From the First Tooth Toolkit

For Pediatric Primary Care

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FROM THE FIRST TOOTH
HEALTHY SMILES FOR LIFE

From the First Tooth is a statewide children's oral health initiative that works with primary care practices to integrate preventive oral health care into the well-child visit for children ages 6-months up to 21 years. FTFT provides technical assistance to practices as they work to integrate **oral health evaluations, fluoride varnish application, parent and caregiver education, and referral to a dental provider** as a standard of care.

Funded by the Sadie & Harry Davis Foundation, FTFT initiated in 2008 through a pilot program working with 6 organizations and 17 sites. The goal of the pilot was to address an unmet need for preventive oral health care for children ages 6-months through 4 years. As of August 2024, 184 primary care practices participate in the program from all of Maine's 16 counties.

Vision: All children in Maine have access to quality oral health care
Mission: To promote and support the integration of oral health into primary care for all children in Maine

From the First Tooth Contact Information: mhfirsttooth@mainehealth.org

Dental Caries: What you Need to Know

Dental caries is one of the most common chronic diseases of childhood. Approximately 1 in 4 preschool aged children have experienced dental caries in their primary teeth and approximately 1 in 6 children ages 6-to-11-year experience dental caries in their permanent teeth. The consequences of untreated decay include pain and infection, impaired speech, delays in learning, problems with eating, social development, and, potentially, reduced quality of life.[1]

Multiple interrelated social and demographic factors --including income, race, parents' access to dental care, and educational level--can affect children's access to preventive dental care.[2] In the United States, 25% of children ages 2 to 5 years from low socioeconomic and minority groups experienced 80% of dental disease.[3]

Unfortunately, U.S. populations with the greatest burden of dental caries are the least likely to have access to dental care. Without access to regular preventive dental services, dental care for many children is postponed until the disease has to be treated in the operating room or symptoms such as toothaches and facial abscesses become so acute that care is sought in hospital emergency departments. The latter consequence of failed prevention not only is wasteful and costly to the healthcare system, but also rarely addresses the problem, as few emergency departments deliver comprehensive dental services.

[1] National Institutes of Health. Oral Health in America: Advances and Challenges. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health, National Institute of Dental and Craniofacial Research, 2021.
[2]Marmot M, Bell R. Social determinants and dental health. Adv Dent Res. 2011;23(2):201– 6.
[3] Clark MB, Slayton RL, AAP SECTION ON ORAL HEALTH. Fluoride Use in Caries Prevention in the Primary Care Setting. Pediatrics. 2020;146(6):e2020034637

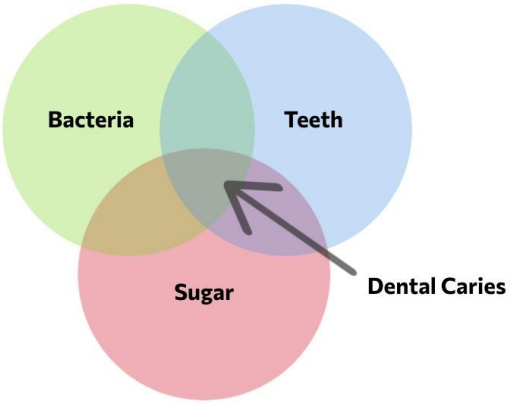
Moreover, in the current healthcare system, dentists generally play a limited role in an infant's health. The U.S. Public Health Service Oral Health Coordinating Committee suggests that pediatricians play a more active role in addressing infant oral health. The U.S. Department of Health and Human Services Oral Health Strategic Framework has provided a foundation of evidence-based solutions to many healthcare access issues and is beginning to address oral health care and reshape the dental care system for young children.[4]

Often healthcare providers see children more than six times in their first year for well-child visits before the child ever sees a dentist. The medical home can play a vital role in improving the oral health of children. In fact, the American Academy of Pediatrics established a policy stating that every child, 6 months through 5 years old, should receive an oral health assessment by a healthcare professional, including a caries risk assessment during the well child visit.[5]

Etiology of Early Childhood Caries

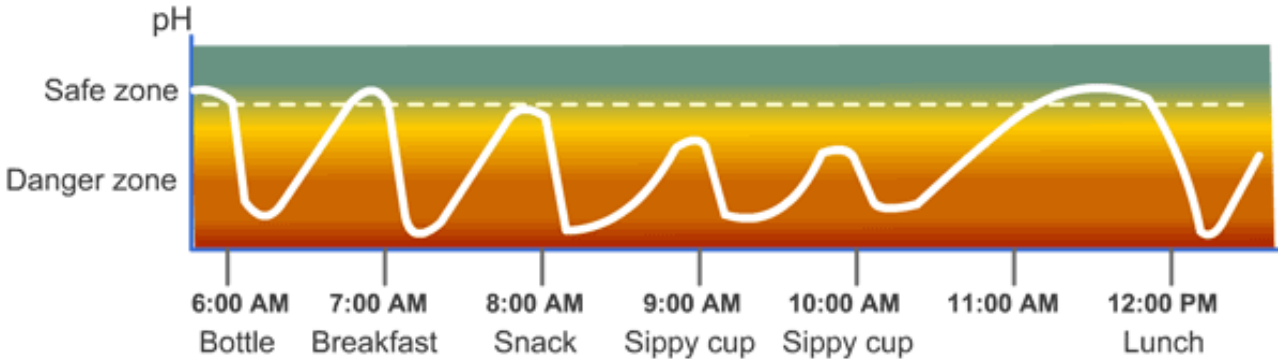
The Triad

Dental caries is a multi-step process that results in destruction of the tooth structure. Oral bacteria (Streptococcus mutans) metabolize the sugars from fermentable carbohydrates into acid. The acid demineralizes the tooth enamel. If the cycle of acid production and demineralization continues, the enamel becomes weakened and breaks down into a cavity.



It is not just what but also how often children eat!

- Oral bacteria produce acids that persist for 20–40 minutes after ingesting fermentable carbohydrates.
- Oral acids lead to enamel demineralization.
- Remineralization occurs when acid is buffered by saliva.
- If fermentable carbohydrates are consumed frequently, there is insufficient time for the remineralization process to occur. The tooth is subjected to continued demineralization, and the caries process progresses.
- If fermentable carbohydrates are consumed infrequently, teeth are able to fully remineralize, and the caries process halts.[6]



[4] U.S. Department of Health and Human Services Oral Health Coordinating Committee. U.S. Department of Health and Human Services Oral Health Strategic Framework, 2014-2017. Public Health Rep. 2016 Mar-Apr;131(2):242-57. PMID: 26957659; PMCID: PMC4765973.
[5] Policy statement: oral health risk assessment timing and establishment of the dental home. (2003). Pediatrics. 111(5), 1113–1116
[6] : Krol DM, Whelan K; AAP Section on Oral Health. Maintaining and Improving the Oral Health of Young Children. Pediatrics. 2023;151(1):e2022060417

Integrating Oral Health Services into your Practice

Overview of FTFT Technical Assistance

FTFT staff are available to work with each practice to create a customized implementation plan that will ensure this program can be fully integrated into practice operations. Below is a proposed process that has been successful with many practices across Maine.

