A decorative graphic on the left side of the slide. It features several interlocking rings in shades of blue, orange, and yellow. A large orange arrow points to the right, emerging from the top of the rings.

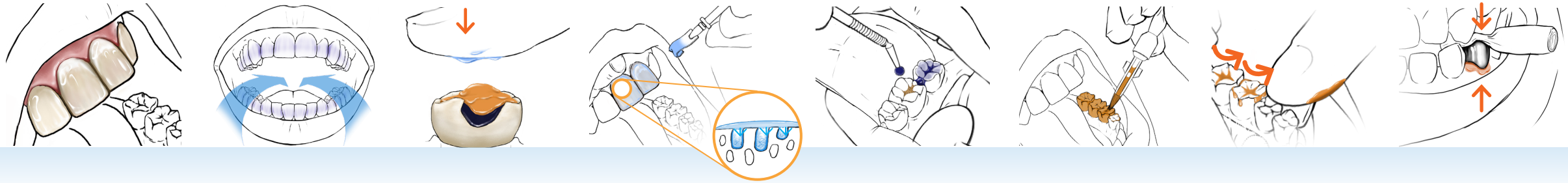
The Non-Invasive Caries Therapy Guide

Content and clinical validation expertise by

CareQuest
Innovation Partners®

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The Non-Invasive Caries Therapy Guide

The Non-Invasive Caries Therapy Guide is an illustrated manual on diagnostics, preventives, and therapeutics to fight dental caries.

Goals of the Guide

1. **Increase access to care** by decreasing reliance on invasive dentistry.
2. **Transform the oral health workforce** by empowering non-dentists to manage dental caries.
3. **Improve clinical outcomes** by optimizing clinical technique.
4. **Lower barriers** to adopting evidence-based techniques.

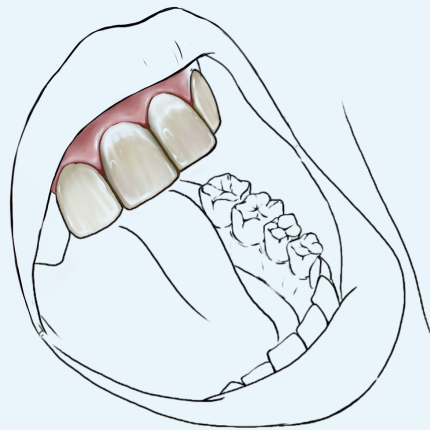
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Differentiate Active vs. Arrested Caries Lesions

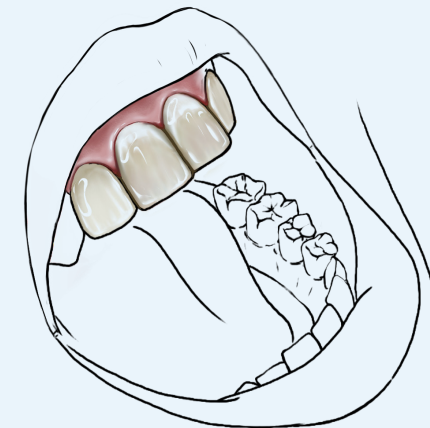
(Tooth Decay/Cavity) by Visual-Tactile Assessment of Surface Texture and Topography

Note: Assess *before* cleaning, and assure adequate lighting.



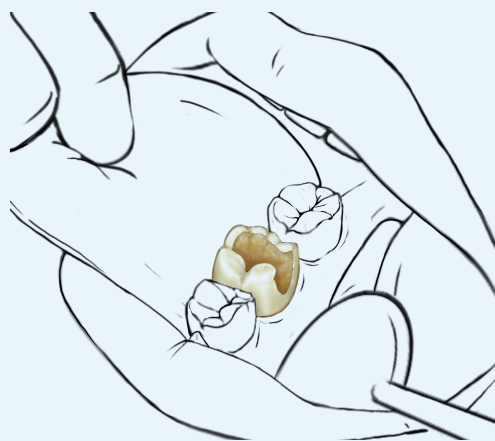
ACTIVE non-cavitated lesions (*initial*)

- No surface breakdown, yet. Lesions as deep as the outer 1/3 of dentin are not infected and can be remineralized.
- Usually plaque-covered.
- The lesion can be opaque white, yellow, orange, or brown.
- Chalky, no shine upon drying.
- Active lesions typically reach the gumline (facial or buccal) and extend out of pits and fissures.
- Feels bumpy and soft when gently dragging the end of a blunt instrument across the lesion.
- Radiographs may show demineralization in the outer third of dentin. Without cavitation, dentin is not infected.



ARRESTED non-cavitated lesions (*initial*)

- No surface breakdown.
- Usually plaque-free.
- Lesion can be white, amber, brown, or black.
- Shiny upon drying, not chalky.
- Arrested lesions typically do not reach the gumline (facial or buccal) and do not extend out of pits and fissures. May have dark staining.
- Feels smooth and hard when gently dragging the end of a blunt instrument across the lesion.
- Dentin may be affected, but is not infected.



ACTIVE cavitated lesion (*moderate, advanced*)

- Visible cavitation. The hole breaches the dentin. Usually the demineralization reaches the middle or inner 1/3 of dentin.
- Usually plaque-covered.
- White, yellow, orange, or light brown and usually dull = bacterial growth.
- Feels soft or leathery when gently dragging the end of a blunt instrument across the lesion.

