Riverside University HEALTH SYSTEM Public Health

CHDP Fluoride Varnish Training

Adapted from:
California CHDP/EPSDT Dental Training: Fluoride Varnish
CHDP, Oral Health Subcommittee
January 2022

Training Objectives

* Importance of routine referrals to a dentist by age one
* Application of fluoride varnish from first tooth eruption through five years of age
* Anticipatory guidance and post-care instruction

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Problem Statement

- Dental caries is historically the most frequently reported problem of CHDP children
- Many children in Riverside County end up at the Emergency Department for preventable dental conditions
  - 2012 – 2016: 1,059.1 visits (Project VIDA, Center for Oral Health)
- Low utilization rates among child Medi-Cal members
  - California = 47.6% Riverside County= 42.5%

(Smile California, 2017) (DHCS ADV by County, 2016-2017)

Percent of Dental Fee-for-Service children 0 – 20 years old who had an oral health exam between April 2020 – March 2021			
0-5	6-14	15-20	0-20
26.1 %	44.2%	31.3%	35.8%

Data Source: Department of Health Care Services Data Warehouse

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Fluoride Varnish

The CHDP/EPSDT Medical Provider's Role

Fluoride Varnish: an Evidence-Based Approach – Research Brief (astdd)
https://www.astdd.org/www/docs/fl-varnish-research-brief.pdf

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CHDP Providers Prevent Dental Decay

- Young children are seen **earlier** and **more frequently** by medical providers than by a dentist
- **Low income** young children are at highest risk for dental decay
- Medical providers are now placing fluoride varnish to **prevent decay**
- Research shows high **efficacy** of fluoride varnish*

*Fluoride Varnish Efficacy in Preventing Early Childhood Caries https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2257982/?tool=pubmed

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Fluoride Varnish - Who Can Apply?

- Medical Office Setting
  - MD
  - Trained nurses and assistants
    - With MD/NP/PA order
    - Following attending doctor's written protocol*
- Community Setting** (School, health fair or government program)
  - Any trained person
    - With signed parental permission
    - Under a doctor's (or dentist's) prescription
    - Following doctor's (or dentist's) protocol

*CHDP Provider Information Notice No.:06-08 & **Policy Pick: Topical Fluoride Varnish and AB667

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Fluoride Varnish – How to Implement

- Get leadership commitment
- Establish Health Records (EMR) for documentation
- Engage staff - information meetings
- Identify workflow
- Practicum training
- Train on documentation
- Publicize to parents
- Set start date

AAP Oral Health Practice Tools

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Fluoride Varnish – How to Implement

- Identify:
  - ages to get FV
  - interval periods
- Establish standing order - Rx
- Assign duties to MA, or other trained staff
- Document in health record
- Give post procedure instructions
- Start small and go slow

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Frequency of Application

- Apply during a well child exam, follow-up visit, or stand-alone appointment.
- After the first fluoride varnish treatment, subsequent treatments can be applied every 3-4 months.

Pediatric Dental Care: Prevention and Management Protocols Based on Caries Risk Assessment
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3470809/

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Fluoride Varnish – How to Order

Three Ways:

1. Your own medical supplier
2. AAP Ordering list
3. Internet search:
   - Use search term "fluoride varnish buy"

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Fluoride Varnish - Billing

Reimbursable 3 times (in a 12 month period) for children age 0 through 5

- Fee-for-Service Medi-Cal
  - Billing code: CPT 99188*
  - Reimbursement - $18 per application
- Managed Care Medi-Cal
  - Reimbursement varies
  - Contact individual plan
- FQHC/RHC/IHS
  - Not billable as a separate procedure – absorbed into encounter reimbursement

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Fluoride Varnish Application

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Fluoride Varnish – Who Needs It?

CHDP children are at high caries risk!*

Other Caries Risk Factors:

- **Active or Past Tooth Decay**
  - In parents, siblings, caregivers or child
  - White spot lesions on teeth
- **Poor Feeding Habits**
  - Frequent snacking on carbohydrates
  - Sticky sugary foods
  - Sweet/acidic drinks
  - Bottle in bed
  - Bottle after age 1
- **GERD**
- **Lack of Fluoride in**
  - Drinking water **
  - Vitamins/Supplements
  - Toothpaste
- **No Recent Dental Visit**
  - Within the last year
- **Poor Homecare**
  - Lack of daily brushing and flossing
- **Children with Special Health Care Needs**

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Fluoride Varnish - Facts

- A protective resin coating of sodium fluoride
- Brushed on teeth in ≈ 1-2 minutes
- 1 application cuts decay risk up to 59%*
- Applied up to 5x per year
  - 3x in medical office
  - 2x in dental office

**Contraindicated if there is an ALLERGY to pine nuts

*Don't place on gums, or where teeth are missing

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Fluoride Varnish - Which Teeth Benefit?

No Visible Decay
but high risk

Preventable with fluoride varnish and good home care

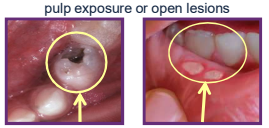
Beginning Decay
white chalky decalcification near gum line

Reversible with fluoride varnish and better home care to inhibit progression of caries

Advanced Decay
destroyed enamel

Irreversible, however with fluoride varnish decay progression is inhibited
~ Dental treatment needed ASAP ~

Teeth Without
pulp exposure or open lesions



Avoid these areas, but apply fluoride varnish to all other teeth in the mouth

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Fluoride Varnish Safety

- Fluoride varnish is recommended even if other types of fluoride are being used, including:
  - Systemic fluoride (e.g. water fluoridation, tablets or drops)
  - Other topical fluorides (e.g. fluoridated toothpaste, mouth rinses, foam or gel trays)

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When is Fluoride Varnish not used?

- Fluoride varnish is not used if there are
  - Noticeable sores (ulcerative gingivitis and/or stomatitis in the mouth or on the gums.
  - Pulp exposure or deep decay
- It is also not used if there is an **allergy** to colophony (resin from conifers) which is derived from **pine trees (pine nuts)** *rare

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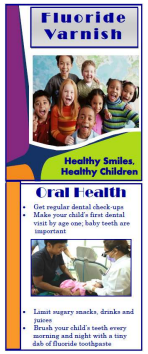
Supplies Needed for Fluoride Varnish Application



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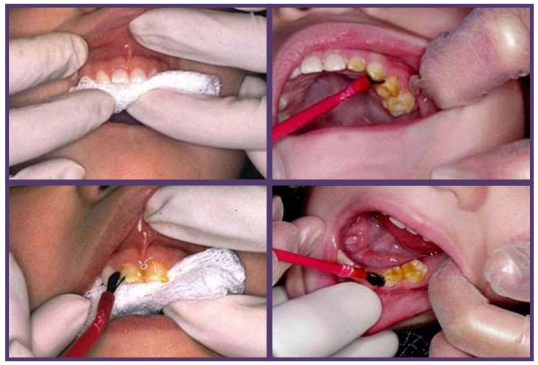
Fluoride Varnish - Application



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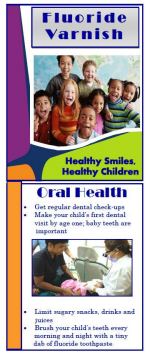
Fluoride Varnish - Parent Information

- No water restrictions after application
- Avoid crunchy, chewy or hot foods for the rest of the day
- Do not brush/floss until the next day
- FV may leave a light color coating that will come off after brushing
- Brochure: *Fluoride Varnish-Helping Smiles Stay Strong – in multiple languages*

BROCHURE



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Provide Anticipatory Guidance

CHDP *Growing Up Healthy* brochures

www.dhcs.ca.gov/services/chdp

- 14 age-specific educational brochures for families
- Topics include:
  - Health
  - What to Expect
  - Safety
  - Dental
  - Nutrition
- In multiple languages

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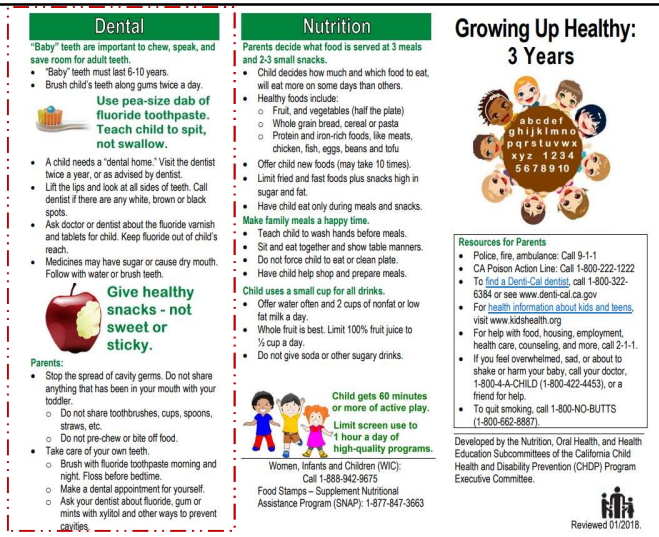

Dental

"Baby" teeth are important to chew, speak, and save room for adult teeth.

- "Baby" teeth must last 6-10 years.
- Brush child's teeth along gums twice a day.

Use pea-size dab of fluoride toothpaste. Teach child to spit, not swallow.

- A child needs a "dental home." Visit the dentist twice a year, or as advised by dentist.
- Lift the lips and look at all sides of teeth. Call dentist if there are any white, brown or black spots.
- Ask doctor or dentist about the fluoride varnish and tablets for child. Keep fluoride out of child's reach.
- Medicines may have sugar or cause dry mouth. Follow with water or brush teeth.

Give healthy snacks - not sweet or sticky.

Parents:

- Stop the spread of cavity germs. Do not share anything that has been in your mouth with your toddler.
  - Do not share toothbrushes, cups, spoons, straws, etc.
  - Do not pre-chew or bite off food.
- Take care of your own teeth.
  - Brush with fluoride toothpaste morning and night. Floss before bedtime.
  - Make a dental appointment for yourself.
  - Ask your dentist about fluoride, gum or mints with xylitol and other ways to prevent cavities.

Nutrition

Parents decide what food is served at 3 meals and 2-3 small snacks.

- Child decides how much and which food to eat, will eat more on some days than others.
- Healthy foods include:
  - Fruit, and vegetables (half the plate)
  - Whole grain bread, cereal or pasta
  - Protein and iron-rich foods, like meats, chicken, fish, eggs, beans and tofu
- Offer child new foods (may take 10 times).
- Limit fried and fast foods plus snacks high in sugar and fat.
- Have child eat only during meals and snacks.

Make family meals a happy time.

- Teach child to wash hands before meals.
- Sit and eat together and show table manners.
- Do not force child to eat or clean plate.
- Have child help shop and prepare meals.

Child uses a small cup for all drinks.

- Offer water often and 2 cups of nonfat or low fat milk a day.
- Whole fruit is best. Limit 100% fruit juice to ½ cup a day.
- Do not give soda or other sugary drinks.

Child gets 60 minutes or more of active play.

Limit screen use to 1 hour a day of high-quality programs.

Women, Infants and Children (WIC): Call 1-888-942-9675

Food Stamps – Supplement Nutritional Assistance Program (SNAP): 1-877-847-3663

Growing Up Healthy: 3 Years

Resources for Parents

- Police, fire, ambulance: Call 9-1-1
- CA Poison Action Line: Call 1-800-222-1222
- To find a Denti-Cal dentist, call 1-800-322-6384 or see www.denti-cal.ca.gov
- For health information about kids and teens, visit www.kidshealth.org
- For help with food, housing, employment, health care, counseling, and more, call 2-1-1.
- If you feel overwhelmed, sad, or about to shake or harm your baby, call your doctor, 1-800-4-A-CHILD (1-800-422-4453), or a friend for help.
- To quit smoking, call 1-800-NO-BUTTS (1-800-662-8887).

Developed by the Nutrition, Oral Health, and Health Education Subcommittees of the California Child Health and Disability Prevention (CHDP) Program Executive Committee.

Reviewed 01/2018.

Dental Home

- Refer child beginning at age one

Table 21.4 CHDP/EPSDT PERIODICITY SCHEDULE FOR DENTAL REFERRAL BY AGE

Age (years)	Routine Dental Referral	Suspected Dental Problem
1* - 20	☑ Refer every 6 months** (Children with special needs may need more frequent referrals)	Refer at any age if a problem is suspected or detected

- Encourage a "Dental Home" at any age for child and family
  - Medi-Cal Dental Telephone Service Center - (800) 322-6384
  - Smile, California Find A Dentist

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DHCS

Easy and Effective

- Applying Fluoride Varnish is one of the easiest and most effective procedures a medical provider can do to help protect the oral health of their young patients!
- Can be delegated to nursing and medical assistant staff, which empowers them to be the front line against oral disease.
- Can be applied at any time after the oral assessment.
- Can prevent a cavity with a swipe of a FV brush.

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Working Together

Medical Providers

CHDP

Dental Providers

Parents/Caregivers

Together we can stop the epidemic of dental disease!

Individuals

For local CHDP contact information –
www.dhcs.ca.gov/services/chdp/Pages/CountyOffices.aspx

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Healthy Teeth = Healthy Kids

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Fluoride Varnish

Online Trainings

DHCS

Videos

•American Academy of Pediatrics Television

• Smiles for Life University of Connecticut

Modules

Maryland's Mouths Matter Module 4

Smiles for Life Training: Course #6

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References

California Department of Health Care Services. (2019). *CHDP Dental Training: Oral Health Assessment and Referral.* Retrieved from https://www.dhcs.ca.gov/services/chdp/Documents/CHDP-FV-Dental-Training-PPT.pdf

Center for Oral Health (2019). *Oral Health of the Inland Empire: A Snapshot.* Retrieved from https://insight.livestories.com/s/v2/oral-health-of-the-inland-empire-v-2/b3684512-6c75-4085-8158-b4dd8a34e3b5/

Dental Health Foundation (2006). *"Mommy it hurts to chew" The California smile survey: An oral health assessment of California's kindergarten and 3rd grade children.* Retrieved from https://www.centerfororalhealth.org/wp-content/uploads/2018/11/Mommy-It-Hurts-To-Chew.compressed.pdf

United States General Accounting Office. (2000). *Dental disease is a chronic problem among low-income populations* (GAO/HEHS-00-72). Washington, DC: U.S. Government Printing Office. Retrieved from https://www.gao.gov/new.items/he00072.pdf

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References Continued…

- Provider Guides
  - Dental Referral Classification Guide
  - CHDP Periodicity Schedule for Dental Referral by Age
- Parent Brochure
  - Fluoride Varnish Helping Smiles Stay Strong
- Training Modules
  - STFM Smiles for Life Fluoride Varnish Video
  - AAPTV Oral Exam - Positioning & Application of Fluoride Varnish Video
  - A Health Professional's Guide to Pediatric Oral Health Management - Module 4.2 Fluoride Varnish
  - STFM Smiles for life Course 6: Caries Risk Assessment, Fluoride Varnish and Counseling
- Billing Code
  - Medi-Cal Provider Manual Part 2 – Clinics and Hospitals (CAH) Dental Benefits

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References Continued…

Fluoride Varnish
- General Information
  - ASTDD Fluoride Varnish: an Evidence-Based Approach Research Brief
  - AAP Oral Health Practice Tools
  - CDC Community Water Fluoridation - Fluoride Varnish (scroll down)
  - CDC Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States
- National Effort
  - PEW - Reimbursing Physicians for Fluoride Varnish
- Effectiveness
  - Fluoride Varnish Efficacy in Preventing Early Childhood Caries
- Risk Assessment Tool
  - AAP Oral Health Risk Assessment Tool
  - Pediatric Dental Care: Prevention and Management Protocols Based on Caries Risk Assessment
- Who can Apply
  - CHDP Provider Information Notice No.: 06-08
  - AB 667 – Topical Fluoride Legislation FAQ

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References Continued…

Malocclusion and Craniofacial Referral
www.dhcs.ca.gov/services/CCS/pages/countyoffices.aspx
Denti-Cal
http://www.denti-cal.ca.gov/WSI/Default.jsp?fname=Default
Fluoride Varnish
Effectiveness
www.ncbi.nlm.nih.gov/pmc/articles/PMC2257982/?tool=pubmed
Who Can Apply
http://www.dhcs.ca.gov/services/chdp/Documents/Letters/chdppin0608.pdf
http://files.medi-cal.ca.gov/pubsdoco/publications/masters-mtp/part2/dental_m00o03o09.doc
http://cda.org/popup/cda-sponsored_legislation_clarifies_who_can_place_topical_fluoride_including_fluoride_varnish
Parent Brochure
http://www.cdph.ca.gov/programs/MCAHOralHealth/Documents/MO-OHP-FluorideVarnish–English.pdf
Training Modules
http://www.youtube.com/watch?v=cV5OmL7C8K4&feature=player_embedded
http://www.youtube.com/watch?v=zNOlGS1ggSg&feature=player_embedded
http://www.ohmdkids.org/flvarnish/
Billing Code
http://files.medi-cal.ca.gov/pubsdoco/publications/masters-mtp/part2/dental_m00o03o09.doc

For local CHDP contact information:
www.dhcs.ca.gov/services/chdp/Pages/CountyOffices.aspx

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Fluoride Varnish - Practicum -

- Speaker Demonstration
- Participant Practice

Adapted from:
California CHDP/EPSDT Dental Training: Fluoride Varnish
CHDP, Oral Health Subcommittee
March 2019

Introducing Our Little Helps

Magi Dragon 

 Allie Z. Gator

Mojo Monkey 

 Farley Flossisaurus

Cubby Bear 

 Ollie A. Mutt

Tango Tiger 

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Practicum

1. Explain to the procedure to parent
2. Proper positioning of the child
3. Dry the teeth – one quadrant at a time
4. Apply fluoride varnish correctly
    - One quadrant at a time
    - All healthy enamel surfaces of tooth
5. Apply FV on upper incisors last
6. Clean face
7. Provide after care instructions

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Fluoride Varnish

Healthy Smiles, Healthy Children

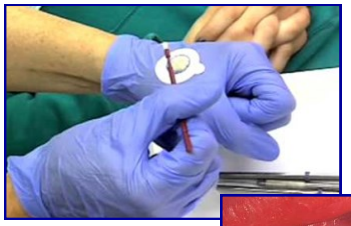
Oral Health

- Get regular dental check-ups
- Make your child's first dental visit by age one; baby teeth are important

- Limit sugary snacks, drinks and juices
- Brush your child's teeth every morning and night with a tiny dab of fluoride toothpaste

Fluoride Varnish

- Is a protective coating that is painted on your child's teeth to prevent tooth decay
- Is safe, quick and doesn't hurt
- Helps even if you are using other forms of fluoride including toothpaste with fluoride or drinking fluoridated water
- Can be applied at your child's doctor's office and at dental visits
- Works best when applied 2-4 times a year
- Can be applied as soon as your child has their first tooth



Your child's teeth may have a slightly yellow color after fluoride varnish is applied. This is easily removed when you brush your child's teeth the next day.

Fluoride Varnish is an easy way to help protect children's against tooth decay

Care After Fluoride Varnish Application

- Fluoride varnish should remain on the teeth for 4-6 hours
- Don't brush or floss your child's teeth until the day after the varnish is applied
- Avoid hot drinks for the rest of the day
- Don't give foods that are hard, crunchy, or chewy for the rest of the day
- If your child takes supplemental Prescription fluoride, discontinue for at least 3-4 days, unless your doctor gives you other instructions

Riverside County Child Health Disability Prevention Program (CHDP)

Riverside University HEALTH SYSTEM Public Health

1-800.346.6520

www.rivcochdp.org

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Barniz de Fluoruro

Sonrisas Sanas, Niños Sanos

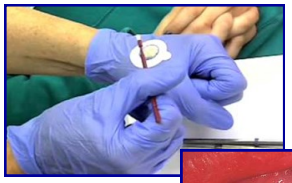
Salud Dental

- Chequeos dentales regulares
- Haga la primera visita dental de sus hijos a la edad de un año. Los dientes de leche son Importantes.

- Limite bocadillos, bebidas y jugos azucarados.
- Cepílleles los dientes mañana y noche con un poco de pasta de dientes con fluoruro.

Barniz de Fluoruro

- Es una capa protectora que se aplica a los dientes de sus hijos para prevenir las caries dentales
- Es segura, rápida y sin dolor
- Ayuda aunque este usando otras formas de fluoruro como pasta de dientes o tomando agua fluorada
- Se puede aplicar en la oficina del dentista
- Trabaja mejor si se aplica 2 ó 3 veces al año
- Se le puede aplicar al salir el primer diente



Los dientes de sus hijos pueden tener un color ligeramente amarillo después de aplicar el barniz de fluoruro. Se quita fácilmente al cepillar los dientes de sus niños al día siguiente.

El Barniz de Fluoruro es una manera fácil de ayudar a proteger a sus niños de las caries dentales

Cuidados Después de Aplicar el Barniz de Fluoruro

- El fluoruro de barniz debe permanecer en los dientes de 4 a 6 horas
- No cepille o use hilo dental en los dientes de sus hijos, hasta un día después de aplicar el barniz
- Evitar bebidas calientes el resto del día
- No le dé alimentos duros, crujientes o masticables durante el resto del día
- Si su hijo toma suplementos de fluoruro con receta médica, suspéndalos durante 3 o 4 días, a menos que su médico le de otras instrucciones

Programa de Salud y Prevención de Incapacidades de los Niños (CHDP)

Riverside University HEALTH SYSTEM Public Health

1-800.346.6520

www.rivcochdp.org

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Dietary Fluoride Supplements: Evidence-based Clinical Recommendations[1]

Levels of evidence and strength of recommendations: Each recommendation is based on the best available evidence. Lower levels of evidence do not mean the recommendation should not be applied for patient treatment.

Correlate these colors with the text and table below.

Recommendation based on higher levels of evidence

Recommendations based on lower levels of evidence or expert opinion

Practitioners are encouraged to evaluate all potential fluoride sources and conduct a caries risk assessment before prescribing fluoride supplements.

For children at **low caries risk**, dietary fluoride supplements are **not recommended** and other sources of fluoride should be considered as a caries preventive intervention. **(D)**
For children at **high caries risk**, dietary fluoride supplements are **recommended** according to the schedule presented in the following table. **(D)**
When fluoride supplements are prescribed, they should be **taken daily** to maximize the caries prevention benefit. **(D)**

ADA dietary fluoride supplement schedule for children at high caries risk

Age (Years)	Fluoride Concentration in Drinking Water (ppm)*		
	<0.3	0.3-0.6	>0.6
Birth to 6 months	None **(D)**	None **(D)**	None **(D)**
6 months to 3 years	0.25 mg/day **(B)**	None **(D)**	None **(D)**
3 to 6 years	0.50 mg/day **(B)**	0.25 mg/day **(B)**	None **(D)**
6 to 16 years	1.0 mg/day **(B)**	0.50 mg/day **(B)**	None **(D)**

*1.0 ppm = 1 mg/liter

[1]Rozier, et al. Evidence-based clinical recommendations on the prescription of dietary fluoride supplements for caries prevention: a report of the ADA Council on Scientific Affairs. Evidence-based clinical recommendations on the prescription of dietary fluoride supplements for caries prevention. JADA 2010; 141:1480-1489.