Introduction Meeting

Initially, FTFT team members will meet with identified members of the interested practice team, which could include the practice manager, clinical support staff, and one or more providers. During this meeting, FTFT will offer more information and details about the program as well as answer questions and respond to concerns. **Time commitment: 30 minutes**

Practice Readiness and Process Mapping

At the next meeting, FTFT will work with as many practice staff as possible to fill out the "Implementation Worksheet" and clarify any questions. A FTFT staff member may facilitate a process mapping exercise with the team to understand current workflows. For example, fluoride varnish can be applied by the medical provider during the well-child exam, or this can be delegated to a nurse or medical assistant to perform at the same time as vaccinations. **Time Commitment: 1 hour**

Staff Training

FTFT provides training to practices using the Smiles for Life: National Oral Health Curriculum. This module covers:

- The etiology of early childhood decay
- Assessment of a child's risk of developing early childhood decay
- Benefits and indications for fluoride varnish
- Application of fluoride varnish
- Family education on oral health
- Referral to a dental home

Time Commitment: 1 hour

Pilot Week and Implementation

Once a workflow is established, parent/caregiver education is in place, the medical records and billing system are prepared, and all necessary staff have received an appropriate level of training for their role in delivering FTFT, the practice will agree on a go-live date. In advance of implementation, FTFT will supply the practice with: From the First Tooth Toolkit, educational materials for parents/caregivers, Promotional materials for the practice (welcome kit), and dental Referral list.

If desired by the practice, FTFT can help develop a system for tracking oral health utilization data.

Follow-Up

The FTFT technical assistance lead will follow up with the practice approximately two weeks post-implementation to see whether there are any questions or unresolved problems and to continue to monitor the practice's progress toward full implementation through bi-annual check-ins. Keep an eye out for our check-in email!

Overview of Oral Health Services

Oral Health Risk Assessment and Clinical Evaluation

The oral health risk assessment and clinical evaluation is recommended by the American Academy of Pediatrics (AAP) Bright Future Initiative. The oral health risk assessment and evaluation is used to assess risk factors, clinical findings and to develop a treatment plan including the frequency of fluoride varnish application. The FTFT Oral Health Risk Assessment and clinical evaluation is based off the AAP oral health risk assessment and is utilized at well-child visits from birth through age 21 as part of the child's routine care. The information gathered from this tool should be integrated into the electronic medical record.

The oral health risk assessment questions (below) should be administered by clinical support staff and should be answered by a parent/caregiver who is familiar with the child's history. If an answer to any one of the questions indicates the presence of a risk factor, the child is at moderate to high risk for dental decay, and fluoride varnish application is recommended.

- Has the child seen a dentist in the past year? "No" indicates risk factor.
- Does the child have his/her teeth brushed daily with toothpaste? "No" indicates risk factor.
- Has the child ever had cavities or fillings? "Yes" indicates risk factor.
- Has the mother/primary caregiver had active or untreated cavities in the past year? "Yes" indicates risk factor.

The clinical evaluation is a visual assessment of the mouth and must be performed by the primary care provider.

- Is there visible plaque on the teeth? "Yes" indicates risk factor.
- Are there signs of visible decay or white lesions on the teeth? "Yes" indicates risk factor.
- Does the child have any other oral conditions of concern (abscess, broken tooth, pain)? "Yes" indicates risk factor.

Fluoride Varnish Application

It is recommended that all children receive a fluoride varnish application every 6 months. Children with one or more dental caries risk factor should receive fluoride varnish every 3 months. Fluoride varnish can be applied by either the clinician or clinical support staff depending on what is most appropriate for the well-child workflow.

For more information on the use of fluoride in primary care, see the American Academy of Pediatrics "Fluoride Use in Caries Prevention in the Primary Care Setting" guide.

Parent/Caregiver Anticipatory Guidance and Education

Clinical staff should provide anticipatory guidance to parents and caregivers on behavioral risk factors and preventive measures that can impact the prevalence of Early Childhood Carries. Parent and caregiver education is based on a child's age and status of tooth eruption.

Referral to Dental Home

A dental home referral is completed by the provider or support staff by calling a dental office and initiating the referral. It's highly recommended that providers ask dental providers to send any relevant treatment information to the medical office.

Suggested Oral Health Plan

HIGH RISK

Symptoms

- Cavitation (advanced disease), including pain/swelling, and possible infection
- Family history or sibling with sign of decay
- Special health care needs

Suggested Oral Health Plan

- Apply **fluoride varnish**
- Urgent referral to dentist
- Ongoing oral health evaluation every 6 months
- Ongoing health risk assessment every 6 months
- Ongoing dietary counseling and hygiene instruction

MODERATE RISK

Symptoms

- One or more risk factors
- White spot lesions (early stage disease)
- Enamel defects, or other dental concerns

Suggested Oral Health Plan

- Apply **fluoride varnish**
- Referral to dental provider within 10-20 days
- Ongoing oral health evaluation every 6 months
- Ongoing health risk assessment every 6 months
- Ongoing dietary counseling and hygiene instruction

LOW RISK

Symptoms

- No risk factors
- Established in a dental home and receiving fluoride varnish every 6 months
- No decay or other conditions
- No health concerns and following good dental home care

Suggested Oral Health Plan

- Ongoing oral health evaluation every 6 months
- Ongoing health risk assessment every 6 months
- Ongoing dietary counseling and hygiene instruction

Dental Referral List and Access Map

[Maine Dental Access Map - Maine COHN]

[Dental Referral List | From the First Tooth]

Implementation Worksheet
Getting Started with Oral Health Prevention Services

The following worksheet is used during the implementation and process mapping meeting as part of the FTFT onboarding process. This document identifies key oral health integration tasks for primary care practices. Please fill out/review sections 1-6.

