



## In This Issue...

In Your Corner	1
Keep Your Practice Current with DentaQuest	3
DentaQuest Provider Portal	4
Ongoing Covid Response	5
Contact Information	5



## In Your Corner....

Silver Diamine Fluoride: A Must For The Dental Tool Kit

### What is silver diamine fluoride (SDF)?

SDF is composed of silver, fluoride, and ammonia. Silver is an antimicrobial, fluoride re-mineralizes, and ammonia stabilizes silver and fluoride in solution. Silver is substantive in preventing reinvasion of cariogenic bacteria. In fact, SDF does not just stop caries, it prevents future decay. How does it work? SDF decreases acid dissolution of the tooth structure and increases hydroxyapatite, fluorapatite, mineral density and hardness. It also occludes dentinal tubules which decreases tooth sensitivity.<sup>1</sup>

I know that may sound complicated if you are not a chemist, but the interesting fact is that all this great science has a somewhat accidental origin. The discovery of fluoride traces back to the early 1900s when a dentist, Fredrick McKay, noticed that Colorado natives in one town had significant brown staining on their teeth, this phenomenon was later known as Colorado Brown Stain. McKay, in a research collaboration with G.V. Black, made two important discoveries:

These brown stains were the result of developmental imperfections in tooth enamel. They are what we now know is fluorosis.

Affected individuals had teeth that were surprisingly resistant to tooth decay.<sup>2</sup>

Here is a fun fact: SDF was discovered from the Japanese practice of tooth blackening, called Ohaguru, in the 19th century. Blackened teeth were a sign of beauty and it was discovered that the silver blackening agent made teeth stronger. This beauty trend led to the discovery of SDF which has been used in Asia for approximately 80 years with no long-term consequences.<sup>3</sup>

The ammonia component as a stabilizer - well, that was a little more intentional, discovered by two German chemists, Fritz Haber and Carl Bosch.<sup>2</sup>

Even though SDF science has been around and evolving for decades, it was not until 2014 that it was approved by the FDA as a medical device for treating dental hypersensitivity.

### How effective is SDF?

SDF has 3 uses: 1) caries arrest, 2) caries prevention and 3) reduction of sensitivity. How does SDF compare to other options for these uses? SDF is better than topical fluoride and atraumatic restorative treatment (ART), similar or better than glass ionomer (GI) and cheaper than sealants. The fluoride concentration is 44,800 ppm F- ion, which is about double the F- concentration of fluoride varnish.<sup>4</sup> A systematic review with a high level of evidence showed that SDF is 89% more effective than other treatment options such as placebos in arresting caries.<sup>4</sup> Another systematic review showed that 81% of active caries were arrested in clinical trials.<sup>5</sup> After one application, 47%-90% of carious lesions were arrested, depending on the location (anterior teeth yield better results than posterior) and the size of the caries. This sounds great, but the effectiveness decreases **over time. Ideally, one needs to apply it every 6 months for at least the first 2 years.**

### Clinical applications for SDF use:

- In patients who cannot tolerate traditional restorative treatment, such as those unable to cooperate, medically compromised and dentally anxious groups.
- To arrest existing decay until the teeth can be restored, when there are long wait times for appointments and/or the patient has generalized decay.
- For carious lesions that are difficult to treat, for example: decay around crown margins, teeth that cannot be isolated and those that are hard to access.
- In patients who have a high caries risk.
- In patients who do not have easy access to dental care.<sup>1</sup>

### Here is a tip for interproximal application:

For interproximal lesions, place puffy floss in between the teeth, dab SDF on the floss near the contact, pull the dampened floss into the contact area and leave it there for 1 minute. Alternatively, orthodontic elastic separators can be placed, and the patient recalled a week later to remove the elastics and apply the SDF.

### Staining

SDF is a great product, but it has one major disadvantage: it turns the tooth black. This is due to the oxidation of silver. It will not darken healthy tooth structure, but it will turn demineralized enamel and dentin, including white spot lesions, permanently black. While the darkness is unappealing, it is an indicator of effectiveness. It also stains soft tissue, clothing, and countertops, so be careful when using it.