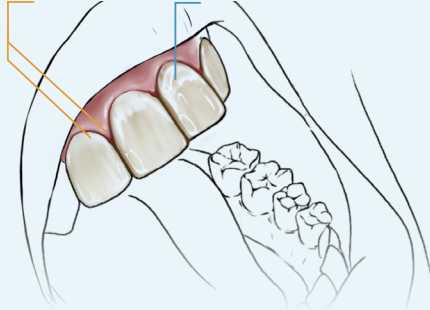


ARRESTED cavitated lesion (*moderate, advanced*)

- Easily visible cavitation. The hole breaches the dentin.
- Usually plaque-free.
- Amber to dark brown or black and usually shiny = no bacteria.
- Feels smooth and hard when gently dragging the end of a blunt instrument across the lesion.
- Cleansable lesions are much more likely to arrest than lesions with plaque traps.

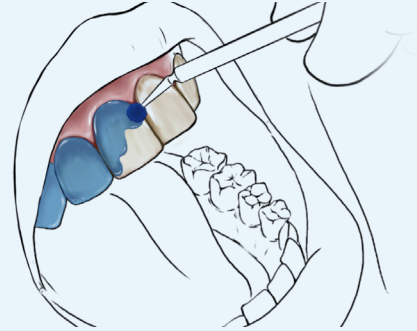
Assess Lesion Activity with a Protein-Linked Dye Caries Visualization Aid

1 Active lesion Arrested lesion



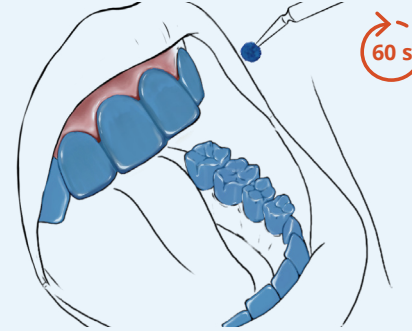
Clean carefully, rinse, and dry with air.
For no aerosols, thoroughly dry with cotton.

2 Apply



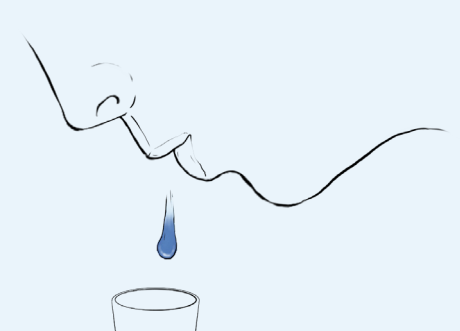
Apply to all teeth.

3 Absorb



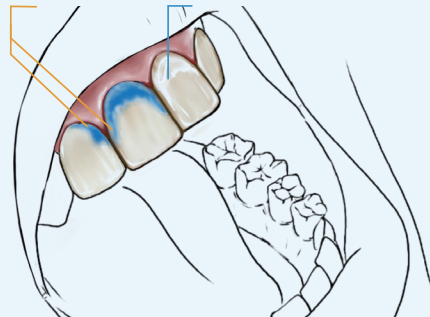
Keep open for 1 minute while it absorbs.

4 Rinse



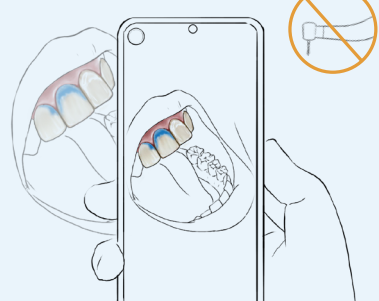
Rinse well with water, then spit.

5 Active lesion Arrested lesion



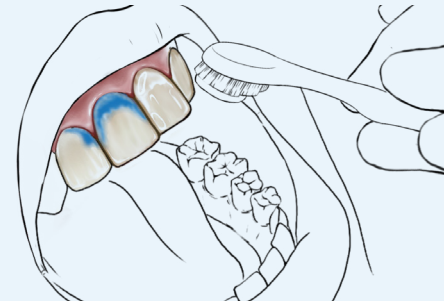
Color indicates active caries lesions.

6 Document & review



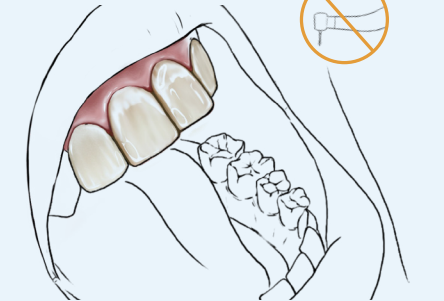
Take a picture of the colored areas. Assess for cavitation and cleansability.
Show the patient or caregiver. Help them choose self-management goals and non-invasive interventions.

7 Remove



Remove color by cleaning with detergent-containing toothpaste.
A brush, gauze, or prophy cup may be used.

8 Manage



Active caries lesions should be managed per the clinical team's judgement. The American Dental Association recommends to "prioritize the use of non-restorative interventions," including relevant non-invasive therapies in this Guide.

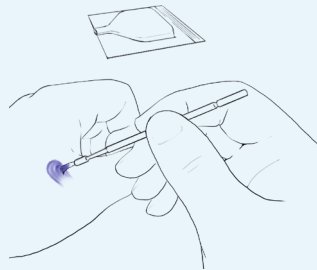
Use at future recare visits to monitor dental caries.

