

Silver Diamine Fluoride

A fast, easy, painless, and safe tool to
manage caries in children.

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What is Silver Diamine Fluoride (SDF)

SDF is an antimicrobial liquid comprised of silver, water, ammonia, and fluoride. It is a basic solution (pH of ~10) with a 38% w/v Ag (NH₃)₂F that reduces the presence of pathogens, strengthens softened dentin, and alleviates dentinal hypersensitivity. When SDF is applied twice a year on primary teeth, its effectiveness in arresting decay can be as high as 80%.¹

Provide Flexible Treatment Options

Dental caries remains one of the most common chronic diseases of childhood. In the United States, the prevalence of total dental caries (untreated and treated) in primary or permanent teeth among youth aged 2–19 years is 45.8%.⁷ Traditional treatment methods are often associated with pain, fear, and risk. Young children lack the cooperation and coping skills to undergo restorative treatment, which often necessitates sedation, anesthesia, or unnecessary visits to the emergency room department. And treatment alternatives can include pulpotomies and stainless-steel crowns, all more traumatic and unsightly than SDF.

The appropriateness of traditional operative dentistry under sedation and general anesthesia as the first line of treatment for dental caries in primary teeth is in question.² It is estimated that 100,000–250,000 pediatric dental sedations are performed each year in the USA, and practitioners anticipate a need for more pharmacologic behavior management in the future.⁸

- Children are the patient subgroup with the lowest error tolerance regarding deep sedation-supported care.³
- 1 in 12 deep sedation cases in a dental clinic setting lead to adverse events, which include laryngospasm, airway obstruction, respiratory depression and more.³
- Children are predisposed to deep sedation and general anesthesia-related respiratory problems because of age-related variations in anatomy and physiology.³
- The average wait time for complex dental care in the operating room with general anesthesia is long: 28 days for children experiencing pain and 71 days for children without pain.⁴ Extended wait times result in further disease progression or unnecessary visits to an emergency department (ED).
- The utilization of ED for dental conditions has increased among pre-school children in the last decade and was mostly due to caries-related dental problems. Effective preventive strategies are needed to improve the oral health condition of children.¹⁰

Effective preventive strategies are needed to improve the oral health condition of children. (SDF) helps avoid or delay restorative treatment under sedation in young children and improves patient outcomes.

Eliminate Patient Fears

Dental anxiety begins with childhood experiences and is a real obstacle that prevents patients from obtaining the care they need. In fact, about 10% to 20% of US adults do not receive necessary dental treatment because of these fears.⁴ Silver diamine fluoride is fast, easy, and painless. No need for injections, anesthesia, or drilling. SDF provides a better patient experience and is a great tool to help your patients overcome the fear of the dentist.

Fast & Easy Procedure



STEP 1:

Ensure the tooth is clean and dry.

- Isolate the tooth (rubber dam or cotton roll).
- Remove excess plaque.
- Dry the affected area with a cotton pellet.



STEP 2:

Place 1-2 drops of SDF into a disposable dappen dish.



PRO TIP

Apply fluoride varnish after SDF treatment on all teeth to mask the metallic taste of SDF and protect the rest of the patient's teeth that are at risk for decay.⁵



STEP 3:

Apply SDF directly to the affected tooth surface with a micro applicator. Reapply until the lesion stays wet.

For approximal surfaces, apply to embrasures. SDF will wick into the lesion.



STEP 4:

Allow to air dry for 60 seconds. Do not rinse.

Remove excess SDF with a cotton pellet.

FACTS ABOUT SDF TO KEEP IN MIND

- Not a cure for caries; proper oral hygiene, diet, and regular dental checkups and preventive care are necessary to help patients maintain good oral health long-term.
- **Only** infected lesions will darken, while healthy enamel and dentin remain unaffected.
- Restoration may still be required for lesions that trap food, and poor function.
- Should not be applied on lesions encroaching on the pulp as direct exposure can cause pulp necrosis.⁶



Photos courtesy of Smiles Across Montana.

IS SDF SAFE?

Yes! Studies show no serious adverse reactions or side effects in patients treated with SDF. In 2014 SDF was approved by the U.S. Food and Drug Administration (FDA) for the treatment of tooth sensitivity.¹ In 2016, the FDA awarded breakthrough therapy status as a commitment to an application for approval of 38% SDF as a drug to treat severe early childhood caries.⁹

CALL TO ACTION

The American Academy of Pediatric Dentistry, (AAPD), The American Academy of Dentistry (ADA) and the US Surgeon General, all support and encourage dental professionals to include SDF as part of an ongoing caries management plan.^{11 12}



SDF Treatment Advantages

- Little preparation required; treatment can easily be incorporated into the hygiene appointment as soon as decay is detected.
- No need to remove decay, resulting in a painless procedure with no drills, needles or anesthetic.
- Stop and/or prevent pain, infection, and premature tooth loss, ensuring proper development of teeth and jaw.
- Avoid or delay restorative treatment until the patient is mature enough to handle definitive care without general anesthesia.
- Prevent further progression of decay when restorative treatment cannot be completed immediately.
- Treatment is affordable and covered by most insurance, both public and private.

Contraindications

- Patients with ulcerative gingivitis or stomatitis or known sensitivity to silver or other heavy-metal ions.
- Patients with six or more affected sites, or patients having had full mouth gingivectomies.
- Patients showing abnormal skin sensitization in daily circumstances.

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