

INSURANCE SOLUTIONS NEWSLETTER



Silver Diamine Fluoride: Multiple Clinical Applications and Reporting Considerations

Although it is most often considered clinically a non-invasive method for arresting active caries, silver diamine fluoride, commonly referred to as SDF, has multiple other clinical uses within the dental office. The SDF compound combines the clinical properties of silver, which is naturally antimicrobial, and fluoride, which remineralizes and hardens tooth structures, along with ammonia, which acts as a stabilizing agent and also has inherent antiseptic properties. It is available in the United States as a 38% solution delivered as a brush on medicament¹.

Some clinical situations where SDF may be indicated include but are not limited to:

- Arresting dental caries in young children to avoid sedation for definitive treatment
- Arresting dental caries in uncooperative patients
- Avoiding invasive treatment on primary teeth that will soon be lost
- Arresting or preventing dental caries in medically compromised patients
- Arresting or preventing dental caries in geriatric patients
- Arresting or preventing decay when there are access to care issues
- Arresting root caries or coronal decay where more invasive treatments are not indicated
- Desensitizing root surfaces to relieve discomfort
- Applying under restorations to desensitize and prevent secondary decay
- Applying around existing crown margins to arrest or prevent secondary decay.
- Applying in pits and fissures to arrest or prevent decay (usually followed by application of a fluoride varnish)
- Applying to a preparation after selective caries removal to prevent pulpal exposure
- For interim application to prevent discomfort and cease disease progression until a definitive restoration can be placed
- As a disclosing solution to determine the presence of decay

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In 2014, the Food and Drug Administration (FDA) cleared SDF as a Class II medical device for the treatment of dental hypersensitivity, and it still carries this designation. In 2016, the FDA awarded breakthrough therapy status as a commitment to an application for approval of SDF as a drug to treat severe early childhood caries². As such, manufacturers must label their products only with instructions for use as a desensitizer, and other clinical applications, although commonly performed and thoroughly researched, are technically considered “off-label” uses of the material. The only common complaint about using SDF is that it will turn decayed or demineralized tooth structure dark due to the silver ions that are incorporated. Thorough informed consent and good case selection are key.

Proper Current Dental Terminology (CDT) coding is not defined by the product used but instead by the procedure performed. As with many products and prostheses, there are multiple CDT codes that may be applicable depending on the clinical application. Depending on how it is used, SDF may be independently reported in several ways using different CDT codes, or it may be used as a step in the delivery of another procedure with its own code.

Caries Risk Assessment

If a patient has an increased risk of decay, then all potential uses of SDF may benefit from performing and reporting a caries risk assessment³. This is performed by filling out a questionnaire that reviews risk factors. Such forms can be found on the ADA website⁴. A finding of moderate or high risk can demonstrate medical necessity for certain procedures, such as more frequent radiographs, preventive resins, adult fluoride, and caries arresting or preventive medicament application. While most carriers consider the delivery of a caries risk assessment as a part of other evaluations and do not reimburse these services, reporting the finding of increased risk may increase reimbursement for other services delivered.

A caries risk assessment may be reported using:

D0601 CARIES RISK ASSESSMENT AND DOCUMENTATION, WITH A FINDING OF LOW RISK

Using recognized assessment tools.

D0602 CARIES RISK ASSESSMENT AND DOCUMENTATION, WITH A FINDING OF MODERATE RISK

Using recognized assessment tools.

D0603 CARIES RISK ASSESSMENT AND DOCUMENTATION, WITH A FINDING OF HIGH RISK

Using recognized assessment tools.

SDF as a Desensitizer

As mentioned, SDF has been shown to be an effective dental desensitizer⁵ and currently has clearance by the FDA for this primary use. When applied to exposed or sensitive dentin, it forms an organic protein conjugate along with the silver, which can partially block exposed dentin tubules and therefore decrease hydrodynamic changes and subsequent intradental nerve stimulation. Healthy, sound tooth structure is not stained dark, but treatment could disclose areas of weaker tooth structure that were not clinically evident otherwise. As such, patients should be informed of the possibility of discoloration. Gingiva may be temporarily stained if exposed as well. Controlled placement of SDF fluid should be performed with good isolation and may be easier using a blue-tinted product, such as SilverSense SDF 38% Silver Diamine Fluoride from Centrix⁶.