Apply Fluoride Varnish

for Caries Prevention or Treatment of Initial Caries Lesions

Rosin-Type Varnish

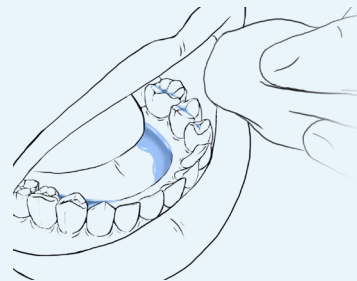
1 Mix



Mix for 5 seconds.

Note: Mix, regardless of package instructions.

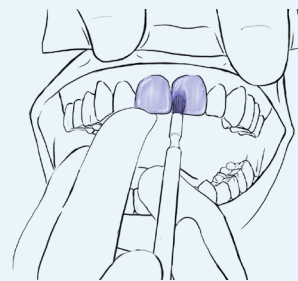
2 Dry (moist)



Help the patient remove excess saliva. For example, ask the patient to swallow, use cotton, or use a saliva ejector.

Keep the teeth moist.

3 Apply



Apply a thin layer across all teeth.

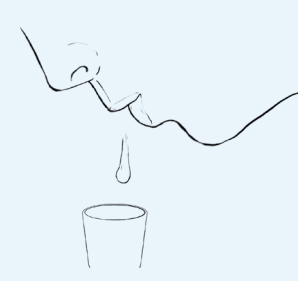
A gloved finger may be used instead of a brush.

4 Cover



Be sure to apply to all high risk surfaces, such as: pits, fissures, exposed roots, and contact points.

5 Spit in trash



Do not spit into the sink (it may clog the plumbing).

Any spit should end up in the trash.

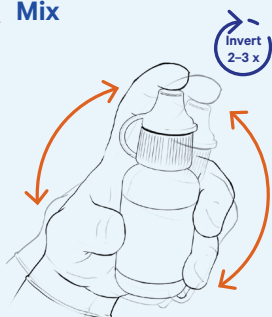
6 Protect



Help the patient avoid brushing, flossing, alcohol, hot drinks, and foods that are crunchy or sticky, for 30 minutes.

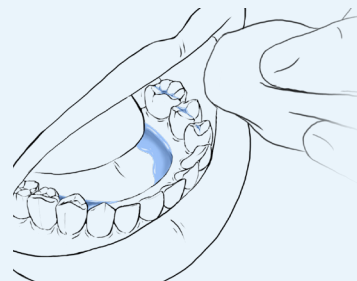
Shellac-Type Varnish

A Mix



Invert the bottle 2–3 times, and then dispense for application.

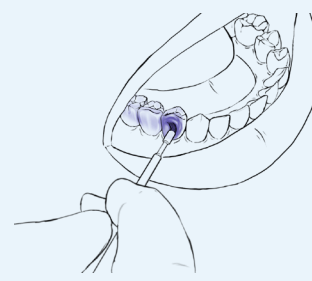
B Dry (moist)



Help the patient remove excess saliva. For example, ask the patient to swallow, use cotton, or use a saliva ejector.

Keep the teeth moist.

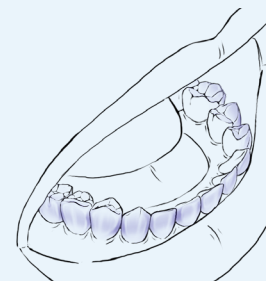
C Apply



Starting from the back of each quadrant, apply a thin swipe across buccal/facial surfaces in one sweeping motion.

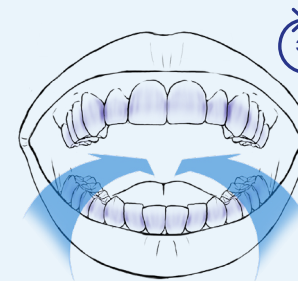
A gloved finger may be used instead of a brush.

D Let spread



Shellac varnishes spread unaided.

E Inhale through teeth



Ask the patient to inhale forcefully through their teeth 3 times to set the varnish.

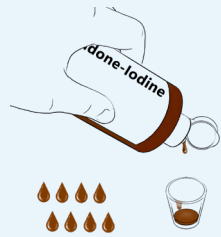
F Protect



Help the patient avoid alcohol and brushing for 4 hours.

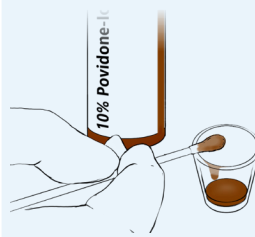
Apply 10% Povidone-Iodine for Caries Prevention

1 Dispense



Dispense 8 drops of 10% povidone-iodine.

2 Saturate



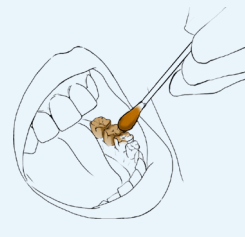
Saturate one end of a cotton swab.

3 Dry



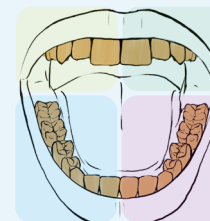
Help the patient remove excess saliva. Keep moist. For example ask the patient to swallow, use cotton, or use a saliva ejector.

