From two sites, 126 adults with at least one tooth sensitive to compressed air were randomly assigned to either the topical silver diammine fluoride or sterile water, and pain was assessed by means of a 100-mm visual analogue scale at 24 hours and 7 days. The diammine silver fluoride reduced pain at 7 days at both sites. No tissue ulceration, white changes, or argyria was observed. A small number of participants in the silver fluoride group experienced a mild but transient increase in erythema in the gingiva near the tooth. No changes were observed in the Gingival Index. The authors concluded that diammine silver fluoride is a clinically effective and safe tooth desensitizer.

In a split-mouth, triple-blind, randomized clinical trial, Galvão et al. (2019) evaluated the long-term clinical efficacy of experimental potassium oxalate in relieving dentin hypersensitivity (DH). Thirty-one subjects were enrolled in the study and 5% and 10% potassium oxalate gels were randomly applied at four different sessions per protocol. DH levels were evaluated at 1 week, 1 month, 3, 6, 9 and 12 months for each participant. The results showed that regardless of the potassium oxalate concentration, the desensitizing effect was maintained until the 6 month follow-up evaluation. However, the group that received the 10% concentration showed better desensitizing effects for both 9 and 12 month time periods when compared with the 5% concentration. No complications were noted for the participants. Limitations of the study included the small sample size. The authors concluded both concentrations of potassium oxalate (5 and 10%) proved to be effective on DH reduction for up to six months. This study provides primary clinical evidence, suggesting that multiple application sessions and higher concentrations of potassium oxalate may result in maintenance of the desensitizing effect for more extended periods.

Ravishankar et al. (2018) conducted a randomized, split mouth clinical trial testing the effect of three different desensitizing agents on reduction of pain due to hypersensitive cervical dentin lesions. 28 individuals were selected with 84 teeth diagnosed with cervical dentin hypersensitivity (DH) in at least one tooth. Patients exhibiting pain scores of two or more on the visual analog scale (VAS) were included in the study. Random assignment was performed to one of the three treatment groups based on computer-generated random number. The desensitizing agents used were Profluorid Varnish (Voco: Cuxhaven Germany), Admira Protect (Voco: Cuxhaven Germany), and PRG-Barrier Coat (Shofu: Japan). One operator recorded the baseline sensitivity scores. A second operator who was not aware of the baseline values applied the desensitizing agents and recorded the sensitivity scores. VAS scores for both the stimuli were noted immediately after application, 1 week, and after 1 month. The data were analyzed using repeated measure ANOVA and post hoc Tukey's multiple comparison tests. There was a significant reduction in VAS scores from

---

Application of Desensitizing Medicaments and Resins
UnitedHealthcare Dental Clinical Policy

**Proprietary Information of UnitedHealthcare. Copyright 2019 United HealthCare Services, Inc.**
baseline in all the three groups at all the time intervals. Admira Protect showed significant reduction of hypersensitivity scores at 1 month compared to the other groups. It was concluded Admira Protect was proved to be better in reducing pain due to DH than PRG-Barrier Coat and Profliuorid Varnish after 1 month of application.

In a randomized, double-blind, split-mouth clinical trial, Madruga et al. (2017) performed a comparison of the desensitizing efficacy of resin-modified glass ionomer cement (GIC) Clinpro™ XT and the conventional GIC Vidrion R. Subjects were required to have at least two teeth with dentin hypersensitivity. Teeth were divided at random into 2 groups, one group received Clinpro XT and the other conventional GIC Vidrion R. Treatments were assessed by tactile and air blast tests using Visual Analogue Scale (VAS) at baseline, after 20 minutes, and at 7, 15, 21, 30, 90 and 180 days post-treatment. Twenty subjects (152 teeth) were included. Both tests (tactile and air blast) showed a significant reduction of dentin hypersensitivity immediately after the application of Vidrion R and Clinpro XT (20 min). VAS scores obtained along the 6-month follow-up were statistically lower when compared to initial rates (p < 0.05). Both GIC were able to reduce dentin hypersensitivity up to 6-month post-treatment period without statistically significant differences among them (p > 0.05). Both cements provided satisfactory results in long-term dental sensitivity reduction.

In a randomized clinical trial, Han et al. (2017) evaluated the clinical efficacy of five commercially available desensitizing agents with different mechanisms applied to hypersensitive teeth. The study included 64 individuals that met the criteria and each was randomly assigned to five commercially available desensitizing agents, and applied according to the manufacturers' instructions. Before and after application of desensitizing agents, subjects were evaluated with the Visual Analogue Scale (VAS) at baseline, 1 week, 1 month and 3 months; no statistically significant differences between the products was shown. Desensitizing agents used in this clinical trial relieved dentin hypersensitivity up to 3 months. The authors concluded the five tested desensitizing agents with different mechanisms were clinically effective in relieving dentin hypersensitivity up to 3 months and showed statistically significant pain reduction when compared to baseline scores.