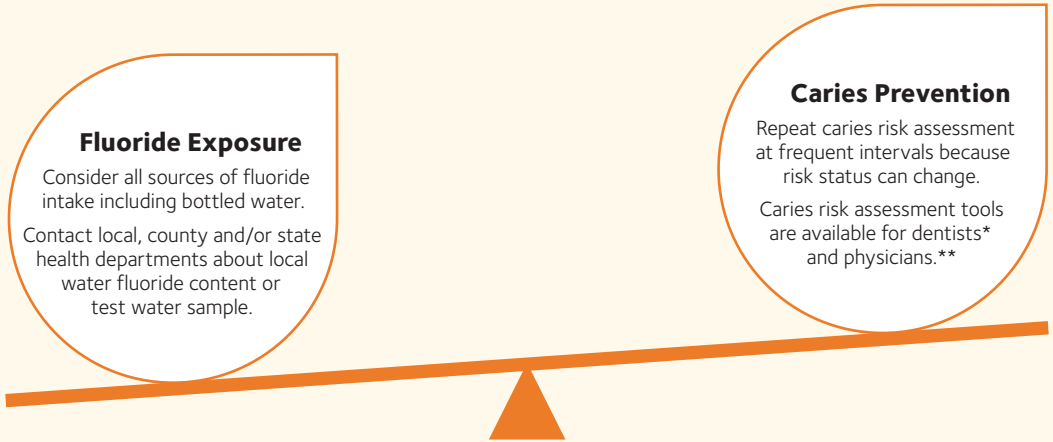
Making a shared decision

The Clinician

&

The Patient

Determine balance between need for caries prevention and risk of fluorosis



Comply with prescription

Use dietary fluoride supplements as directed to maximize the caries prevention benefit
Chew tablets or suck lozenges for 1-2 minutes before swallowing to maximize topical effect
For infants, supplements are available as a liquid and used with a dropper

ADA American Dental Association®
America's leading advocate for oral health

*American Dental Association. Caries Risk Assessment Form (0-6 years). http://www.ada.org/sections/professionalResources/docs/topics_caries_under6.doc.
*American Dental Association. Caries Risk Assessment Form (patients over 6 years). http://www.ada.org/sections/professionalResources/docs/topics_caries_over6.doc.
*American Academy of Pediatric Dentistry. Policy on use of a caries-risk assessment tool (CAT) for infants, children and adolescents Oral Health Policies Reference Manual; 2006. http://www.aapd.org/media/Policies_Guidelines/P_CariesRiskAssess.pdf.
*Featherstone JD, Domejean-Orliaguet S, Jenson L, Wolff M, Young DA. Caries risk assessment in practice for age 6 through adult. J Calif Dent Assoc 2007;35(10):703-7, 10-3.
*Ramos-Gomez FJ, Crall J, Gansky SA, Slayton RL, Featherstone JD. Caries risk assessment appropriate for the age 1 visit (infants and toddlers). J Calif Dent Assoc 2007;35(10):687-702.
**Bright Futures in Practice: Oral Health Pocket Guide. http://www.mchoralhealth.org/PocketGuide/tables1.html

California CHDP/EPSDT Periodicity Schedule for Dental Referral by Age

Age (years)	Routine Dental Referral	Suspected Dental Problem
1* - 20	☑ Refer every 6 months** **(Children with special needs may need more frequent referrals)**	Refer at any age if a problem is suspected or detected

- A dental screening or oral assessment is required at every CHDP/EPSDT*** health assessment regardless of age. EPSDT- A Guide for States pp.13-15 https://www.medicaid.gov/medicaid/benefits/downloads/epsdt_coverage_guide.pdf
- Refer children directly to a dentist:
  - **Beginning at age one** as required California Health and Safety Code Section 124040 (6)(D) http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC&sectionNum=124040
  - **At any age** if a problem is suspected or detected – refer to the CHDP Dental Referral Classification Guide https://www.dhcs.ca.gov/formsandpubs/publications/Documents/Dental-Classification-Guide.pdf
  - **Every six (6) months for maintenance of oral health -** visit Periodicity of Examination, Preventive Dental Services, Anticipatory Guidance, and Oral Treatment for Infants, Children, and Adolescents pp.198-199. http://www.aapd.org/media/Policies_Guidelines/BP_Periodicity.pdf
  - **Every three (3) months** for children with documented special health care needs when medical or oral condition can be affected; and for other children at high risk for dental caries. AAP Oral Health Risk Assessment Tool https://www.aap.org/en-us/Documents/oralhealth_RiskAssessmentTool.pdf
- To help find a dentist:
  - For a child with Medi-Cal, contact Denti-Cal at 1-800-322-6384 or visit the Denti-Cal Provider Referral List https://www.denti-cal.ca.gov/Beneficiaries/Denti-Cal/Provider_Referral_List/
  - For families with or without Medi-Cal, the local CHDP program can assist in finding a dentist. Visit the Child Health and Disability Prevention (CHDP) Program's County Offices List to contact your local CHDP program. http://www.dhcs.ca.gov/services/chdp/Pages/CountyOffices.aspx

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* The American Academy of Pediatrics (AAP) policy is to establish a dental home by age one "Maintaining and Improving the Oral Health of Young Children": http://pediatrics.aappublications.org/content/134/6/1224 The "American Academy of Pediatric Dentistry (AAPD) Periodicity Guidelines" emphasizes the importance of very early professional intervention and continuity of care beginning with the eruption of the first tooth and no later than 12 months of age. http://www.aapd.org/media/Policies_Guidelines/BP_Periodicity.pdf

** See Medicaid Clinical Guidelines Keep Kids Smiling: Promoting Oral Health, p. 5 https://www.medicaid.gov/medicaid/benefits/downloads/keep-kids-smiling.pdf . For Medi-Cal eligible children, Denti-Cal will cover preventive services (exam, topical fluoride application, and prophylaxis) once in a six-month period and more frequently if there is a documented necessity. Denti-Cal has adopted the American Academy of Pediatric Dentistry's (AAPD) "Recommendations for Preventive Pediatric Oral Health Care" which indicates frequencies for diagnostic and preventive procedures: https://www.denti-cal.ca.gov/DC_documents/beneficiaries/dental_periodicity_sched_for_children.pdf.

*** Child Health and Disability Prevention (CHDP) Program/Early Periodic Screening Diagnosis and Treatment (EPSDT)

CHDP*  CCS**

ORTHODONTIC & CRANIOFACIAL REFERRAL GUIDE

This guide is intended to be used by providers as a screening tool to make appropriate referrals to California Children's Services (CCS) for severe oral conditions.

MEDICALLY HANDICAPPING MALOCCLUSION

May result from facial trauma, genetics, early loss of primary teeth, or prolonged thumb/finger sucking habits.

Referral Criteria

- **This is not a cosmetic condition. Teeth must be severely twisted, overlapped, protruded, or misaligned causing functional problems.**
- Children with permanent/adult teeth (or age 13 and no older than 20)
- Proof of residence in a California county
- Family AGI income less than $40,000 per year
- **Must not** qualify for full scope Medi-Cal
  Medically handicapping malocclusion orthodontic benefits are included in Full Scope Medi-Cal coverage.
  Do not refer to CCS - call Denti-Cal directly 1-800-322-6384.

CLEFT LIP/PALATE AND OTHER CRANIOFACIAL ANOMALIES

May result from trauma, genetics, or other gross facial pathology.

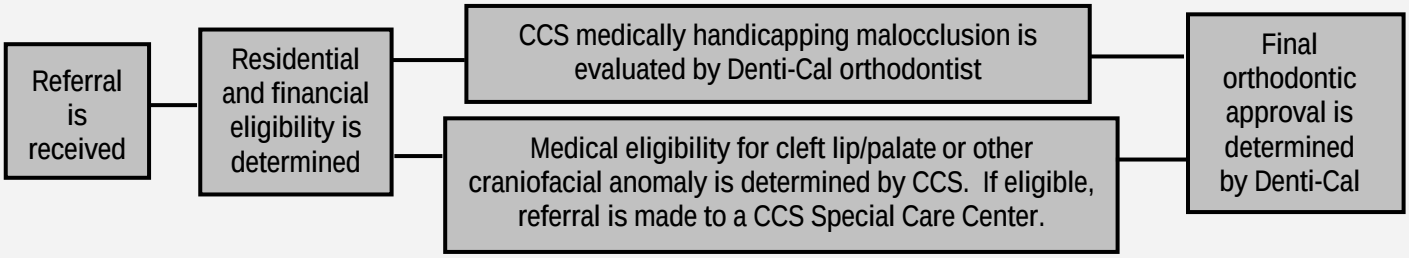
Referral Criteria

- **Severe abnormalities of the mouth, jaw, and/or teeth**
- Children age 0 through 20
- Proof of residence in a California county
- Family AGI income less than $40,000 per year
- **May** qualify for full scope Medi-Cal

CCS Referral Process:

Local CCS offices are listed under county health department in the government section of the phone book or at www.dhcs.ca.gov/services/ccs. Go to "Provider Forms" for "New Referral" or "Dental/Orthodontic" requests. Client applications are found under "How to Apply". Fax or mail completed forms to local CCS office.

CCS Eligibility Process:



CCS Benefits:

CCS covers most treatment needs including orthodontics, teeth extractions, jaw surgeries, and dental care if client is residentially, financially, and medically eligible.

Why is it Important to Refer Malocclusion & Craniofacial Anomalies Cases?

Teeth and jaws that are severely out of position compromise oral and general health. Problems may include:

- difficulty chewing
- speech impediments
- abnormal stress on jaw muscles
- poor self-esteem
- increased risk of dental decay, gum disease, & systemic infection
- uneven wear/cracking of teeth

*CHDP – Child Health and Disability Prevention Program **CCS – California Children's Services

Riverside University HEALTH SYSTEM Public Health

TO: CHDP Providers (non-FQHC)

FROM: Riverside County CHDP

DATE: May 21, 2018

EFFECTIVE: Immediately

SUBJECT: **New CHDP Care Coordination/Follow-up Form (replaces follow-up function of the PM 160)**

The new CHDP Care Coordination/Follow-Up Form (which replaces the follow-up function of the PM 160) is here. **If a child is in foster care, another form is required, see the "HCPCFC FOSTER CARE MEDICAL/SPECIALTY CARE CONTACT FORM" section on page 2.**

Background

On July 1st 2017, Fee-for Service (FFS) CHDP providers were required to discontinue use of the confidential Screening/Billing Report PM160 for claiming purposes. Prior to July 1st 2017, the PM160 was also used as a health information gathering document to enable local CHDP program to provide care coordination.

Implementation

To ensure follow up care is carried out, CHDP providers should continue to report FFS Medi-Cal children/youth needing follow-up from the health assessment to the local county CHDP program. To facilitate CHDP follow-up, a new follow-up request form has been developed for use by CHDP providers and local county CHDP programs.

When a CHDP well-child assessment is performed, health information reporting to your local CHDP office is required via a patient health summary *OR* on the CHDP Care Coordination/Follow up form for the following cases:

- **An abnormal finding that requires:**
  - **a referral**
  - **a return visit**
- **Non-routine dental referrals**
- **Any FFS Medi-Cal Child who is at risk of being lost to follow up where the determination of the need for care resulted from a CHDP preventive health assessment (e.g., return visit scheduled to complete immunizations but no show and no response to provider follow-up calls and letters).**
- **Patient or responsible person has refused a referral to another examiner**

HCPCFC FOSTER CARE MEDICAL/SPECIALTY CARE CONTACT FORM:

The HCPCFC (Health Care Program for Children in Foster Care) form is intended for normal or abnormal findings, for Managed Care and FFS Medi-Cal beneficiaries to the local CHDP program.

In order to provide support to foster care beneficiaries, foster care Public Health Nurses require more complete health information from the health care providers that deliver primary, preventive and specialty care to the children and youth that are under the care, custody and control of the county welfare agency.

Foster care PHNs acting pursuant to Welfare and Institutions Code 16501.3 (implemented as the HCPCFC) are authorized to receive medical information/protected health information for a minor child from health care providers in accordance with Civil Code Section 56.103 of the Confidentiality of Medical Information Act.

FFS CHDP providers, Managed Care providers, dental providers, and other specialty health care providers delivering care to foster children/youth, and with the permission of the non-minor dependent, are required to provide the requested health information to the foster care PHNs upon request. Requested health information for foster children/youth and non-minor dependents will be submitted on the enclosed **HCPCFC Foster Care Medical/Specialty Care Contact Form**. See attachments for delivery options and form completion instructions.

*If you have any questions regarding the **CHDP Care Coordination/Follow-Up Form**, feel free to contact the CHDP Provider Relations Nurses at 951-358-5481.*

*If you have any questions regarding the **HCPCFC Foster Care Medical/Specialty Care Contact Form**, feel free to contact the HCPCFC Public Health Nurses at 951-358-5667.*

Fax: (951) 358-6212

Child Health and Disability Prevention Program

Care Coordination / Follow-up Form

Submit to the County CHDP Program within 5 business days of exam for children referred to a Dentist or other Medical Provider.

Do not complete this form if child is in foster care, managed care plan or private insurance. For children in foster care: Complete ***HCPCFC Medical (Specialty)/Dental Contact Form*** for all visits.

PATIENT INFORMATION:

Patient Name (Last) (First) (Initial)	Preferred Language	Date of Service (MM/DD/YY)

Birthdate (MM/DD/YY)	Age	Sex	Gender	County of Residence	Telephone # (Home or Cell) ( )	Alternate Phone # (Work or Other) ( )

Responsible Person (Name) (Street) (Apt/Space #) (City) (Zip)	Ethnic Code

1. White
2. Hispanic/Latino
3. Black/African American
4. American Indian/Alaska Native
5. Asian
6. Native Hawaiian/Other Pacific Islander
7. Other

Patient Eligibility	Aid Code	Identification Number (BIC)

A. Medical Assessment and Referral Section

☐ No Medical Problems Suspected

Significant Medical History or Special Conditions: ☐ No ☐ Yes, Specify:_____

CHDP ASSESSMENT Physical Exam Nutrition Developmental Vision Hearing	Problem Suspected	Referred To & Phone Number *Or* ☐ Return Visit Scheduled
	Problem Suspected	Referred To & Phone Number *Or* ☐ Return Visit Scheduled
	Problem Suspected	Referred To & Phone Number *Or* ☐ Return Visit Scheduled
	Problem Suspected	Referred To & Phone Number *Or* ☐ Return Visit Scheduled

B. Dental Assessment and Referral Section

☐ Class I: No Visible Problems	☐ Class II: Visible decay, small carious lesion or gingivitis	☐ Class III: Urgent – pain abscess, large carious lesions or extensive gingivitis	☐ Class IV: Emergent – acute injury, oral infection or other pain
Mandated annual routine dental referral (beginning no later than age 1 and recommended every 6 months)	*Needs non-urgent dental care*	*Immediate treatment for urgent dental condition which can progress rapidly*	*Needs immediate dental treatment within 24 hours*

Fluoride Varnish Applied: ☐ Yes, applied ☐ No, teeth have not erupted ☐ Ordered FV, date to be applied: _____
☐ No, other reason : _____

☐ Dental home referral Referred To & Phone Number:_____

C. Additional Comments

D. Referring Provider Information

Service Location: (Office Name, Address, Telephone Number)

Rendering Provider Name: (Print Name)

Rendering Provider Signature: Date:

County of Riverside
Department of Public Health
Child Health & Disability Prevention Program

Mailing Address:
P.O. Box 7600
Riverside, CA 92513-7600

Phone: 951-358-5481 | Toll Free: 800-346-6520
Fax: 951-358-6212

Care Coordination/Follow-up Form: Completion Instructions

Submit a copy of the form, an EHR patient summary, or an equivalent via fax or mail to the Local CHDP program for a child with Fee-for-Service Medi-Cal or temporary Gateway Coverage if the child has been referred to another provider for the following:

- Medical diagnosis
- Medical treatment
- Dental home
- Dental treatment or
- Scheduled for a return visit

Give a copy of the form or a printout of your EHR patient summary or an equivalent to the responsible parent/guardian indicated on the form.

Explanation of Form Items:

Patient Name. Self-explanatory.

Preferred Language. Self-explanatory.

Date of Service. Enter the date the CHDP service was rendered.

Birthdate. Self-explanatory.

Age. Enter the patient's age with one of the following indicators: "y" for years, "m" for months, "w" for weeks, or "d" for days.

Sex. Enter "F" if the patient is female. Enter "M" if the patient is male.

Gender. Enter the gender the patient identifies with. If information is not available, leave blank.

Patient's County of Residence. Enter the name of the county where patient lives.

Telephone #. Enter home or cellular telephone number, with area code of the responsible person.

Alternate Phone #. Enter work or other telephone number, with area code of the responsible person.

Responsible Person. Enter name of responsible person if the patient is younger than 18 years of age and is not an emancipated minor. Enter the address of where the patient lives.

Patient Eligibility. Patient eligibility information on the form is completed as follows:

- AID CODE. Enter patient's two-digit aid code.
- IDENTIFICATION NUMBER. Enter patient's identification number from the Benefits Identification Card (BIC) or Gateway response.

Ethnic Code. Enter the appropriate ethnic code.

A. Medical Assessment and Referral Section:

No Medical Problems Suspected. Enter check mark (✓) if no problem found during CHDP assessment - <u>proceed to Dental Assessment section B</u>

Significant Medical History or Special Conditions. Enter significant medical history or medical conditions per history.

Problem Suspected. Enter the diagnosis/problem found during CHDP assessment.

Referred To & Phone Number. Enter name and telephone number of provider or agency patient was referred to.

Return Visit Scheduled. Enter check mark (✓) if a return visit to your office is scheduled related to the diagnosis/problem found.

B. Dental Assessment and Referral Section

Dental Classes. Enter a check mark (✓) for the dental class that pertains to the dental assessment findings.

Fluoride Varnish Applied:

Yes, applied. Enter a check mark (✓) if the patient had fluoride varnish applied during visit.
No, teeth have not erupted. Enter a check mark (✓) if fluoride varnish was not applied due to teeth have not erupted.
Ordered FV, date to be applied. Enter a check mark (✓) if fluoride varnish was ordered and patient is scheduled to return for fluoride varnish application.
No, other reason. Enter a check mark (✓) if appropriate and state reason for not applying fluoride varnish.

Dental Home Referral. Enter a check mark (✓) on the *Dental home referral* box when dental referral is made.

Referred To & Phone Number. Enter name and number of dental provider patient was referred to or the patient's regular dental provider.

*<u>*Note: A referral for a routine dental visit needs to be made if the patient has no dental problems (Class I) and is 1 year of age or older.</u>*

C. Additional Comments Section.

Comments. Enter remarks that clarify the results of the health assessment or <u>any communication</u> to aid in care coordination to the local CHDP program.

D. Referring Provider Information

Service Location. Self-explanatory. A provider stamp is acceptable.

Child Health and Disability Prevention (CHDP) Program

Dental Referral Classification Guide

This guide is intended to be used by CHDP/EPSDT providers when referring children for dental services. Classifications are determined by the urgency of treatment needs.

Class I:
No Visible Dental Problems
(no decalcification, caries, or gingivitis)

Mandated annual routine dental referral (beginning no later than age 1 and recommended every 6 months)



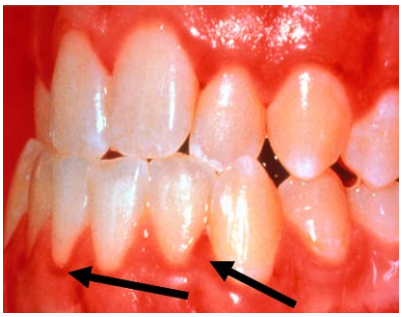
Appears Healthy but Needs Routine Referral

Class II:
Beginning Dental Problems
(white decalcification/initial decay, small carious lesions, or gingivitis)

The patient is asymptomatic. Condition is not urgent, yet requires a dental referral "before progression occurs."


White Decalcification/Initial Decay


Small Carious Lesions


Mild Gingivitis

Class III:
Urgent Dental Problems
(large carious lesions, abscess, extensive gingivitis, or pain)

Urgent dental care is needed. If abscess is suspected ensure that child is seen within 24 hours. Condition can progress rapidly to an emergency.

Note: For severe medically handicapping malocclusion or craniofacial anomaly refer child to a dentist or California Children's Services (CCS).


Large Carious Lesions


Abscess


Early Childhood Caries (ECC)


Extensive Gingivitis

Class IV:
Emergent Dental Problems
(acute injury, oral infection, or other painful condition)

Immediate dental referral.
Emergency dental treatment is required within 24 hours.


Acute Injuries


Oral infection/Cellulitis

Assessing Children's Occlusion

Pictures below may be used as a guide when assessing children's occlusion. Only children with severely misaligned teeth, cleft lip/palates, or other craniofacial anomalies should be referred.

To assess children's occlusion:

1. Check the child's front and profile views for facial asymmetry and abnormal jaw growth.
2. Have the child bite back teeth together and smile widely with lips apart. Check upper and lower teeth for protrusion, misalignment, and crowding.
3. Have the child open mouth widely. Inspect the oral cavity for soft tissue trauma and misaligned teeth.

HANDICAPPING MALOCCLUSION CONDITIONS

Deep Impinging Overbite – lower front teeth causing trauma to palate when teeth are together

Traumatic Anterior Crossbite – upper front teeth causing trauma to floor of mouth when teeth are together

Severe Overjet – one or more upper teeth protrude several millimeters past lower teeth when teeth are together

Mandibular Protrusion - lower front teeth protrude several millimeters past upper front teeth when teeth are together

Open Bite – upper front teeth do not come in contact with lower front teeth (may constantly have lips apart)

Severe Anterior Crowding – insufficient room for upper and/or lower teeth causing misalignment and/or rotation

CLEFT LIP/PALATE AND OTHER CRANIOFACIAL CONDITIONS

Cleft Lip/Palate – incomplete closure of lip/palate

Craniofacial Anomaly – traumatic, genetic, other gross pathology

(UPDATED 5/6/11) Developed by: Rose Clifford, RDH, BS, San Francisco Co. CCS Program in collaboration with
Gayle Duke, RDH, BS, MS, Dental Hygienist Consultant California Dept. of Health Care Services and Carol Schaefer, RDH, Sacramento Co. CHDP/CCS Programs

ORAL HEALTH FOR INFANTS & TODDLERS

A Medical Provider's Guide

Primary/deciduous teeth begin to develop during the first trimester of pregnancy. Lower incisors start to erupt at approximately six months of age. By age two, all 20 teeth are usually present. Primary teeth need to stay healthy for six to twelve years. Early establishment of a "Dental Home" promotes oral health.

Functions of Primary Teeth:

- ☻ To Chew
- ☻ To Pronounce Words
- ☻ To Hold Space for Adult Teeth
- ☻ To Smile

To promote oral health for infants & toddlers, do the following:

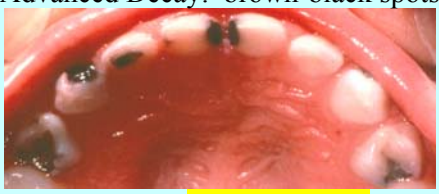
Begin **Oral Assessment** at birth. Refer to dentist for first exam by age one.

Lift the Lip to view baby's teeth. Instruct parent/caregiver to perform this monthly.

Perform **Knee-to-Knee** oral exam. Parent/caregiver sits opposite provider. Child's head tipped into provider's lap.

Initial Decay: white-brown spots

Advanced Decay: brown-black spots



Look for **Signs of Decay**. Check front, back, and between teeth.

Fluoride Supplement Schedule

AGE	Fluoride in Drinking Water (ppm)*		
	< 0.3 ppm	0.3 –0.6 ppm	> 0.6 ppm
0 – 6 months	None	None	None
6 months - 3 years	0.25 mg/day**	None	None
3 – 6 years	0.50 mg/day	0.25 mg/day	None
6 – 16 years	1.0 mg/day	0.5 mg/day	None

*1.0 (ppm) parts per million = 1mg/liter
** 2.2 mg sodium fluoride contains 1 mg fluoride ion

Assess fluoride intake; Rx as needed.

Review child's caries risk factors and apply **Fluoride Varnish** as necessary.