SECTION 1

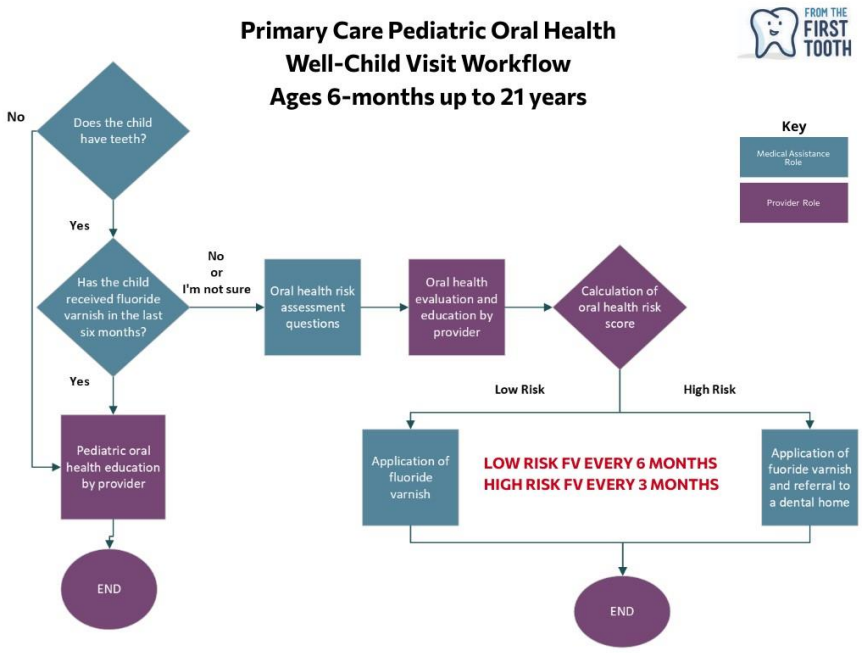
- Determine who will deliver the oral health services:

Service	Clinical Staff
Oral health evaluation	Provider
Risk assessment	MA
Anticipatory guidance/patient education	Provider
Fluoride Varnish	MA
Referral to a dental professional	Admin Team

Click Here to view the FTFT dental referral list

SECTION 2

- Determine when the services will be delivered



Suggested Periodicity Schedule								
	6 Months	9 Months	12 Months	15 Months	18 Months	24 Months	30 Months	Repeat years 3-21
Parent/Caregiver Education	●	●	●	●	●	●	●	●
Oral Health Assessment	●*	●*	●*	●*	●	●	●	●
Fluoride Varnish	●	—	—	—	—	—	—	●

SECTION 3

- Determine whether to implement a consent form for parents regarding payment (*See below for sample consent form*)

SECTION 4

- Create a plan for fluoride varnish materials and oral health information

Task	Clinical Staff
Who will order supplies and where will they be stored? • 2" x 2" gauze square • Gloves • 0.25 ml dose of 5% sodium fluoride varnish	
Where will the patient information be displayed? • Note: From The First Tooth will provide the practice with posters, reminders and patient education materials. All materials are available on the website: www.fromthefirsttooth.org	
For the patient visit, who will get the supplies ready	

SECTION 5

- Establish documentation

Task	IT Staff
EMR: Who will add dental fields Questions include: **Risk Assessment:** • Has the child seen a dentist in the past year? • Does the child have his/her teeth brushed daily with fluoridated toothpaste? • Has the child ever had cavities or fillings? • Has the mother/primary caregiver had active or untreated cavities in the past year? **Provider Evaluation:** • Is there visible plaque on the teeth? • Are there signs of visible decay or white lesions on the teeth? • Does the child have any other oral conditions of concern (abscess, broken tooth, pain)?	
Who will add the dental codes to the billing sheets and the billing system (see billing reference sheet for codes)	

SECTION 6

- Training

Schedule a date for training your practice: _____

Oral Health Services Billing Guide for Primary Care Practices

MaineCare

Topical Fluoride Varnish	
Procedure Code	CPT 99188- Application topical fluoride varnish by phs/qhp
ICD-10 Code	Z29.3- Encounter for prophylactic fluoride administration
Covered Age Range	Patients 6-months up to 21 years

Reimbursement by Provider Type Chart:

Provider type	Claim form	Reimbursement rate for fluoride varnish
Federally Qualified Health Center (FQHC)	UB 04	Included in encounter rate
Rural Health Center (RHC)	UB 04	Included in encounter rate
Ambulatory Care Clinic (School Health Center)	CMS 1500	Included in encounter rate
Indian Health Service (IHS)	CMS 1500	Included in encounter rate
Hospital Services (Provider-Based Practice)	CMS 1500/UB04 Split Bill	$26.58/application
Physician Practice	CMS 1500	$26.58/application

- **DO NOT BILL USING D1206.** Check your billing codes to make sure fluoride varnish has been switched to CPT 99188.

Oral Health Evaluation	
Procedure Code	D0145- Oral evaluation, patient under 3 years old D0191- Assessment of a patient (for patients over age 3)
ICD-10 Code	Z00.121- Encounter for routine child health examination with abnormal findings (Use additional code to identify abnormal findings, such as dental caries (K02.9 Dental caries, unspecified) Z00.129.- Encounter for routine child health examination without abnormal findings
Covered Age Range	D0145: patients under 3 years; D0191: patients ages 3 years up to 21 years

Reimbursement by Provider Type Chart:

Provider type	Claim form	Reimbursement rate for fluoride varnish
Federally Qualified Health Center (FQHC)	UB 04	Included in encounter rate
Rural Health Center (RHC)	UB 04	Included in encounter rate
Ambulatory Care Clinic (School Health Center)	CMS 1500	Included in encounter rate
Indian Health Service (IHS)	CMS 1500	Included in encounter rate
Hospital Services (Provider-Based Practice)	CMS 1500	D0145: $50.21/D0191: $14.55
Physician Practice	CMS 1500	D0145: $50.21/D0191: $14.55

Silver Diamine Fluoride (SDF)	
Procedure Code	D1354- Application of caries arresting medicament-per tooth
ICD-10 Code	Z00.121- Encounter for routine child health examination with abnormal findings (Use additional code to identify abnormal findings, such as dental caries (K02.9 Dental caries, unspecified)
Covered Age Range	Patients 6-months up to 21 years

Reimbursement by Provider Type Chart:

Provider type	Claim form	Reimbursement rate for fluoride varnish
Federally Qualified Health Center (FQHC)	UB 04	Included in encounter rate
Rural Health Center (RHC)	UB 04	Included in encounter rate
Ambulatory Care Clinic (School Health Center)	CMS 1500	Included in encounter rate
Indian Health Service (IHS)	CMS 1500	Included in encounter rate
Hospital Services (Provider-Based Practice)	CMS 1500	$27.82/tooth
Physician Practice	CMS 1500	$27.82/tooth

Practices Participating in Primary Care Plus (PCPlus)

- Primary Care Plus (PCPlus) is MaineCare's value-based approach to support primary care. PCPlus offers primary care practices greater flexibility and incentives to meet MaineCare members' health care needs. PCPlus transitions away from a volume-based (fee-for-service) payment system toward an approach that provides population-based payments tied to cost- and quality-related outcomes.
- Offering an oral health screening and topical fluoride varnish application up to age 21 is a PCPlus Practice Service Expectation.

