

Non-Surgical Caries Management Approaches

Treatment Recommendations During the COVID-19 Pandemic

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During the COVID-19 pandemic, recommendations for health care providers have been changing rapidly. The current dynamic environment is likely to continue for some time. As we navigate new and changing guidance for providing care, practitioners should regularly monitor information from the Centers for Disease Control and Prevention (CDC) and the American Dental Association (ADA), among other state and national organizations.

Due to risks associated with aerosol-producing handpieces and 3-way air water syringes, most oral health care during the intense phase of the pandemic is limited to emergency care. Restorative approaches that involve these tools should be minimized. However, there are steps that providers can take to maintain patients' oral health while limiting viral exposure, especially for emergency care related to dental caries.

Definitive dental restorations will be necessary for any number of reasons during this time, but there will be many situations in which a number of non-surgical caries management approaches can be used to help reduce caries initiation, progression, and the need for surgical procedures.

The following guidance will describe home-based caries prevention plan modifications and procedures for caries management for patients across the age spectrum, both for primary and permanent teeth, during the COVID-19 pandemic.

For all recommendations, please follow best clinical practices and evidence-based guidance from the ADA and the American Academy of Pediatric Dentistry (AAPD).

Safely Determining if Urgent or Emergency Care is Necessary

In response to COVID-19, the ADA has provided [guidance to practitioners](#) for oral health emergencies and management. Oral health emergencies are considered potentially life-threatening conditions that require immediate treatment to stop ongoing tissue bleeding or to alleviate severe pain or infection.

To safely assess and plan treatment for patients, cases should be triaged by phone, via teledentistry, or through other socially distanced approaches.

Resource: [ADA Dental Emergency Guidance](#)

Home-Based Prevention Planning

During the pandemic, patients will not have access to health care at a normal frequency. To remotely manage risk, consider increasing at-home, self-applied topical fluorides such as over-the-counter fluoride rinses. For higher risk patients, consider prescribing fluoride rinse (0.2 percent fluoride) or 5000 ppm fluoride toothpaste.

Home-based recommendations apply to all patients, but they may be most helpful in moderate- to high-risk patients. When considering risk, include past caries experience, fluoride exposure, frequency of sugar intake, and presence of intra-oral appliances. Practitioners may want to update patients' caries risk during this time as patient factors may change.

Resource: [ADA Caries Risk Assessment](#)

Silver diamine fluoride (SDF) and 5% NaF varnish

Caries, absent pain

If the patient has open cavitated lesions and presents for emergency care, absent pain, consider halting progression with SDF, as well as a 5% NaF varnish to prevent caries on non-cavitated surfaces. This is easily accomplished by cleaning any debris that may be covering the carious lesion using a hand instrument and cotton pellet, thereby mitigating the use of the 3-way water air syringe. Apply SDF to the lesion with a microbrush and then treat the lesion and remaining dentition with 5% NaF varnish. Consider placing a glass ionomer (GI) or resin-modified GI if the lesion has food impaction, is not self-cleansing, and/or if it may increase patient comfort.

Resource: [AAPD SDF Guideline](#)

Caries with pain, no evidence of pulpal involvement

If the patient has sensitivity, the type, duration, and magnitude of pain and sensitivity must be evaluated to determine the status of the pulp. Irreversible pulpitis requires pulp therapy or tooth extraction and may be indicated by lingering sensitivity to stimulus. If the sensitivity quickly dissipates, consider treating with SDF and covering with a GI or resin-modified GI restorative material to help protect and insulate the pulp. Caries do not need to be removed for SDF to arrest the lesion. Studies show that placing SDF in close proximity to pulpal tissue (25-50 microns) does not cause pulp inflammation.¹ Therefore, there is little downside to treating teeth without lingering sensitivity with SDF, even when they present with deep carious lesions. However, studies do show that SDF is not effective as a direct pulp capping agent.

Resource: [ADA - Evidence-based clinical practice guideline on nonrestorative treatments for carious lesions](#)

Glass ionomer (GI) or resin modified GI

As noted above, GI or resin-modified GI can be placed following SDF for patients with caries absent pain as well as those with pain but no evidence of pulpal involvement. You may consider placing a GI or resin modified GI if the lesion has food impaction, is not self-cleansing, and/or if it may increase patient comfort.

To place a restoration at the same visit as SDF to reduce visits, allow the SDF to stay in contact with the carious lesion for 1-2 minutes (if possible) and then blot dry with a cotton pellet. Place the material in the lesion and allow to chemically set (GI) or light cure (resin-modified GI).

Be aware that these materials turn dark gray to black when placed at the same visit over SDF-treated carious lesion. This technique is a modification of the Atraumatic Restorative Technique (ART), and some have referred to the combination of SDF and a GI restoration as SMART, or SDF Modified ART.

Resource: [ADA Evidence-Based Clinical Recommendations for the Use of Pit-and-Fissure Sealants](#)

Hall Crown Technique

Another non-surgical, non-aerosolizing approach to patient care is the Hall Crown technique for placing stainless steel crowns over carious teeth without caries removal. In this technique, a stainless steel crown is placed over asymptomatic, carious teeth without caries removal. This can be done on primary and permanent teeth (though clinical studies are only available for primary teeth).³ This technique will typically use a 3-way air water syringe for cement clean up, but alternatives could include immediately wiping off excess cement and then flossing the proximal areas as the cement begins to harden.

Resource: [AAPD Guideline on Restorative Dentistry](#)

Extraction

For patients with pain or sensitivity that lingers following stimulus, or for unsolicited dental sensitivity in the presence of obvious decay, practitioners may want to consider tooth extraction during this pandemic period.

Resource: [ADA Guide to Extractions](#)

Useful Links and Publications:

[Environmental Protection Agency, Corona Virus Disinfectants](#)

[Center for Disease Control Information for Healthcare Professionals](#)

[ADA Dental Emergency Guidance](#)

[ADA - Evidence-based clinical practice guideline on nonrestorative treatments for carious lesions](#)

[ADA Caries Risk Assessment](#)

[ADA Evidence-Based Clinical Recommendations for the Use of Pit-and-Fissure Sealants](#)

[ADA Guide to Extractions](#)

[AAPD SDF Guideline](#)

[AAPD Guideline on Restorative Dentistry](#)

References

Korwar A, Sharma S, Logani A, Shah N. Pulp response to high fluoride releasing glass ionomer, silver diamine fluoride, and calcium hydroxide used for indirect pulp treatment: An in-vivo comparative study. *Contemp Clin Dent.* 2015;6:288-92.

Hosoya Y, Aritomi K, Goto G. Pulpal response to diammine silver fluoride. (2). Application on exposed pulp. *Shoni Shikagaku Zasshi.* 1990;28:327-37.

Elamin F, Abdelazeem N, Salah I, Mirghani Y, Wong F. A randomized clinical trial comparing Hall vs conventional technique in placing preformed metal crowns from Sudan. *PLoS One.* 2019 Jun 3;14(6):e0217740.



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