Advocate proper **Nutrition**:
- •Promote breast feeding
- •No sugary liquids in bottles or cups
- •Promote age appropriate, healthy foods; no sweet, sticky snacks

Advocate proper **Oral Habits**:
- •Do not put baby to bed with a bottle
- •Introduce cup at six months of age
- •Wean from baby bottle by age 1
- •Promote cleaning of teeth/gums daily
- •Use a tiny dab of fluoride toothpaste

Recommend to parents/caregivers that **Transmission of Caries-Causing Bacteria** can be reduced by:
- •Practicing proper oral hygiene
- •Having regular dental visits
- •Choosing gum or mints with *xylitol*

CARIES RISK FACTORS

- Low socioeconomic status
- Active caries or history of caries in child, parent, caregiver, sibling
- No recent dental visit
- Presence of white spot lesions
- Low/no exposure to fluoride
- Infant/toddler put to bed with a bottle
- Breast feeding ad lib during the night
- Frequent consumption of carbohydrates and/or sticky, retentive foods
- Visible plaque - poor oral hygiene
- Deep pits & fissures on teeth
- High saliva levels of mutans Streptococcus and/or Lactobacillus
- Taking medications with a sugar base or that induce dry mouth
- Mental or physical impairments

THE ORAL ASSESSMENT

Oral Assessments begin at birth and are part of every health assessment thereafter. Use the *Caries Risk Factors* above and the information below to perform oral assessments. Refer child to the dentist if any signs of decay are apparent or at least once each year beginning at age one.

Lift the Lip: *Lift the Lip* to perform an inspection of the soft tissue and teeth.

- Position the child to see in their mouth.
- Gently push back (lift) the lips.
- Check the inside, outside, and chewing surfaces of both the upper and lower teeth.

Knee-to-Knee Exam: *Knee- to-Knee Exams* may be used at any age to facilitate an oral assessment.

- Child's legs can be straddled around the parent and arms gently held in place.
- Child will usually laugh, cry, or open wide enough to allow for a quick exam (mouth mirror can be helpful).

Signs of Decay:

- Initial decay may begin as a chalky, white spot.
- Decay becomes progressively darker as it deepens into the tooth.
- A common pattern of early childhood caries is for decay to begin behind the upper front teeth and then spread to the back teeth.

Assess fluoride intake; Rx as needed: Assess fluoride status of major drinking water sources. If < 0.6 ppm use fluoride supplement schedule. Be sure that DDS has not already prescribed.

Fluoride Varnish: Medical professionals can apply fluoride varnish to arrest and prevent caries and remineralize white spot lesions. It takes under two minutes to apply by following the manufacturer's instructions. Medi-Cal reimburses for fluoride varnish three times per year.

Nutrition:

- Putting children to bed with a bottle, propping bottle, and breast feeding ad lib during the night can cause the liquid to pool around the teeth, which increases risk of caries.
- Emphasize that it is the *frequency* of eating foods containing sugar, not the *amount*, that primarily affects susceptibility to decay. By 12 months of age, child should have scheduled meals and snacks and not be allowed to graze throughout the day.
- If sugary foods are eaten, they should be limited to just after mealtimes.
- Encourage drinking fluoridated water.

Oral Habits:

- Do not coat pacifier with honey or other sweet substance.
- Avoid ingestion of fluoride toothpaste by wiping off excess and keeping out of children's reach.

Transmission of Caries-Causing Bacteria: Parents'/caregivers' oral health affects child's oral health.

- Get dental treatment if necessary to reduce spread of bacteria that can cause decay.
- Avoid sharing things that have been in the mouth, such as food, cups, straws, eating utensils, or toothbrushes.
- Do not put pacifier in mouth to "clean."
- Studies show xylitol use reduces decay.

Developed by: Rose Clifford, RDH, BS, San Francisco Dept. of Public Health in collaboration with Gayle Duke, RDH, MS, Dental Hygienist Consultant and California CHDP Dental Subcommittees UPDATED 11/18/11

CALIFORNIA CHDP/EPSDT DENTAL TRAINING:
Steps to Implement Fluoride Varnish in Your Medical Practice

While fluoride varnish (FV) is extremely effective, quick, and easy to apply, one of the most important steps in establishing FV is ensuring medical practice leadership is fully committed. Meet with your clinical decision maker(s) to discuss implementing FV in your clinic. (Prior to this meeting be sure all parties have viewed or attended the California CHDP/EPSDT FV Training). Review together the benefits of early prevention and data/information reflecting your community's high risk for dental caries. Address staffing and successful workflow options. One option is to start with a very small "pilot" in your clinic, for example: one provider, or one day a week, or one age group, to see what works best. For additional information refer to the California CHDP/EPSDT Program: Fluoride Varnish Protocol and Standing Order (Template).

Once the decision is made to begin FV in your practice, follow these Implementation Steps:

1. **Preliminary Information Meeting(s)**: Set up 30-minute overview presentation(s) to engage all staff in the "Why and How" of implementing FV (including all medical and reception/clerical staff).

2. **Identify a clinic champion**(s) at your site, for example: 1 MD, RN, or MA, etc.

3. **Establish Medical Records** (electronic EMR or paper) for documentation - Set up Health Records

4. **Develop an application protocol** (See Protocol Template) and workflow:

    a. Determine at what periodic well-child check (WCC) your clinic wants to provide FV, for example: at 6 months, 9 months, and 12 months

    b. Establish standing order – Rx

    c. Identify and document workflow for your site: Assign duties to MAs, and other trained staff

    d. Identify re-ordering/stocking procedure:

        (1) Who orders the FV? (usually staff that orders vaccinations)

        (2) Where is the FV kept?

5. **Ask CHDP local program staff to present the California CHDP/EPSDT Program Fluoride Varnish Training** to staff (if not previously trained) including the "Hands - On" Practicum.

6. **Address these additional implementation key points** with your staff.

7. Proposed workflow and roles

8. Ordering procedure for Rx in EMR (Or your clinic may choose to use a standing order.)

9. Post application documentation protocol for charting in patient's paper or electronic medical record.

10. **Set start date**, share with staff.

11. **Publicize to patient parents** (posters, flyers, and brochures, etc.)

12. **Share progress with ALL staff**, by sharing monthly EMR FV reports.

Tips for Success:

- Start with a limited number/age range of children. Determine what age of patients your office wants to begin with and expand from there. For example: start with just 0 to 2-year olds and next expand to 3 & 4-year olds and end including 0 up to 6th birthday.
- If you have a dental clinic at your site, notify dental staff that patient can receive FV applications 3x in medical setting and 2x in dental clinic.
- A standing order is a way to easily provide FV every 3-6 months as recommended by AAP Recommendations for Preventive Pediatric Health Care).
- Determine:
  - Where it will be applied (exam table, "knee to knee")
  - When during a well-child visit it will it be applied? (before immunizations is slightly easier or
- Include reminder in morning huddle that patients may have FV order in their charts.
- Meet after first week to review with staff to determine ways to streamline workflow and troubleshoot problem areas.
- Meet in one to two months to retrain staff, and ascertain if any problems remain and trouble-shoot together.
- Determine how retraining will occur, and how new staff will be trained.
- At one of the refresher meetings share a video from the PPT training with staff.

POTENTIAL EMR fields to include prior to implementing FV in your clinic:

- **Add FV to:** 6 months through 5 year old well-child check
- **Add Procedure section** that includes this FV Rx Order
- Once this box is checked for the FV procedure, the following should also happen:
  - Diagnosis: Prophylactic Fluoride Administration (Z41.8) should be automatically checked
  - Patient Instructions: FV Home Care Instructions should be automatically added.
  - Billing Modifiers: FV Documentation (CPT Code: 99188)
- FV was applied to the patient's teeth.
  - Lot number: xxxx
  - Expiration date: xx/xx/xxxx
- Post-procedure information was given, including:
  - Avoid crunchy, hard or hot food for the rest of the day
  - Do not brush or floss the teeth until the next day
  - Any yellowish coating will go away

CALIFORNIA CHDP/EPSDT DENTAL TRAINING:
Fluoride Varnish Practicum Guide

Use this guide to practice applying fluoride varnish after viewing the Fluoride Varnish PowerPoint

PREPARATION

Practice Materials:

- Sample fluoride varnish
- Hand sanitizer
- Gauze squares
- Gloves
- Paper towels
- Disinfectant

DEMONSTRATION

- Trainer will demonstrate first on a model, puppet, or participant.

Note: Fluoride Varnish can be removed from a doll/model with disinfectant or hand sanitizer.

- Pair up with a partner to practice on each other.

Steps:

1. Wrap the gauze around index finger of non-dominant hand.
2. Dry teeth one section or quadrant at a time, with gauze-covered finger – keeping finger in mouth to retract cheek/lip.
3. Bend brush to facilitate easy access to inside surfaces.
4. Use brush to apply fluoride varnish to **all** tooth surfaces in that area, keeping mouth open with gauze covered finger. It is important to apply to:
   - Chewing surfaces of molars, into fissures and between teeth
   - Tongue side of upper front teeth
   - Where gums and teeth meet
5. Repeat in each section until all teeth have been painted with varnish.
6. Practice giving caregiver post application instructions - use the *Fluoride Varnish Keeping Smiles Strong* brochure as a guide.
7. Remember to tell caregiver that this is “NOT a dental appointment. Child needs to see a dentist every six month”.

   Hint: Try to keep the child’s mouth open during the entire application to prevent the child from tasting the varnish, to keep areas dry, and to speed the application.

Dental Resources for Children with Special Health Care Needs

+IRC Contracted ***Sedation Available**

CORONA		
Dentistry 4 Kids of Corona 1358 W. 6th St., Ste. #102A, Corona, CA 92882 Tel: 951-739-7970		
HEMET		
Dentistry 4 Kids of Hemet 1306 W. Florida Ave., Ste #306 Hemet, CA 92543 Tel: 951-658-5000	*Hemet Children's Dentistry 1630 El Nita Lane Hemet, CA 92544 Tel: 951-766-8090	
INDIO		
*Indio Surgery Center 46900 Monroe St. Indio, CA 92201 Tel: 760-396-5733	*Dr. Perri Putrasahan 81955 US Highway 111 #106 Indio, CA 92201 Tel: 760-347-2402	+Hovsep Nargizyan, DDS, Inc. 81637 Highway 111 #1 Indio, CA 92201 Tel: 760-342-1448
LOMA LINDA		
+*Loma Linda School of Dentistry 11092 Anderson St., Loma Linda, CA 92373 Tel: 909-558-4222		
MENIFEE		
Children's Dental Practice of Menifee 27180 Newport Rd., Ste. #4, Menifee, CA 92584 Tel: 951-204-1831		
MORENO VALLEY		
Dr. Ronald French 24104 Sunnymead Blvd., Moreno Valley, CA 92553 Tel: 951-247-5538		
MURRIETA		
Murrieta Children's Dentistry 39755 Murrieta Hot Springs Rd., Ste. #E110, Murrieta, CA 92563 Tel: 951-461-6622		
PALM DESERT		
We Care Dental 289 Tolosa Circle, Palm Desert, CA 92260 Tel: 760-565-6055		
RANCHO MIRAGE		
We Care Dental 71949 Highway 111, Ste. #100B, Rancho Mirage, CA 92270 Tel: 760-565-6055	+Western University of Health Sciences 71949 Highway 111 Rancho Mirage, Ca 92270 Tel: 760-565-6055	

REDLANDS		
+Brookside Dental Associates 720 Brookside Ave., Ste. #100 Redlands, CA 92373 Tel: 909-798-7111	James Patrick Caley, DDS 720 Brookside Ave., Ste. #104 Redlands, CA 92373 Tel: 909-798-5117	* Dentistry of Redlands Cameron Fuller, DDS 1481 Ford St., Ste. #101 Redlands, CA 92373 Tel: 909-793-4326
*Redlands Children's Dental Grp. 308 W. State St., Ste. #4A Redlands, CA 92373 Tel: 909-978-2755	+*Redlands Dental Surgery Center 1180 Nevada St., Ste. #100 Redlands, CA 92373 Tel: 909-335-0474 .	Redlands Pavilion Dentistry 2094 W. Redlands Blvd.Ste. F Redlands, CA 92373 Tel: 909-335-0500
RIVERSIDE		
Dentistry 4 Kids of Riverside 3564 Van Buren Blvd., Riverside, CA 92503 Tel: 951-688-5437	+Richard Gutierrez, DDS 1825 University Ave., Riverside, CA 92507 Tel: 951-781-7878/7884	
SAN BERNARDINO		
*Lil Smile Builder 225 W. Hospitality Lane, Ste. #104, San Bernardino, CA 92408 Tel: 909-554-3754	+Hovsep Nargizyan, DDS, Inc. 1655 N. Mt. Vernon Ave #B, San Bernardino, CA 92411 Tel: 909-885-8707	
SAN DIEGO		
*Rady's Pediatric Dental Clinic 8110 Birmingham Way., Bldg. #28, San Diego, CA 92123 Tel: 858-966-4094		
SAN JACINTO		
My Kid's Dentist 1821 S. San Jacinto Ave., San Jacinto, CA 92583 Tel: 951-654-7883 / 800-395-6954		
UPLAND		
*+Richard Kunihira, DDS **Kaiser patients ONLY** 585 N. Mountain Ave. #C, Upland, CA 91786 Tel: 909-985-5117		
YUCAIPA		
Little Smiles 31646 Dunlap BLVD., Ste C Yucaipa, CA 92399 Tel: 909-794-4909		

To find other pediatric dentists that accept Denti-Cal,
please call 1-800-322-6384 or visit **www.SmileCalifornia.org**

CALIFORNIA CHDP/EPSDT DENTAL TRAINING:
Fluoride Varnish Protocol and Standing Order

INTRODUCTION

Fluoride Varnish (FV) is a thin coating of resin that is applied to the tooth surface to protect it from decay. According to the U.S. Food and Drug Administration (FDA), FV falls under the category of "drugs and devices" that present minimal risk and is subject to the lowest level of regulation. The Child Health and Disability Prevention (CHDP) Program provides training to providers and staff on oral health education, dental referrals, and the application of FV to children at risk for oral disease.

PURPOSE/RATIONALE

The purpose of applying FV is to retard, arrest, and reverse the process of cavity formation which can be well advanced by the age of three. Tooth decay is the most common disease of childhood (5 times more common than asthma, 7 times more common than hay fever, and 4 times more common than early childhood obesity[1,2]). Not only does tooth decay cause pain and infection, but it can also interfere with learning by distracting a child's focus, or causing frequent absences from school. CHDP providers are in the unique position of having a positive impact on a child's oral health because they see children earlier and more frequently than dentists. This is particularly true for low income populations due to a shortage of referral sources for dental care for these children. The purpose of this protocol is to provide the procedure for FV application for trained medical staff.

TABLE 1 Summary of Fluoride Modalities for Low and High Risk Patients

Fluoride Modality	Low Caries Risk	High Caries Risk
Toothpaste	Starting at tooth emergence (smear of paste until age 3 y. then pea-sized)	Starting at tooth emergence3 (smear of paste until age 3 y. then pea-sized)
Fluoride Varnish	Every 3-6 mo starting at tooth emergence	Every 3-6 mo starting at tooth emergence
Over-the-counter mouth rinse	Not applicable	Starting at age 6 y if the child can reliably swish and spit
Community water fluoridation	Yes	Yes
Dietary fluoride supplements	Yes, if drinking water supply is not fluoridated	Yes, if drinking water supply is not fluoridated

Reference: Clark, M., B., & Slayton, R. L. (2014, August 25). Fluoride Use in Caries Prevention in the Primary Care Setting. Pediatrics, 134-626. DOI: 10.1542/peds.2014-1699

[1] Oral Health: The Silent Epidemic (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2821841/)
[2] AAPD Childhood Caries (http://www.mychildrensteeth.org/assets/2/7/ECCstats.pdf)

PROGRAM REQUIREMENTS

It is necessary to complete a training program (in-person or online) in order to apply FV to infants and children ages 6 months to 6 years old.

Who Can Apply?
FV can be applied by a trained medical provider (MD, NP, PA), or delegated to trained medical personnel (RN, LVN, MA etc.) using a protocol established by the attending physician.

Who Can Receive FV?
This is a covered benefit for Medi-Cal and for many other insurances for ages 0-6 year olds (up to their 6th birthday). All infants and children who are considered moderate to high risk for caries can also be protected by this preventive treatment.

Indications/Caries Risk Factors
A child is considered at moderate to high risk for dental caries, and in need of FV if he/she meets any of the following criteria:

- Active or past tooth decay - has a history of caries or has white spot lesions and stained fissures
- Has family members with a history of caries
- Has poor feeding habits:
  - Continues to use the bottle past 1 year of age
  - Prolonged or ad-lib use of a bottle or sippy cup containing liquids other than water (sugary drinks, including milk and juice), or frequent nursing just to pacify (after baby is 6 months old and/or has teeth)
    - while sleeping/napping
    - throughout the day or night
  - Frequent snacking on refined carbohydrates, sweet, and/or acidic foods
- Poor homecare - lack of daily brushing with a fluoride toothpaste
- Lack of fluoride in his/her drinking water and no additional fluoride supplementation
- Children with special health care needs
- Frequent use of high sugar oral medications, or sugar-based chewable vitamins
- Low Socioeconomic Status (SES), and/or enrolled in or eligible for Medi-Cal
- No preventive dental visit within the last year (Note: Even having a recent dental visit does not preclude offering FV to a child with other risk factors.)

CONTRAINDICATIONS

- Large open carious lesions with pulp exposure (Please be advised it is safe and important to apply FV to adjacent intact teeth.)

  Note: Refer these children to a dentist.

- Open lesions in the mouth such as:
  - Gingival stomatitis
  - Ulcerative gingivitis
  - Intra-oral inflammation

  Note: Refer these children to a dentist.

- Known sensitivity to colophony or colophonium or other product ingredients which include:
  - Ethyl alcohol anhydrous USP 38.58%
  - Shellac powder 16.92%
  - Rosin USP 29.61%
  - Copal
  - Sodium Fluoride 4.23%
  - Sodium Saccharin USP 0.04%
  - Flavorings, Cetostearyl Alcohol

Schedule and Dosages

- Trained medical staff will apply the initial FV application as a thin layer of 5% sodium FV to all surfaces of erupted primary teeth.
- Repeat the FV application at scheduled well child visits.
- FV can be applied three times a year in the medical setting.

PRE-APPLICATION INSTRUCTIONS

Advise the parent (or legal guardian):

- Prior to coming to the office:
  - Give the child something to eat and drink
  - Brush the child's teeth
- At the office:
  - Tell the parent that the child's teeth may become discolored temporarily; varnish can be brushed off the following day.
  - Have the parent review the parent information sheet/brochure.

APPLICATION PROCEDURE

Supplies

- Tongue depressor or mouth mirror
- Non-latex disposable gloves
- Toothbrush (optional)
- Gauze (2 x 2)
- Single unit dose FV (0.25ml)
- Paper towels or disposable bibs to place under the child's head (optional)
- Good lighting or flashlight
- Post procedure information (*Fluoride Varnish Helping Smiles Stay Strong* brochure or manufacturer's post-FV application information sheet)
- List of dentists/dental referral sheet

  Caution: Store varnish in a safe location at room temperature and out of the reach of children.

FV Application Assessment Guidelines

- Observe tooth surfaces and assess for:
  - **Pulp** exposure or tissue lesions; do not apply in these areas.
  - Minor caries or white discolorations which may be an early sign of caries; apply the varnish.
- Tooth surfaces need to be free of heavy plaque, food and debris.
  - Brush the teeth prior to application or wipe off food with gauze, if necessary.

- Use a 2x2 gauze to dry the teeth.
    - Removing excess saliva with gauze can greatly enhance assessment and application.

Positioning the Child for the Assessment and Application
(Before positioning the child, have all the supplies ready, gloves on, gauze & brush in position, and give verbal explanation/instructions to the parent on what to expect during the application.)

- For an infant:
    - Providers should position themselves "knee-to-knee" with the parent.
    - Child sits on parent's lap facing the parent. Straddle each of the child's legs around the parent's waist. Parent should lower the child's head onto the provider's knees, and secure child's arms and legs.
    - Or, infant can be placed on an exam table and provider can work from behind the head.
    - As experience is gained, position the child in what works best.
- For a young child:
    - Place the child in a sitting position and work from above the head.
    - Or, adapt a method that works best.

The Application
- Use gentle finger pressure to open the child's mouth.
- Remove excess saliva with a 2x2 gauze. (You do not need to completely dry the teeth as some saliva helps FV adhere to the tooth surface.)
- Use your finger and gauze to isolate the dry teeth and keep them dry. You will usually be able to isolate a section of teeth at a time, but may have to work with fewer teeth in some children.
- It is helpful to begin applying on upper molars to prevent child from tasting the varnish. (Some children may not like the taste.)
- Apply a thin layer of the varnish to all surfaces of the teeth. (Avoid applying varnish on large open cavities where there may be pulp involvement.)
- Once the varnish is applied, you need not worry about moisture (saliva) contamination. The varnish sets quickly.

Post-Application Instructions
To keep the varnish on the teeth for as long as possible, inform parent:
- To provide only a soft, non-abrasive diet for the rest of the day
- To avoid serving hot foods for 4-6 hours
- Child can drink water immediately following the FV application
- Not to brush or floss child's teeth until the next morning
- Not to give additional fluoride (i.e., fluoride vitamins or supplements) for 2 days
- It is normal for the teeth to appear dull or yellow until they are brushed the next day
- FV does NOT take the place of a dental appointment
- A dental home is necessary (give them a dental referral list if family has no dental home)
- To call primary medical provider if child experiences any adverse outcome or parent has any concerns.

Adverse Reactions
In **extremely rare** instances edematous swellings have been reported especially after application to extensive surfaces. Dyspnea, although extremely rare, has occurred in asthmatic people. Nausea has been reported when extensive applications have been made to patients with sensitive stomachs. If required, varnish is easily removed with thorough tooth brushing and rinsing. Advise family to call 911 for any serious side effect, if medical provider is not available.

Remember

- Even though the child may fuss, the varnish application is quick and painless.
- Infants are easy as they have fewer teeth. (If they cry, their mouths open and the application is done quickly.)
- The varnish should be applied at a minimum twice a year in the medical setting, but can be applied up to 3 times. (This is in addition to any fluoride being applied at the dental office.)
- Remind parents: FV at the medical office does NOT take the place of routine dental visits. (Usually every six months with dentist.)

Educate
Parent/caregiver education is crucial for establishing good oral health for their children.

5 Easy Steps to Good Oral Health:

1. Brush teeth with fluoride toothpaste twice a day
2. Floss
3. Drink fluoridated tap water (or take fluoride supplements in non-fluoridated areas)
4. Eat healthy snacks
5. Start biannual dental visits by age 1

Follow Up
Prescribing physician or NP will:

- Assess for need of repeat applications, and prescribe for additional FV at next visit, or more often according to the caries risk of the child.
  - Children with multiple risk factors for dental caries should be prioritized to be appointed for additional FV applications.[3]
- FV can be reimbursed by Medi-Cal, up to 3 times each year.
- Assess if child has a dental home and refer if needed.

[3] AAP Oral Health Risk Assessment Tool 2011 https://www.aap.org/en-us/Documents/oralhealth_RiskAssessmentTool.pdf

California CHDP/EPSDT Program
Fluoride Varnish Standing Order

_____ authorizes the applications of Fluoride Varnish
(Name of Medical Provider, Degree)

(FV) to all children ages 6 months up to their 6th birthday for a one year period of time

from: _____ at _____.
(Month/Day/Year to Month/Date/Year) (Name of Clinic)

This standing order will be reviewed on an annual basis.

Prescription FV include: _____
(List any FV agents approved by the FDA that your clinic will be ordering to apply on patients)

Clinic Name: _____

Clinic Representative (Name and Title): _____

Signature: _____ Date: _____

Adapted from: Butte County *Fluoride Varnish Application Protocol* and Susan Fisher-Owens, MD

Frequently Asked Questions: AB 667 – Topical Fluoride Legislation

California Dental Association
1201 K Street, Sacramento, CA 95814
800.CDA.SMILE cda.org

Below are common questions and answers regarding AB 667:

Who can apply fluoride varnish and in what settings?
AB 667 allows anyone working in a public health setting to apply fluoride varnish (or other topical fluoride) in accordance with a prescription and protocol established by a dentist or physician. All dental and medical professionals, as well as non-healthcare individuals such as teachers, parents, Promotoras, and community health workers can apply varnish.