4 Apply



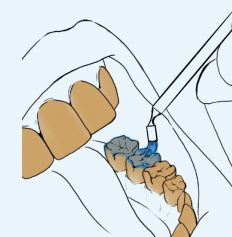
Roll the swab and push to release more iodine into high risk areas, like contact points and exposed roots.
Note: To avoid too much iodine, **do not re-dip** after applying to teeth.

5 Cover



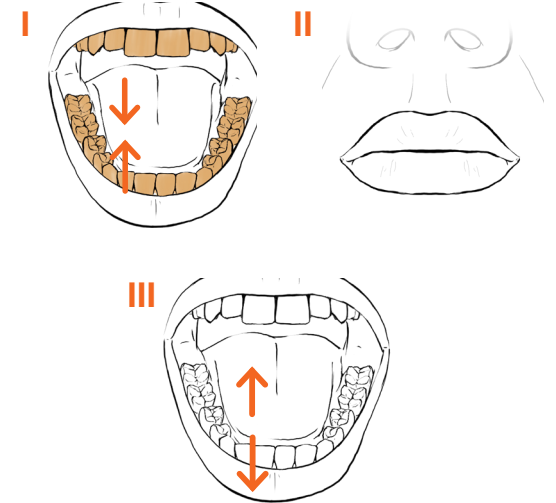
Continue across all teeth. Keep mouth open for 10 seconds. Help the patient remove any pooled saliva by swallowing or spitting, or using cotton or a saliva ejector.

6 Optional fluoride varnish



Fluoride varnish may be applied immediately. Help the patient avoid eating or drinking for 30 minutes.

Myths about Povidone-Iodine



Myth: *It stains teeth.*

No! The temporary **color will disappear** after closing. However, it can stain cloth.

Myth: *Shellfish allergy = iodine allergy*

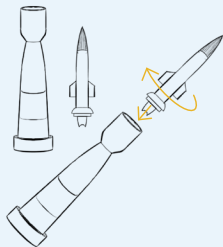
No! There is **no cross-reactivity** between shellfish and iodine.

Myth: *Bad taste*

No! A little bit of iodine **does not taste bad.**

OR

A Dispense



Screw the brush together.

B Dry



Ask the patient to swallow. Use gauze or suction to remove excess saliva.

C Squeeze



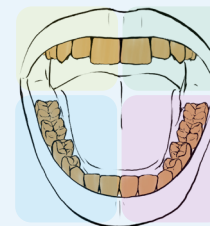
Squeeze to move the iodine into the brush.

D Apply



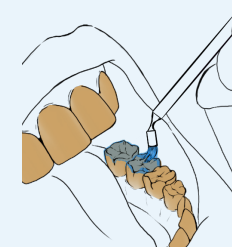
Brush on, focusing on high risk areas like contact points and exposed roots.

E Cover



Continue across all teeth. Keep mouth open for 10 seconds.

F Optional fluoride varnish

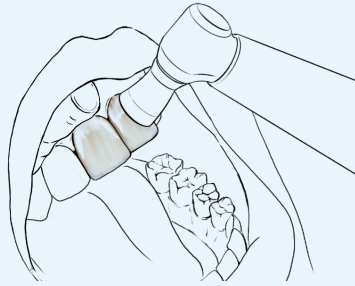


Fluoride varnish may be applied after 10 seconds. Wait 30 minutes to eat or drink.

Apply Self-Assembling Peptide P₁₁-4 to Initial Caries Lesions (Non-Cavitated)

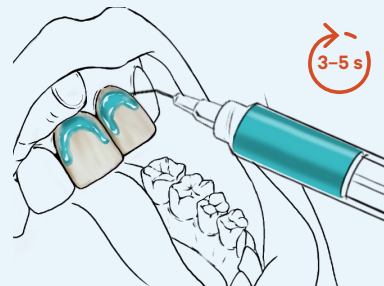
Note: The manufacturer's instructions state to bleach and etch for 20 seconds each.

1 Clean



Clean the teeth with pumice. Rinse or wipe clean. Isolate with cotton.

2 Ensure lesion porosity

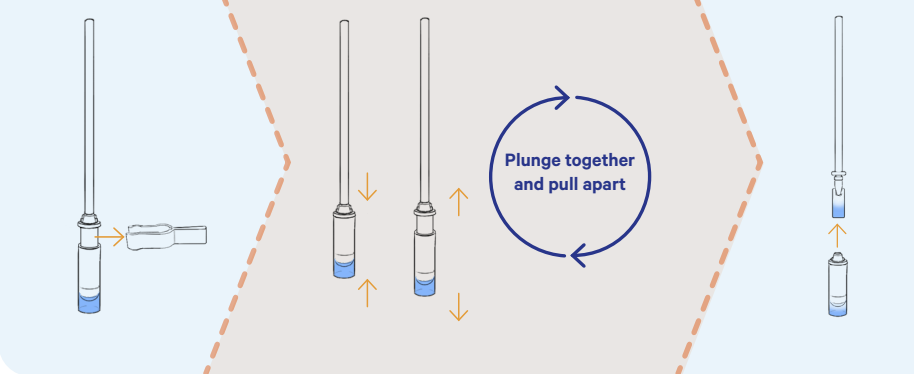


If the lesion is not already porous, etch the white spot lesion(s) for 3–5 seconds. Rinse thoroughly. Removal of decay is not indicated.

