

Prevention of Incipient Dental Caries

Implementation of Silver Diamine Fluoride in an Urban Indian Health Service Dental Clinic

Albuquerque Indian Health Service Dental Clinic (AIDC)

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Element 1: Purpose

Background

Silver Diamine Fluoride (SDF) is a safe, low cost and effective treatment for caries prevention and management. Our patient population is comprised of American Indian patients who live in surrounding tribal villages and often present with rampant decay. Many children are referred to us due to non-compliance or uncooperative behavior. Furthermore, our clinic saw an increase in patients that drive far to see us because a lack of access to care due to Covid-19 closings of local Indian Health Service (IHS) dental clinics. For these reasons, it only seemed fitting to implement SDF into our clinic, further optimizing preventive procedures we offer. SDFs easy application and minimally invasive character allows for the potential to help increase access to care and improve the quality of life for our patients.

Purpose

The purpose of this program is to educate our staff about SDF, its need in our patient population and instructions for use/application with the ultimate result of preventing and/or decreasing incipient carious lesions.

Element 2: Goals

There are no current benchmarks for SDF placement within Indian Health Service. AIDC was averaging **42 SDF placements/tooth surface per month in 2019**. This number is our baseline.

Goal #1: Double the baseline number to 100 SDF placements per tooth surface per month for year 2020

Goal #2: Triple the baseline number to 300 SDF placements per tooth surface per month for year 2021

Element 3: Data Collection Plan

Description of Data

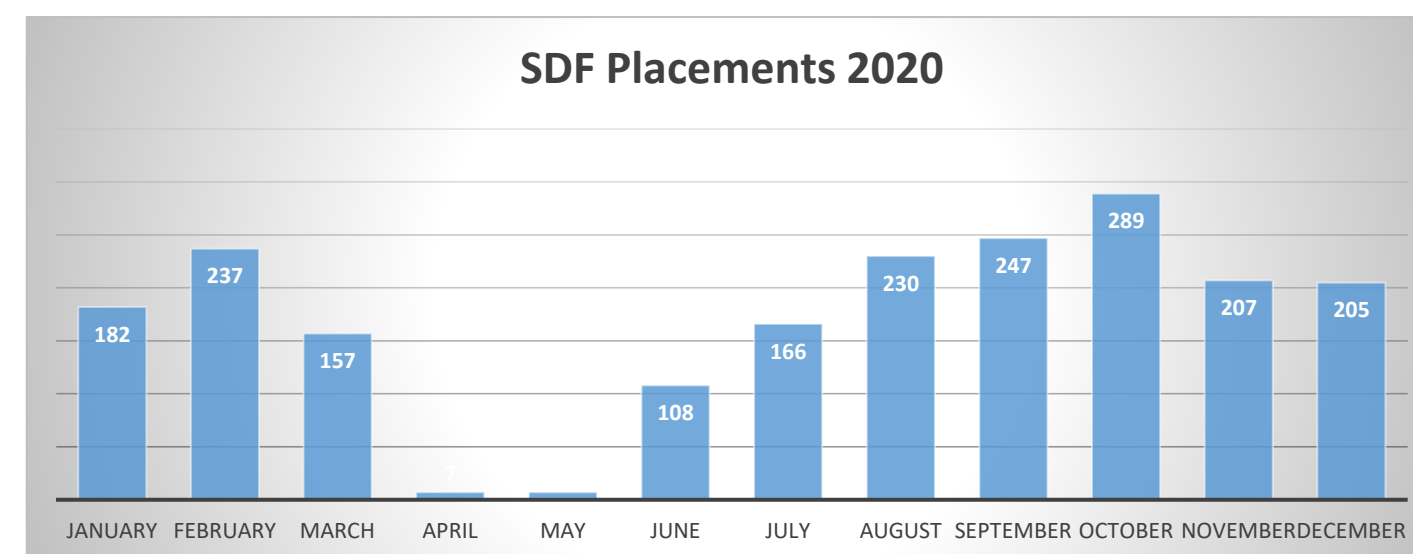
SDF Code (D1354) will be followed monthly which is tracked via the Resource and Patient Management System (RPMS).