Is an individual prescription required or can varnish be prescribed on a population-level?
Fluoride varnish can be prescribed by a dentist or physician on a population or individual level.

Will programs be required to allow non-healthcare providers to apply topical fluoride, including fluoride varnish?
No. The supervising dentist or physician has the authority to prescribe how varnish will be applied and by whom. Non-healthcare providers will only be utilized if they are available and if the supervising dentist/physician is comfortable utilizing them.

Who can bill for varnish application? How many times per year will I be reimbursed for applying varnish?
Physicians who are Medicaid providers can apply and receive fee-for-service reimbursement for fluoride varnish three times in a 12 month period for children under six years of age. Dentists and RDHAPs who are Denti-Cal providers may apply and receive fee-for-service reimbursement for varnish once in a six month period without prior authorization for children under the age of 21.

Application and reimbursement schedules will vary for other types of insurance.

Dentists and physicians can NOT bill Medicaid (Medi-Cal/Denti-Cal) or other third party payers for varnish applied at home.

Does this bill expand who can bill Medi-Cal for the application of fluoride varnish?
No. Dentists and RDHAPs who are Denti-Cal providers and physicians who are Medi-Cal providers may bill for fluoride varnish application – either applied by themselves or their designated staff.

What are the application protocols for fluoride varnish required by this legislation?
The legislation does not specify application protocol (application technique, frequency of application, etc.). Providers should rely on existing protocols.

It is the responsibility of the dentist/physician prescribing fluoride to ensure that those applying it are trained and understand the protocol. Training modules designed for healthcare providers (short demonstration videos and train-the-trainer programs) are available and can be used for non-healthcare providers as well.

Does this bill only apply to school-based programs?
No. The law is applicable to any public health program providing dental disease prevention to children or adults.

Does varnish need to be FDA approved as a cavity prevention modality before it can be prescribed?
The FDA has approved fluoride varnish for use as a desensitizer. Using varnish for caries prevention is considered an "off-label" use. FDA approval is not required for off-label use of products, but a prescription is still required.

Does the law allow anyone to apply topical fluorides other than fluoride varnish, i.e. fluoride gels, rinses, etc.?
Yes, other forms of topical fluoride can be applied by non-healthcare workers, but require a dentist or physician to prescribe and establish the protocol for the application. The intent of AB 667 is to specifically address varnish, but a dentist or physician is able to determine, and is responsible for, the substances he or she prescribes for administration.

Oral Health Risk Assessment Tool

The American Academy of Pediatrics (AAP) has developed this tool to aid in the implementation of oral health risk assessment during health supervision visits. This tool has been subsequently reviewed and endorsed by the National Interprofessional Initiative on Oral Health.

Instructions for Use

This tool is intended for documenting caries risk of the child, however, two risk factors are based on the mother or primary caregiver's oral health. All other factors and findings should be documented based on the child.

The child is at an absolute high risk for caries if any risk factors or clinical findings, marked with a ⚠ sign, are documented yes. In the absence of ⚠ risk factors or clinical findings, the clinician may determine the child is at high risk of caries based on one or more positive responses to other risk factors or clinical findings. Answering yes to protective factors should be taken into account with risk factors/clinical findings in determining low versus high risk.

Patient Name:_____ Date of Birth:_____ Date:_____

Visit: ☐ 6 month ☐ 9 month ☐ 12 month ☐ 15 month ☐ 18 month ☐ 24 month ☐ 30 month ☐ 3 year ☐ 4 year ☐ 5 year ☐ 6 year ☐ Other_____

RISK FACTORS

⚠ Mother or primary caregiver had active decay in the past 12 months
☐ Yes ☐ No

- Mother or primary caregiver does not have a dentist
  ☐ Yes ☐ No
- Continual bottle/sippy cup use with fluid other than water
  ☐ Yes ☐ No
- Frequent snacking
  ☐ Yes ☐ No
- Special health care needs
  ☐ Yes ☐ No
- Medicaid eligible
  ☐ Yes ☐ No

PROTECTIVE FACTORS

- Existing dental home
  ☐ Yes ☐ No
- Drinks fluoridated water or takes fluoride supplements
  ☐ Yes ☐ No
- Fluoride varnish in the last 6 months
  ☐ Yes ☐ No
- Has teeth brushed twice daily
  ☐ Yes ☐ No

CLINICAL FINDINGS

⚠ White spots or visible decalcifications in the past 12 months
☐ Yes ☐ No

⚠ Obvious decay
☐ Yes ☐ No

⚠ Restorations (fillings) present
☐ Yes ☐ No

- Visible plaque accumulation
  ☐ Yes ☐ No
- Gingivitis (swollen/bleeding gums)
  ☐ Yes ☐ No
- Teeth present
  ☐ Yes ☐ No
- Healthy teeth
  ☐ Yes ☐ No

ASSESSMENT/PLAN

Caries Risk:
☐ Low ☐ High

Completed:
☐ Anticipatory Guidance
☐ Fluoride Varnish
☐ Dental Referral

Self Management Goals:

☐ Regular dental visits	☐ Wean off bottle	☐ Healthy snacks
☐ Dental treatment for parents	☐ Less/No juice	☐ Less/No junk food or candy
☐ Brush twice daily	☐ Only water in sippy cup	☐ No soda
☐ Use fluoride toothpaste	☐ Drink tap water	☐ Xylitol

Treatment of High Risk Children

If appropriate, high-risk children should receive professionally applied fluoride varnish and have their teeth brushed twice daily with an age-appropriate amount of fluoridated toothpaste. Referral to a pediatric dentist or a dentist comfortable caring for children should be made with follow-up to ensure that the child is being cared for in the dental home.

Adapted from Ramos-Gomez FJ, Crystal YO, Ng MW, Crall JJ, Featherstone JD. Pediatric dental care: prevention and management protocols based on caries risk assessment. *J Calif Dent Assoc.* 2010;38(10):746–761; American Academy of Pediatrics Section on Pediatric Dentistry and Oral Health. Preventive oral health intervention for pediatricians. *Pediatrics.* 2003; 122(6):1387–1394; and American Academy of Pediatrics Section of Pediatric Dentistry. Oral health risk assessment timing and establishment of the dental home. *Pediatrics.* 2003;111(5):1113–1116.

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Oral Health Risk Assessment Tool Guidance

Timing of Risk Assessment

The Bright Futures/AAP "Recommendations for Preventive Pediatric Health Care," (ie, Periodicity Schedule) recommends all children receive a risk assessment at the 6- and 9-month visits. For the 12-, 18-, 24-, 30-month, and the 3- and 6-year visits, risk assessment should continue if a dental home has not been established. View the Bright Futures/AAP Periodicity Schedule—http://brightfutures.aap.org/clinical_practice.html.

Risk Factors

⚠ Maternal Oral Health

Studies have shown that children with mothers or primary caregivers who have had active decay in the past 12 months are at greater risk to develop caries. **This child is high risk.**

Maternal Access to Dental Care

Studies have shown that children with mothers or primary caregivers who do not have a regular source of dental care are at a greater risk to develop caries. A follow-up question may be if the child has a dentist.

Continual Bottle/Sippy Cup Use

Children who drink juice, soda, and other liquids that are not water, from a bottle or sippy cup continually throughout the day or at night are at an increased risk of caries. The frequent intake of sugar does not allow for the acid it produces to be neutralized or washed away by saliva. Parents of children with this risk factor need to be counseled on how to reduce the frequency of sugar-containing beverages in the child's diet.

Frequent Snacking

Children who snack frequently are at an increased risk of caries. The frequent intake of sugar/refined carbohydrates does not allow for the acid it produces to be neutralized or washed away by saliva. Parents of children with this risk factor need to be counseled on how to reduce frequent snacking and choose healthy snacks such as cheese, vegetables, and fruit.

Special Health Care Needs

Children with special health care needs are at an increased risk for caries due to their diet, xerostomia (dryness of the mouth, sometimes due to asthma or allergy medication use), difficulty performing oral hygiene, seizures, gastroesophageal reflux disease and vomiting, attention deficit hyperactivity disorder, and gingival hyperplasia or overcrowding of teeth. Premature babies also may experience enamel hypoplasia.

Protective Factors

Dental Home

According to the American Academy of Pediatric Dentistry (AAPD), the dental home is oral health care for the child that is delivered in a comprehensive, continuously accessible, coordinated and family-centered way by a licensed dentist. The AAP and the AAPD recommend that a dental home be established by age 1. Communication between the dental and medical homes should be ongoing to appropriately coordinate care for the child. If a dental home is not available, the primary care clinician should continue to do oral health risk assessment at every well-child visit.

Fluoridated Water/Supplements

Drinking fluoridated water provides a child with systemic and topical fluoride exposure, a proven caries reduction intervention. Fluoride supplements may be prescribed by the primary care clinician or dentist if needed. View fluoride resources on the Oral Health Practice Tools Web Page http://aap.org/oralhealth/PracticeTools.html.

Fluoride Varnish in the Last 6 Months

Applying fluoride varnish provides a child with highly concentrated fluoride to protect against caries. Fluoride varnish may be professionally applied and is now recommended by the United States Preventive Services Task Force as a preventive service in the primary care setting for all children through age 5 http://www.uspreventiveservicestaskforce.org/Page/Topic/recommendation-summary/dental-caries-in-children-from-birth-through-age-5-years-screening. For online fluoride varnish training, access the Caries Risk Assessment, Fluoride Varnish, and Counseling Module in the Smiles for Life National Oral Health Curriculum, www.smilesforlifeoralhealth.org.

Tooth Brushing and Oral Hygiene

Primary care clinicians can reinforce good oral hygiene by teaching parents and children simple practices. Infants should have their mouths cleaned after feedings with a wet soft washcloth. Once teeth erupt it is recommended that children have their teeth brushed twice a day. For children under the age of 3 (until 3rd birthday) it is appropriate to recommend brushing with a smear (grain of rice amount) of fluoridated toothpaste twice per day. Children 3 years of age and older should use a pea-sized amount of fluoridated toothpaste twice a day. View the AAP Clinical Report on the use of fluoride in the primary care setting for more information http://pediatrics.aappublications.org/content/early/2014/08/19/peds.2014-1699.

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Clinical Findings

⚠ **White Spots/Decalcifications**
This child is high risk.
White spot decalcifications present—immediately place the child in the high-risk category.

⚠ **Obvious Decay**
This child is high risk.
Obvious decay present—immediately place the child in the high-risk category.

⚠ **Restorations (Fillings) Present**
This child is high risk.
Restorations (Fillings) present—immediately place the child in the high-risk category.

Visible Plaque Accumulation
Plaque is the soft and sticky substance that accumulates on the teeth from food debris and bacteria. Primary care clinicians can teach parents how to remove plaque from the child's teeth by brushing and flossing.

Gingivitis
Gingivitis is the inflamation of the gums. Primary care clinicians can teach parents good oral hygiene skills to reduce the inflammation.

Healthy Teeth
Children with healthy teeth have no signs of early childhood caries and no other clinical findings. They are also experiencing normal tooth and mouth development and spacing.

For more information about the AAP's oral health activities email oralhealth@aap.org or visit www.aap.org/oralhealth.

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Recommendations for Preventive Pediatric Health Care

Bright Futures/American Academy of Pediatrics

Bright Futures
prevention and health promotion for infants, children, adolescents, and their families™

Each child and family is unique; therefore, these Recommendations for Preventive Pediatric Health Care are designed for the care of children who are receiving competent parenting, have no manifestations of any important health problems, and are growing and developing in a satisfactory fashion. Developmental, psychosocial, and chronic disease issues for children and adolescents may require frequent counseling and treatment visits separate from preventive care visits. Additional visits also may become necessary if circumstances suggest variations from normal.

These recommendations represent a consensus by the American Academy of Pediatrics (AAP) and Bright Futures. The AAP continues to emphasize the great importance of continuity of care in comprehensive health supervision and the need to avoid fragmentation of care.

Refer to the specific guidance by age as listed in the *Bright Futures Guidelines* (Hagan JF, Shaw JS, Duncan PM, eds. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents.* 4th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2017).

The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

The Bright Futures/American Academy of Pediatrics Recommendations for Preventive Pediatric Health Care are updated annually.

	INFANCY								EARLY CHILDHOOD							MIDDLE CHILDHOOD						ADOLESCENCE										
AGE[1]	**Prenatal**[2]	**Newborn**[3]	**3-5 d**[4]	**By 1 mo**	**2 mo**	**4 mo**	**6 mo**	**9 mo**	**12 mo**	**15 mo**	**18 mo**	**24 mo**	**30 mo**	**3 y**	**4 y**	**5 y**	**6 y**	**7 y**	**8 y**	**9 y**	**10 y**	**11 y**	**12 y**	**13 y**	**14 y**	**15 y**	**16 y**	**17 y**	**18 y**	**19 y**	**20 y**	**21 y**
HISTORY Initial/Interval	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
MEASUREMENTS																																
Length/Height and Weight		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Head Circumference		●	●	●	●	●	●	●	●	●	●	●																				
Weight for Length		●	●	●	●	●	●	●	●	●	●																					
Body Mass Index[5]												●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Blood Pressure[6]		★	★	★	★	★	★	★	★	★	★	★	★	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SENSORY SCREENING																																
Vision[7]		★	★	★	★	★	★	★	★	★	★	★	★	●	●	●	●	★	●	★	●	★	●	★	★	●	★	★	★	★	★	★
Hearing		●[8]	●[9] →	→	→	★	★	★	★	★	★	★	★	★	●	●	●	★	●	★	●	←	←	●[10] →	←	←	● →	←	● →	←	● →	←	● →
DEVELOPMENTAL/BEHAVIORAL HEALTH																																
Developmental Screening[11]								●			●		●																			
Autism Spectrum Disorder Screening[12]											●	●																				
Developmental Surveillance		●	●	●	●	●	●		●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Psychosocial/Behavioral Assessment[13]		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Tobacco, Alcohol, or Drug Use Assessment[14]																						★	★	★	★	★	★	★	★	★	★	★
Depression Screening[15]																							●	●	●	●	●	●	●	●	●	●
Maternal Depression Screening[16]				●	●	●	●																									
PHYSICAL EXAMINATION[17]		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PROCEDURES[18]																																
Newborn Blood		●[19]	●[20] →	→	→																											
Newborn Bilirubin[21]		●																														
Critical Congenital Heart Defect[22]		●																														
Immunization[23]		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Anemia[24]						★			●	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
Lead[25]							★	★	● or ★[26]		★	● or ★[26]		★	★	★	★																
Tuberculosis[27]				★			★		★			★		★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
Dyslipidemia[28]												★			★		★		★	←	● →	★	★	★	★	★	★	←	←	←	● →	←	● →
Sexually Transmitted Infections[29]																						★	★	★	★	★	★	★	★	★	★	★
HIV[30]																						★	★	★	★	←	←	● →	←	←	★	★
Cervical Dysplasia[31]																																●
ORAL HEALTH[32]							●[33]	●[33]	★		★	★	★	★	★	★	★															
Fluoride Varnish[34]							←	←	←	←	●	→	→	→	→																		
Fluoride Supplementation[35]							★	★	★		★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★					
ANTICIPATORY GUIDANCE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

1. If a child comes under care for the first time at any point on the schedule, or if any items are not accomplished at the suggested age, the schedule should be brought up-to-date at the earliest possible time.
2. A prenatal visit is recommended for parents who are at high risk, for first-time parents, and for those who request a conference. The prenatal visit should include anticipatory guidance, pertinent medical history, and a discussion of benefits of breastfeeding and planned method of feeding, per "The Prenatal Visit" (http://pediatrics.aappublications.org/content/124/4/1227.full).
3. Newborns should have an evaluation after birth, and breastfeeding should be encouraged (and instruction and support should be offered).
4. Newborns should have an evaluation within 3 to 5 days of birth and within 48 to 72 hours after discharge from the hospital to include evaluation for feeding and jaundice. Breastfeeding newborns should receive formal breastfeeding evaluation, and their mothers should receive encouragement and instruction, as recommended in "Breastfeeding and the Use of Human Milk" (http://pediatrics.aappublications.org/content/129/3/e827.full). Newborns discharged less than 48 hours after delivery must be examined within 48 hours of discharge, per "Hospital Stay for Healthy Term Newborns" (http://pediatrics.aappublications.org/content/125/2/405.full).
5. Screen, per "Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report" (http://pediatrics.aappublications.org/content/120/Supplement_4/S164.full).
6. Screening should occur per "Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents" (http://pediatrics.aappublications.org/content/140/3/e20171904). Blood pressure measurement in infants and children with specific risk conditions should be performed at visits before age 3 years.
7. A visual acuity screen is recommended at ages 4 and 5 years, as well as in cooperative 3-year-olds. Instrument-based screening may be used to assess risk at ages 12 and 24 months, in addition to the well visits at 3 through 5 years of age. See "Visual System Assessment in Infants, Children, and Young Adults by Pediatricians" (http://pediatrics.aappublications.org/content/137/1/e20153596) and "Procedures for the Evaluation of the Visual System by Pediatricians" (http://pediatrics.aappublications.org/content/137/1/e20153597).
8. Confirm initial screen was completed, verify results, and follow up, as appropriate. Newborns should be screened, per "Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs" (http://pediatrics.aappublications.org/content/120/4/898.full).
9. Verify results as soon as possible, and follow up, as appropriate.
10. Screen with audiometry including 6,000 and 8,000 Hz high frequencies once between 11 and 14 years, once between 15 and 17 years, and once between 18 and 21 years. See "The Sensitivity of Adolescent Hearing Screens Significantly Improves by Adding High Frequencies" (https://www.sciencedirect.com/science/article/abs/pii/S1054139X16000483).
11. See "Identifying Infants and Young Children With Developmental Disorders in the Medical Home: An Algorithm for Developmental Surveillance and Screening" (http://pediatrics.aappublications.org/content/118/1/405.full).
12. Screening should occur per "Identification and Evaluation of Children With Autism Spectrum Disorders" (http://pediatrics.aappublications.org/content/120/5/1183.full).
13. This assessment should be family centered and may include an assessment of child social-emotional health, caregiver depression, and social determinants of health. See "Promoting Optimal Development: Screening for Behavioral and Emotional Problems" (http://pediatrics.aappublications.org/content/135/2/384) and "Poverty and Child Health in the United States" (http://pediatrics.aappublications.org/content/137/4/e20160339).
14. A recommended assessment tool is available at http://crafft.org.
15. Recommended screening using the Patient Health Questionnaire (PHQ)-2 or other tools available in the GLAD-PC toolkit and at (https://downloads.aap.org/AAP/PDF/Mental_Health_Tools_for_Pediatrics.pdf).
16. Screening should occur per "Incorporating Recognition and Management of Perinatal Depression Into Pediatric Practice" (https://pediatrics.aappublications.org/content/143/1/e20183259).
17. At each visit, age-appropriate physical examination is essential, with infant totally unclothed and older children undressed and suitably draped. See "Use of Chaperones During the Physical Examination of the Pediatric Patient" (http://pediatrics.aappublications.org/content/127/5/991.full).
18. These may be modified, depending on entry point into schedule and individual need.

(continued)

KEY: ● = to be performed ★ = risk assessment to be performed with appropriate action to follow, if positive ← ● → = range during which a service may be provided

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(continued)

19. Confirm initial screen was accomplished, verify results, and follow up, as appropriate. The Recommended Uniform Screening Panel (https://www.hrsa.gov/advisory-committees/heritable-disorders/rusp/index.html), as determined by The Secretary's Advisory Committee on Heritable Disorders in Newborns and Children, and state newborn screening laws/regulations (https://www.babysfirsttest.org/newborn-screening/states) establish the criteria for and coverage of newborn screening procedures and programs.
20. Verify results as soon as possible, and follow up, as appropriate.
21. Confirm initial screening was accomplished, verify results, and follow up, as appropriate. See "Hyperbilirubinemia in the Newborn Infant ≥35 Weeks' Gestation: An Update With Clarifications" (http://pediatrics.aappublications.org/content/124/4/1193).
22. Screening for critical congenital heart disease using pulse oximetry should be performed in newborns, after 24 hours of age, before discharge from the hospital, per "Endorsement of Health and Human Services Recommendation for Pulse Oximetry Screening for Critical Congenital Heart Disease" (http://pediatrics.aappublications.org/content/129/1/190.full).
23. Schedules, per the AAP Committee on Infectious Diseases, are available at https://redbook.solutions.aap.org/SS/immunization_Schedules.aspx. Every visit should be an opportunity to update and complete a child's immunizations.
24. Perform risk assessment or screening, as appropriate, per recommendations in the current edition of the AAP *Pediatric Nutrition: Policy of the American Academy of Pediatrics* (Iron chapter).
25. For children at risk of lead exposure, see "Prevention of Childhood Lead Toxicity" (http://pediatrics.aappublications.org/content/138/1/e20161493) and "Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention" (http://www.cdc.gov/nceh/lead/ACCLPP/Final_Document_030712.pdf).
26. Perform risk assessments or screenings as appropriate, based on universal screening requirements for patients with Medicaid or in high prevalence areas.
27. Tuberculosis testing per recommendations of the AAP Committee on Infectious Diseases, published in the current edition of the AAP *Red Book: Report of the Committee on Infectious Diseases*. Testing should be performed on recognition of high-risk factors.
28. See "Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents" (http://www.nhlbi.nih.gov/guidelines/cvd_ped/index.htm).
29. Adolescents should be screened for sexually transmitted infections (STIs) per recommendations in the current edition of the AAP *Red Book: Report of the Committee on Infectious Diseases*.
30. Adolescents should be screened for HIV according to the USPSTF recommendations (https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/human-immunodeficiency-virus-hiv-infection-screening1) once between the ages of 15 and 18, making every effort to preserve confidentiality of the adolescent. Those at increased risk of HIV infection, including those who are sexually active, participate in injection drug use, or are being tested for other STIs, should be tested for HIV and reassessed annually.
31. See USPSTF recommendations (https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/cervical-cancer-screening2). Indications for pelvic examinations prior to age 21 are noted in "Gynecologic Examination for Adolescents in the Pediatric Office Setting" (http://pediatrics.aappublications.org/content/126/3/583.full).
32. Assess whether the child has a dental home. If no dental home is identified, perform a risk assessment (https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Oral-Health/Pages/Oral-Health-Practice-Tools.aspx) and refer to a dental home. Recommend brushing with fluoride toothpaste in the proper dosage for age. See "Maintaining and Improving the Oral Health of Young Children" (http://pediatrics.aappublications.org/content/134/6/1224).
33. Perform a risk assessment (https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Oral-Health/Pages/Oral-Health-Practice-Tools.aspx). See "Maintaining and Improving the Oral Health of Young Children" (http://pediatrics.aappublications.org/content/134/6/1224).
34. See USPSTF recommendations (https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/dental-caries-in-children-from-birth-through-age-5-years-screening). Once teeth are present, fluoride varnish may be applied to all children every 3–6 months in the primary care or dental office. Indications for fluoride use are noted in "Fluoride Use in Caries Prevention in the Primary Care Setting" (http://pediatrics.aappublications.org/content/134/3/626).
35. If primary water source is deficient in fluoride, consider oral fluoride supplementation. See "Fluoride Use in Caries Prevention in the Primary Care Setting" (http://pediatrics.aappublications.org/content/134/3/626).

Summary of Changes Made to the Bright Futures/AAP Recommendations for Preventive Pediatric Health Care

(Periodicity Schedule)

This schedule reflects changes approved in October 2019 and published in March 2020.
For updates and a list of previous changes made, visit www.aap.org/periodicityschedule.