If used as a root surface desensitizer, the procedure may be reported using:

D9910 APPLICATION OF DESENSITIZING MEDICAMENT

Includes in-office treatment for root sensitivity. Typically reported on a “per visit” basis for application

of topical fluoride. This code is not to be used for bases, liners or adhesives used under restorations.

D9910 is not generally reimbursed. The patient may be billed and is expected to pay out of pocket if the procedure is not reimbursed. An exception will apply for contracted PPO dentists who are prohibited from charging a separate fee for the application of a desensitizing medicament. Although D9910 is not a “by report” code, a narrative is suggested describing the patient’s sensitivity. The narrative would be specific to the patient’s documented diagnosis of sensitivity. D9910 (application of desensitizing medicament) is billed “per visit.” The treatment could be done on one tooth or the whole mouth, and the cost adjusted as appropriate.

An off-label use that is underutilized may be the application of SDF as a desensitizer under restorations, including resins and fixed crowns. In addition to desensitization, the medicament may potentially help prevent recurrent decay in the future. Use of SDF under a restoration is considered a base or liner, which is an integral part of the restoration and not reported separately.

If instead, SDF is being used to alleviate acute symptoms of pain/discomfort requested by the patient at the time and that is not curative, you may report:

D9110 PALLIATIVE TREATMENT OF DENTAL PAIN - PER VISIT

Treatment that relieves pain but is not curative; services provided do not have distinct procedure codes.

Palliative treatment describes a treatment performed to alleviate the patient’s acute and/or spontaneous complaint/problem that is not curative. Palliative treatment is appropriate as an interim step in the restorative process for children and adults to ease discomfort and stop the progression of disease if a restoration cannot be completed immediately. The service may be

performed at either an emergency visit or on the same date of service as separate, definitive care as long as the services are not related.

Always include a narrative based on the clinical notes from the date of service describing the patient’s complaint and the actions taken to relieve their discomfort. The fee reported for palliative treatment could vary according to the time spent and the complexity of the procedure. The fee charged should be consistent for both non-insured and insured patients under similar circumstances. Reimbursement for palliative treatment can vary widely between plans.

SDF for Prevention of Caries

Silver diamine fluoride may be used to remineralize and harden tooth structure before becoming an active carious lesion. This may be appropriate on root surfaces in higher-risk patients, in pits and fissures on occlusal surfaces (often followed by application of fluoride varnish), in demineralized areas, saturated or soaked into unwaxed floss to access interproximal areas, or along crown margins for the prevention of decay.

SDF may also be placed under restorations such as fillings or crowns to prevent recurrent decay. In fact, a 2021 article from the *Compendium of Continuing Education in Dentistry*⁷ states that, “Mechanistic studies suggest that SDF should be applied under restorative materials as a liner to harden infected or affected decayed dentin and provide long-term antibacterial effects.” Use of SDF under a restoration is considered a base or liner, which is an integral part of the restoration and not reported separately.

The ADA considers silver diamine fluoride to be a medicament, not a topical fluoride⁸. Caries preventive medicaments include Silver Diamine Fluoride (SDF), Silver Nitrate (SN), thymol-CHX varnish, and topical povidone iodine (PVP-I). If applying SDF to root or coronal surfaces for

primary prevention of decay or for remineralization without an active carious lesion, report:

D1355 CARIES PREVENTIVE MEDICAMENT APPLICATION - PER TOOTH

For primary prevention or remineralization. Medicaments applied do not include topical fluorides.

SDF for Arresting Active Caries

In 2018, the ADA published its “Nonrestorative Treatments for Carious Lesions Clinical Practice Guideline (2018),”⁹ based on a meta-analysis¹⁰ performed of numerous clinical studies. In the recommendations, it is noted that when arresting advanced cavitated carious lesions on any coronal surface of primary or permanent teeth, the expert panel suggested clinicians prioritize the use of 38% silver diamine fluoride (SDF) solution (biannual application).