Monthly numbers will be calculated, reviewed, and the yearly average will be calculated at the end of the year.



- An antimicrobial treatment for the infection that causes tooth decay and for the reduction in tooth sensitivity.
- For years used for dentinal hypersensitivity and carious lesions internationally
- 2014 FDA cleared for use in the US for dentinal hypersensitivity
- 2016 FDA granted clearance for arrest of dental caries

Element 4: Data Collection



Element 5: Data Analysis

- Measurements were done quarterly
- All findings were discussed with the governing board and quality committee
- SDF numbers noticeable went down when the Covid -19 pandemic started in April of 2020

Element 6: Comparison to Goal

- Completed data for 2020 was calculated and it was determined that an average of **170 SDF** placements per tooth surface per month for 2020 was completed. **We surpassed our goal #1 and will continue QI to reach goal #2.**

Element 7: Corrective Actions

Identified Issues

- We needed expert advise on how to proceed with standardizing the placement of SDF.
- We realized we needed to show patients and parents how SDF is placed in addition to show possible side effects, mainly discoloration of teeth and skin.
- Several parents called the clinic concerned about the discoloration on their children's faces.
- The patient education videos were not working well. The IPADs were not charged when needed, passwords were not working, it took away time from appointments
- In order to keep placement of SDF standard for all providers at AIDC, we needed all supplies to be kept together in an SDF pack
- Providers reported concerns that they could not see the SDF solution, which was clear and when placed in a white mixing well you could not see the solution.
- In order to increase SDF placement, we needed to train more providers and dental assistants how to administer SDF.
- SDF tattoos on cheek/lips started to become a common issue. Counter tops were beginning to get damaged.



Case Study 2020, AIDC

Corrective Actions

- Dr. Jeremy Horst (a pediatric dentist, considered an expert in the area of SDF) was consulted. All AIDC dentists were trained on how to apply SDF
- Patient education videos were generated to show the ease of application and to show discolored teeth and skin.
- An SDF consent form was generated.
- Paper SDF brochures were created. Parents could take these home.
- SDF was placed in a designated plastic container to hold all SDF supplies and instructions together, ready to use at any time.
- Purchased SDF that had blue tint which was easy to visualize.
- An SDF in-service was completed. We trained dental hygienists and dental assistants how to apply SDF with yearly competencies. A Dentrix template was created to ensure SDF documentation was standard in patient charts.
- Dental in-service completed to show how to safely place SDF using chap stick or petroleum jelly around lips prior to administration. In-service completed also to show how to protect clinic counter tops from SDF.

Pros

- Cost effective
- Minimally invasive
- Easy to apply
- Provides relief for sensitive teeth
- Extreme high caries risk
- Treatment challenged by behavior management
- Offers a no needle/no drill alternative

Cons

- Agent's un-esthetic properties as it will permanently stain carious lesions black.
- Adjacent restorations may be stained, but can be removed with polish
- Bad taste
- It will also stain skin, clothes, surfaces