CHANGES MADE IN OCTOBER 2019

MATERNAL DEPRESSION

- Footnote 16 has been updated to read as follows: "Screening should occur per 'Incorporating Recognition and Management of Perinatal Depression Into Pediatric Practice' (https://pediatrics.aappublications.org/content/143/1/e20183259)."

CHANGES MADE IN DECEMBER 2018

BLOOD PRESSURE

- Footnote 6 has been updated to read as follows: "Screening should occur per 'Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents' (http://pediatrics.aappublications.org/content/140/3/e20171904). Blood pressure measurement in infants and children with specific risk conditions should be performed at visits before age 3 years."

ANEMIA

- Footnote 24 has been updated to read as follows: "Perform risk assessment or screening, as appropriate, per recommendations in the current edition of the AAP *Pediatric Nutrition: Policy of the American Academy of Pediatrics* (Iron chapter)."

LEAD

- Footnote 25 has been updated to read as follows: "For children at risk of lead exposure, see 'Prevention of Childhood Lead Toxicity' (http://pediatrics.aappublications.org/content/138/1/e20161493) and 'Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention' (https://www.cdc.gov/nceh/lead/ACCLPP/Final_Document_030712.pdf)."

HRSA
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Medi-Cal Has Dental Covered

As a Medi-Cal member, your benefits and your child's benefits include dental coverage. See the chart below for an overview of the dental care that is covered by Medi-Cal.

SERVICES	BABIES	KIDS	TEENS	PREGNANCY	ADULTS	SENIORS
Exam*	☀	☀	☀	☀	☀	☀
X-rays	☀	☀	☀	☀	☀	☀
Teeth cleaning	☀	☀	☀	☀	☀	☀
Fluoride varnish	☀	☀	☀	☀	☀	☀
Fillings	☀	☀	☀	☀	☀	☀
Tooth removal	☀	☀	☀	☀	☀	☀
Emergency services	☀	☀	☀	☀	☀	☀
Sedation	☀	☀	☀		☀	☀
Molar sealants**		☀	☀			
Root canals		☀	☀	☀	☀	☀
Orthodontics (braces)***			☀			
Crowns			☀	☀	☀	☀
Partial and full dentures			☀	☀	☀	☀
Denture relines			☀	☀	☀	☀
Scaling and root planing			☀	☀	☀	☀

**Free or low-cost check-ups every six months for members under the age of 21, every 12 months for members over the age of 21.*
***Molar sealants are covered for teens up to age 21.*
****For those who qualify.*

BABIES

Your child's first dental visit should take place after their first tooth appears, but no later than their first birthday. Baby teeth are critical to your child's health and development. They help him or her chew, speak and smile.

KIDS

Children start to lose their baby teeth as early as five years old. This is when their permanent teeth begin to grow in. Ask the dentist for molar sealants to help protect your child's molars from cavities.

TEENS

Eating sugary foods and drinks, as teens often do, puts them at a higher risk for gum disease and tooth decay. Teenagers who continue to get regular check-ups ensure good oral health well into adulthood.

PREGNANCY

Good oral health care helps prevent problems during pregnancy. As a Medi-Cal member, you are covered during pregnancy and 60 days past the birth of your baby.

ADULTS

As of January 1, 2018, the Department of Health Care Services (DHCS) restored adult dental benefits for members ages 21 and older with full-scope dental coverage. For a complete list of covered services, visit **SmileCalifornia.org**.

SENIORS

As an older adult, you are prone to gum disease and other oral health problems, but by brushing twice a day, flossing daily and most importantly, seeing your dentist regularly, you can lower your risk

Learn about your dental benefit and find a Medi-Cal dentist near you at **SmileCalifornia.org** or by calling **1-800-322-6384**. With Medi-Cal Dental, your visit is free or low-cost. Schedule your appointment today!

Text **SMILECA** to **31996** to receive healthy dental tips from *Smile, California*!

SmileCalifornia.org | 1-800-322-6384

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MEDI-CAL HAS DENTAL COVERED

rev 09-2019

Medi-Cal cuenta con cobertura dental

Como afiliado de Medi-Cal, ¡sus beneficios y los de su hijo incluyen cobertura dental! Consulte el siguiente cuadro para obtener una descripción general del cuidado dental que está cubierto por Medi-Cal.

SERVICIOS	BEBÉS	NIÑOS	ADOLESCENTES	EMBARAZO	ADULTOS	PERSONAS MAYORES
Examen*	☀	☀	☀	☀	☀	☀
Radiografías	☀	☀	☀	☀	☀	☀
Limpieza dental	☀	☀	☀	☀	☀	☀
Barniz de flúor	☀	☀	☀	☀	☀	☀
Empastes	☀	☀	☀	☀	☀	☀
Extracción de un diente	☀	☀	☀	☀	☀	☀
Servicios de emergencia	☀	☀	☀	☀	☀	☀
Sedación	☀	☀	☀		☀	☀
Selladores de muelas**		☀	☀			
Conductos radiculares		☀	☀	☀	☀	☀
Ortodoncia (correctores dentales)***			☀			
Coronas			☀	☀	☀	☀
Dentaduras postizas parciales y completas			☀	☀	☀	☀
Recubrimientos de dentaduras postizas			☀	☀	☀	☀
Limpieza de sarro y alisado radicular			☀	☀	☀	☀

**Controles gratuitos o de bajo costo cada seis meses para afiliados menores de 21 años, y cada 12 meses para afiliados mayores de 21 años.*
***Los selladores de muelas están cubiertos para adolescentes de hasta 21 años.*
****Para aquellos que califiquen. radicular*

BEBÉS

La primera visita dental de su hijo debe realizarse después de la aparición del primer diente, pero no después de su primer cumpleaños. Los dientes de leche son fundamentales para la salud y el desarrollo de su hijo. Le ayudan a masticar, hablar y sonreír.

NIÑOS

Los niños comienzan a perder sus dientes de leche a partir de los cinco años de edad. Es entonces cuando comienzan a salirle los dientes permanentes. Pídale al dentista selladores de muelas para ayudar a prevenir caries en las muelas de su hijo.

ADOLESCENTES

Consumir alimentos y bebidas azucaradas, como a menudo hacen los adolescentes, los pone frente a un mayor riesgo de desarrollar enfermedad de las encías y caries dentales. Los adolescentes que continúan realizándose controles regulares se aseguran una buena salud bucal hasta la edad adulta.

EMBARAZO

El buen cuidado de la salud bucal ayuda a prevenir problemas durante el embarazo. Como afiliada de Medi-Cal, usted tiene cobertura durante el embarazo y 60 días después del nacimiento de su bebé.

ADULTOS

A partir del 1.° de enero de 2018, el Departamento de Servicios del Cuidado de la Salud (Department of Health Care Services, DHCS) restableció los beneficios dentales para adultos a los afiliados a partir de los 21 años de edad que tengan cobertura dental completa. Para obtener una lista completa de los servicios cubiertos, visite **SonrieCalifornia.org**.

PERSONAS MAYORES

Como adulto mayor, usted es propenso a padecer enfermedades de las encías y demás problemas de salud bucal, sin embargo al cepillarse los dientes dos veces al día, usar hilo dental diariamente y, lo que es más importante, visitar a su dentista con regularidad, puede reducir su riesgo.

Obtenga más información sobre su beneficio dental y encuentre un dentista de Medi-Cal cercano a su domicilio en **SonrieCalifornia.org** o llamando al **1-800-322-6384**. Con el Programa Dental de Medi-Cal, su visita es gratuita o de bajo costo. ¡Programe su cita hoy mismo!

¡Envíe **SONRIECA** al **31996** para recibir consejos para la salud bucal de *Sonríe, California*!

SonrieCalifornia.org | 1-800-322-6384

sonríe, CALIFORNIA™
MEDI-CAL TIENE COBERTURA DENTAL

rev 09-2019

ORAL HEALTH

RATIONALE

Dental caries, commonly referred to as "tooth decay" or "cavities," is the most prevalent chronic health problem of children in California, and the largest single unmet health need afflicting children in the United States. A 2006 statewide oral health needs assessment of California kindergarten and third grade children conducted by the Dental Health Foundation (now called the Center for Oral Health) found that 54 percent of kindergartners and 71 percent of third graders had experienced dental caries, and that 28 percent and 29 percent, respectively, had untreated caries. Dental caries can affect children's growth, lead to malocclusion, exacerbate certain systemic diseases, and result in significant pain and potentially life-threatening infections. Caries can impact a child's speech development, learning ability (attention deficit due to pain), school attendance, social development, and self-esteem as well.[1]

Multiple studies have consistently shown that children with low socioeconomic status (SES) are at increased risk for dental caries.[2,3,4] Child Health Disability and Prevention (CHDP) Program children are classified as low socioeconomic status and are likely at high risk for caries.

With regular professional dental care and daily homecare, most oral disease is preventable. Almost one-half of the low-income population does not obtain regular dental care at least annually.[5] California children covered by Medicaid (Medi-Cal), ages 1-20, rank 41 out of all 50 states and the District of Columbia in receiving any preventive dental service in FY2011.[6] Dental examinations, oral prophylaxis, professional topical fluoride applications, and restorative treatment can help maintain oral health. Twice a day brushing with fluoride toothpaste by the child's primary caregiver until age seven or eight, supervised brushing thereafter until adolescence, and daily flossing, are necessary components of maintaining oral health. Topical fluoride treatments and/or supplements, as well as dental sealants on both primary and permanent posterior teeth, are important means of prevention.

SCREENING REQUIREMENTS

1) An inspection of the mouth, teeth, and gums must be performed at every health assessment visit. Dental caries are classified according to treatment needs, from routine dental referrals to referrals for emergency (immediate) treatment. For a visual reference on what to look for and how to document findings, see the "PM 160 Dental Guide" (under revision as 7/14/2016)

2) Assess risk for dental caries. The following links provide tools to aid in assessing caries risk factors:

- American Academy of Pediatrics - Preventive Oral Health Intervention for Pediatricians
- American Academy of Pediatrics - Oral Health Risk Assessment Tool
- National Maternal & Child Oral Health Resource Center – Bright Futures in Practice: Oral Health--Pocket Guide 2nd edition

3) A fluoride supplement should be prescribed if the child's drinking water, including bottled water, does not contain adequate levels of fluoride, or for infants who are exclusively breastfed after six months of age. More information about fluoridation of local water systems can be seen at the California Environmental Protection Agency website. See Table 1 *Fluoride Supplement Dosage Schedule* in "Fluoride" section below.

4) Provide anticipatory guidance. For prevention of caries and gum disease, key topics to emphasize include establishing a dental home, parents'/caregivers' oral health, transmissibility of caries-causing bacteria, proper oral hygiene practices, fluorides, and dental sealants. Other important areas to stress include dental injuries (especially related to sports), tobacco use and oral cancer, eating disorders, and oral piercing. See Table 2 *Anticipatory Guidance for Oral Health* which contains age-specific messages regarding these topics located at end of the Oral Health Section below.

Bright Futures**

For more information see the following:

- *Bright Futures in Practice: Oral Health* Pocket Guide (2nd edition)
- *Bright Futures Guidelines for Health Supervision of Infants, Children and Adolescents: Promoting Oral Health*
- *Bright Futures Toolbox: Oral Health Resources*

CONSIDERATIONS FOR REFERRAL, TREATMENT, AND/OR FOLLOW-UP

- Refer children directly to a dentist **beginning at age one** as required by CA SB75 [P. 32 of Ch.18. SEC. 22.124040.(6)(D)] (Scroll to Ch.18. Page 32) to establish a dental home.
  This will help set a regular practice of preventive dental visits and maintenance of oral health. For more information on establishing a dental home see the AAP policy *Oral Health Risk Assessment Timing and Establishment of the Dental Home*. :

ORAL HEALTH

- Refer to a dentist at any age if a dental problem is detected or suspected. An immediate dental referral is indicated if there is an acute injury, oral infection (abscess, swelling, or cellulitis) or other painful condition.

- Routine annual referrals to a dentist are required; however, more frequent referrals may be needed for the CHDP high-risk population. Please review the CHDP Periodicity Schedule for Dental Referral by Age.

- Most Medi-Cal eligible children should be referred to a dentist every six months. A referral should be made directly to a dentist. However, if help finding a dentist is needed, contact the local CHDP program or the Denti-Cal beneficiary number 1-800-322-6384 or the Denti-Cal provider lists.

- Refer children with significant craniofacial anomalies to the county California Children's Services (CCS) program, or to a craniofacial center.

- Refer children with severe malocclusion (not cosmetic) appropriately. For children with full scope Medi-Cal refer to Denti-Cal. For low-income children without full scope Medi-Cal refer to CCS. The "CHDP-CCS Orthodontic Referral Guide" is a screening tool to use in making appropriate referrals for severe malocclusion.

- Children with documented special health care needs may be considered high risk for caries. If medical or oral condition is affected, refer every three months.

Oral Health Issues

Dental decay, including early childhood caries, is the most predominant oral health problem for children. There are other habits, conditions, and diseases that play a role in their oral health status. These include oral lesions, orthodontics, wisdom teeth, periodontal disease, halitosis, tobacco habits, "meth mouth", and oral piercing. Medical providers should address these issues with their patients, as explained below.

Early childhood caries (ECC) is the currently accepted term for a disease that is also commonly known as baby bottle tooth decay (BBTD), nursing caries, baby bottle caries, and bottle mouth. ECC is a multifactorial dental disease that is prevalent among children age five and younger. Interacting biological, behavioral, and social factors contribute to this serious condition that causes the primary teeth to decay rapidly. The disease is characterized by a unique pattern of decay. It begins with the tongue side of the upper anterior teeth, progressing to the front of these teeth. This is followed by decay on the chewing surfaces of the primary molars, in the order of their eruption.[7] In

some cases, other patterns of disease progression occur with more severe destruction of the posterior dentition. Severe decay can expose the tooth nerve and pulp, leading to severe pain, failure to thrive, tooth loss, local and systemic infections, compromised nutrition, and/or loss of sleep. Premature loss of primary teeth may lead to speech disorders, feeding and nutritional problems, low self-esteem, and malocclusion. Early tooth decay increases the risk that a child will experience caries throughout their lifetime.[8]

ECC can be exacerbated by putting a child to bed with a bottle containing anything other than plain water, or letting a child have a bottle or training ("sippy") cup for long periods of time while awake. When the bottle or training cup is filled with liquids other than plain water, bacterial plaque convert these fermentable carbohydrates into acids, increasing the acidity level of the child's mouth. Higher acidity levels weaken the enamel of the teeth and lead to decay.

ECC is a transmissible bacterial infection.7 The bacteria can be spread from parents/caregivers/siblings to the infant/child via contact with saliva. Encourage parents and caregivers to obtain regular dental examinations and treatment, as well as maintain good oral hygiene. For additional information and photographs refer to the "Oral Health for Infants and Toddlers: A Medical Provider's Guide ".

Counseling parents and caregivers using the following points may help prevent ECC:

- Promote breastfeeding. However, explain that prolonged nocturnal at-will nursing causes breast milk to pool around the teeth of a sleeping infant and may lead to ECC when other predisposing factors are present.
- Advise parents to put infants to bed without a bottle. If a bottle is necessary, use water as this is the only liquid that does not promote tooth decay.
- Once nutritional needs are met, if an infant still needs soothing, suggest alternatives to the bottle such as stories, soft music, rocking, singing, etc.
- Starting at birth, encourage wiping the infant's gums with a clean, soft washcloth every morning and evening.
- When the first tooth starts to erupt, begin brushing all surfaces of the teeth. Use a tiny dab of fluoride toothpaste on a small, soft toothbrush every morning and night. Emphasize brushing all surfaces of the teeth, especially behind the upper front teeth and along the gum line where ECC develops.
- Introduce infants to a cup beginning at age six months and wean from a bottle by age one. Encourage use of a cup at mealtimes and when seated in the high chair. Discourage allowing the child to carry or use a sippy cup with anything other than water for at-will hydration.

ORAL HEALTH

Oral lesions can occur in or around the mouth. Most lesions are common and benign. These lesions may cause discomfort, but can be easily treated by topical or non-invasive methods.
Common lesions include:

- Angular cheilitis
- Black hairy tongue
- Erythema migrans (geographic tongue)
- Herpes labialis (cold sores)
- Lichen planus
- Oral candidiasis (thrush)
- Physiologic (melanin) pigmentation of the gingiva
- Recurrent aphthous stomatitis (canker sores)

Information about the signs, symptoms, and treatments for these conditions refer to "Common Oral Lesions: Part 1. Superficial Mucosal Lesions."

More serious lesions require a referral to a dentist, including:

- Periodontal/dental abscess
- White and/or red lesions – if not resolved in 2 weeks they should be reevaluated and in some cases, considered for biopsy to obtain a definitive diagnosis
- Unilateral pigmentation – this needs to be evaluated for pathology

Any unidentified lesion may be indicative of an underlying systemic disease, including cancer, HIV, or diabetes. A patient who presents with a suspicious lesion should be evaluated further.

Orthodontics is the correction of the misalignment (malocclusion) of the teeth and/or jaws. While many patients may seek orthodontics for cosmetic purposes, some children may have a medical necessity for this treatment. A medical necessity would include severely twisted, overlapped, protruded, or misaligned teeth causing functional problems or trauma to the oral tissue.

Malocclusions and/or jaw anomalies can affect the health and normal function of the oral cavity. For example:

- *Severely twisted/misaligned teeth* can make daily oral hygiene difficult, thus increasing the risk of gingivitis/periodontal disease.
- An "*open bite"* prohibits the ability to bite with the anterior teeth and can cause uneven wear and cracking of the posterior teeth.

- A *severe "overjet"* occurs when the upper anterior teeth protrude excessively. This can cause an open mouth posture which dries the oral and labial mucosa resulting in increased gingival inflammation, increased caries, and cracked/dry sore lips.
- *Hyperplasia or hypoplasia* of the mandible/maxilla can cause abnormal stress to the temporomandibular joint, and/or traumatic occlusions which can damage or crack the teeth.
- Some malocclusions and jaw anomalies may distort speech and/or interfere with normal mastication.

Orthodontics and orthognathic surgery may be needed to align the jaws and teeth in order to create a more functional and healthy occlusion. Assessment of jaw anomalies, asymmetries and occlusion should be performed at every CHDP visit. If a severe condition is suspected, a referral should be made (please see aforementioned "Considerations for Referral, Treatment and/or Follow-up").

Trauma to primary and permanent teeth often result from sports injuries, falls, car and bike accidents, and violence**.** The most common ages for dental trauma are 2 to 4 year olds and 8 to 10 year old. An avulsed primary tooth should not be reinserted into the tooth socket due to the risk of damage to the underlying permanent tooth. However, an avulsed permanent tooth should be held by the crown, gently rinsed with milk or cool water, and reinserted into the socket. In both cases, the child should be seen immediately by a dentist. Emphasize the use of a mouthguard, helmet and other safety equipment when participating in team sports and other physical activities, such as skateboarding, bicycling and skating. A well-fitting mouthguard can reduce the risk of cerebral concussion and dental injury. More information on dental trauma can be found at Smiles for Life Course 4 Acute Dental Problems.

Physical abuse of children can sometimes be seen as oral manifestations such as trauma to the roof of the mouth or back of the throat. Craniofacial (head, face, and neck) injuries occur in more than half of the cases of child abuse.[9] A complete oral assessment is an essential component of every well-child exam and can help identify abuse.

For more detailed information see the joint statement of the American Academy of Pediatrics and the American Academy of Pediatric Dentistry "Oral and Dental Aspects of Child Abuse and Neglect."

Wisdom teeth/third molars typically erupt between the ages of 17 and 21 years. Teens with an erupting third molar may present with discomfort and tenderness in the

posterior region of the lower or upper jaw. Routine removal of third molars is no longer recognized as the standard of care. However, if the third molar is impacted, the teen may experience additional symptoms, such as: prolonged headache or jaw ache; pain, redness and swelling of the gums around the impacted tooth; and if infected, drainage, difficulty opening the mouth, and swollen lymph nodes. Teens with these symptoms should be referred to a dentist.

Periodontal (gum) disease is an inflammation of the soft and hard tissues that support and surround the teeth. It is caused by pathogenic bacteria and can escalate to the destruction of the alveolar bone (periodontitis). This progressive bacterial disease begins with poor oral hygiene and accumulation of plaque, which leads to inflammation of the gums (gingivitis). Bleeding when brushing and flossing is a sign of gingivitis and can be reversed with proper daily home care. However, if left untreated, gingivitis may advance to periodontitis. Periodontitis generally progresses slowly and the effects may only become evident in adulthood. Evidence from the Centers for Disease Control and Prevention (CDC) reveals that 47.2% of adults have some stage of gum disease [10] (which might have been prevented with better oral hygiene as a youth).[11] There are other forms of periodontal disease which are aggressive in nature, such as Juvenile Periodontosis and Acute Necrotizing Ulcerative Gingivitis (ANUG). These forms of gum disease can affect teens and cause rapid destruction of the periodontium and lead to tooth loss. Medical providers should refer the teen directly to the dentist if they notice inflamed/bleeding gums, pus, loose teeth, and/or bad breath. More information about periodontal disease in children can be accessed the American Academy of Periodontology website.

Halitosis (bad breath) is most commonly caused by poor oral hygiene habits. It can also be caused by consumption of certain foods such as garlic and onions, dry mouth, post-nasal drip, tobacco use, and certain health conditions.[12] Advise teens and young adults that bacteria in the mouth, especially on the tongue, is the major cause of odor. Poor gingival health, such as bleeding gums, can also contribute to bad breath. By improving oral hygiene habits, including daily tooth brushing, flossing, and tongue brushing/scraping, bad breath can be reduced. In addition to improving oral hygiene, a referral to a dentist for an exam, preventive care and necessary treatment should be made. Dry mouth due to medication use, infrequent water consumption, and mouth breathing can decrease saliva flow.[13] This reduces the clearance of food particles which contributes to bacterial growth in the mouth. If bad breath persists, an underlying health condition should be considered. More information about health conditions that may cause bad breath can be accessed at MedlinePlus.

Tobacco use in any form, including smokeless (spit, chew, snuff, dip, snus) and

smoked (cigarettes, cigars, cigarillos, pipes) adversely affects oral health. In the last several decades, the harmful health effects of smoking have become more widely recognized; however, the adverse effects on the oral cavity are not as well known. Tobacco in general has been associated with teeth staining, changes in salivary production, bad breath, altered taste, poor healing of oral tissue, loss of bone and tissue supporting the teeth (periodontal disease), increased caries, decreased success and/or longevity of dental restorations, tooth loss, and oral cancer.[14]

Spit tobacco is widely used; an estimated 15% of high school boys and 9% of all high school students use smokeless tobacco. The harmful health effects of spit tobacco need to be addressed during the CHDP health assessment. Its use increases the risk of periodontal disease and tooth decay in exposed tooth roots. It is also strongly associated with oral leukoplakia—a precancerous lesion that can be found on the soft tissue in the mouth. This appears as a white patch or plaque that cannot be scraped off.[15] Spit tobacco is strongly associated with pancreatic cancer, and both smoking and smokeless tobacco use increases the risk of oral cancer.[16]

There is limited but ongoing research on the health effects of e-cigarettes; and even more limited research on the effects to oral health. There are no rigorous scientific studies that show they are safe for use. The CDC survey published in 2013 showed that e-cigarette use in middle school and high school students doubled between 2011 and 2012.[17] As e-cigarette use continues to rise, CHDP providers should discourage its use because of the unknown health consequences and potential addiction.

"Meth mouth" is a common term used to describe the severe oral health damage caused by methamphetamine (MA) use.[18] Oral manifestations that are associated with MA use may include:

- Xerostomia (dry mouth) which can lead to:
    - Thick and stringy saliva
    - Shiny mucosa
    - Cracked lips and sores in the corner of the mouth
    - The appearance of a dry, red, raw tongue
    - Difficulty with swallowing and speaking
- Increase in yeast/fungal infections on the tongue
- Strong craving for sugary foods and sweet, carbonated drinks
- Unusual pattern of decay on the facial surfaces of the teeth and in between the anterior teeth due to the high acidity of the drug and the reduced quantity and quality of the saliva
- Bruxism – clenching and/or grinding which can cause flattened, chipped, fractured, worn or loose teeth.