The clinical studies reviewed showed that SDF helps disrupt plaque biofilm through its antimicrobial properties and remineralize affected hard tissue through the production of fluorhydroxyapatite. It is easy to apply even to uncooperative or disabled patients, and is very inexpensive. It can be used to arrest decay with no invasive mechanical removal, such as in a cavitated lesion or around a leaking crown margin, or it can be used after preparation to desensitize and harden exposed dentin and any remaining carious tissue with no negative effect on bond strength.¹¹

The only negative effects of SDF are the discoloration of treated carious hard tissue (while healthy tissue is unaffected) and potential pulpal or gingival irritation. Controlled placement of SDF fluid should be performed with good isolation and may be easier using a blue-tinted product, such as SilverSense SDF 38% Silver Diamine Fluoride from Centrix⁶.

If treating with a medicament for the primary purpose of arresting active decay, report:

D1354 APPLICATION OF CARIES ARRESTING MEDICAMENT - PER TOOTH

Conservative treatment of an active, non-symptomatic carious lesion by topical application of a caries arresting or inhibiting medicament and without mechanical removal of sound tooth structure.

Note that reporting of D1354 is applicable only when there is active decay present, the tooth is non-symptomatic, and there is no removal of sound tooth structure as when prepping for a definitive restoration. Use of SDF under a restoration is considered a base or liner, which is an integral part of the restoration and not reported separately.

If a definitive restoration is planned on a future date for a carious lesion, you may consider routine application of SDF as an interim solution to prevent discomfort and cease disease progression until the definitive restoration can be placed. Be aware that coverage will vary by plan, and it is possible that reimbursement of these treatments may preclude reimbursement for subsequent definitive restorations placed on the same tooth on a later service date or the deduction of reimbursement of the interim service from the definitive service. However, reimbursement should not dictate proper care of the patient.

A single application of SDF where no definitive restoration is to be performed is insufficient. Clinical recommendations include reapplication of SDF at least annually, and preferably biannually to maximize effectiveness. Dental plans may include all medicament application visits in the global fee of the single tooth procedure, so your initial fee should reflect this. Reimbursement may also be limited to treatment of primary teeth; however, a good narrative indicating the reason D1354 was provided instead of a definitive restoration along with a caries risk assessment showing a moderate to high risk of decay may affect the outcome of reimbursement

for adult treatment. If denied, resubmit with an emphasis on the elevated caries risk, if appropriate.

In addition to the application of SDF on root or coronal surfaces, many providers choose to place a topical fluoride varnish such as FluoroDose 5% Fluoride Varnish as a final step to help hold the medicament in place. This may also be performed during a recare visit when all teeth are treated with the varnish for general caries prevention. The fluoride varnish may be separately reported using:

D1206 TOPICAL APPLICATION OF FLUORIDE VARNISH

Reimbursement for the topical fluoride varnish is likely for children but unlikely for adults. Again, this may be influenced by the reporting of a moderate to high caries risk assessment in certain circumstances. Fees for the fluoride varnish may generally be passed to the patient, however.

Summary

As discussed, silver diamine fluoride has many possible clinical uses within the practice of dentistry, many of which are underutilized. Coding and reporting of these services is dependent on the primary use of the medicament. As use of this product grows within the industry, reimbursement for its use may increase as well. **///**

¹Crystal, Y. O., & Niederman, R. (2019). Evidence-Based Dentistry Update on Silver Diamine Fluoride. *Dental Clinics of North America*, 63(1), 45. <https://doi.org/10.1016/j.cden.2018.08.011>

²Horst JA. Silver Fluoride as a Treatment for Dental Caries. *Advances in Dental Research*. 2018;29(1):135-140. <https://doi.org/10.1177/0022034517743750>

³Practice Booster. D0601 Caries risk assessment with a finding of low risk. <https://www.practicebooster.com/codepreview.asp?id=1263>

⁴American Dental Association. Caries Risk Assessment and Management. <https://www.ada.org/resources/research/science-and-research-institute/oral-health-topics/caries-risk-assessment-and-management>

⁵Castillo, J. L., Rivera, S., Aparicio, T., Lazo, R., Aw, C., Mancl, L. L., & Milgrom, P. (2011). The Short-term Effects of Diammine Silver Fluoride on Tooth Sensitivity: A Randomized Controlled Trial. *Journal of Dental Research*, 90(2), 203-208. <https://doi.org/10.1177/0022034510388516>