3 Activate

4

5



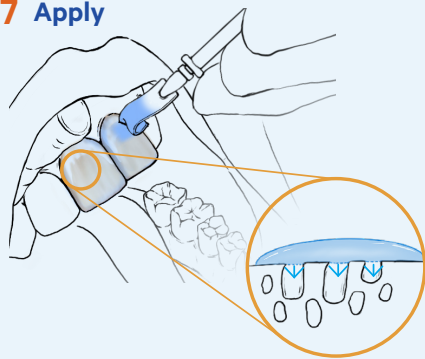
IMPORTANT: The P₁₁-4 peptide is on the sponge applicator.
It is activated by contact with the liquid at the bottom.

6 Dry



Thoroughly dry the affected areas (desiccate if feasible).

7 Apply

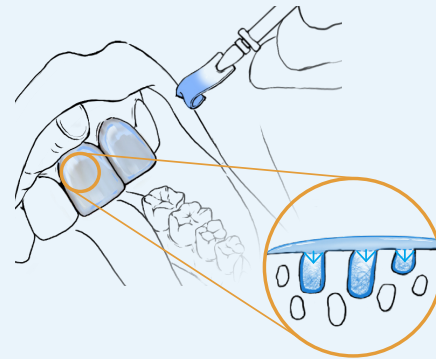


Apply P₁₁-4 to dried white spots. Allow to soak in. Re-apply every 5–10 seconds until the area stays wet.

8

9

Reapply until saturated

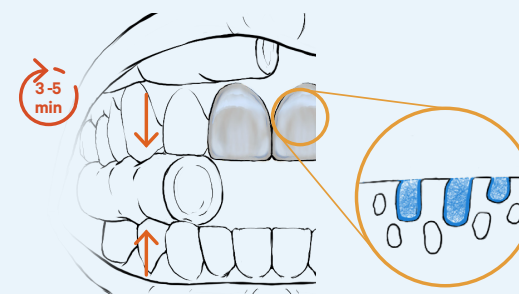


IMPORTANT:
The sponge applicator must be used.

If treating approximal surfaces, simply apply to the embrasures; the liquid will wrap around the contact point and flow by capillary action into the lesion.

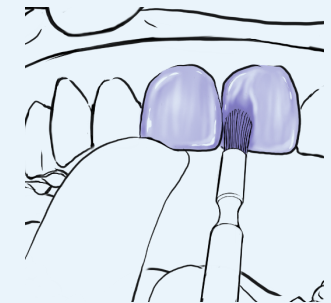
Or, use the **Flori technique** cut the sponge into 2–3 pieces and push one into each affected proximal space.

10 Protect



Keep saturated teeth isolated with cotton for 3–5 minutes. Remove excess with cotton. Do not rinse.

11 Fluoride



For optimal results, apply fluoride varnish.

Help the patient promote a healthy oral environment for the next 3–6 months to optimize enamel regeneration.

Apply Silver Diamine Fluoride (SDF)

to Initial, Moderate, or Advanced Caries Lesions

1 Isolate



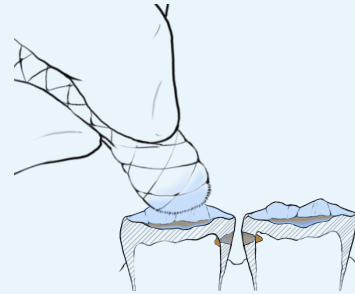
Dispense 1–4 drops in a dappen dish.
Isolate the teeth with cotton.
Protect the patient's eyes.

2 Dry

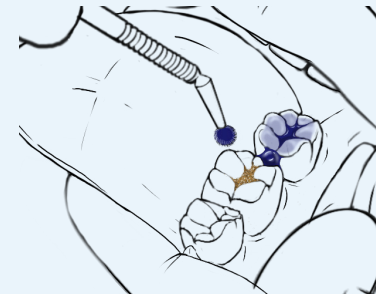


Thoroughly dry with cotton. Compressed air helps desiccate.
Help the patient keep their mouth open.
Removal of decay is not indicated.

3



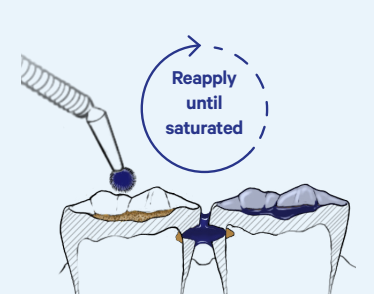
4 Apply



Apply to dry caries lesions. Re-apply every 5–10 seconds until the entire lesion stays wet.
Be careful of dripping. SDF stains.

If treating approximal surfaces, simply apply to the embrasures. The liquid/gel will wrap around the contact point and flow by capillary action into the lesion.

5



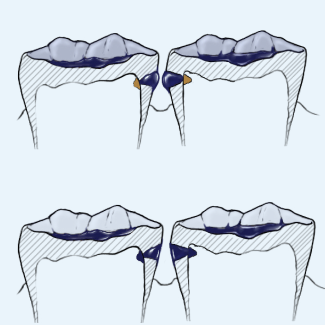
6 Wait



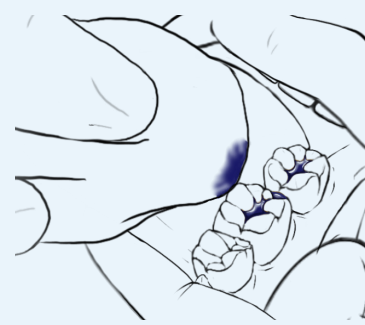
Allow at least 10 seconds for SDF to absorb. During this time, the SDF will seep deeper into the caries lesion through capillary action.