In addition to these physiological changes, MA users exhibit long periods of poor oral hygiene. Among all MA users, injection users have the highest risk of dental disease.[19] Providers should be aware of the above oral manifestations that are associated with MA use.

Oral piercing may be attractive to many teens and young adults; however, there are a number of associated health risks:[20, 21]

- Increased risk of contracting Hepatitis B, Hepatitis C, and/or Herpes Simplex from improperly sterilized piercing equipment.
- Increased risk of oral infection due to high levels of bacteria in the mouth.
- Damage to the teeth – fractured and chipped teeth is one of the most common problems associated with oral piercings. One study reported tooth chipping in 47% of subjects who had an oral piercing for at least 4 years.[22, (19)]
- Gum recession/loss of gingival attachment – frequent hammering from a barbell or other oral jewelry during daily speaking, chewing and swallowing can result in loose teeth and eventual tooth loss.
- Disrupted daily oral functions – altered speech, difficulties with chewing and swallowing and excessive drooling.
- Other complications including nerve damage, prolonged bleeding, tongue swelling (potentially blocking the airway), allergic reaction to metal, jewelry aspiration, and bacteria entering the bloodstream leading to endocarditis.

Advise patients with oral piercing(s) that extra home care is needed. The sooner the oral jewelry is permanently removed, the less likely damage may occur. More information about oral piercings and home care can be accessed at Know Your Teeth, "What is an Oral Piercing?"

Children with Special Health Care Needs

Maintaining optimal oral health can be a challenge for all children, however this challenge can be greatly amplified for children with special health care needs. These children may have intellectual, physical and behavioral issues, as well as inadequate assistance with home care and limited access to a dentist. Due to these barriers, children with special needs are in the highest risk category for oral problems.

Some obstacles to oral health for children with special needs include:

- High carbohydrate nutritional needs that increase sugar exposure
- Medication side effects that dry the mouth and/or cause gingival inflammation or fungal infections
- Immune compromises that decrease the body's ability to combat oral bacteria

- Jaw anomalies such as open mouth posture that dry the mouth, or protruding/retruding/deviated jaws and malocclusions that hinder oral hygiene access
- Oral habits that compromise tooth structure and oral tissue such as bruxism, lip/cheek biting, thumb/hand sucking, tongue thrusting
- Excessive drooling causing oral and facial ulcers which add to oral hygiene difficulties
- Sensory inabilities such as hearing loss and speech impediments hindering communication of oral hygiene instructions
- Cognitive impairments and lack of fine muscle control decreasing ability to perform oral hygiene activities without the help of others
- Hypersensitivity to oral hygiene items in the mouth and taste of oral hygiene products
- Frightened or combative behaviors during dental appointments resulting from previous and frequent medical treatments
- Overwhelmed caregivers making daily oral hygiene a low priority
- Lack of access to an appropriate dental home to meet the challenges of the individual resulting in neglected, active oral disease.

Some children with special needs may not be able to tolerate care in a traditional office setting without extra precautions, accommodations and/or careful monitoring when receiving dental treatment. For some of these children dental treatment is facilitated in a hospital setting with general anesthesia. General anesthesia can be performed safely, however there are always risks involved. These risks can be avoided by early oral disease prevention efforts. CHDP providers can play a pivotal preventive role in helping this population obtain and maintain oral health and therefore avoid more extensive dental treatment.

CHDP Providers' Role:

- Consider all the unique issues of each child with special needs; "one-size-fits-all" oral care will not work for this population
- Thoroughly assess the oral cavity, looking for signs of dry mouth, mouth sores, oral habits, malocclusions/jaw anomalies, and decay and gum disease. See CHDP/ CCS Orthodontic & Craniofacial Referral Guide for visual examples. .
- Apply fluoride varnish – a simple procedure that can arrest/prevent decay. For a training on fluoride varnish see CHDP Dental Training: Fluoride Varnish.
- Help caregivers develop a daily oral hygiene routine that works best for the child
- Encourage families to establish a dental home that addresses the specific needs of the child

- Refer the child for preventive dental appointments every 3-6 months or sooner if a problem is suspected or detected. Obtain a dental referral list from the local CHDP office.
- Establish communication with the child's dentist to ensure that oral and overall health needs are met and contraindications are clear
- Provide precise and detailed documentation on the PM 160 reporting form to facilitate follow-up by CHDP staff on these high risk cases. Include special needs, new and pre-existing medical conditions, areas of concern, and oral problems. See the CHDP PM160 Dental Guide (under revision as 7/14/2016).

Children with special needs are often uncomfortable and in pain. Oral disease is preventable and does not need to be added to their list of challenges. For these children, not only is a clean and healthy oral environment more comfortable and pleasing, but it is a necessity to achieve overall health.

For additional information about oral health and special needs conditions access Patients with Special Needs from the School of Dentistry, University of Washington and Special Needs from the National Institute of Dental and Craniofacial Research.

Diabetes

Traditionally diabetes in children has been type I, but with the current increase in childhood obesity, the incidence of type II diabetes has risen dramatically. Research has suggested that the relationship between diabetes and periodontal disease goes both ways. Periodontal disease affects the body's ability to control blood sugar and diabetes affects the body's ability to combat periodontal pathogens.[23, 24] Often the first sign of diabetes is diabetic ketoacidosis which manifests as breath with a fruity or acetone odor.

When diabetes is diagnosed or suspected, it is imperative that oral health care be part of the child's treatment. The patient should be asked about symptoms of periodontal disease, including:

- sore and bleeding gums
- bad taste or odor in the mouth
- sensitive or loose teeth
- home care practices

Every patient with diabetes should be referred to a dentist; however, a dental referral is urgent if signs of periodontal disease are also present.

Oral Health and Pregnancy

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CHDP serves clients up to age 21; providers may treat young pregnant women in this age group. Good oral health care is important during pregnancy. Research suggests an association between periodontitis and pre-term birth/low birth weight. In addition, high levels of cariogenic bacteria in the mother can lead to high caries incidence in infants and toddlers. It has been documented that mothers can transmit cariogenic bacteria to their young children.[25]

Pregnancy is an opportune time to educate the mother-to-be about the importance of both her and her baby's oral health. For more information see "Oral Health During Pregnancy & Early Childhood: Evidence-Based Guidelines for Health Professionals."

Pregnancy presents challenges for maintaining optimum oral health. Morning sickness increases acidity in the mouth, which elevates the risk of tooth decay. Hormonal changes can lead to "pregnancy gingivitis" and periodontal disease. Pregnancy oral tumor (pyogenic granuloma) a red, vascular, enlarged area of the gingiva is also linked to hormonal changes and poor oral health. The increased levels of progesterone and estrogen can also cause teeth to loosen, even in the absence of gum disease.[26]

Good oral care includes brushing with fluoride toothpaste twice a day, flossing daily, eating a balanced diet and limiting unhealthy snacks. Dental visits on a regular basis are essential. Early and routine dental care has been shown to be not only safe, but necessary during pregnancy.

Comprehensive dental care is a Medi-Cal benefit for all pregnant women (either full or limited scope) through the Medi-Cal Dental Program (Denti-Cal). Expectant mothers should be encouraged to take advantage of this benefit.

Best Preventive Practices

Providers can utilize best preventive practices to promote oral health in their CHDP population. Topics defined below include fluoride and dental sealants. See Table 2, *Anticipatory Guidance for Oral Health* which contains age-specific messages regarding these topics located at end of the Oral Health Section below.

Fluoride

Substantial research has been conducted on the relationship between fluoride and the prevention of dental caries.[27] Fluoride is highly effective in preventing the onset of dental caries as well as arresting incipient decay of the enamel. Fluoride acts systemically, but the primary mode of action in preventing caries is topical. Systemic fluoride is ingested (e.g., via fluoridated water or dietary fluoride supplements) whereas topical fluoride acts directly on tooth surfaces. The primary benefit that fluoridated

water and fluoride supplements provide is a topical protection as they flow with the saliva over the teeth and become incorporated into the enamel.

Toothpaste containing fluoride is widely accepted and decades of research demonstrate its effectiveness and safety.[28] Other forms of fluoride include topical fluoride application in dental and medical offices, and in community settings, as well as home use of fluoride supplements and rinses. Generally speaking, topical fluorides, such as toothpaste, gel, foam and varnish, do not pose a risk for fluorosis (excess incorporation of fluoride during the mineralization phase of enamel formation). Children and adults should brush with fluoride toothpaste for two minutes twice daily. As of February 2014, both AAP and ADA recommend the use of a dab of fluoride toothpaste (size of a grain of rice) for all children prior to age two,[29, 30] and especially for high-risk children.[31, (27)] Older children and adults can use a pea-sized amount of toothpaste. Fluoride rinses are not recommended for children under the age of six years due to the possibility of ingesting the rinse.

Water fluoridation is the most cost-effective way of preventing dental caries, and benefits all residents of the community. Before prescribing fluoride supplements, fluoride levels in the child's drinking water should be verified with the local water system. Other sources of the child's drinking water should also be evaluated for fluoride content (bottled, school drinking water, and other sources). For more information see the California Environmental Protection Agency Fluoridation by Public Water Systems.

Some recent studies indicate that fluoride toothpaste is more effective than fluoride supplements (drops) in very young children. However, for older children (ages 2 and older), if water is not fluoridated, chewing fluoride tablets optimizes its topical benefits and should be prescribed according to the table below[32]:

Table 1 FLUORIDE SUPPLEMENT DOSAGE SCHEDULE – 2010

	Fluoride Concentration in Community Drinking Water*		
Age of the Child	< 0.3 ppm	0.3 - 0.6 ppm	> 0.6 ppm
Birth to 6 months	None	None	None
6 months to 3 years	0.25 mg/day**	None	None

Age of the Child	Fluoride Concentration in Community Drinking Water*		
	< 0.3 ppm	0.3 - 0.6 ppm	> 0.6 ppm
3 to 6 years	0.50 mg/day	0.25 mg/day	None
6 to 16 years	1.0 mg/day	0.50 mg/day	None

*1.0 parts per million (ppm) = 1 mg/liter
** Sodium Fluoride (2.2 mg sodium fluoride contains 1 mg fluoride ion)
Source: American Dental Association, 2010.

While not usually a problem in California, excessive ingestion of fluoride as the teeth are developing can cause a condition known as fluorosis or mottled enamel. Less than 1% of fluorosis cases are severe enough to visibly mottle the enamel. Mild fluorosis, which is found in 97% of fluorosis cases, is not readily visible and actually strengthens the teeth against decay.

It is safe to use fluoridated water to mix infant formula.[33] The United States Department of Health & Human Services' new recommendation is to reduce fluoride levels used in community water fluoridation from 1.0 ppm to 0.7 ppm.[34] This lower fluoride intake reduces the risk of fluorosis from infant formula prepared with fluoridated water. Using fluoridated water might increase the chance of mild fluorosis if a baby is primarily fed infant formula. This does not affect the health of the child and can have a protective effect on the teeth.

Fluoride varnish applications are a particularly effective form of topical fluoride for infants and young children. Evidence shows that fluoride varnish prevents 33-46% of dental caries with an even higher efficacy of 58% in high-risk children.[27] California law allows *anyone* (i.e., not just health professionals) to apply fluoride varnish if prescribed by a physician or dentist (a written protocol is all that is necessary). Thus, fluoride varnish can be applied to teeth in medical offices, clinics, and community settings by medical staff trained in fluoride varnish application. It does not require a dental setting or specialized dental equipment or supplies. When used appropriately, fluoride varnish is safe and effective:

- It is easily tolerated by infants, toddlers and developmentally disabled persons.
- It can be applied as soon as the first tooth erupts.
- It can be applied directly on the teeth in just a few seconds.

- It can be used in addition to other forms of fluoride (i.e. fluoridated water, supplements, toothpaste, rinses, and other topical treatments).
- It can be applied on a schedule congruent with CHDP well-child visits and childhood immunizations.

The optimal frequency and intervals of fluoride varnish application have not been established.[35] Most studies of fluoride varnish have used two to three applications per year. However, some studies show additional applications are even more effective and pose no danger to young children. Children at high risk of caries should be prioritized for fluoride varnish application beginning in infancy.[27] CHDP providers should offer fluoride varnish application three times a year for children under 6 years of age.* Children may also benefit from additional fluoride treatments in a dental office.**

Children and adults at high risk for dental caries may benefit from additional exposure to fluoride, including fluoride varnish beyond age 6. Fluoride toothpaste and water fluoridation are essential for caries prevention throughout a lifetime.

Dental Sealants

Ninety (90%) percent of dental caries in the permanent teeth of children occurs on the pit and fissure surfaces of the posterior teeth.[36] These chewing surfaces are best protected by dental sealants. Dental sealants are thin plastic coatings applied by a dental professional to the pit and fissure surfaces of teeth to provide a physical barrier to decay-causing bacteria. Sealants should be applied soon after eruption of teeth to maximize their ability to prevent caries. A good time to encourage parents to talk to the dentist about getting sealants on their child's teeth is prior to the eruption of the six- and twelve-year molars. These are the teeth most frequently affected by caries. Primary molars can also benefit from sealants, especially for high risk children. Although the Medi-Cal Dental Program (Denti-Cal) only covers sealants on the permanent first and second molars of children under 21, parents may be willing to pay out-of-pocket for the added caries protection afforded by sealants on other teeth. Finally, sealants also benefit adults and can be recommended to parents for their own oral health.

* Medi-Cal, not CHDP reimburses providers for up to three fluoride varnish applications in a 12-month period for children under 6 years of age. Providers need to bill Medi-Cal separately for fluoride varnish; it cannot be billed using the PM160 (please refer MMCD All Plan Letter 07008). Some managed care plans provide a fee-for-service "bonus" for fluoride varnish applications provided by their capitated providers. Medical providers should check with their health plan to determine its policy.

** Denti-Cal will cover a fluoride application once in a six month period at a dental office for patients under 21 years of age.

Xylitol is a natural occurring sugar alcohol found in plants, including many fruits and vegetables. It is often used as a sugar substitute, as well as in some medicines for otitis media. Unlike sugar, xylitol is not converted to acid in the mouth. Many studies suggest that frequent use of xylitol reduces the level of decay-causing bacteria in saliva. An added benefit of xylitol use is the re-mineralization of tooth enamel and the repair of early decay. Transmission of cariogenic bacteria from mother to child may be reduced by the daily use of xylitol. Mints or chewing gum containing xylitol should be used 3-7 times daily for optimum total intake of 4-10 grams.[37] If ingested in excessive amounts (greater than 40 grams), xylitol can have a laxative effect. The quantity required for dental benefits is significantly less than this. There is ongoing research to determine the level of effectiveness of xylitol. (Dog owners need to be aware that xylitol is toxic to dogs, even in small amounts.)

For additional information on Xylitol.

HEALTH EDUCATION RESOURCES

AAP Resources

The American Academy of Pediatrics (AAP) along with the federal Maternal and Child Health Bureau determined that oral health is so often neglected that the Oral Health Initiative was created in 2001. This followed the U.S. Surgeon General's 2000 Report on the State of Oral Health in America. The AAP also released a policy on oral health including the need for a dental home by age one. Since the creation of the initiative, the AAP has developed a comprehensive oral health website for pediatric providers. Some of the resources available on this website are:

- Provider education & training
- Oral health practice tools & resources for families
- Policy statements

CHDP Resources

The following parent oral health education materials have been developed at an appropriate literacy level. All materials are available online and are freely downloadable. Many are available in at least English and Spanish.

- **Prevent Tooth Decay in Babies and Toddlers** brochure
  This brochure was developed by the CHDP Oral Health Subcommittee for use with families of young children.

Prevent Tooth Decay in Babies and Toddlers (English). Also available in Spanish, Chinese, and Korean.

- **Fluoride Varnish** brochure
  This brochure was developed by the CHDP Oral Health Subcommittee for use with families following and/or explaining the fluoride varnish application.
  Fluoride Varnish -- Helping Smiles Stay Strong (English) Also available in Spanish, Chinese, and Korean.

- **Dental Home** brochure
  This brochure was developed by the CHDP Oral Health Subcommittee for use with families.
  Every Child Needs a Dental Home (English) Also available in Spanish, Chinese, and Korean.

CHDP Oral Health Educational Resource Guides
The following two resource guides list reputable print and online materials by topic, which provide guidance and educational tips on oral health. Hard copies of the resources listed in the guides may be available at no or low cost.

- **Babies and Young Children (Birth-5)**
  Topics include: General Oral Health, Preventive Services (Dental Sealants and Fluoride), Diet and Nutrition, Oral Habits (Thumb, Finger and Pacifier Sucking, Teething, and Bruxism), Dental Emergencies, Sedation, and Special Needs.

- **Children and Teens (6-20)**
  Topics include: General Health, Preventive Services (Dental Sealants, Fluoride, and Xylitol), Diet and Nutrition, Oral Development and Orthodontics (Braces), Mouthguards & Dental Emergencies, Halitosis, Oral Piercing and Dental Grills, Teeth Whitening, Eating Disorders, Tobacco, Methamphetamine Use and Oral Health, Special Needs, and Oral Health and Pregnancy

Medi-Cal Dental Program (Denti-Cal) Resources
This website provides a list of Denti-Cal dentists by county and lists age-appropriate intervals for dental care.
Medi-Cal Dental Benefits

ORAL HEALTH

Table 2 ANTICIPATORY GUIDANCE FOR ORAL HEALTH

Age	Discuss	Main Message
Infancy: Birth to 12 months	Parents' oral health	Parents' oral health is very important during pregnancy for healthy birth outcomes, and all through life. Parents should brush in the morning and brush and floss before bedtime, using fluoride toothpaste. It is safe to have dental treatment while pregnant. Decayed teeth should be restored and gum disease should be treated before baby is born. Ask dentist about rinses and xylitol gum/mints to help prevent tooth decay in adults. (Do not give any gum to children under 4 years.)
	Dental Home	Every child needs a dental home by age one. Infants should be referred to a dentist to establish a dental home as soon as their first tooth erupts or at least by their first birthday. Frequency of checkups is then determined by the dentist; minimum annual visit. Parents/caregivers and siblings should have a dental home, too.
	Do not spread tooth decay germs	Parents/caregivers and siblings can spread tooth decay germs to infants and toddlers through saliva. Do not share spoons, cups, toothbrushes, etc. Do not use your mouth to test bottle or food temperature or to "clean" pacifier.
	Clean infant's mouth to keep gums healthy	Wipe gums daily with clean damp washcloth before teeth erupt.

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Age	Discuss	Main Message
	Proper toothbrushing	Start cleaning child's teeth as soon as first tooth begins to appear. Brush infant's teeth and gums using small, soft toothbrush with tiny dab (rice grain size) of fluoride toothpaste. Wipe off excess toothpaste. Brushing should be done at least twice each day, morning and bedtime.
	Check infant's teeth daily	Gently push back infant's lips to check all sides of the teeth. Check gums for swelling and/or redness. Look for early signs of decay which include "chalky" white, brown or black spots. Call dentist if any one of these are found.
	Fluoride: Daily supplementation Toothpaste Varnish	Beginning at six months, fluoride supplementation (prescription drops), based on fluoride level in drinking water, is needed to strengthen the enamel of developing teeth to help prevent tooth decay. (Refer to Fluoride Supplement Dosage Schedule) Using fluoride toothpaste twice daily is appropriate for this age and is the current recommendation by AAP and ADA. In addition to daily fluoride, fluoride varnish may be applied three times each year at the medical provider's office and additionally twice a year at the dentist.
	Proper feeding practices	Hold infant while feeding. Put infant to bed without a bottle (or sippy cup). Do not prop bottle or allow liquid to pool around infant's teeth.
	Good nutrition for oral health	Breastmilk or formula and solids as directed. No sweet or sticky foods.

ORAL HEALTH

Age	Discuss	Main Message
	Pacifier	Pacifier may be used to help satisfy baby's need for sucking beginning at one month. Do not coat with honey or any other sweet substance. Pacifiers are sized by the age of the infant/toddler.
	Teething	Relieve teething pain by offering a clean cool teething ring or rubbing gums gently with a cold, wet washcloth.
	Cup	Introduce a regular cup at 6 months using breastmilk, formula, or water, at mealtime. Training/sippy cups mimic the bottle. Sipping on a cup/bottle frequently with anything other than water can lead to tooth decay. No juice or sweet drinks in a sippy cup/bottle.
	Weaning from bottle	Help baby give up bottle and drink only from a regular cup by 12 months.
	Injury prevention	Give only age appropriate soft toys. Have dentist's phone number handy for emergencies.

ORAL HEALTH

Age	Discuss	Main Message
	Child with special health care needs	Will likely need more frequent referrals to the dentist, as well as individualized oral homecare, including more frequent brushing with fluoride toothpaste. Due to their complicated medical conditions and likely high risk for dental disease, preventive care is essential for overall health and to reduce the need for extensive dental treatment and/or hospital dentistry. Parents need to brush child's teeth at least twice every day. Special brushes and other aids may be needed as directed by the dentist. Fluoride varnish application is a critical part of their medical visit for this population.

ORAL HEALTH

Early Childhood: 1 to 4 years	Importance of primary teeth	Emphasize importance of primary teeth for child's overall health (e.g., speech development, eating habits, self-esteem, permanent teeth spacing).
	Dental home	Every child should have a dental home by age one. Most CHDP children are moderate to high caries risk. Emphasize to parent at each visit to take child to the dentist every six months or at least once a year. Parents/caregivers and siblings should have a dental home, too. They can spread tooth decay germs to young children. Ask dentist about rinses and xylitol gum/mints to prevent tooth decay in adults. (Do not give gum to children under 4.)
	Do not spread tooth decay germs	Do not share things from your mouth to child's mouth (e.g., food, spoons, cups, straws, toothbrushes) or "clean" a pacifier with your mouth.
	Proper toothbrushing and flossing	For children less than 2 years, brush their teeth gently with a small dab (rice grain size) of fluoride toothpaste on soft, child-size toothbrush. For children 2 years through 4 years, brush their teeth gently with a "pea-size" amount of fluoride toothpaste. Brushing should be done at least twice each day, morning and bedtime. Child is too young to brush own teeth effectively. Parents should begin bedtime flossing of child's teeth when teeth begin touching each other, usually between 2-6 years.
	Check child's teeth daily	Gently push back child's lips to check all sides of the teeth. Check gums for swelling and/or redness. Look for early signs of decay which include "chalky" white, brown or black spots. Call dentist if any one of these are found.

ORAL HEALTH

	Fluoride: Daily supplementation Toothpaste Varnish	Continue with fluoride supplementation (prescription drops or tablets), as directed, to strengthen the enamel of the developing teeth to help prevent tooth decay. Use is based on fluoride level in drinking water. (Refer to Fluoride Supplement Dosage Schedule) Continue twice daily toothbrushing with a "pea-size" amount of fluoride toothpaste. In addition to daily fluoride, fluoride varnish may be applied three times each year at the medical provider's office and additionally twice a year at the dentist.
	Good nutrition for oral health	Give child a variety of healthy foods and snacks. If sweet or sticky foods are given, they should be limited in amount and restricted to just after mealtime, followed by tooth brushing.
	Weaning from bottle	No more bottles starting at one year.
	Cup	Give all liquids in a (regular) cup. If juice is offered, only give limited amounts of (diluted) 100% juice. No sweet drinks or sodas.
	Pacifiers/digit sucking	If still using pacifier, size should be age appropriate. Do not coat with honey or any sweet substance. Adverse dental effects may begin between ages 2 and 4. Begin to discourage sucking habits early. If habit is difficult to stop, consider a referral to a dentist for an evaluation.