Ref #1

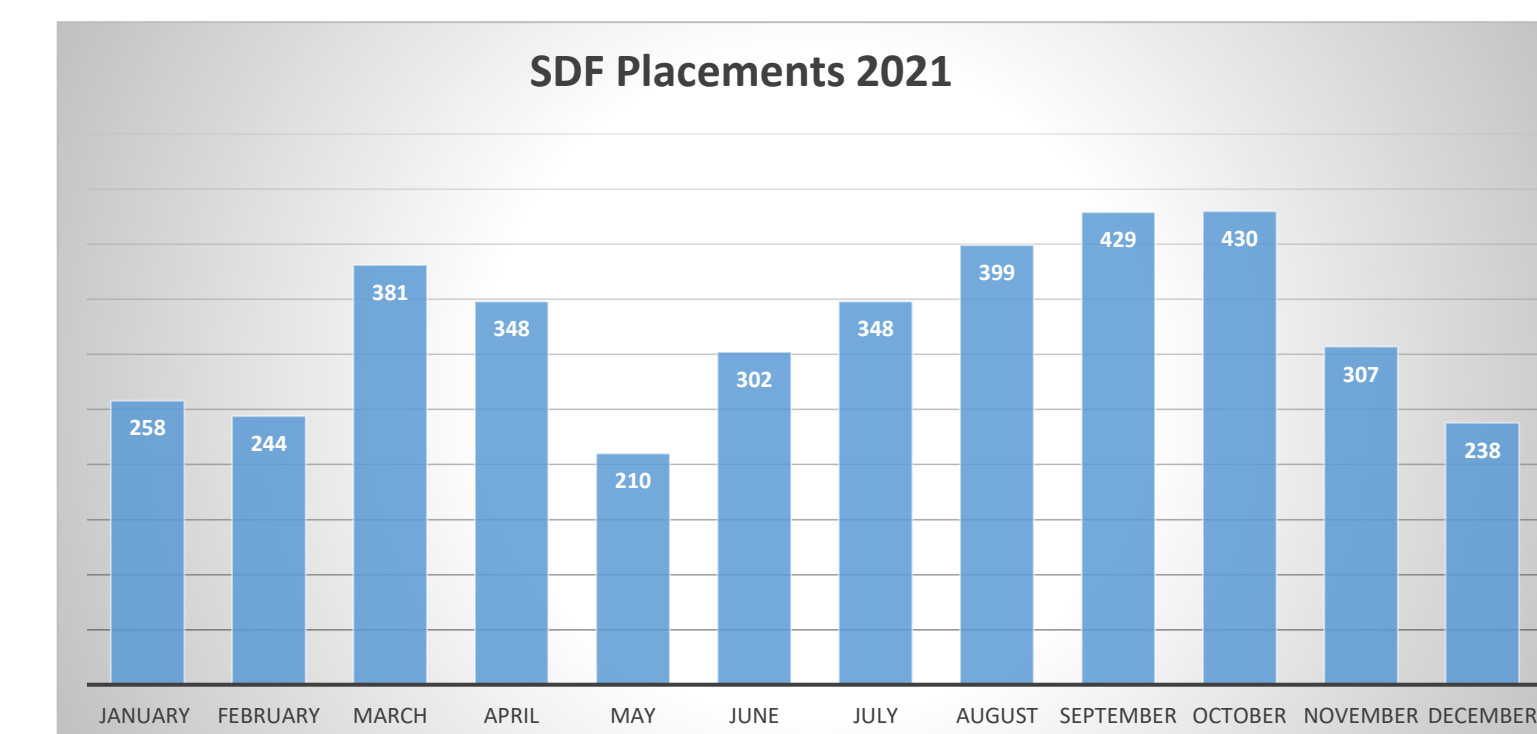


Ref #2. SDF Placement with a micro brush



1 week timeline

Element 8: Re-Measurement



- Completed data for 2021 revealed that an average of **324** SDF placements per tooth surface per month was completed.
- **We surpassed our goal #2 (300) - 100% success!**

9. Additional Corrective Actions

- No additional corrective actions needed, however, we are going to continue to hold SDF in-services for new providers and dental assistants that come on board, in addition to yearly SDF placement competencies for all providers, dental hygienists and dental assistants.

Element 10. Communication of Findings

- Reported to the Governing Body on April 24, 2022
- Reported to Full Staff on May 3, 2022

References

1. Horst JA, Ellenikiotis H, UCSF Silver Caries Arrest Committee, Milgrom PM. UCSF protocol for caries arrest using silver diamine fluoride: rationale, indications, and consent. *J Calif Dent Assoc.* 2016;44:16-28
2. Croll TP, Berg JH. Delivery of fluoride solutions to proximal tooth surfaces. Part 1: Caries prevention with fluoride varnish and gel. *Inside Dent.* 217;13(7):90-91

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