Do not rinse. Do not blow compressed air.

7



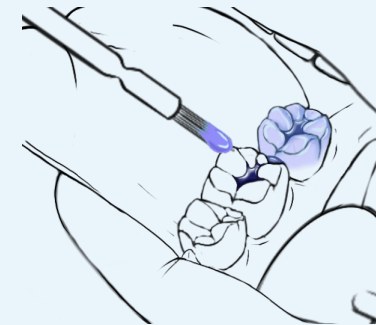
8 Remove excess



Remove excess with cotton.

Leave surfaces moist.

9 Protect



Option 1: cover the treated areas with fluoride varnish or petroleum jelly (e.g. Vaseline), then remove cotton.

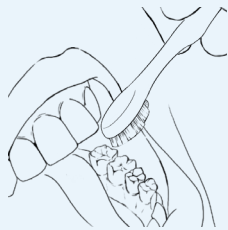
Option 2: continue to isolate from saliva for 1 minute.

Apply Glass Ionomer Cement Sealants or Fillings

to Carious or Healthy Fissures with a Sound Enamel Perimeter

Note: This option may reference quicker times than manufacturer's instructions.

1 Clean & keep moist



Clean out debris. Do not dry.

2 Condition



Apply poly-acrylic acid conditioner (10 to 20%) to the fissures, extend onto sound enamel.

Wait 10 seconds.

Alternatively, traditional etchant can be used if thoroughly rinsed.

3 Rinse



Rinse gently. **Keep moist.**

For example, dab with damp gauze.

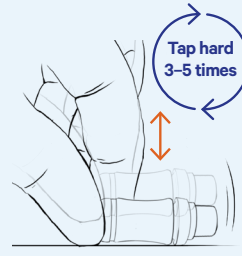
4 Isolate



Isolate with cotton, not a rubber dam. Keep the teeth moist.

Removal of decay is not indicated.

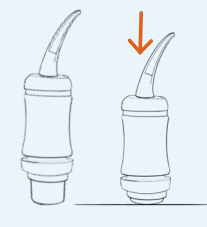
5 Activate



Firmly tap the capsule on a hard surface.

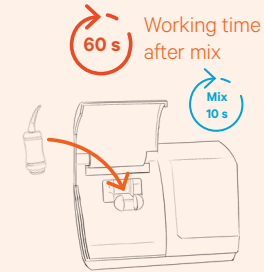
Experienced hand-mixers may reduce material costs with powder & liquid kits.

6 Plunge



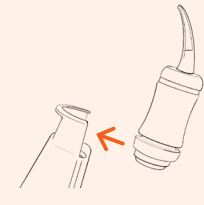
Compress the plunger completely and hold it down for 2 seconds.

7 Mix



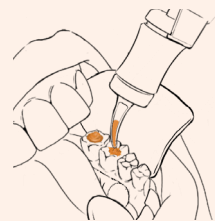
Mix for a full 10 seconds at 4,000 rpm.

8 Insert



Insert the capsule into the applicator.

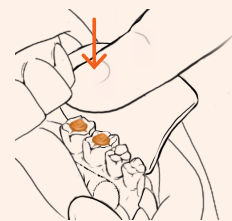
9 Apply – at least 1 quadrant at a time



Immediately squeeze into the deepest part. To avoid air bubbles, *kiss* the tip to the moist surface and backfill while slowly withdrawing.

Release pressure on the applicator and progress to the next tooth.

10 Use finger



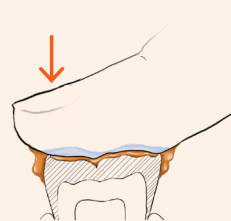
Use a gloved finger to rapidly push and shape the glass ionomer into the desired areas.

11 Lubricate



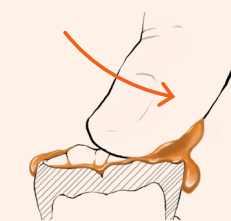
The gloved finger should be moist with the patient's saliva or a thin layer of petroleum jelly (e.g. Vaseline).

12 Push



Push down firmly for about 1 second to make excess flow out.

13 Contour



With continued downward pressure, slide the fingertip across the occlusal surface.

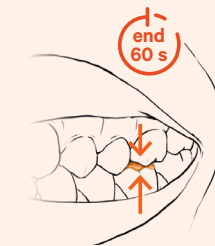
14 Work fast



Slide the finger up and off without lifting up. Immediately continue to the next tooth, using a wave-like motion.

Do not over manipulate.

15 Bite down



Remove the cotton. Help the patient bite down hard and grind. Hold the chin and click the jaws together until you feel and hear enamel-to-enamel contact. Then help the patient open.

16 Remove excess



Use a cotton swab, explorer, or dental floss to remove excess from surfaces where the glass ionomer is not meant to stay (e.g. approximal).

Do not agitate glass ionomer that is meant to stay until after set time. Fluoride varnish can be applied after 3 minutes.