### Mitigating SDF Staining

It has been suggested that the application of a saturated solution of potassium iodide immediately after SDF minimizes staining. There are currently products on the market that incorporate potassium iodide as a component of SDF delivery systems.

### Conclusion

Numerous systematic reviews substantiate SDF's efficacy for caries arrest in primary and permanent teeth as well as prevention of new root caries lesions. It meets the United States Institute of Medicine's 6 quality aims of being: 1. Safe, 2. Effective, 3. Efficient, 4. Timely 5. Patient Centered, 6. Equitable, <sup>11</sup>.

## References

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## Keep Your Practice Current with DentaQuest



Keeping your contact information updated is essential for ensuring appropriate access to care for our members. DentaQuest is committed to monitor impact on our network dental practices and member's ability to access care. Please notify us immediately if you anticipate or experience any disruption to your practice related to COVID-19 or any other situation.

DentaQuest conducts surveys each quarter to ensure you are providing timely access to appointments and that your demographic information is up to date in our system. Remember, most up-to-date information is important to us, but more significantly it impacts our members. Providers are responsible for contacting DentaQuest to report any changes in their practice. It is essential that DentaQuest maintains an accurate provider database in order to ensure proper payment of claims, to comply with provider information reporting requirements mandated by governmental and regulatory authorities, and to provide the most up-to-date information on provider choices to our members.

Any limitations to or changes in daily operations, including scheduling and available services; and the extent to which the office may be available for services, should be reported to DentaQuest immediately. Optimum patient care, especially during periods of crisis, requires accurate and prompt communication from our partners. Any changes should be reported to DentaQuest by completing our Provider Update Form and sending by fax to 262-241-4077 or via e-mail to [Standardupdates@DentaQuest.com](mailto:Standardupdates@DentaQuest.com)

## DentaQuest Dentists are expected to meet minimum standards with regards to appointment times.

Providers are required to comply with state-mandated appointment timeframes. Providers must also have a protocol to address after-hours emergencies. For more information and a list of expected standards in your state, please check our Office Reference Manual.



## DentaQuest Provider Portal



DentaQuest is committed to helping you improve the oral health of your patients; we also respect the contributions of our providers. By providing you with advanced technological tools, we eliminate the administrative burden associated with participating in government-sponsored programs. Beyond representing an act of public service in your community, we want your participation in our network to represent a sound business decision.

We strongly encourage you to register on the DentaQuest Provider Web Portal.

<http://www.dentaquest.com/dentists/self-registration-page/>

The Provider Portal gives you free, real-time access to many resources. Our portal lets you:

- Access our Office Reference Manual (ORM)
- Access your Panel Roster
- Verify member eligibility and service history
- Submit dental claims and authorizations
- Upload necessary documentation
- View Explanation of Benefits (EOBs)
- View up-to-date payment information
- Review claims status
- Check benefits
- Message DentaQuest through secure messaging

# Ongoing Covid Response

DentaQuest remains dedicated to supporting all health professionals who deliver care for our communities. While information on COVID-19 will continue to evolve, we are committed to crisis support and deliver on our mission: **to improve the oral health of all.**

The DentaQuest Partnership is constantly providing free webinars that will discuss critical topics being faced during the current national situation regarding COVID-19(Coronavirus).

DentaQuest is ensuring everyone has access to resources in this challenging time (via the link below).

[Stay up-to-date on our announcements and free webinars »](#)

## Contact Information

### Provider Service

- TennCare: 855.418.1623
  - Press 1 Automated Eligibility (via IVR system)
  - Press 2 Benefits, Eligibility and History
  - Press 3 Claims and Payment Options
- Credentialing Hotline: 800.233.1468

### Department Emails

- Electronic Claims Setup and Questions – [ddusa\\_providerrelations@dentaquest.com](mailto:ddusa_providerrelations@dentaquest.com)
- Claims Payment Questions – [denclaims@dentaquest.com](mailto:denclaims@dentaquest.com)
- Eligibility or Benefit Questions – [Dentelig.benefits@dentaquest.com](mailto:Dentelig.benefits@dentaquest.com)

### Utilization Review

- 888.294.9650

### Provider Web Questions

- 888.560.8135
- [www.dentaquest.com](http://www.dentaquest.com)

### Corporate

- Main Corporate: 800.417.7140