SDF Essentials

A quick guide for general practitioners

BY DR. ROOPWANT KAUR

Silver diamine fluoride (SDF) has emerged as a highly effective tool in modern dentistry, offering several advantages, from halting the progression of dental caries to providing clinicians with greater flexibility in treatment options. Additionally, SDF provides opportunities for increased revenue through billable services, making it a valuable asset for dental practitioners. This article outlines key aspects of incorporating SDF into your practice, including essential considerations for diagnosis, restoration, staining, insurance coverage and the learning curve associated with its use.

My hygienist found a lesion!

The early detection of carious lesions by dental hygienists is a vital step in preventing further tooth decay and preserving oral health. When a carious lesion is identified during a routine examination, it is important to confirm the diagnosis. Instruct your registered dental hygienist (RDH) to immediately apply SDF to arrest the progression of the lesion. SDF is a potent compound that combines antimicrobial silver ions, remineralizing fluoride and stabilizing ammonia to effectively halt caries in their tracks (Horst et al., 2016). By doing so, you gain valuable time to plan definitive treatment, particularly when working with challenging cases, such as children or patients with limited access to dental care. Adult patients will almost always be reappointed for the restoration. SDF ensures the lesion will not progress until they return.

Why restorations are almost always needed

While SDF is highly effective in arresting the progression of caries, it is important to recognize that restorations are usually necessary to restore tooth function and aesthetics. SDF serves as a temporary intervention that prevents further decay but it does not repair or replace lost tooth structure.[1] Restorations should be planned and executed once the caries process has been arrested. For patients who are young, uncooperative or have special needs, SDF offers a way to control the lesion until definitive treatment can be administered. For adults, because many patients do not return as prescribed, SDF provides flexibility and safety until they return for the restoration.

Can I use my trusted composites?

Yes, you can certainly continue using your preferred composite materials for restorations after applying SDF. However, consider integrating glass ionomer cement (GIC) into your restorative protocol. GIC offers significant benefits because of its chemical bond to the tooth structure, its fluoride-releasing properties and its ability to prevent further caries progression at the margins of restorations.[2] When combined with SDF, GIC enhances the caries-preventing effects and provides an additional layer of protection.

Should I add a GIC layer?

Integrating a layer of GIC before placing composite restorations can improve the longevity and effectiveness of the restoration. GIC serves as a sealant and provides sustained fluoride release, which helps prevent secondary caries. This combination is particularly beneficial in areas prone to recurrent decay, ensuring that the restoration is both durable and resistant to future cavities.[2] The use of GIC in conjunction with SDF creates a more comprehensive, preventive treatment approach.

What about staining?

One of the most common concerns with SDF is its potential to stain decayed or demineralized tooth structure. The silver ions in SDF can cause dark discoloration of the lesion (active, decayed), but not the tooth itself. While this staining is purely cosmetic and does not affect the tooth's health or function, it can be a concern for patients.[3] It is crucial to manage patient expectations by providing clear, informed consent regarding the possibility of staining, as well as the final aesthetic result after restoration. Selecting appropriate cases, such as those where aesthetics is less of a concern or where the decay is located in less visible areas, can help mitigate these concerns (Figs. 1a–1b, p. 38). Since most lesions need to be restored, especially for adult patients, the final restoration will completely cover all discoloration.

Figs. 1a and 1b. Many adult patients find the application of SDF on posterior teeth acceptable.

Is SDF covered by insurance?

Insurance coverage for SDF varies by payer, but it is typically coded under the Current Dental Terminology (CDT) code D1354, which corresponds to the application of a caries-arresting medicament. It may also be billed under other codes depending on the clinical application, such as D9910 for desensitizing medicament or D9110 for palliative treatments.

To ensure reimbursement, always include detailed clinical notes and narratives explaining the necessity of the SDF application. This documentation can help justify the use of SDF as part of a comprehensive treatment plan.

Below are key CDT codes for SDF application, their clinical scenarios and insurance implications:

D9910: Application of desensitizing medicament

- **Application**: In-office treatment for root sensitivity.
- **Details**: Typically reported on a per-visit basis for applying topical fluoride.
- **Not to be used for**: Bases, liners or adhesives under restorations.
- **Insurance**: Suggested to include a narrative describing the patient's sensitivity. Generally billed per visit. This can be done on all teeth or specific teeth.
- **What to do:** Be aware that reimbursement is often not provided, and patients may need to pay out of pocket unless PPO providers are prohibited from charging separately for the procedure.

D9110: Palliative treatment of dental pain—per visit

- **Application:** Treatment that relieves acute/spontaneous pain but is not curative.
- **Details:** Used for alleviating the patient's acute or spontaneous complaints/problems. It serves as an interim step in the restorative process—providing comfort while preventing disease progression if restoration cannot be completed immediately.
- **Not to be used for:** Definitive care.
- **Insurance:** Includes a narrative describing the patient's complaint and actions taken to relieve discomfort. Reimbursement can vary by insurance plan, with fees based on time spent and the complexity of the procedure.

D1355: Caries preventive medicament application—per tooth

- **Application:** Used for primary prevention or remineralization without an active carious lesion.
- **Details:** Applied for preventive care on high-risk patients, including root surfaces, pits and fissures, and demineralized areas.
- **Insurance:** SDF is considered a medicament, not a topical fluoride. This code may

apply if SDF is used for primary prevention on root or coronal surfaces without an active lesion.