Sample Fluoride Varnish Parent Consent Form

Dear Parent/Caregiver,

As a preventive dental service of _____ is offering the application of a protective coating called ***fluoride varnish*** to your child's teeth to help protect against cavities.

Fluoride varnish is a protective coating that is painted on teeth. The varnish releases the fluoride over a period of time, which strengthens the teeth and prevents tooth decay. Tooth decay is the most common chronic disease in children.

Although some medical insurances are covering this service, ***not all insurances are covering fluoride varnish.*** The fee is **$XX** per application.

Please indicate below whether you give permission for your child to receive the application of fluoride varnish

- ☐ ***YES,*** I give permission for my child to receive the fluoride varnish application. I understand that I may be responsible for the fee if my insurance does not cover this application.
- ☐ ***NO,*** I do not give permission for my child to receive this preventive fluoride varnish application.

Name of Child: _____ Date of Birth: _____

Signature of Caregiver: _____ Date: _____

Caregiver's Name (*please print*): _____

Fluoride Varnish Guidance

What should I look for when picking a fluoride varnish?

- The AAP recommends a 5% sodium fluoride varnish. If you have patients that have tree nut allergies, you will want to avoid the resin-based products. You will find most fluoride varnishes do not contain gluten, dairy, soy, and egg.

What favors of fluoride varnish do children like?

- Manufacturers have made advancements to produce a clear, smooth textured fluoride varnish to help with patient comfort and have made their products taste good! You will find that there are assorted flavors available such as bubblegum, raspberry, melon, strawberry, and caramel just to name a few.

What is alcohol-based fluoride varnish?

- Fluoride varnishes can contain alcohol which help to dry the varnish on tooth surfaces faster.

What is colophony rosin-based fluoride varnish?

- Colophony rosin fluoride varnish is a dental product that contains colophony, a resin derived from pine tree sap, and sodium fluoride. This resin helps the fluoride stick to the teeth.

What is xylitol?

- Xylitol is a natural sugar substitute that comes from fruits, vegetables, is a birch sugar, wood sugar and birch bark extract. Xylitol is a common ingredient in sugar-free gum, mints, fluoride varnish, and toothpaste to reduce bacteria that cause cavities.

Major suppliers:

Patterson Dental	https://www.pattersondental.com
Henry Schein	https://www.henryschein.com
Safeco Dental	https://www.safcodental.com
Young Specialties	https://www.youngspecialties.com
Wonderful Dental	https://wonderfuldental.com
Kettenbach Dental	https://www.kettenbach-dental.us

Products with 0.25ml Pediatric Dose (Ages 6-months to 6 years)

Duraflor Varnish Fluoride	Unit Dose 5% NaF 0.25 ml 32/Box or 200/Box
ProFluorid Fluoride Varnish	Unit Dose 5% NaF 0.25 ml 50/Box
White VarnishAmerica™ Varnish,	Unit Dose 5% NaF 0.25 ml 50/Box or 200/Box
Nupro White Varnish 5% Fluoride Varnish	Unit Dose 5% NaF 0.25 ml 50/Box

Products with 0.40ml. or 0.50ml. Adult Dose (Ages 6 years and up)

ProFluorid Fluoride Varnish	Unit Dose 5% NaF 0.40 ml 50/Box
Duraflor Ultra	Unit Dose 5% NaF 0.40 ml 30/Box or 200/Box
Fluoride Varnish Sticks by Wonderful	Unit Dose 5% NaF 0.40 ml 75/Box
Waterpik UltraThin and Clear Fluoride Varnish	Unit Dose 5% NaF 0.40 ml 30/Box or 100/Box
Prevident Fluoride Varnish	Unit Dose 5% NaF 0.40 ml 50/Box
3M Vanish Fluoride Varnish	Unit Dose 5% NaF 0.40 ml 50/Box or 100/Box
Profisil Fluoride Varnish (dimethicone gel does not contain alcohol or colophony resin)	Unit Dose 5% NaF 0.50 ml 50/Box or 300/Box or 1000/Box

Parent/Caregiver Education

Below are examples of anticipatory guidance for parents and caregivers. Oral health education should be integrated as part of comprehensive counseling with parents/caregivers during well-child visits. This education should include information about diet, oral hygiene, fluoride, and referral to a dental home.

Anticipatory Guidance for Parents and Caregivers[1]

Infant & Children: Ages 6-months to 9 Years

- Before your baby has teeth, clean their mouth with a washcloth every day.
- As soon as your baby has teeth, brush 2 times daily with a rice-sized smear of toothpaste that has fluoride for ages 0-2. Use a pea sized smear for ages 3-5.
- Allow children to practice brushing their own teeth but know they still need help to be effective until ages 8.
- Flossing between teeth is necessary. Encourage children to start early to set a healthy habit.
- Milk, formula, juices, soda, and breast milk all have sugar in them that can puddle around a sleeping baby's teeth and cause decay.
- Limit their exposure to sugars, including fruit juice, and only use water at bedtime.
- Germs that can cause cavities can be transferred from adults to babies, so don't share anything with your baby that can transmit germs. For example, don't share your spoon.
- Dental checks should occur by age 1 with your dentist or medical doctor.
- Play your part in the prevention of cavities by looking at your child's teeth for signs of decay. Encourage brushing and flossing.
- Ask your doctor about fluoride varnish and water testing for fluoride content.

Adolescents: Ages 10-18 Years

- Brush twice a day with toothpaste that has fluoride.
- Floss once a day and use a mouth rinse with fluoride that has been recommended by your dentist/hygienist.
- Get sealants on the permanent molars -(molars erupt around age 6 and 12) check with your school to see if you have a school oral health program that will do this. If not ask your dentist or independent dental hygienist
- Wisdom teeth (3rd molars)-may erupt between the ages of 17-21. Often there is not enough room, and they are impacted. Don't delay treatment, this can be damaging to surrounding teeth and very painful.
- Eating Disorders can harm your oral health. Without proper nutrition, you may experience bleeding gums, dry mouth, erosion of the enamel, fractured enamel, and change of tooth color.
- Smoking/vaping can cause the following:
    - Stained tongue and teeth which may lead to cosmetic difficulties
    - Gum disease or tooth loss
    - Oral cancer

[1] Healthy Habits for Happy Smiles, https://headstart.gov/browse/series/healthy-habits-happy-smiles

Adult Dental Care

When performing daily oral hygiene (brushing 2x/day, flossing daily), consider the following:

- Don't forget to clean your tongue too! Tongue scrapers can be helpful.
- If you have increased risk of gum disease, consider mouth rinse or toothpaste that says antibacterial on the label.
- If you have an increased risk of cavities, consider mouth rinse with fluoride.
- For patients that struggle to clean between their teeth, consider what interdental cleaning tool might be best. Some examples are interdental brushes, piks, or a waterpik.
- If you want or need improved plaque removal, consider a power toothbrush.