	Injury prevention	Emphasize use of helmet and mouthguard for team sports or when using bicycles, scooters, etc. Have dentist's phone number handy for emergencies. Do not attempt to re-insert an avulsed primary tooth due to the risk of damage to the developing permanent tooth underneath.
	Child with special health care needs	Will likely need more frequent referrals to the dentist, as well as individualized oral homecare, including more frequent brushing with fluoride toothpaste. Due to their complicated medical conditions and likely high risk for dental disease, preventive care is essential for overall health and to reduce the need for extensive dental treatment and/or hospital dentistry. Parents need to brush child's teeth at least twice every day and floss daily. Special brushes, floss holders and other aids may be needed, as directed by the dentist. Fluoride varnish application is a critical part of the medical visit for this population. Fluoride supplements, varnish, and sealants are important to help protect against tooth decay.
Middle Childhood: 5 to 10 Years	Supervised/Independent tooth brushing	Parent should continue to help child brush. Beginning around age 7-8, the child can brush on their own with parental supervision. Child should brush with a soft toothbrush in the same manner as the parent, using very short back and forth "wiggle-type" strokes, brushing teeth and gums at least twice each day, morning and bedtime, with a small "pea-size" amount of fluoride toothpaste.
	Dental flossing	Child may begin to floss own teeth with the help of a flossing device and parental supervision, at least at bedtime.

ORAL HEALTH

Check child's teeth and gums monthly	Continue to check child's gums for swelling and/or redness and teeth for chalky white, brown, or black spots. Call dentist if either exists.
Dental home	Child should continue to visit dental home every six months, or at least once a year, as advised by dentist. If no dental home exists, it is important to establish one as soon as possible.
Fluoride: Daily supplementation Toothpaste Varnish Rinse	Continue with fluoride tablets based on fluoride levels in the drinking water to help prevent decay. Continue the use of twice daily fluoride toothpaste while brushing, using a "pea-size" amount. Fluoride varnish should be applied in the medical office up to age 6. Children age 6 and above should continue to receive topical fluoride treatments at their dental home to reduce their risk of tooth decay. The use of an *Over-the-Counter* (OTC) fluoride rinse may be appropriate at this age. Advise parents to discuss with the child's dentist.
Dental sealants	Dental sealants are a highly effective protective coating placed by dental professionals onto the chewing surfaces of at least the permanent molars to prevent decay. Advise parents to ask the dentist about sealants.
Good nutrition for oral health	Give child a variety of healthy foods and snacks. Limit frequency of snacking throughout the day. Sweets and sticky foods, if eaten at all, should be limited and restricted to just after mealtime followed by toothbrushing. Encourage drinking (fluoridated) water and eating fresh fruit rather than drinking juice. No sweet drinks, sodas, or sports drinks.

Xylitol gum and mints	Xylitol gum and mints help prevent tooth decay by hindering cavity causing bacteria and re-mineralizing tooth enamel. Chew gum for about 5 minutes after meals and snacks. Allow mints to dissolve in the mouth. (Keep away from pets.)
Non-nutritive sucking	Sucking of thumbs, fingers, hands, or objects should be stopped before age 5. After the age of 5 or 6, the shape of the jaw may be affected by the sucking activity. If habit is difficult to stop, consider a referral to a dentist for an evaluation.
Mouthguards and safety equipment	Advise youth to practice safety measures to prevent injuries to the mouth. Mouthguards, helmets and other protective gear are needed for any contact sport, and other activities such as skating, biking, skateboarding, baseball, etc. There are 3 types of mouthguards: "ready to wear" (not recommended), "boil and bite" and "custom fitted" by a dentist. Custom fitted mouthguards are recommended, however they are not a Medi-Cal Dental Program (Denti-Cal) benefit.
Injury prevention and how to handle dental emergencies	In case of fracture or avulsed tooth, dentist should be called as soon as possible. For permanent teeth, hold the tooth by the crown and gently rinse if soiled. If possible, insert and hold tooth in its socket. If not possible, hold tooth in mouth between gums and cheek, or put in milk. Youth should be transported to dentist immediately along with the avulsed permanent tooth. Do not attempt to re-insert an avulsed primary tooth due to the risk of damage to the developing permanent tooth underneath.

	Tobacco use prevention	Advise child and parent not to smoke or use spit tobacco due to harmful effects to general health and specific unhealthy effects on the oral cavity such as oral cancer, disfigurement, and tooth loss from periodontal (gum) disease. Spit or "new" tobaccos are not safe and may also cause cancer. Advise parents to frequently discuss the dangers of smoking/tobacco use. According to the American Cancer Society, children whose parents talked with them about the risks are half as likely to use tobacco.
	Children with special health care needs	Will likely need more frequent referrals to the dentist, as well as individualized oral homecare, including more frequent brushing with fluoride toothpaste, special brushes, or other aids as directed by the dentist. Due to their complicated medical conditions and likely high risk for dental disease, preventive care is essential for overall health and to reduce the need for extensive dental treatment and/or hospital dentistry. Parents need to brush child's teeth at least twice every day and floss daily. Special brushes, floss holders and other aids may be needed, as directed by the dentist. Fluoride varnish application is a critical part of the medical visit for this population. Please note that fluoride varnish is only a Medi-Cal covered *medical* benefit through age 5. However, California Children's Services (CCS) eligible special needs children can receive up to 4 applications per year through a Denti-Cal provider. Fluoride supplements, fluoride varnish and sealants are important to help protect against tooth decay.

ORAL HEALTH

Adolescent: 11 to 21 Years	Oral hygiene	Youth should become familiar with healthy firm gum appearance, as opposed to spongy, swollen and/or bleeding unhealthy gums. They should recognize that healthy teeth have a shiny bright appearance with no "chalky" white, brown or black spots. Dental plaque, a bacterial film, can accumulate on the teeth and lead to gum disease, tooth decay and cause bad breath. Encourage adolescents to be responsible for their own oral health. They should brush with a soft toothbrush using fluoride toothpaste at least morning and bedtime. Floss at bedtime.
	Dental home	Adolescent should continue to visit their dental home every six months, or at least once a year, as advised by their dentist. Stress the importance of a dental home to be continued throughout their lifetime.
	Fluoride: Daily supplementation Toothpaste Topical treatment	Continue fluoride supplementation through age 16 (and older if at high risk for caries) in areas without optimum fluoride levels in drinking water. Continue the use of twice daily fluoride toothpaste while brushing, using a "pea-size" amount. Encourage discussing with dentist continued need for topical fluoride treatment (varnish, rinse, gel or foam) to reduce risk of tooth decay.
	Dental sealants	All permanent teeth (except 3rd molars) should be erupted by age 12-13. Ask dentist for sealants to coat the chewing surfaces of at least the first and second permanent molars to protect against decay.

Good nutrition for oral health	Explain importance of healthy snack foods and balanced meals. Sweets or sticky foods, if eaten, should be limited and eaten just after mealtime followed by brushing. Be aware of high sugar and acid content of sodas and power drinks and avoid them. Learn to read food labels for sugar content. Drink fluoridated water.
Xylitol gum and mints	Xylitol gum and mints help prevent tooth decay by hindering cavity causing bacteria and re-mineralizing tooth enamel. Chew gum for about 5 minutes after meals and snacks. Allow mints to dissolve in the mouth.
Orthodontics	Severe malocclusion can increase poor oral health, cause difficulty chewing, speech problems, stress on jaws, and low self-esteem. CHDP providers may refer children with a medically handicapping malocclusion, and full scope Medi-Cal to a Medi-Cal Dental Program (Denti-Cal) orthodontist. Children with limited or no Medi-Cal can be referred to their local CCS program.
Mouthguards and safety equipment	Advise youth to practice safety measures to prevent injuries to the mouth. Mouthguards, helmets, and other protective gear are needed for any contact sport, and other activities such as skating, biking, skateboarding, baseball, etc. There are 3 types of mouthguards: “ready to wear” (not recommended), “boil and bite” and “custom fitted” by a dentist. Custom fitted mouthguards are recommended, however they are not a Medi-Cal Dental Program (Denti-Cal) benefit.

Injury prevention and how to handle dental emergencies	In case of fracture or avulsed tooth, dentist should be called as soon as possible. For permanent teeth, hold the tooth by the crown and gently rinse if soiled. If possible, insert and hold tooth in its socket. If not possible, hold tooth in mouth between gums and cheek, or put in milk. Youth should be transported to dentist immediately along with the avulsed permanent tooth. Do not attempt to re-insert an avulsed primary tooth due to the risk of damage to the developing permanent tooth underneath.
Adolescents with special health care needs	Will likely need more frequent referrals to the dentist, as well as individualized oral homecare, including more frequent brushing with fluoride toothpaste, special brushes, or other aids as directed by the dentist. Due to their complicated medical conditions and likely high risk for dental disease, preventive care is essential for overall health and to reduce the need for extensive dental treatment and/or hospital dentistry. Help with brushing and flossing may still be needed. Fluoride supplements, topical fluoride treatments and sealants are important to help protect against tooth decay.
Tobacco use prevention	Advise adolescent and parent not to smoke or use spit tobacco due to harmful effects to general health and specific unhealthy effects on the oral cavity such as oral cancer, disfigurement, and tooth loss from periodontal (gum) disease. Spit or "new" tobaccos are not safe and may also cause cancer. Advise parents to frequently discuss the dangers of smoking/tobacco use. According to the American Cancer Society, children whose parents talked with them about the risks are half as likely to use tobacco.

	Oral piercings	Educate adolescents on the complications of oral piercings which include: bad breath, infections, tooth fractures, severe scarring (keloids), nerve damage, receding gums, and bleeding. If adolescent has, or insists on getting piercings, encourage youth to properly maintain and cleanse area due to the high level of bacteria in the mouth.
	Eating disorders	Eating disorders such as bulimia (binging/purging) can result in erosion of the tooth enamel from repeated contact with gastric acids. Other oral symptoms may include traumatic lesions such as ulcerations or hematomas on the hard or soft palates, cheek and lip bites, glossitis, candidiasis and angular cheilitis.
	Illegal drugs	Drug abuse is harmful to oral health, especially methamphetamines, which can result in grinding down of teeth and extensive tooth decay due to the acidity of the drug, decreased saliva and cravings for high calorie drinks. It is commonly referred to as “meth mouth”.
	Pregnant adolescents	Oral health is very important during pregnancy for healthy birth outcomes, and to help avoid pregnancy complications. Pregnant youth should brush in the morning and brush and floss before bedtime, using fluoride toothpaste. It is safe to have dental treatment while pregnant. Decayed teeth should be restored and gum disease should be treated before baby is born. If adolescent experiences morning sickness, advise patient to rinse mouth after each occurrence.

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Centers for Disease Control and Prevention

Preventing Chronic Disease

PREVENTING CHRONIC DISEASE
PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

Absence of Fluoride Varnish–Related Adverse Events in Caries Prevention Trials in Young Children, United States

CME ACTIVITY — Volume 14 — February 16, 2017

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Upon completion of this activity, participants will be able to:

1. Distinguish findings regarding adverse events of fluoride varnish in young children enrolled in caries prevention trials, based on a prospective systematic assessment
2. Determine the clinical implications of these findings regarding adverse events of fluoride varnish in young children enrolled in caries prevention trials
3. Identify potential concerns regarding the safety of fluoride varnish treatment

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PEER REVIEWED

Abstract

Introduction

Fluoride varnish is an effective prevention intervention for caries in young children. Its routine use in clinical care is supported by meta-analyses and recommended by clinical guidelines, including the US Preventive Services Task Force (B rating). This report is the first prospective systematic assessment of adverse events related to fluoride varnish treatment in young children.

Methods

We determined the incidence of adverse events related to fluoride varnish treatment in 3 clinical trials on the prevention of early childhood caries, conducted under the auspices of the Early Childhood Caries Collaborating Centers, an initiative sponsored by the National Institute of Dental and Craniofacial Research. Each trial incorporated use of fluoride varnish in its protocol and systematically queried all children's parents or legal guardians about the occurrence of acute adverse events after each fluoride varnish treatment.

Results

A total of 2,424 community-dwelling, dentate children aged 0 to 5 years were enrolled and followed for up to 3 years. These children received a cumulative total of 10,249 fluoride varnish treatments. On average, each child received 4.2 fluoride varnish treatments. We found zero fluoride varnish–related adverse events.

Conclusion

Fluoride varnish was not associated with treatment-related adverse events in young children. Our findings support its safety as an effective prevention intervention for caries in young children.

Introduction

Top

Dental caries in children is highly prevalent; approximately 37% of US children aged 2 to 8 years had dental caries in primary teeth in 2011–2012, with significant disparities related to race/ethnicity and poverty status (1). Effective caries prevention interventions exist, including periodically applying 5% fluoride varnish to children's primary teeth at the age of primary tooth eruption (2,3). In 2014, the US Preventive Services Task Force (USPSTF) (3) concluded that evidence supported use of fluoride varnish in all children, from birth through age 5 years, and gave a B evidence grade to its use. Professional associations, including the American Academy of Pediatrics (4) and the American Academy of Pediatric Dentistry (5), also endorse fluoride varnish for caries prevention. Third-party payers, including commercial dental insurers and federal programs (eg, Medicaid, State Children's Health Insurance Program) reimburse dentists for fluoride varnish treatments in children, and most state Medicaid programs reimburse medical providers for applying fluoride varnish (6).

Despite evidence for fluoride varnish effectiveness in caries prevention and its broad clinical acceptance, little systematically collected prospective data on its safety exist. The Food and Drug Administration (FDA) regulates clinical fluoride varnish use as a Class II medical device (7). After FDA's 510(k) premarket notification process (8), fluoride varnish was cleared as a cavity liner and desensitizer, or cavity varnish (9). Using fluoride varnish for caries prevention in children or adults is considered an off-label use, because anticaries agents are considered drugs, not devices (10). The FDA advises that "good medical practice and the best interests of the patient require that physicians use legally available drugs, biologics, and devices according to their best knowledge and judgment. If physicians use a product for an indication not in the approved labeling, they have the responsibility to be well informed about the product, to base its use on firm scientific rationale and on sound medical evidence, and to maintain records of the product's use and effects" (10).

The National Institute of Dental and Craniofacial Research's (NIDCR's) initiation of the Early Childhood Caries Collaborating Centers (EC4) in 2008 provided an opportunity to prospectively and systematically collect data on fluoride varnish safety. NIDCR awardees based at the University of Colorado Anschutz Medical Campus (UCAMC), University of California, San Francisco (UCSF), and Boston University (BU) each conducted a randomized controlled trial (RCT) on caries prevention in young children. Each trial used fluoride varnish in its protocol and systematically queried each child's parents or legal guardians (hereinafter referred to as parents) about adverse events after each fluoride varnish treatment. The objective of this study was to assess the incidence of adverse events related to fluoride varnish treatment in young children in these 3 trials.

Methods

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Study participants and data sources

We obtained data on adverse events and serious adverse events that resulted in medically attended visits in children enrolled in 3 RCTs under the auspices of the NIDCR-supported EC4. Each RCT used generally accepted definitions for identifying adverse events and serious adverse events (11). Each RCT tested an intervention designed to reduce caries incidence in young children, and each used fluoride varnish treatments. Fluoride varnish was a randomized component in 1 RCT; the other 2 RCTs assigned all enrolled children to receive fluoride varnish. A single data coordinating center at UCSF served all 3 EC4 trials, and NIDCR used a single data and safety monitoring board to oversee them.

The participating EC4 research centers (Table 1) are the Center for Native Oral Health Research at UCAMC (12); the Center to Address Disparities in Children's Oral Health at UCSF (13); and the Northeast Center for Research to Evaluate and Eliminate Dental Disparities at BU (14). Details on each trial, including inclusion and exclusion criteria, are available at ClinicalTrials.gov (12–14). No children were excluded from any trial because of a history of asthma, peanut or nut allergies, or other food allergies.

The UCAMC trial enrolled 1,016 children aged 3 to 5 years in Navajo Nation Head Start programs to test whether specially trained community lay health workers who administered fluoride varnish (up to 4 times per school year) and oral health promotion education (up to 5 times per school year) in Head Start classrooms for up to 2 years, reduced the number of decayed, missing due to caries, or filled primary tooth surfaces (dmfs) compared with the number of dmfs in nonintervention children; 518 children were randomized to receive fluoride varnish. In the intervention group, fluoride varnish applications were spaced 6 weeks apart on average. Each fluoride varnish application used Vanish (3M ESPE), a 5% sodium-fluoride white varnish with tri-calcium phosphate in 0.5-mL sealed-unit–dose packages, and a prepackaged brush. This RCT collected data from September 2011 to December 2014.

The UCSF trial enrolled children aged 2.5 to 3 years, primarily Hispanics, at 2 community health centers in San Diego County, California, to compare the caries prevention efficacy of fluoride varnish applied every 6 months with the efficacy of fluoride varnish applied every 6 months combined with annual fluoride-releasing glass ionomer sealants to eligible occlusal surfaces of primary molar teeth. The primary outcomes were caries incidence and caries increment at 3 annual follow-ups. Incidence refers to any increase in dmfs (ie, a binary indicator of $\Delta_{dmfs} > 0$), whereas increment refers to a (positive) change in dmfs count over time (ie, Δ_{dmfs}). Fluoride varnish was applied semiannually to 597 participants from baseline through the 30-month visit. Each fluoride varnish application used a 0.25-mL–unit dose of CavityShield (3M ESPE), a 5% sodium-fluoride varnish, per mouth and a prepackaged brush. This RCT collected data from June 2011 to March 2016.

The BU trial enrolled children aged 0 to 5 years, residing in public housing developments in the greater Boston area. A total of 1,837 children were enrolled in 26 housing developments. All children were assigned to receive fluoride varnish. The RCT compared 2 community-based multimodal interventions: 1) motivational interviewing (counseling) by dental health advocates for participating parents, child fluoride varnish application, child oral health assessment, and referral to dental health services; or 2) written oral health education materials on the prevention of early childhood caries, child fluoride varnish application, child oral health assessment, and referral to dental health services. All intervention components, including fluoride varnish, were delivered quarterly for 2 years. The primary outcome was 2-year incidence of early childhood caries. Each fluoride varnish application used a 0.40-mL–unit dose of CavityShield (3M ESPE) 5% sodium-fluoride varnish and a prepackaged brush. This RCT collected data from January 2011 to January 2017.

Determination of adverse events after each fluoride varnish application

Each RCT protocol specified a procedure for contacting each child's parent after each fluoride varnish application. Typically, a study staff member made contact by telephone and used a standardized script. The purpose of the contact was to assess whether the child experienced any adverse health events after his or her most recent study-related fluoride varnish application, the nature of any such event, and whether the event resulted in a medically attended visit. To assess safety of fluoride varnish treatments, study-related adverse events were defined as health events that resulted in a medically attended visit within a prescribed timeframe (termed the fluoride varnish–adverse event [FV–AE] window) after the fluoride varnish application. The UCSF and BU trials targeted adverse events that occurred within the first 7 calendar days after fluoride varnish application. The UCAMC trial targeted adverse events that occurred 3 to 10 business days after fluoride varnish application.

In addition to the data collected as part of active safety monitoring after each fluoride varnish application during the FV–AE windows, we also recorded other health-related information that parents reported in telephone calls or in person outside the FV–AE windows. The UCSF and BU trials used medical history forms that asked parents the following yes/no questions

about their study-enrolled child: Does your child have an allergy to fluoride varnish or any of its components? Has your child ever had any complications with dental treatment? Both questions also had corresponding free-text fields where details could be provided. The BU trial asked these questions every 3 months, and the UCSF trial, every 6 months. The UCAMC trial used an "extemporaneous encounter form." It was completed by study staff members if they had a chance encounter with a study participant in which the participant revealed health-related information about a study-enrolled child. We used data collected by each trial using such forms to determine whether any additional fluoride varnish–related adverse events were reported.

Each adverse event identified by study staff members was subsequently adjudicated by a clinician principal investigator to determine whether it was related to participation in the RCT. The NIDCR medical monitor, the data and safety monitoring board, and each trial's institutional review board reviewed all adverse events at least annually. The principal investigators reported serious adverse events within 72 hours of learning of an event to NIDCR's clinical research operations management systems contractor. Also, as appropriate, the RCT reported relevant occurrences to FDA by using the agency's voluntary Safety Information and Adverse Event Reporting Program's Form 3500 (15).

Data analysis

We generated the following summary statistics for each RCT: number of enrolled children who had at least 1 fluoride varnish application, total number of completed fluoride varnish applications, mean number of fluoride varnish applications per child, and the distribution of the number of fluoride varnish applications per child. We also pooled these data for all 3 RCTs. We calculated the timing of the intervals among repeated fluoride varnish applications in each trial and tabulated data on follow-up contacts with parents. Lastly, we calculated the number of adverse events reported for each RCT and across all RCTs. Because we found no trial-related adverse events or serious adverse events after fluoride varnish treatment, we estimated the 1-sided 95% confidence interval (CI) upper bound for adverse events or serious adverse events by using the rule-of-three approximation (16). The calculation also required adjustment for intracluster correlation (ICC) from the clustered sampling designs used in the UCAMC and BU trials as well as potential intraperson correlation of adverse events across repeated fluoride varnish applications. However, because we found no trial-related adverse events, ICC values could not be estimated from the data. Instead, we estimated 95% CI upper bounds for 3 ICC values (0, 0.5, and 1.0) representing levels of intraperson correlation of repeated response. For this calculation, cluster size was specified as the per-child average number of fluoride varnish applications among children with at least 1 fluoride varnish application.

Results

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Across the 3 trials, 2,424 children received 10,249 fluoride varnish applications (Table 2). The number of completed fluoride varnish applications in each trial partly depended on the scheduled fluoride varnish application frequency and trial duration, which varied by trial (Table 1). Of 2,424 children with at least 1 fluoride varnish application, 1,863 (76.9%) had at least 3 applications and 1,562 (64.4%) had at least 4 applications. The mean intervals between fluoride varnish applications varied across trials, from 39 to 182 days. On average, across trials, each treated child received 4.2 fluoride varnish applications (Table 2).

The 3 trials reached from 75.7% (BU) to 96.9% (UCSF) of parents at follow-up (Table 3). For the trials at BU and UCSF, the number of contact attempts totaled 13,769 telephone calls, corresponding to approximate average of 1.6 contact attempts per successful contact (Table 3). Across all 3 trials, the 8,548 successful contacts identified 8 adverse events and 1 serious adverse event, each from a different study participant (Table 3).

The 8 all-cause adverse events consisted of reports of a cold, cold or influenza, cough or fever, influenza or ear infection, fever, pneumonia, streptococcus infection, or viral infection. The single all-cause serious adverse event was frostbite. The principal investigators determined that all 9 events were not related to the trial or to fluoride varnish treatment. Subsequent external oversight review concurred with the determinations.

Using the rule-of-three approximation, we found upper-bound estimates for the expected percentage of trial-related

adverse events and serious adverse events to be 0.035% (ICC = 0), 0.092% (ICC = 0.5), and 0.148% (ICC = 1.0). Thus, the upper-bound estimates ranged from one-twenty-ninth of 1% (ICC = 0) to one-seventh of 1% (ICC = 1).

Other reported incidents

After the FV–AE window had closed, in 10 children, across 2 studies, parents reported that their children were allergic to fluoride varnish. However, 6 of those 10 parents reported at a subsequent study visit that their child was not allergic to fluoride varnish. In 1 such case, a parent reported that her child had blisters on her tongue and difficulty swallowing after the 2 most recent fluoride varnish applications, even though the report was made 6 months after the most recent fluoride varnish application and no problems had been reported by the parent during follow-up calls that occurred within 1 week of each fluoride varnish application. Although the case did not meet the trial protocol's definition of an adverse event, after consulting the trial's NIDCR medical monitor, the trial's principal investigator reported this case to the FDA via Form 3500. In another 2 children, the following incidents were reported by parents after the FV–AE window had closed: 1 child had a case of herpetic lesions that was medically attended, but the incident occurred 3 days after the trial's FV–AE window had closed and was determined to be unrelated to fluoride varnish; and another child vomited while receiving a fluoride varnish application. Finally, in 2 other children, the following incidents occurred within a trial's follow-up FV–AE window, but neither incident was medically attended: 1 parent reported that a child had diarrhea, and another parent reported that a child had "a rash under (his/her) lip less than dime size" after the first of 8 total fluoride varnish applications and "a little rash around (his/her) mouth" after the seventh application.