D1354: Application of caries arresting medicament—per tooth

- **Application:** Used for conservative treatment of active, non-symptomatic carious lesions by applying a caries arresting or inhibiting medicament, such as SDF, without mechanically removing sound tooth structure.
- **Details:** Effective for arresting active decay, particularly with 38 percent SDF. Reapplication is often recommended at least annually, preferably biannually.
- **Insurance:** Coverage varies by plan. A strong narrative justifying the use of D1354 over a definitive restoration—based on caries risk assessment and clinical necessity—can support the claim. If reimbursement is denied, resubmit with an emphasis on the elevated caries risk and medical necessity.

D1206: Topical application of fluoride varnish

- **Application:** Used for caries prevention.
- **Details:** This code can be used for fluoride varnish treatments typically applied during a recall visit to all teeth for general caries prevention.
- **Insurance:** Likely reimbursed for children but often not for adults, unless a moderate to high caries risk assessment is reported. Fees may be passed on to the patient.

Tips for navigating insurance and SDF coverage

- **Document the patient's caries risk assessment**. A thorough risk assessment that identifies the patient's susceptibility to dental caries can help justify the use of SDF, particularly in states or insurance plans that are more restrictive.
- **Narrative and justification**. Always provide a well-documented clinical narrative detailing why SDF was the appropriate choice, particularly in situations where it is used instead of more invasive restorative procedures.
- **Check with your state Medicaid office**. Medicaid coverage for SDF can vary even within states that have approved its use. It's important to check the local Medicaid provider manual for specific policies and reimbursements.
- **Consider a pre-authorization request**. In some cases, submitting a pre-authorization request with detailed clinical notes can help ensure reimbursement for SDF applications, particularly in situations where there is uncertainty about coverage.

Keep in mind that SDF is cost-effective: the cost to the office is typically around $1 per patient.

What is the learning curve?

One of the major advantages of SDF is its simplicity and ease of use. The learning curve for applying SDF is minimal, and it is a straightforward procedure that can be incorporated quickly into your practice. The process involves isolating the affected tooth, drying the area and applying the SDF solution with a micro brush. The entire procedure can be completed in just a few minutes, making it a time-efficient option for busy practices.[4] Training your dental team to understand the protocol and ensure proper application is key to integrating SDF successfully into your workflow.

SDF: From diagnosis to restoration

- **Step 1: Confirm the diagnosis**
  Upon detecting a lesion, confirm the diagnosis and instruct your RDH to immediately apply SDF. This swift action arrests the decay and prevents it from worsening, buying you time to plan a more definitive treatment. It is beneficial to treat a high-risk patient with fluoride varnish post-SDF, as it will also help mask the metallic taste the patient may feel after SDF application.

Figs. 2a and 2b. Lesion after SDF treatment is masked with Tempit temporary filling material (Centrix, Inc.) before final restoration.

- **Step 2: Reappoint for two to four weeks** Schedule a follow-up appointment within two to four weeks to reassess the lesion. This follow-up allows the SDF to fully arrest the decay, providing an opportunity to plan the final restorative treatment. Reappointment is optional if the patient cannot return because of their schedule or financial reasons.
- **Step 3: Restoration with usual materials** During the follow-up visit, proceed with restoration using your usual materials. Consider incorporating a GIC into your protocol for additional protection against future decay.
- **Step 4: Fast and easy learning** The SDF application process is quick and easy to learn. Familiarize yourself with the steps and educate your team to ensure smooth and efficient incorporation of SDF into your practice.

Insurance coverage

Understanding how to properly code and document SDF applications is crucial for maximizing insurance reimbursement. Make sure to include appropriate clinical narratives and adhere to CDT codes to ensure that your use of SDF is reimbursed. Regularly reviewing the ADA's guidelines for caries risk assessment can help reinforce the medical necessity of this treatment in your records.

Temporary restorative materials

In some cases, it may be helpful to use a temporary restorative material, such as Centrix Tempit, between the initial SDF application and the final restorative procedure (Figs. 2a–2b). These materials help manage both function and aesthetics while preventing further decay progression.[5] This approach can be particularly useful for patients who need a stopgap solution before definitive restoration.

Clinical applications of SDF

SDF has several key clinical applications, including:

- Arresting dental caries in pediatric patients, uncooperative individuals and those with special health care needs.[6]
- Preventing caries in geriatric patients or those with limited access to dental care.[7]
- Arresting dental caries in general restorative patients to prevent progression of the lesion between diagnosis and the restorative appointment.
- Desensitizing root surfaces and preventing secondary decay in patients receiving restorations.[8]
- Using SDF as a disclosing solution to assess the presence of decay.[9]

SDF is an FDA-cleared Class II medical device for the treatment of dental hypersensitivity,

with well-documented off-label uses for caries arresting and as an interim step in the restorative process when restorative treatment cannot be performed right away.

Conclusion

Incorporating SDF into your dental practice provides a valuable, versatile tool for managing dental caries. It enhances patient care by offering a non-invasive, cost-effective option to arrest decay while you plan and execute definitive restorative treatments. The learning curve is minimal, and with proper insurance coding and documentation, SDF can help increase revenue opportunities. By adding SDF to your clinical toolkit, you enhance both the quality and scope of care you provide to your patients. **DT**

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