Perform Two-Visit Silver-Modified Atraumatic Restorative Treatment (2-Visit SMART)

for Cavitated Caries Lesions

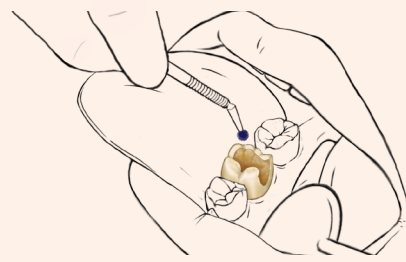
1st Visit (for more details, see HOW TO: SDF page)

1 Dry



Isolate and dry thoroughly with cotton.
Protect the patient's eyes.
Help the patient keep their mouth open.

2 Apply



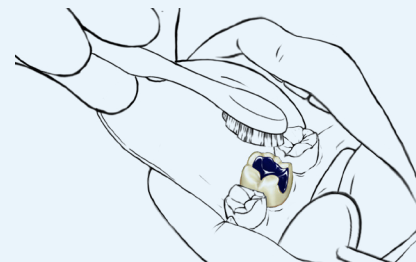
Apply SDF and re-apply until the area stays wet. Either:

- wait 10 seconds, remove excess, and apply a varnish, **or**
- wait 1 minute and remove excess.

Usually: return in 3 days to 6 weeks.
Some clinicians proceed immediately (if so, skip the varnish).

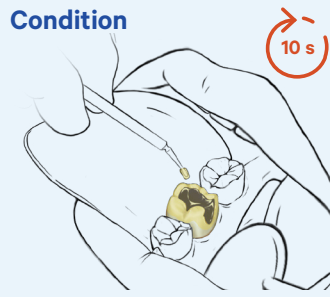
2nd Visit (for more details, see HOW TO: Glass Ionomer page)

3 Clean



Clean out debris. Do not dry.
Removal of arrested decay is **not** indicated for treatment success.
Usually, no tooth structure is removed.
Removal of SDF-stained enamel improves final aesthetics.

4 Condition



Apply poly-acrylic acid conditioner (10 to 20%) to the fissures, extend onto sound enamel.
After 10 seconds, rinse gently. **Keep moist.**
For example, dab with damp gauze.

5 Isolate, keep moist



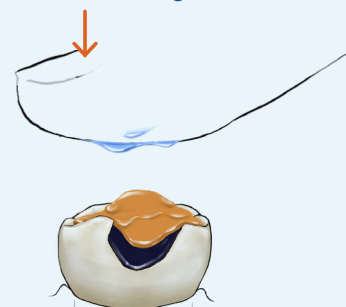
Isolate with cotton, not a rubber dam.
Keep the teeth moist.

6 Apply



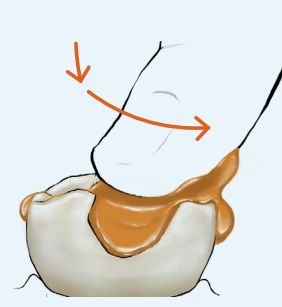
Mix, and immediately squeeze into the deepest part. To avoid air bubbles, *kiss* the tip to the moist surface and backfill while slowly withdrawing.

7 Use lubricated finger



Use a gloved finger to rapidly push and shape the glass ionomer into the desired areas.
The gloved finger should be moistened with the patient's saliva or a thin layer of petroleum jelly e.g. Vaseline.

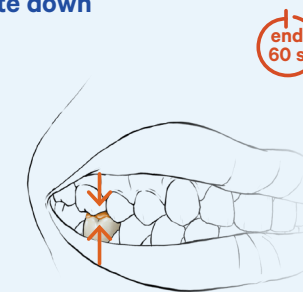
8 Push and contour



Push down firmly for about 1 second to make excess flow out. With continued downward pressure, slide the fingertip across the occlusal surface.
Work fast, do not overmanipulate

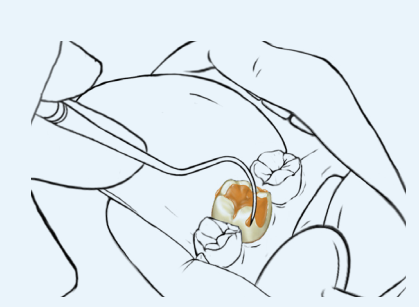
9

Bite down



Remove the cotton. Help the patient bite down hard and grind. Hold the chin and click the jaws together until you feel and hear enamel-to-enamel contact. Then help the patient open.

10 Remove excess



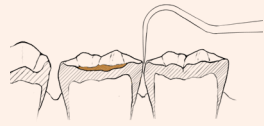
Use a cotton swab, explorer, or dental floss to remove excess from surfaces where the glass ionomer is not meant to stay (e.g. approximal).
Do not agitate glass ionomer that is meant to stay until after set time. Fluoride varnish can be applied after 3 minutes.

Perform the Hall Technique for Placing Stainless Steel Crowns

for Cavitated Caries Lesions, usually in Primary Teeth

1st Visit Create space

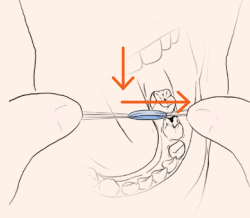
1 Assess



If an explorer tip cannot pass through the contact or if floss catches, create space with orthodontic separators for 2–9 days.

Some clinicians proceed after just 1–3 hours.