Other special considerations:

- Avoid tobacco products.
- Eat healthy foods and have fewer sugary snacks, acidic and carbonated drinks.
- Visit your dental provider regularly. Every 6 months is recommended for most adults, but you may need more frequent visits.
- Discuss any medications you are taking with your dentist and primary care provider. Many medications have oral side effects including dry mouth, which can lead to cavities.

WARNING SIGNS OF POOR ORAL HEALTH

- Red, swollen, tender or bleeding gums
- Bad breath that won't go away
- Loose teeth
- Sensitive or sore teeth or gums
- Receding gums (gums that pull away from the teeth)
- Dry mouth
- Long-lasting mouth sores

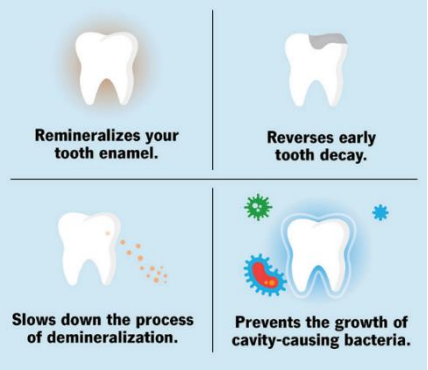
Tracking Oral Health Data

To monitor the success of program implementation, it is recommended practices track the percentage of oral health risk assessments, documentation of dental home, and fluoride varnish application through use of the EMR. Using these metrics practices can set targets, it is suggested that practice set an initial target of 60% for each metric and assess monthly whether targets should be increased. Please see the table below for a calculation of each metric.

Metric	Definition	Numerator	Denominator
Oral Health Risk Assessment	% of children ages 6 months to 21 years with an oral health risk assessment	Total number of children ages 6 months to 21 years seen for a well-child visit (WCV) or other primary care provider (PCP) visit in the past year with an oral health risk assessment completed with classification as high/moderate or low risk	Total number of children ages 6 months to 21 years seen for a WCV or PCP visit in the past year
Dental Home Screening	% of children ages 6 months to 21 years with documentation of a dental home (defined as a dental office)	Total number of children ages 6 months to 21 years seen for a WCV or PCP visit in the past year with a dental home screening completed either yes or no	Total number of children ages 6 months to 21 years seen for a WCV or PCP visit in the past year
Fluoride Varnish Application	% of children ages 6 months to 21 years who had a fluoride varnish application	Total number of children ages 6 months to 21 years seen for a WCV or PCP visit in the past and a fluoride varnish application	Total number of children ages 6 months to 21 years seen for a WCV or PCP visit

Fluoride: What you Need to Know

Fluoride is the highest contributor to the reduction of dental decay among children in the United States. The mechanisms of fluoride application are both topical and systemic, but the topical effect is the most important, especially over the lifespan of the tooth. Fluoride is available from many sources and is divided into three major categories: professionally applied, tap water (and foods and beverages processed with fluoridated water), and home-administered.[1]



Topical Fluoride Mechanisms of Action

- Promotes enamel remineralization
- Reduces enamel demineralization
- Inhibits bacterial metabolism and acid production

Systemic Fluoride Mechanism of Action

- Reduces enamel solubility through incorporation into its structure during tooth development

Public Fluoridated Water

Communities can decide to add or remove fluoride from their town's public water source. Addition of fluoride to public water is closely regulated and the Drinking Water Standards are set by the U.S. Public Health Service. The current optimal water fluoride concentration to prevent dental caries is 0.7mg/L. According to the Centers for Disease Control and Prevention approximately 200 million people in the United States are served by water systems that add fluoride to their public drinking water.[2]

Dietary Fluoride Supplementation

The use of fluoride supplements has been strongly associated with the reduction of dental decay in children. Primary care providers should assess the child's source of drinking water and prescribe fluoride supplements for children who are at high risk for dental decay and whose primary source of drinking water has suboptimal levels of fluoride.

If the child lives in a home that has public water supply, check the list of Maine Communities with Fluoridated Water Supply and Year Started or the Maine Center for Disease Control and Prevention's website for an up-to-date list. If the family is on well water, ask the family whether they have had their well water tested and whether they know the results. If the well water has not been tested or the results are unknown, recommend that the family test water using a kit that can be ordered from the Maine Center for Disease Control and Prevention's Health and Environmental Testing Lab (HETL). If the family's water supply does not have optimal levels of fluoride, dietary fluoride supplements are recommended.

Dose Chart[3] (Dosages are in milligrams fluoride/day)

Child's Age	Water Fluoride Concentration		
	<0.3 ppm	0.3–0.6 ppm	>6 ppm
Birth-6 months	None	None	None
6 months–3 years	0.25 mg	None	None
3–6 years	0.50 mg	0.25 mg	None
>6 years	1.00 mg	1.50 mg	None

[1] Weyant RJ, Tracy SL, Anselmo TT et al. Topical fluoride for caries prevention: executive summary of the updated clinical recommendations and supporting systematic review. American Dental Association Council on Scientific Affairs Expert Panel on Topical Fluoride Caries Preventive Agents. J Am Dent Assoc. 2013. 144(11):1279–91.

[2] U.S. Public Health Service recommendation for fluoride concentration in drinking water for the prevention of dental caries. (2015). *Public Health Reports®*, *130*(4), 318–331. https://doi.org/10.1177/003335491513000408

[3] American Dental Association (2023). Fluoride: Topical and Systemic Supplements. Retrieved from https://www.ada.org/resources/ada-library/oral-health-topics/fluoride-topical-and-systemic-supplements

Fluoride Varnish

Evidence supports the efficacy of high-concentration fluoride varnish in preventing dental decay in children. The application of fluoride varnish reduces early childhood decay by protecting teeth, remineralizing tooth enamel, and arresting the progression of early decay. Fluoride varnish can be safely applied to children as early as the eruption of the first tooth. Since applying fluoride varnish is a quick and easy procedure, it can be easily integrated into well-child visits and delegated to clinical support staff.

Fluoride varnish is a resin or synthetic base that contains a high concentration of fluoride. Fluoride varnish sets quickly on contact with teeth in the presence of saliva. Some fluoride remains on the enamel as a temporary layer of calcium fluoride-like material. The fluoride in the material releases when the pH level of the mouth drops in response to acid production. It then becomes available to remineralize enamel. This layer slowly disappears over the following months. Applications of fluoride varnish must be repeated to maintain effectiveness as a primary prevention strategy. Fluoride varnish application helps remineralize enamel even when there are early carious lesions.[4]

Periodicity of Fluoride Varnish Applications

Multiple applications of fluoride varnish on the primary teeth maintain the preventive benefit, as the effectiveness diminishes over time. This is especially important with high-risk children. Most guidelines recommend at least three professional applications of topical fluoride per year at intervals of three to four months for high-risk children. Research also shows that a threshold effect of at least four applications is required to obtain a detectable preventive benefit.[5]

How to Apply Fluoride Varnish

Assessing the child's risk and performing an oral health evaluation will determine the need for fluoride varnish.

