

# Increasing Access to Care Through the Use of Silver Diamine Fluoride in the Geriatric Population

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# Disclaimer

I, Nicole White DDS, do not have a financial or business relationship with any entities that sell or manufacture products listed in the presentation.

# Brief Bio:

- Married with 3 beautiful children and a large extended family.
- Graduated from UMKC School of Dentistry in 2008.
- Practice at Northwest Health Services, an FQHC in St. Joseph, MO from 2008, then became Chief Dental Officer in 2013, and expanded the Nursing Home Dental Program.
- 2016 appointed to the Missouri MC+ Dental Advisory Committee.



# Goals and Learning Objectives

1. Describe a brief history of SDF and how it works.
2. Understand the process and procedure for the SDF application.
3. Determine the benefits and contraindications for using SDF when treating class V lesions.
4. Apply basic methods and treatment options for treating the geriatric population with SDF and its benefits.
5. Relate efforts to improve quality and reduce cost to caries management challenges in the elderly population.

# Brief History of SDF

- \* In the 1800s, Stebbins reported the arrest of carious dental lesions by the application of silver nitrate. <sup>1</sup>
- \* In Japan, 80 years ago SDF was approved for use however, data suggests it was utilized over 900 years ago. <sup>2,3</sup>
- \* In 2014, the FDA approved the use of SDF for the treatment of dental sensitivity and it was made available. <sup>2</sup>

# How does SDF work?

- \* SDF inhibits dentin demineralization, preserves collagen and inhibits collagen breakdown, which increases dentin hardness. <sup>4</sup>
- \* By forming a silver-protein conjugate on decayed dentin, it increases resistance to acid dissolution. <sup>5</sup>
- \* Hydroxyapatite and fluorapatite form on exposed organic matrix. <sup>5,6</sup>
- \* Silver ion inhibits the reproduction of microbes, fluoride for remineralization and ammonia stabilizes. <sup>6,10</sup>

**Outcome: Decreased sensitivity and arrest of the decay 91% of the time if applied two times a year. <sup>7,8</sup>**

# Benefits and Contraindications of SDF

## \* **Benefits:**

1. Decreases dentin sensitivity.<sup>9</sup>
2. Decreases lesion depth by increasing density and hardness= caries stabilization = arrest decay and buys you some time.<sup>10</sup>
3. Cost effective (1 drop can treat 5 teeth, 8mL bottle there are about 250 drops, cost per bottle \$174.95.....\$0.70 per drop that can treat 5 teeth). Apply a minimum of two times a year to be effective.
4. Simple and quick process : discussion, consent, rinse area, cotton roll isolation, dry, apply SDF to the lesion, dry/light cure)
5. No need for injections.

## **Contraindications:**

1. Silver allergy<sup>11</sup>
2. Stomatitis or Ulcerative Gingivitis.



# Lets talk about the elderly.....

- \* **The population of adults over age 65 in the US, is expected to double by 2050.** <sup>12</sup> Are we ready?
- \* **Elderly population have increased caries risk.**  
Increased chronic medical issues  
Increased medications = more side effects (dry mouth, ulcers, etc).  
Strong association between general and oral health.  
Decreased manual dexterity and cognitive function.
- \* **70% of seniors do not have dental coverage/ insurance.** (HRSA)  
Cost is a “BIG” barrier to care, a majority are living on a fixed income.
- \* **Due to increased health issues,** many have difficulty laying back or opening for long periods of time and limited cooperation.
- \* **Transportation and mobility issues.**

# Case 1: Nursing Home Patient - Jane



1. Current weight is 348 lbs. transport can only be completed by ambulance.
2. Complex Medical History: Chronic diabetes with frequent infections. Kidney disease, often in and out of the hospital.
3. She does not like to leave her bed.
4. She brushes her teeth two times a day, but will not allow staff to help her and manual dexterity is an issue. No pain just some sensitivity.
5. She hates having dental treatment completed and has refused to come in the past when appointments were set up.

# Possible Treatment Options:

1. SDF- D9910 (D1354 only for ages 1-5 years of age)
2. Restore via a mobile dental operator that can be set up and complete restorative work in the patient's room.
3. Restore by transporting the patient to the dental office and complete in the Versa Tilt Chair.
4. Minimally invasive procedure: spoon out what you can and restore with glass ionomer.
5. Nothing- refusal of recommended treatment.  
Refer to OS for pain.



# Treatment Completed:



Jane was adamant about “no shots” and what had to be completed must be done without her leaving her bed. We had many discussions regarding treatment and outcomes; she decided that placing the SDF would be the best option for her. I completed a code 9910 (application of desensitizing medicament). She has been stable with applications every six months.

Two years ago, I treated her with SDF; to date the decay is stable.

# Case 2: Group Home Patient -Jimmy



1. Jimmy has no desire to change his habits of soda and coffee with extra sugar.
2. Jimmy does not allow staff to brush his teeth and he does not like the taste of toothpaste. Staff reported that he complains about sensitivity every once in a while.
3. Jimmy hates needles and stated, "I don't want you to drill on my teeth, that would make me mad!"
4. Jimmy is not covered under any type of dental insurance, he did apply for our discount program.
5. The family would like the teeth to be fixed and do not want any teeth extracted.

# Possible Treatment Options:



1. SDF- D9910 (D1354 only for ages 1-5 years of age). Not ideal for the family.

2. Restore- with help from PCP, knowing outcome will not be successful without changes in diet and home care.

3. Minimally invasive procedure: spoon out what you can and restore with glass ionomer.

4. Nothing - refusal of recommended treatment. Refer to OS for extractions when in pain.

# Treatment Completed:

- Jimmy's family wanted the teeth restored and Jimmy did not.
- We had many discussions, trying to figure out the best plan for him. I placed restrictions on his diet to discontinue/limit soda, but after one day the facility called to let us know he became violent with staff.
- We ended up completing SDF, to slow the process and make him more comfortable. I completed a code 9910 (application of desensitizing medicament). The family ended up agreeing this was the best treatment option, until they could look into possible dental sedation.

# Case 3: Nursing Home Patient - Jen



1. Currently in a nursing home due to systemic conditions, that prevent her from caring for herself.
2. Complex and chronic medical conditions that affect dexterity.
3. Previous drug use, but has been clean for 6 years.
4. She brushes her teeth one time a day and likes her pop. Currently she has no pain just some sensitivity.
5. She would like to have treatment completed, and is covered by adult MC+.

# Possible Treatment Options:

1. Restore areas that do not require RCT. (Several are very close to the pulp.)
2. Extract- Patient currently has a maxillary full denture; however does “not want to go without teeth” and right now has no means to pay for a mandibular denture.
3. SDF- D9910 - to buy her some time to save up for a full mandibular denture.
4. Nothing

# Treatment Completed:

After much discussion and review of the radiographs.....

We chose option #3. SDF- D9910 - to buy her some time to save up for a full mandibular denture.

She understands that it has be completed two times a year, will help with the sensitivity and it is not a definitive treatment.

# Conclusion

- \* Every case and patient are different. When treating elderly and special needs patients; we have to think outside the box. There are times “textbook” situations are not achievable.
- \* The elderly population is increasing; they have increasing caries rate; however, a majority are without insurance. We have to learn to do more, with less funds.
- \* SDF should be considered as a treatment option. It is a proven safe and cost effective alternative.
- \* Do the best you can!

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