⁶SilverSense SDF 38% Silver Diamine Fluoride <https://www.centrixdental.com/silversense-sdf>

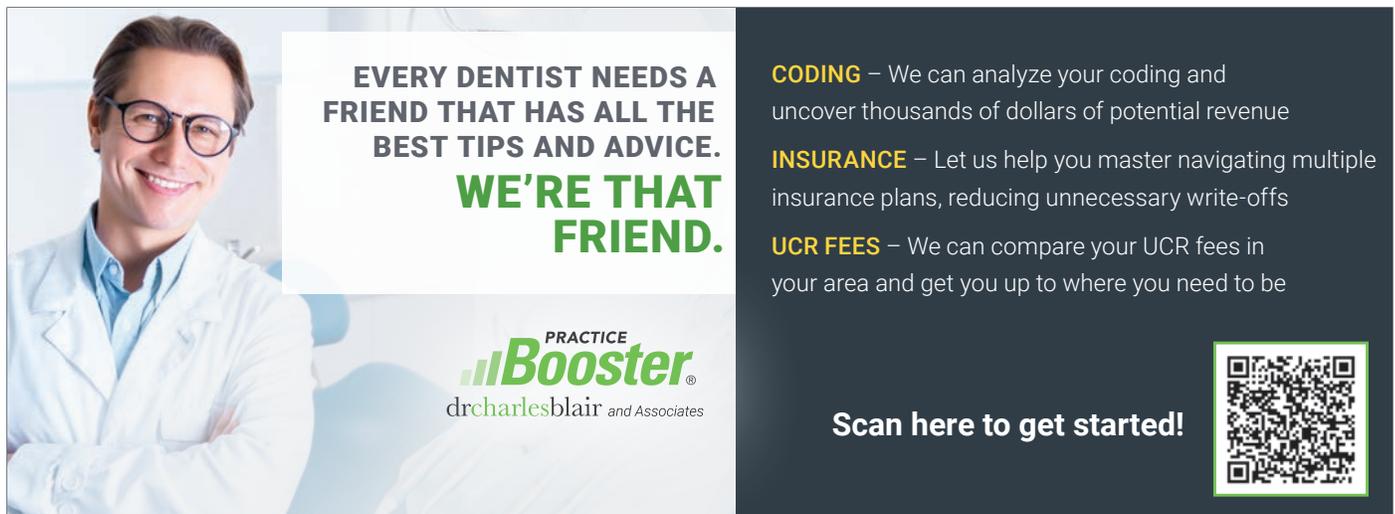
⁷Young, DDS, EdD, MBA, MS, et al, Douglas A. "Clinical Instructions for Using Silver Diamine Fluoride (SDF) in Dental Caries Management." *Compendium of Continuing Education in Dentistry*, vol. 42, no. 6, 2021, Online Only. *Compendium*, <https://www.aegisdentalnetwork.com/cced/2021/06/clinical-instructions-for-using-silver-diamine-fluoride-sdf-in-dental-caries-management>.

⁸American Dental Association. D1355 – ADA Guide to Reporting Caries Preventive Medicament Application, Version 2 – September 01, 2021. https://www.ada.org/-/media/project/ada-organization/ada/ada-org/files/publications/cdt/d1355_adaguidetoreportingcariespreventivemedicamentapplication_2021aug.pdf

⁹American Dental Association. Nonrestorative Treatments for Carious Lesions Clinical Practice Guideline (2018). <https://www.ada.org/resources/research/science-and-research-institute/evidence-based-dental-research/caries-management-clinical-practice-guidelines/evidence-based-clinical-practice-guideline-on-nonrestorative-treatments-for-caries-lesions>

¹⁰Urquhart O, Tampi MP, Pilcher L, et al. Nonrestorative Treatments for Caries: Systematic Review and Network Meta-analysis. *Journal of Dental Research*. 2019;98(1):14-26. <https://doi.org/10.1177/0022034518800014>

¹¹Quock, RL et al. Effect of silver diamine fluoride on microtensile bond strength to dentin. *Operative Dentistry*. 2012 Nov-Dec;37(6):610-6. <https://doi.org/10.2341/11-344-L>.



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