Materials

- 2" x 2" gauze square
- Gloves
- Disposable mouth mirror (optional)
- 0.25 ml dose of 5% sodium fluoride varnish (applicator brush is included within the packaging of this product)

Positioning

- Establish a knee-to-knee position between the medical provider and the parent/caregiver.
- Have the child's head in the medical provider's lap.
- Allow the parent/caregiver to place the child's legs around his/her waist.
- Parent/caregiver may further assist by holding the child's hand.

Photos: Mark Deutchman, MD |Smiles for Life, a national oral health curriculum

Application

[4] American Academy of Pediatric Dentistry. Fluoride therapy. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2024:351-7.

[5] Association of State and Territorial Dental Directors (2015). Fluoride Varnish Policy Statement. Retrieved from https://www.astdd.org/docs/fluoride-varnish.pdf .

- Remove the applicator brush from the holder.
- Stir the varnish to assure proper mixture.
- Using gentle finger pressure, open the child's mouth.
- Use the gauze square to wipe the child's teeth dry and remove obvious food particles that may be present.
- Using the gauze square, isolate the teeth.
- Using the applicator brush, apply the fluoride varnish to the teeth.
- Apply a thin layer of the varnish to all surfaces of the teeth; it is not necessary to apply varnish to open areas of decay.
- Once the varnish comes into contact with the saliva, the varnish will set.

Post-Application Instructions

- Consult the fluoride varnish manufacturer's instructions for recommendations on when to start teeth brushing after application.
- Remind the parent/caregiver to feed the child a soft diet for the remainder of the day; this will allow the fluoride varnish to stay in place for the optimal length of time.

Silver Diamine Fluoride

Silver Diamine Fluoride (SDF) is a topical medicament cleared by the FDA as a Class II medical device to treat tooth hypersensitivity. Commonly, SDF (38% solution) has been used off-label to stabilize dental caries in children and adults. SDF is a brush-on liquid or gel that prevents dental decay from progressing and spreading to other teeth. Unlike traditional treatments such as drilling and filling a cavity, SDF is quick, painless, and does not require local anesthesia or sedation.

The American Medical Association (AMA) approved a new category III CPT code for the application of SDF by medical teams to arrest dental decay without a dental filling. The addition of this code is a milestone in improving access to dental care and, ultimately, helping more people achieve better oral health. [6]

Indications and usage:

The following scenarios may be well-suited for the use SDF:

- High caries-risk patients with anterior or posterior active cavitated lesions.
- Cavitated caries lesions in individuals presenting with behavioral or medical management challenges.
- Patients with multiple cavitated caries lesions that may not all be treated in one visit.
- Difficult to treat cavitated dental caries lesions.
- Patients without access to or with difficulty accessing dental care.
- Active cavitated caries lesions with no clinical signs of pulp involvement.

After SDF is applied, medical providers should place a referral to a dental provider. Dental providers will further assess tooth structure and potential loss of function. Additionally, SDF will permanently stain the tooth black, dental providers can apply restorative dental materials such as a glass ionomer to lessen the dark staining. To learn more about SDF please refer to the FTFT SDF toolkit found on the FTFT website.

Fluorosis

[6] Silver Diamine Fluoride (SDF) Application in the Pediatric Medical Setting. https://www.aap.org/en/patient-care/silver-diamine-fluoride-application-in-the-pediatric-medical-setting/

The only scientifically proven risk of fluoride use is the development of fluorosis. Fluorosis of permanent teeth occurs when an excessive amount of fluoride is ingested over a long enough period of time while the tooth is developing underneath the gums. The risk of fluorosis exists in children younger than 8 years, and the most susceptible period is between 15 and 30 months of age. The risk of fluorosis is influenced by both the dose and frequency of exposure to fluoride during tooth development.[22]

Clinical Appearance

- Usually consists of white mottling

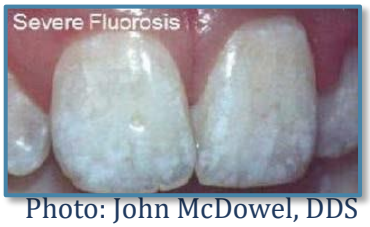


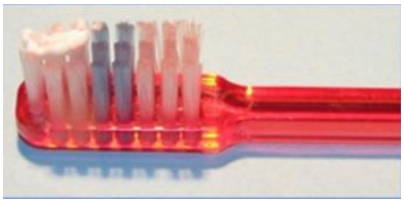
Photo: John McDowel, DDS

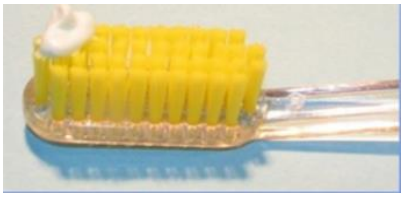
Prevalence and Risk Factors[7]

- Risk of developing fluorosis is greatest when a ratio of more than 0.06 milligrams per kilogram of body weight per day is ingested.
- Fluoride varnish is not a risk factor for fluorosis, as it is an irregular source of fluoride when applied at the recommended interval of two to four times per year between 6 months and 5 years of age when indicated.

Risk Reduction of Fluorosis[8]

- Avoid duplication of fluoride prescriptions.
- Advise patients/caregivers regarding the appropriate amount of fluoride toothpaste use by age, and recommend supervised brushing to reduce the incidence of children swallowing toothpaste (see below image for an appropriate amount for children).
- Keep fluoride-containing products out of the reach of small children.
- Determine fluoride content of current drinking water prior to recommending or prescribing dietary fluoride supplementation.


Less than 3 years of age


All children age 3 and older

[7] Skotowski MC, Hunt RJ, Levy SM. Risk factors for dental fluorosis in pediatric dental patients. J Public Health Dent. 1995. Summer;55(3):154–9.
[8] Wright JT, Hanson N, Ristic H et al. Fluoride toothpaste efficacy and safety in children younger than 6 years: A systematic review. JADA. 2014. 145(2): 182–189.

Guidance for Providers: Communicating About Fluoride

- Refer to this section when discussing fluoride varnish and silver diamine fluoride (SDF) during well-child visits.
- Use the talking points to confidently address concerns while emphasizing fluoride's benefits.
- Cross-reference this guide with the **Fluoride Modalities for Low and High-Risk Patients** below for individualized recommendations.

