

# Effectiveness of Silver Diamine Fluoride in Delaying Progression of Dental Caries

## INTRODUCTION

- ☞ Silver diamine fluoride (SDF) is often used as interim treatment due to its ability to remineralize enamel/dentin, as well as silver’s antibacterial abilities.
- ☞ Previous studies suggest that the effects of SDF application are present for up to 6 months, with evidence suggesting reversion back to lesion occurring around 24 months.<sup>1</sup> Randomized trials show that SDF can be an efficient treatment for sensitivity and caries.<sup>2</sup>
- ☞ SDF is considered safe and effective treatment with ease of application allowing usage on uncooperative children who have dental anxiety and are not able to tolerate technique sensitive definitive restorative treatment.<sup>3</sup>

## PURPOSE

- ☞ To examine the effectiveness of SDF in delaying progression of dental caries in primary anterior dentition within a pediatric population.

## METHODS

- ☞ Review of records of 2-5 y.o. patients seen in a community hospital in 2020-2023 with decayed primary anterior dentition who received SDF treatment. Patients without follow up data were excluded from the study.
- ☞ Delay in progression of caries from baseline to follow-up was examined using survival analysis.
- ☞ Log rank tests were used to compare differences in survival times across selected baseline covariates (e.g., age at SDF application, gender, ethnicity, American Society of Anesthesiology (ASA) classification).

## RESULTS

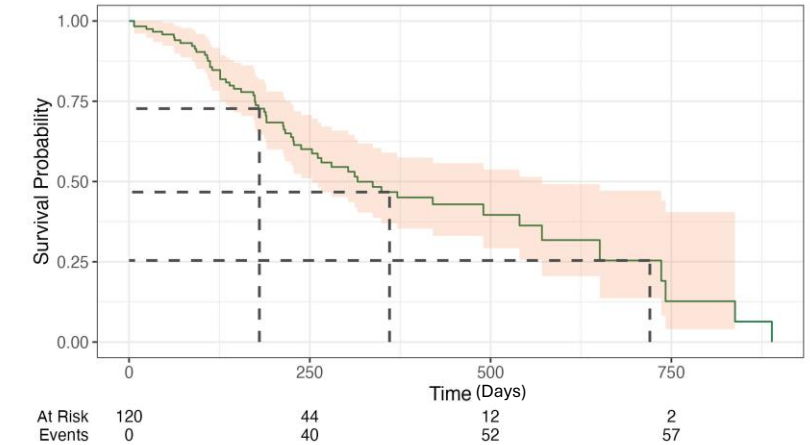
- ☞ The final analytic sample consisted of 120 patients with average age 3 years 8 months (SD = 1 year), 56 (46.7%) were females, 96 (80.0%) were classified as ASA I, and median number of teeth per patient treated with SDF was 3 (IQR = 2) (see Table 1).
- ☞ Fifty-nine children had caries marked as arrested during re-evaluations.
- ☞ Kaplan Meir curves indicated survival probabilities of 0.73, 0.47, and 0.25 at 6, 12 and 24 months, respectively (see Diagram 1).
- ☞ Log rank tests did not indicate significant differences in survival times based on age, gender, ethnicity, or ASA classification.

### Overall (N=120)

<b>Gender</b>	
Female	56 (46.7%)
Male	64 (53.3%)
<b>Ethnicity</b>	
Asian	22 (18.3%)
Black	8 (6.7%)
Hispanic	56 (46.7%)
Missing	32 (26.7%)
White	2 (1.7%)
<b>Age</b>	
Mean (SD)	3.67 (0.982)
<b>ASA Classification</b>	
1	96 (80.0%)
2	24 (20.0%)
<b>Tooth count</b>	
Median [Min, Max]	3.00 [1.00, 6.00]

Table 1. Demographic Distribution

Diagram 1. Survival Analysis



## DISCUSSION

- ☞ SDF application can be used as a temporary measure to delay progression of dental caries until more definitive treatment is possible.
- ☞ The probability of caries being arrested reduced 150% from 6 to 12 months, suggesting that clinicians might consider reapplication of SDF after the 6 months mark.
- ☞ Factors such as gender, ethnicity, age, ASA classification, and number of teeth treated did not affect the effectiveness of SDF to arrest caries.
- ☞ Possible limitations of the study include provider consistency, difference in application/isolation technique, patient cooperation level, and lost to follow up.

## REFERENCES

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