2 Place spacer



To place an orthodontic separator (spacer), stretch it with orthodontic pliers or two pieces of floss. Slide diagonally into the contact.

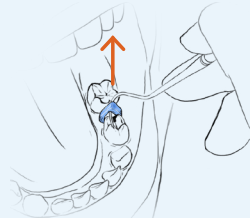
3 Comfort



This may feel tight, sore, or painful. Analgesics or simply sipping cold water can provide relief.

2nd Visit Crown placement

4 Remove



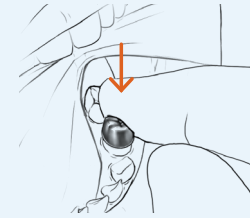
Remove the spacer at the next visit using floss or a dental instrument.

5 Clean



Remove debris and plaque.

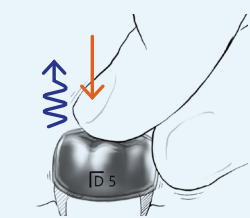
6 Fit



Protect the airway with unfolded gauze. Try crowns starting with size 5.

Do not push the stainless steel crown past the middle third of the tooth crown. A stout spoon excavator is used to remove fully seated crowns.

7 Check fit



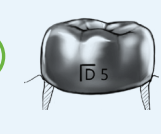
The correct size will fit over the occlusal surface. It will give slight springback from the heights of contour around the tooth.

Contouring/crimping pliers can be used to adjust the shape to the tooth.

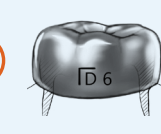
7a



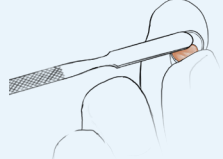
7b



7c



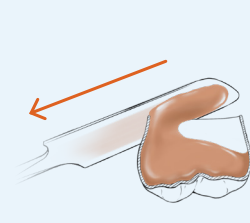
8 Prepare the patient, then mix and load cement



First, **help the patient practice clenching** as hard as they can, to later seat the crown.

Removal of decay is not indicated.

9 Load

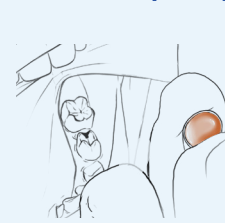


Mix a glass ionomer-based luting cement. Hand-mixed luting cement should be the consistency of Greek yogurt or hand lotion.

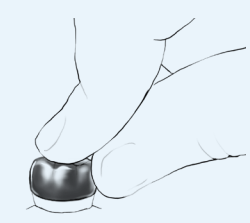
If using a spatula, avoid air bubbles by sliding the spatula against the crown margin. If using an auto-mix tip, backfill while slowly withdrawing.

Completely fill the crown.

10 Fill completely



11 Position

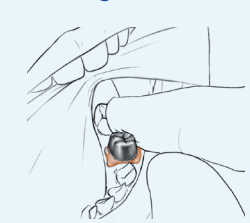


Place the glass ionomer-filled crown on the tooth and steadily push past the heights of contour.

Excess cement should extrude from all sides.

Do not completely seat.

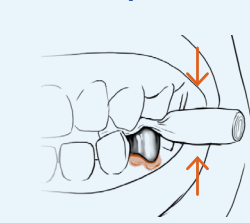
12 Align



With your fingers, align the crown to the long axis of the tooth again for seating.

Consider anything that might get in the way of complete seating, such as the interference of an approximal gingival margin of a cavitation in an adjacent tooth.

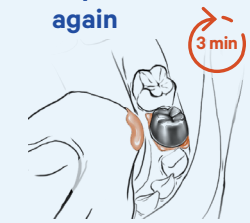
13 Seat by clenching



To seat the crown, help the patient clench hard against the opposing teeth, either directly or through a cotton roll or wooden bite stick.

If the crown does not seat properly, remove and try again once. If unsuccessful again, immediately clean cement off the tooth. Return to step 6 to re-size, re-fit, etc.

14 Wipe & clench again



Once seated, quickly remove excess cement with moist cotton.

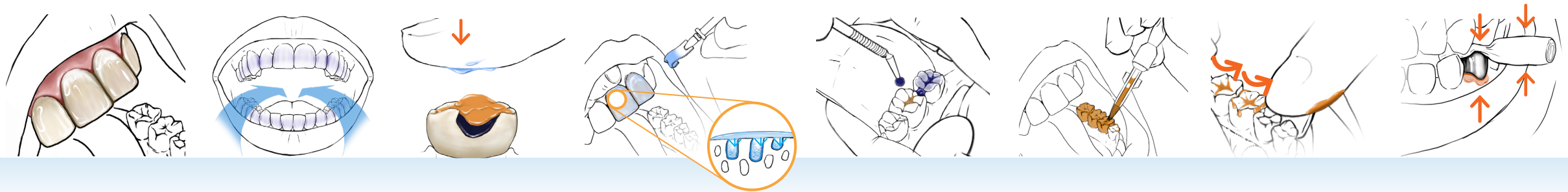
Help the patient avoid moving the crown until at least 3 minutes after mix (cement set time). For example, gently bite on a cotton roll with other teeth.

15 Final cleaning



Clean excess cement with knotted floss. Pull floss through laterally.

Help the patient avoid eating for 30 minutes, and avoid sticky or hard foods for 24 hours.



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