Summary of Fluoride Modalities for Low and High-Risk Patients

Fluoride Modality	Low Caries Risk	High Caries Risk
Toothpaste	Starting at tooth emergence	Starting at tooth emergence
Fluoride varnish	Every 3–6 months starting at tooth emergence	Every 3–6 months starting at tooth emergence
Over-the-counter mouth rinse	N/A	Starting at 6 years old if the child can reliably swish and spit
Dietary fluoride supplements	Yes, if drinking water supply is not fluoridated	Yes, if drinking water supply is not fluoridated

Key Messaging Points:

- Fluoride is a naturally occurring mineral that strengthens tooth enamel and prevents cavities.
- Fluoride treatments, including Fluoride Varnish and silver diamine fluoride (SDF), are widely recommended by health organizations such as the CDC, ADA, and WHO.
- Fluoride in its many forms is both safe and effective, with 75 years of compelling evidence supporting its role in reducing dental decay.

How to Address Common Concerns:

"Is fluoride safe?"

- Fluoride is safe when used appropriately and regulated in dental products and public water.
- Scientific research has consistently shown that fluoride in water reduces cavities without harmful effects at CDC recommended levels.

"I don't want my child exposed to too much fluoride."

- Fluoride recommendations are based on the child's risk factors and fluoride exposure from water, toothpaste, and diet.
- For children in non-fluoridated communities, fluoride varnish and SDF can especially provide essential protection against cavities.

"Why is fluoride removed from some water supplies?"

- Some communities have removed fluoride from public water based on policy decisions, rather than new scientific evidence. As a result, these communities could experience an increase in tooth decay as the continuous, low levels of fluoride from tap water which help protect teeth throughout the day are no longer available.
- Major health organizations still recommend water fluoridation as a safe and effective measure to prevent tooth decay.

"I want to avoid fluoride altogether. Are there alternatives?"

- While fluoride is one of the most effective ways to prevent dental caries other strategies can help such as:
  - Limiting sugar intake and promoting a balanced, healthy diet.

- Practicing good oral hygiene with regular brushing and flossing.
- Using non-fluoride remineralizing toothpaste (such as those containing hydroxyapatite).

How to Approach the Conversation:

- **Listen first:** Acknowledge patient concerns and ask what they have heard about fluoride.
- **Provide clear, non-judgmental information:** Stick to facts and reference literature while emphasizing patient choice.
- **Offer personalized recommendations:** Consider the patients concerns, risk factors, fluoride exposure, and preferences when discussing options.
- **Respect autonomy:** If a patient chooses to avoid fluoride, provide alternative strategies for protection against tooth decay and improving oral health.

Your role as a health care provider is to educate, empower, support, and respect patients' decisions, while ensuring they have the information they need to make informed decisions for their oral health. By using an open, evidence-based approach, you can foster trust and encourage preventive care that aligns with each patient's values and needs.

References

- Campaign for Dental Health. (2014). Fluoride questions. Retrieved from https://ilikemyteeth.org/debate-fluoridation/fluoride-questions/
- Iheozor-Ejiofor, Z., Walsh, T., Lewis, S. R., Riley, P., et al. (2024). Water fluoridation for the prevention of dental caries. *Cochrane Library*, *2024*(11). https://doi.org/10.1002/14651858.cd010856.pub3
- JADA Editorial. (2024). Community water fluoridation: A public health success. Retrieved from https://jada.ada.org/article/S0002-8177(24)00567-1/fulltext
- American Dental Association. (2024). Fluoride: Topical and Systemic Supplements. Retrieved from Fluoride: Topical and Systemic Supplements | American Dental Association
- National Geographic. (2024). Why we add fluoride to water. Retrieved from https://www.nationalgeographic.com/environment/article/fluoride-drinking-tap-water-health-controversy
- Centers for Disease Control and Prevention. (2024). Oral Health Basics. Retrieved from About Oral Health | Oral Health | CDC
- Centers for Disease Control and Prevention. (2024). CDC Scientific Statement on community Water Fluoridation. Retrieved from CDC Scientific Statement on Community Water Fluoridation | Fluoridation | CDC
- American Dental Association. (2024). Nutrition and Oral Health. Retrieved from Nutrition and Oral Health | American Dental Association
- Centers for Disease Control and Prevention. (2024). Oral Health Tips for Children. https://www.cdc.gov/oral-health/prevention/oral-health-tips-for-children.html?CDC_AAref_Val=
- Paszynska, E., Pawinska, M., Enax, J., et al. (2023). Caries-preventing effect of a hydroxyapatite-toothpaste in adults: a 18-month double-blinded randomized clinical trial. *Frontiers in public health*, *11*, 1199728. https://doi.org/10.3389/fpubh.2023.1199728
- Amaechi, B.T., AbdulAzees, P.A., Alshareif, D.O. *et al.* (2019). Comparative efficacy of a hydroxyapatite and a fluoride toothpaste for prevention and remineralization of dental caries in children. *BDJ Open* 5, 18. https://doi.org/10.1038/s41405-019-0026-8
- Limeback, H., Enax, J., & Meyer, F. (2023). Clinical Evidence of Biomimetic Hydroxyapatite in Oral Care Products for Reducing Dentin Hypersensitivity: An Updated Systematic Review and Meta-Analysis. *Biomimetics*, *8*(1), 23. https://doi.org/10.3390/biomimetics8010023
- U.S. Department of Health and Human Services Federal Panel on Community Water Fluoridation (2015). U.S. Public Health Service Recommendation for Fluoride Concentration in Drinking Water for the Prevention of Dental Caries. *Public health reports (Washington, D.C. : 1974)*, *130*(4), 318–331. https://doi.org/10.1177/003335491513000408
- Clark MB, Slayton RL. (2014). AAP Section on Oral Health. Fluoride use in caries prevention in the primary care setting. Pediatrics. Sep;134(3):626–33.

Frequently Asked Questions

Billing

Do I need to worry about my practice and a dental office billing for the oral health risk assessment and fluoride varnish and a claim being denied?

- For children with MaineCare coverage you do not need to worry about a claim being denied. If a child under age three is receiving the oral health risk assessment/evaluation by their primary care provider, it's because they haven't seen a dentist in the last year. For children over age three the oral health risk assessment is billed using D0191 which is only open to medical providers.
- Children with private medical insurance usually have private dental insurance and claims submitted by a dentists will not impact private medical insurance. **However,** private medical insurance companies will typically only reimburse for fluoride varnish application up to age 6. The US Preventive Task Force grades fluoride varnish as a level B recommendation. Under the ACA all insurances must cover level A & B USPTF recommendations. Additionally, under the ACA all non-granfathered medical insurance plans must covered the AAP Bright Futures preventive recommendations. The oral health risk assessment is a Bright Futures recommendation up to age 6. Therefore, children over age 6 with private medical insurance may receive a bill for fluoride varnish and/or the oral health risk assessment.