Craig et al. (2013) conducted a double-blind, randomized clinical trial. A total of 19 subjects with dentine hypersensitivity on both sides of their upper arch were selected. The most sensitive tooth in each quadrant was identified and received a cold stimulus. The response was recorded on a visual analogue scale (VAS). The tooth selected was treated with one of the treatment agents. One week later the level of dentine sensitivity was assessed. Participants were also asked for their subjective assessment of treatment effects. The mean difference between VAS at baseline and seven days for teeth treated with diamine silver fluoride/potassium iodide was greater than that for teeth treated with the oxalic acid-based preparation. The subjects' subjective assessment of changes in dentine hypersensitivity indicated that more obtained relief with the diamine silver fluoride/potassium iodide treatment. The authors concluded that a diamine silver fluoride/potassium iodide product has potential as a treatment for dentine hypersensitivity.

Ding et al. (2014) This short-term (4-week) randomized, double-blind, placebo-controlled, split-mouth study evaluated the effect of Clinpro XT Varnish (VXT) paste-liquid, resin-modified glass-ionomer and the resinous dentin desensitizing varnish and Gluma Dentin Desensitizer (Gluma) in treating dentin hypersensitivity (DH). A total of 119 teeth from 31 individuals were randomized into three groups: VXT, Gluma, and placebo (warm water). Dentin sensitivity was evaluated by subjects' perception of DH determined by pretreatment tooth sensitivity score (TSS) measured on a 0-10 visual analogue scale (VAS) after tactile (probe) or thermal/evaporative (blast of air) stimuli. TSS was scored at baseline, immediately after treatment (Day 0), after 1 week and after 4 weeks. For both stimuli, mean TSS was significantly decreased in the VXT and Gluma groups at all time points compared with baseline. Regarding comparisons of TSS between treatment groups, the VXT group had significantly lower mean TSS compared with the Gluma group and placebo control group at all time points after treatment regardless of stimuli.

Pandit et al. (2012) conducted a randomized clinical trial was designed to compare the efficacy of two commercially available desensitizing agents (flouride varnish containing 6% sodium fluoride and 6% calcium fluoride and a gel containing 6% potassium nitrate and 0.11% fluoride ions) in the treatment of dentinal hypersensitivity. Twenty-one patients were selected. Subjects were evaluated using three different stimuli, i.e., tactile test, air blast test and cold water test. They were then randomly divided into two groups. Patients in group I were treated with fluoride varnish and group II patients were treated with gel containing 6% potassium nitrate and 0.11% fluoride ions. The patients were examined at baseline, immediately after application of the agent, at 1 week, 1 month and 3 month intervals. The results showed that patients treated in group I showed significantly better results compared to group II patients at 1 month and 3 months interval. Teeth which required repeat dose and those which did not require repeat dose were comparable in number. The authors concluded that both the agents showed significant reduction in sensitivity at all-time intervals compared to baseline. A comparatively significant reduction in sensitivity score was seen in patients treated with fluoride varnish and it appeared to be more effective in providing long-term relief against all the three test stimuli.
Petersson, Lars G (2013) conducted a literature review of original scientific papers from clinical trials listed in PubMed and Medline from 2000 to October 2011 for studies using fluoride to control dentin hypersensitivity (DHS) and prevent root caries. The results showed that fluoride toothpaste shows a fair effect on sensitive teeth when combined with dentin fluid-obstructing agents such as different metal ions, potassium, and oxalates. Fluoride in solution, gel, and varnish give an instant and long term relief of dentin and bleaching hypersensitivity. Most fluoride preparations in combination with dentin fluid obstruction agents are beneficial to reduce DHS, while prevention of root caries is favorable with higher fluoride concentrations. The authors concluded that fluoride is an effective agent to control DHS and to prevent root caries particularly when used in higher concentrations.

U.S. FOOD AND DRUG ADMINISTRATION (FDA)

Fluoride varnish currently has FDA approval as a cavity liner and desensitizer, and the application as a caries preventive agent is considered off label use. There are extensive manufacturers of fluoride varnish. See the following website for more information and search by specific product name: [http://www.fda.gov/MedicalDevices/default.htm](http://www.fda.gov/MedicalDevices/default.htm). (Accessed September 3, 2019)

There are extensive products for in office application that have FDA clearance for reducing dental hypersensitivity. Please refer to the following website and search for product specific name: [http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMN/pmn.cfm](http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMN/pmn.cfm). (Accessed September 3, 2019)

REFERENCES

American Dental Association (ADA). Glossary of Dental Clinical and Administrative Terms.

American Dental Association (ADA) CDT Codebook 2020.


INSTRUCTIONS FOR USE

This Dental Clinical Policy provides assistance in interpreting UnitedHealthcare standard dental benefit 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.