What billing codes do I need to use for oral health services?

- Please refer to the billing and coding section

Implementation

Who can provide these oral health services in primary care practices?

- Only a medical provider can perform and bill for the clinical oral health evaluation. Medical providers may also choose to conduct the applicable screenings and fluoride varnish applications. In this case, a medical provider is defined as a physician, physician's assistant, or nurse practitioner. Other properly trained clinical support staff such as RNs, LPNs, or medical assistants may perform the dental home and oral health risk assessments and apply the fluoride varnish under the supervision of a physician.

	Risk Assessment	Oral Evaluation	Fluoride Varnish
Physician	Yes	Yes	Yes
Nurse Practitioner	Yes	Yes	Yes
Physician Assistant	Yes	Yes	Yes
Registered Nurse	Yes	No	Yes
Certified Medical Assistant	Yes	No	Yes

Can I apply fluoride varnish outside of the well-child visit?

- Yes, fluoride varnish can be applied outside of the well-child visit

I am worried that applying fluoride varnish will take too long during a well-child visit. How long does it take to apply fluoride varnish?

- Conducting the dental home and oral health screenings, performing the oral health evaluation, and applying fluoride varnish add very little time to a visit. Providers are already discussing diet and tooth brushing and are looking in children's mouths. Fluoride varnish can be applied as part of the mouth examination and adds less than a minute to the visit process. Some practices have chosen to have clinical support staff apply the varnish during the time when vaccines are administered.

Where can I order From the First Tooth educational materials, and do you have materials available in multiple languages?

- Educational materials can be ordered off the From the First Tooth website and are available in multiple languages. Additionally, we recommend that practices have their patients view the Dental Steps video library which provides a wealth of oral health information to parents and caregivers on how to care of their child's teeth. The videos are also available in multiple languages
    - **Order Materials off the FTFT website: Order Materials | From the First Tooth**
    - **View the Dental Steps video library: Dental Steps for ME**

Do you have toothbrushes available?

- From the First Tooth has a dental kit program called Spruce the Dental Health Moose which supplies dental kits to participating practices. Dental kits contain a toothbrush for each family member, toothpaste, floss, and educational material. Due to funding, we can only accept a limited number of practices into the program. If you are interested in participating please contact mhfirsttooth@mainehealth.org.

What is a dental home?

- A dental home is characterized by an ongoing relationship between a dentist and patient, inclusive of all aspects of oral health care, including referrals to dental specialists. Care is delivered in a comprehensive, continuously accessible, coordinated, and family-centered way. Establishment of a dental home should begin no later than 12 months of age.[26] As with any other specialists children may see, it is important to coordinate care between dental and medical homes.

Fluoride

My patients have referenced a report on fluoride from the National Toxicology Program, how should I respond?

- A 2024 report by the National Toxicology Program examined potential impacts of fluoride on children's IQ but specifically did not evaluate fluoridation at the recommended levels we use in the United States. Instead, the findings in this report are limited to fluoride exposure that is twice the amount (≥1.5 mg/L) that is recommended by the CDC for community water (0.7 mg/L). The report specifically states:

"This Monograph and Addendum do not address whether the sole exposure to fluoride added to drinking water in some countries (i.e., fluoridation, at 0.7 mg/L in the United States and Canada) is associated with a measurable effect on IQ."

- Additionally, multiple drafts of the report, including the most recent, have been criticized by the National Academies of Sciences, Engineering and Medicine for inadequate research methodology.[1] [2]

[1] National Academies of Sciences, Engineering, and Medicine. 2021. Review of the Revised NTP Monograph on the Systematic Review of Fluoride Exposure and Neurodevelopmental and Cognitive Health Effects: A Letter Report. Washington, DC: The National Academies Press. https://doi.org/10.17226/26030.

[2] *American Dental Association reaffirms support for Community Water Fluoridation*. American Dental Association. https://www.ada.org/about/press-releases/american-dental-association-reaffirms-support-for-community-water-fluoridation

I have heard that we do not have to prescribe fluoride tablets/drops if we are applying fluoride varnish. Is that true?

- No, it is not true. Fluoride varnish is NOT a replacement for fluoride tablets or drops. The American Dental Association recently confirmed that children at high risk for caries still need their water assessed to determine whether they need dietary fluoride supplements. Dietary fluoride gets absorbed into developing teeth and is also re-excreted into saliva, thereby providing some topical benefit. The high concentration of fluoride in the varnish gives a boost to the fluoride content of the outer layer of the enamel, helping increase resistance to caries until the next application. Ingested fluoride in tablets provides a systemic effect to developing teeth.

Does fluoride varnish have any use once cavities have started?

- Yes, fluoride varnish can help stop early dental decay from progressing. If a tooth has a white spot, which is an indication of an early cavity, the fluoride varnish will help harden the softened enamel and dentin and make that area of the tooth stronger so that a cavity does not progress. Fluoride varnish is more effective when applied every 3-6 months.

How important is it to clean and dry the teeth before applying fluoride varnish?

- It is not necessary to clean the teeth prior to applying fluoride varnish, but it is very important that the teeth be as dry as possible. Teeth can be dried by wiping them with gauze. As soon as the varnish is applied, you can allow teeth to get wet, as the varnish sets immediately upon contact with saliva.

I find it challenging to go back and forth from the patient's mouth to the varnish container – any tips?

- Some people dispense the varnish onto the back of their non-dominant gloved hand. Others prefer to hold the varnish container between the thumb and forefinger of their non-dominant hand. The non-dominant hand is often just helping to hold open the patient's mouth, so it can play dual roles. If you feel comfortable, you can ask a family member to hold the varnish container for you.

Does fluoride varnish cause fluorosis?

- No. Fluorosis is caused when children consume too much fluoride on an ongoing basis, which can happen when children use excessive amounts of toothpaste or take fluoride tablets when their water supply is fluoridated. Per the CDC, no published evidence indicates that professionally applied fluoride varnish is a risk factor for dental fluorosis, even among children younger than 6 years.[3] Properly applying fluoride varnish reduces the possibility that a patient will swallow it during application.

Why is fluoride varnish offered only every three to six months?

- Fluoride varnish gets into the matrix of the tooth over the 18–24 hours it is "stuck" to the teeth. This boosts the fluoride content of the outer layer of the tooth enamel, creating a reservoir of fluoride that lasts for approximately three to six months. This reservoir then helps resist future decay and repair damaged enamel (remineralization).

[3] Centers for Disease Control and Prevention. (2019). Other Fluoride Products. Retrieved from https://www.cdc.gov/fluoridation/basics/fluoride-products.html.