Discussion

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In 1995, fluoride varnish received FDA clearance as a Class II medical device in the United States. Fluoride varnish has been used in Europe for caries prevention in children and adults since 1964 (17). Over several decades, evidence has mounted on both its clinical effectiveness and safety (2,3,17–19). Despite widespread use of fluoride varnish, evidence on fluoride varnish–related adverse events is minimal and few large-scale fluoride varnish clinical trials have been conducted that include a data and safety monitoring board and a standardized protocol for soliciting, monitoring, documenting, and following up on adverse events.

Potential concerns about the safety of fluoride varnish relate primarily to systemic effects from chronic fluoride ingestion, including increased risk of enamel fluorosis and renal toxicity, with acute topical effects predominantly related to contact hypersensitivity involving the oral mucosa. Previous reviews did not report evidence of acute toxicity from fluoride varnish application (17,19). A Cochrane systematic review in 2013 (18) found "little information concerning possible adverse effects" of fluoride varnish treatment.

Fluoride varnish use outside of dental settings has increased in the United States. In the North Carolina program, "Into the Mouths of Babes," primary medical care providers treated more than 250,000 children aged 0 to 3 years with no reports of fluoride varnish–related adverse events (20,21). However, the estimates generated by that study may have underrepresented the incidence of adverse events because the estimates depended on providers taking the time to report them.

Fluorosis (ie, changes in the appearance of tooth enamel that are caused by long-term ingestion of fluoride during the time teeth are forming) is cited as a potential concern, although there is no published evidence indicating professionally applied fluoride varnish is a risk factor for fluorosis from prolonged or repeated exposure even in children under 6 years old (19, 22). Fluorosis is unlikely if not impossible to occur with the recommended frequency and dosage schedules for fluoride varnish. After fluoride varnish application, plasma fluoride concentrations peak within 2 hours and then rapidly decrease (23). The plasma fluoride concentrations reached and the kinetics were similar to those found after brushing with fluoridated toothpaste (24). A study of the pharmacokinetics of fluoride varnish application 5 hours after application in children aged 12 to 15 months showed systemic exposure well below levels associated with acute toxicity and similar to control levels (25). The USPSTF also found no evidence of "risk for fluorosis with fluoride varnish application" (3). Other potential health effects of fluoride ingestion include gastric irritation and nausea. Compared with ingestion of fluoride

from other forms of fluoride, however, ingestion from fluoride varnish is less because only a sparse amount is required for treatment (23).

The FDA Manufacturer and User Facility Device Experience Database (26) reported 2 cases of severe anaphylactic or allergic reactions to fluoride varnish treatment. However, these incidents were associated with 1 fluoride varnish product (Recaldent [Recaldent Pty Ltd]), which also contains casein phosphopeptides, which are derived from the casein protein in milk, in combination with amorphous calcium phosphate. Reactions reported were likely related to the antigenic properties of casein phosphopeptide–amorphous calcium phosphate and not fluoride varnish itself.

Contact irritation of the oral mucosa resulting from fluoride varnish has been sporadically reported (19). Such reactions likely relate to the colophony base serving as fluoride's vehicle and are described as mucosal rashes, aphthous ulcer-like lesions, or a short-term "burning sensation" (19,27). The manufacturers' product information typically notes that fluoride varnish is contraindicated in patients with ulcerative gingivitis or stomatitis or patients with known sensitivity to colophony or other ingredients. Colophony is a complex mixture of more than 100 compounds from pine trees, and varies with climate, type of pine tree, and extraction and storage methods (28). The main colophony component is resin and/or rosin acid derived from the tree wood and not from tree nuts. Manufacturers thus do not name tree nut allergies as contraindications. Meaningful conclusions about the prevalence of colophony allergy are difficult because of colophony's widespread use outside of health care settings, including in paper, ink, chewing gum, adhesives, and detergents (28).

Among 376 children followed up to 2 years in an RCT (29), no adverse events were reported in association with fluoride varnish applications, including enrolled children with asthma diagnoses (29). In contrast, a single case report in 1998 made note of a fluoride varnish adverse event in an asthmatic child (30). More recently, in a 2-year RCT in Brazil (31), among 200 children treated with fluoride varnish or placebo varnish, investigators reported only a single incident of "burning sensation" in a child receiving placebo varnish and no adverse events in any children with asthma. Fluoride bioavailability studies after fluoride varnish application found urinary fluoride temporarily increased and returned to baseline within 24 hours, concluding fluoride varnish is safe for children (32,33).

The data used in our analysis had some limitations. First, slightly different FV–AE windows were used among the 3 trials (7 calendar days by the UCSF and BU trials; 3 to 10 business days by the UCAMC trial); however, any acute adverse events would have been reported in either window. Another limitation was that the UCAMC trial did not record the number of telephone attempts required to reach parents; nevertheless, that trial successfully completed more than 80% of the telephone calls made during the FV–AE window.

Among the 3 RCTs examined in our study, we found no evidence of fluoride varnish–related adverse events after more than 10,000 fluoride varnish applications in more than 2,400 children. Our study is the first large-scale systematic prospective assessment of fluoride varnish–related adverse events in young children. The use of fluoride varnish for caries prevention in young children is expected to increase as a result of the USPSTF recommendation (3) and growth in government and commercial insurance coverage for physicians and dentists who apply fluoride varnish. Safety concerns are likely to remain an important consideration in decision making for health care providers and families of young children. Thus, our study is a timely contribution to the evidence base. Future clinical studies of fluoride varnish should systematically assess data on safety and investigate the effectiveness of fluoride varnish in preventing caries in the primary dentition, including the optimal dose or frequency of fluoride varnish treatments (34,35).

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Tables

Table 1. Design Elements and Participant Characteristics of 3 Randomized Controlled Trials Conducted Under the Auspices of the NIDCR-Supported Early Childhood Caries Collaborating Centers

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Element or Characteristic	Location of Study Team			
	University of Colorado Anschutz Medical Campus[a]	University of California, San Francisco	Boston University	Total
Name	Preventing Caries in Preschoolers: Testing a Unique Service Delivery Model in American Indian Head Start Programs	Glass Ionomer Sealant and Fluoride Varnish Trial to Prevent Early Childhood Caries	Tooth Smart Healthy Start: Oral Health Advocates in Public Housing	—
ClinicalTrials.gov identifier	NCT01116739	NCT01129440	NCT01205971	—
Institutional review board approval	Colorado Multiple Institutional Review Board	University of California, San Francisco, Committee on Human Research	Boston University Medical Campus Institutional Review Board	—
Location	52 Head Start Centers on an American Indian reservation in the southwestern United States	2 Community health centers in San Diego County, California	26 Public housing developments in the Boston, Massachusetts, area	—
Race/ethnicity of children	American Indian	Hispanic	Hispanic, African American, non-Hispanic white	—
Dates of trial of onset and completion	September 2011–December 2014	June 2011–March 2016	January 2011–January 2017	—
Total no. of children enrolled	1,016	597	1,837	3,450
No. of children enrolled to receive fluoride varnish	518	597	1,837	2,952
Baseline eligibility age range of children, y	3–5	2.5–3	0–5	0–5
Mean baseline age of children enrolled to receive fluoride varnish, y (SD)	3.6 (0.5)	3.3 (0.5)	3.0 (1.8)	3.2 (1.5)
Frequency of fluoride varnish application	4 Times per Head Start school year	Semiannually	Quarterly	—
Maximum no. of fluoride varnish applications per protocol	4[b]	6	9	—

Abbreviations: NIDCR, National Institute of Dental and Craniofacial Research; SD, standard deviation.
[a] Intervention group only.
[b] Children who enrolled in fall 2011 (n = 55) were eligible for up to 8 fluoride varnish applications. Most children who enrolled in fall 2011 and all children enrolled in fall 2012 were eligible for 4 applications.

Table 2. Descriptive Statistics on Fluoride Varnish Applications in 3 Randomized Controlled Trials Conducted Under the Auspices of the NIDCR-Supported Early Childhood Caries Collaborating Centers

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Characteristic	Location of Study Team			
	University of Colorado Anschutz Medical Campus[a]	University of California, San Francisco[b]	Boston University[c]	Total
No. of children with 0 fluoride varnish applications	39	1	488	528
No. of children with ≥1 fluoride varnish application	479	596	1,349	2,424
Total no. of fluoride varnish applications completed	1,893	3,188	5,168	10,249
Mean no. of fluoride varnish applications per child[d]	4.0	5.3	3.8	4.2
Mean (SD) no. of days between fluoride varnish treatments	39.1 (8.8)	181.5 (20.7)	96.7 (32.4)	NA
Median (IQR) no. of days between fluoride varnish treatments	36 (34–46)	182 (175–188)	95 (77–115)	NA
Range of no. of days between fluoride varnish treatments	14–70	83–532	16–595	NA
No. (%) of fluoride varnish applications per child				
1	21 (4.1)	26 (4.4)	220 (16.3)	267 (11.0)
2	27 (5.2)	27 (4.5)	240 (17.8)	294 (12.1)
3	77 (14.9)	22 (3.7)	202 (15.0)	301 (12.4)

Characteristic	Location of Study Team			Total
	University of Colorado Anschutz Medical Campus[a]	University of California, San Francisco[b]	Boston University[c]	
4	304 (58.7)	21 (3.5)	208 (15.4)	533 (22.0)
5	3 (0.6)	42 (7.0)	159 (11.8)	204 (8.4)
6	4 (0.8)	458 (76.8)	134 (9.9)	596 (24.6)
7	12 (2.3)	NA[e]	82 (6.1)	94 (3.9)
8	31 (6.0)	NA[e]	79 (5.9)	110 (4.5)
9	NA[e]	NA[e]	25 (1.9)	25 (1.0)

Abbreviations: IQR, interquartile range; NA, not applicable; NIDCR, National Institute of Dental and Craniofacial Research; SD, standard deviation.
[a] Intervention group only. Children who enrolled in fall 2011 (n = 55) were eligible for up to 8 fluoride varnish applications. Most children who enrolled in fall 2011 and all children enrolled in fall 2012 were eligible for 4 applications. Fluoride varnish applied 4 times per Head Start school year.
[b] Fluoride varnish applied semiannually.
[c] Fluoride varnish applied quarterly.
[d] Of those with ≥1 fluoride varnish application.
[e] Per protocol, this number of fluoride varnish applications was not planned.

Table 3. Fluoride Varnish–Related Adverse Events Among Children With at Least 1 Fluoride Varnish Application, 3 Randomized Controlled Trials Conducted Under the Auspices of the NIDCR-Supported Early Childhood Caries Collaborating Centers

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Variable	Location of Study Team			Total
	University of Colorado Anschutz Medical Campus[a]	University of California, San Francisco[b]	Boston University[c]	
No. of fluoride varnish applications completed	1,893	3,188	5,168	10,249
Follow-up on adverse events				
No. of contact attempts	NA[d]	4,612	9,157	13,769
No. (%) of successful contacts[e]	1,546 (81.7)	3,090 (96.9)	3,912 (75.7)	8,548 (83.4)
Average no. of attempts per contact	NA[d]	1.5	2.3	1.6
Adverse events or serious adverse events that resulted in a medically attended visit				
No. (%) of all-cause adverse events or serious adverse events[f]	8 (0.09)	1 (0.03)	0	9 (0.11)
No. of study-related adverse events or serious adverse events	0	0	0	0

Abbreviations: NA, not applicable NIDCR, National Institute of Dental and Craniofacial Research.
[a] Intervention group only. Children who enrolled in fall 2011 (n = 55) were eligible for up to 8 fluoride varnish applications. Most children who enrolled in fall 2011 and all children enrolled in fall 2012 were eligible for 4 applications. Fluoride varnish applied 4 times per Head Start school year.
[b] Fluoride varnish applied semiannually.
[c] Fluoride varnish applied quarterly.
[d] Data not electronically recorded.
[e] Percentage calculated by using the corresponding number of fluoride varnish applications completed as the denominator.
[f] Percentage calculated by using the corresponding number of successful contacts as the denominator.

Post-Test Information

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To obtain credit, you should first read the journal article. After reading the article, you should be able to answer the following, related, multiple-choice questions. To complete the questions (with a minimum 75% passing score) and earn continuing medical education (CME) credit, please go to http://www.medscape.org/journal/pcd . Credit cannot be obtained for tests completed on paper, although you may use the worksheet below to keep a record of your answers. You must be a registered user on Medscape.org. If you are not registered on Medscape.org, please click on the Register link on the right hand side of the website to register. Only one answer is correct for each question. Once you successfully answer all post-test questions you will be able to view and/or print your certificate. For questions regarding the content of this activity, contact the accredited provider, CME@medscape.net. For technical assistance, contact CME@webmd.net. American Medical Association's Physician's Recognition Award (AMA PRA) credits are accepted in the US as evidence of participation in CME activities. For further information on this award, please refer to http://www.ama-assn.org/ama/pub/about-ama/awards/ama-physicians-recognition-award.page . The AMA has determined that physicians not licensed in the US who participate in this CME activity are eligible for *AMA PRA Category 1 Credits™* . Through agreements that the AMA has made with agencies in some countries, AMA PRA credit may be acceptable as evidence of participation in CME

activities. If you are not licensed in the US, please complete the questions online, print the AMA PRA CME credit certificate and present it to your national medical association for review.

Post-Test Questions

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Study Title: Absence of Fluoride Varnish–Related Adverse Events in Caries Prevention Trials in Young Children, United States

CME Questions

1. Your patient is a 2-year-old boy in whom fluoride varnish is being considered for caries prevention. According to the prospective systematic assessment by Garcia and colleagues, which of the following statements about findings regarding adverse events (AEs) of fluoride varnish in young children enrolled in caries prevention trials is *most* accurate?

    A. Because each child received only 1 to 2 treatments, it is difficult to confirm the safety of fluoride varnish
    B. Because of the small sample size, it is difficult to confirm the safety of fluoride varnish
    C. Rate of fluoride varnish-related AEs was 1.0%
    D. A total of 8 all-cause AEs (cold, cold/flu, cough/fever, flu/ear infection, fever, pneumonia, streptococcus or viral infection) and 1 serious AE (frostbite) were all unrelated to fluoride varnish treatment

2. According to the prospective systematic assessment by Garcia and colleagues, which of the following statements about the clinical implications of these findings regarding AEs of fluoride varnish in young children enrolled in caries prevention trials is *correct*?

    A. Findings of this study do not support the safety of fluoride varnish as an effective prevention intervention for caries in young children
    B. Fluoride varnish received clearance from the US Food and Drug Administration as a class II medical device in the United States in 1995
    C. Fluoride varnish has only been in widespread use for the past 2 decades
    D. Clinical guidelines have not recommended routine use of fluoride varnish

3. According to the prospective systematic assessment by Garcia and colleagues, what is a potential concern regarding the safety of fluoride varnish?

    A. Systemic effects from long-term ingestion of fluoride may include increased risks for enamel fluorosis and renal toxicity
    B. Acute topical AEs predominantly involve enamel discoloration
    C. At recommended frequency and dosage schedules for fluoride varnish, fluorosis is likely to affect 1% to 2% of children younger than 6 years
    D. Severe anaphylactic or allergic reactions have been reported with a variety of fluoride varnish products

Top

Evaluation

1. The activity supported the learning objectives.

Strongly Disagree				Strongly Agree
1	2	3	4	5

2. The material was organized clearly for learning to occur.

Strongly Disagree				Strongly Agree

Page last reviewed: February 16, 2017

Perinatal and Infant Oral Health Care

Latest Revision

2016

Purpose

The American Academy of Pediatric Dentistry (**AAPD**) recognizes that perinatal and infant oral health are the foundations upon which preventive education and dental care must be built to enhance the opportunity for a child to have a lifetime free from preventable oral disease. Recognizing that dentists, physicians, allied health professionals, and community organizations must be involved as partners to achieve this goal, the AAPD proposes guidelines for perinatal and infant oral health care, including caries risk assessment, anticipatory guidance, preventive strategies, and therapeutic interventions, to be followed by the stakeholders in pediatric oral health.

Method

Recommendations on perinatal and infant oral health care were developed by the Infant Oral Health Subcommittee of the Clinical Affairs Committee and adopted in 1986. The *Guideline on Perinatal Oral Health Care* was originally developed by the Infant Oral Health Subcommittee of the Council on Clinical Affairs and adopted in 2009. This document is a merger and an update of the previous versions, revised by the Council of Clinical Affairs in 2014 and 2011 respectively. This revision included a search of the PubMed®/MEDLINE database using the terms: infant oral health, infantoral health care, early childhood caries, perinatal, perinatal oral health, and early childhood caries prevention; fields: all; limits: within the last 10 years, humans, English, and clinical trials. Papers for review were chosen from the resultant list of articles and from references within selected articles and hand searches of the literature. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background

Dental caries, consequences, and management

The Centers for Disease Control and Prevention reports that dental caries is the most prevalent chronic disease in our nation's children.[1] More than 28 percent of children have caries by the time they reach kindergarten.[2] Epidemiologic data from a 2011-2012 national survey clearly indicate that early childhood caries (**ECC**) remains highly prevalent in poor and near poor U.S. preschool children. For the overall population of preschool children, the prevalence of ECC, as measured by decayed and filled tooth surfaces (**dfs**), is unchanged from previous surveys, but the filled component (**fs**) has greatly increased indicating that more treatment is being provided.[3]

ECC and the more severe form of ECC (i.e., s-ECC) begin soon after tooth eruption, developing on all surfaces of primary teeth, progressing rapidly, and having a lasting detrimental impact on the dentition.[4,5] This disease affects the general population, but is 32 times more likely to occur in infants who are of low socioeconomic status, who consume a diet high in sugar, and whose mothers have a low education level.[6-8] The consequences of ECC often include higher risk of new carious lesions in both the primary and permanent dentitions[5,9,10] hospitalizations and emergency room visits,[11,12] high treatment costs,[13] loss of school days,[14] diminished ability to learn,[15] and reduced oral health-related quality of life.[16]

It has been reported that 89 percent of children age one year had an office-based physician visit, compared with only 1.5 percent who had a dental office visit.[17] In a recent study, 99 percent of Medicaid-enrolled children had well baby visits before age one, whereas only two percent had a dental visit.[18] Since medical health care professionals see new mothers and infants earlier and more often than dentists, it is essential that they be aware of the multifactorial etiology and associated risk factors of ECC, give appropriate counseling regarding ECC prevention to pregnant women and caregivers, and facilitate the establishment of a dental home.[19]

Because restorative care to treat ECC often requires the use of sedation and general anesthesia with associated high costs and possible health risks,[20] and because there is high recurrence of lesions subsequent to the procedures,[21] there is now more emphasis on prevention and arrestment of the disease processes to manage ECC. Approaches include methods that have been referred to as (1) chronic disease management, which includes parent engagement to facilitate preventive measures and temporary restorations to postpone advanced restorative care,[22] (2) active surveillance, which emphasizes careful monitoring of caries progression and establishment of a prevention program in children with incipient lesions,[23] and (3) interim therapeutic restorations (**ITR**) that temporarily restore teeth in young children until a time when traditional cavity preparation and restoration is possible.[24]

ABBREVIATIONS

AAPD: American Academy Pediatric Dentistry. **ECC:** Early childhood caries. **dfs:** Decayed and filled tooth surfaces. **ITR:** Interim therapeutic restorations. **MI:** Motivational interviewing.

The perinatal period and anticipatory guidance

The perinatal period is defined as the period around the time of birth, beginning with the completion of the 20th to 28th week of gestation and ending one to four weeks after birth. The perinatal period plays a crucial role for the well-being of pregnant women.[25] Also, it is essential for the health and well-being of their newborn children. Yet, many women do not seek dental care during their pregnancy, and those who do often confront unwillingness of dentists to provide care.[26-29] Many expectant mothers are unaware of the implications of poor oral health for their pregnancy and/or their unborn child.[28,30,31]

Identifying mothers with high levels of dental caries and poor oral health and educating them on the importance of their own oral health and the future health of their unborn child can help change their trajectory of oral health. Timely delivery of educational information and preventive therapies to these parents may reduce the incidence of ECC, prevent the need for dental rehabilitation, and improve the oral health of their children.[32-34] Physicians, nurses, and other health care professionals are far more likely to see expectant or new mothers and their infants than are dentists. Therefore, it is essential that these providers be aware of oral anomalies and associated risk factors of dental caries in order to make appropriate decisions regarding timely and effective interventions for pregnant women and facilitate the establishment of a dental home for the child.[35-37]

Caries-risk assessment for infants determines the patient's relative risk for dental disease and allows for the institution of appropriate strategies as the primary dentition begins to erupt. Its goal is to prevent disease by identifying and minimizing causative factors (e.g., dietary habits, plaque accumulation, lack of topical or systemic fluoride, frequent use of sugar containing medications) and optimizing protective factors (e.g., fluoride exposure, oral hygiene practices, sealants).[38] Caries-risk assessment also allows health care professionals to identify and refer high caries-risk patients for appropriate dental management.[23]

Even the most judiciously designed and implemented caries-risk assessment can fail to identify all infants at risk for developing ECC. The early establishment of a dental home, including ECC prevention and management, is the ideal approach to infant oral health care.[39,40] The inclusion of oral health education into the curriculum of medical, dental, nursing, and allied health professional programs can facilitate the acceptance of the age one dental visit.[41,42] Recent studies, noting that a majority of pediatricians and general dentists were not advising patients to see a dentist by one year of age, point to the need for increased infant oral health care education in the medical and dental communities.[43-45]

Anticipatory guidance to reduce the risk of dental caries should include counseling regarding brushing of child's teeth twice daily with the appropriate amount of fluoridated toothpaste, diet analysis, and counseling to reduce the consumption of sugar-containing beverages.[38] The use of fluoride for the prevention and control of caries is documented to be both safe and effective.[46,47] Optimal exposure to fluoride is important to all dentate infants and children.[48] Systemically-administered fluoride should be considered for all children who do not receive fluoride by consuming fluoridated water (less than 0.7 part per million) in after determining all other dietary sources of fluoride exposure.[47] The correct amount of fluoridated toothpaste should be used twice daily by all children regardless of risk. No more than a smear or rice-sized amount of fluoridated toothpaste should be used for children under age three.[49] Professionally-applied fluoride varnish should be considered for children at risk for caries.[23]

Practitioners should counsel parents that high frequency consumption of sugars by bottle-feeding, sippy cup use, or between meal consumption of sugars increases the risk of caries.[50] The American Academy of Pediatrics has recommended children one through six years of age consume no more than four to six ounces of 100 percent fruit juice per day, from a cup (i.e., not a bottle or covered cup).[51] Epidemiological research shows that human milk and breast-feeding of infants provide general health, nutritional, developmental, and psychological advantages while significantly decreasing risk for a large number of acute and chronic diseases.[52] Frequent nighttime bottle-feeding with milk and ad libitum breast-feeding are associated, but not consistently implicated, with ECC.[53]

Parents also should be counseled that prolonged non-nutritive oral habits may contribute to deleterious changes in the child's occlusion and facial development and that there are serious health consequences of tobacco use and exposure to secondhand smoke.[38] Furthermore, practitioners should provide age-appropriate injury prevention counseling for oro-facial trauma.[38]

Management of perinatal and infant oral health

Oral health care for pregnant and lactating women. The perinatal period is an opportune time to educate and perform dental treatment on expectant mothers.[54-56] Pregnancy care visits provide a teachable moment for physicians, dentists, and nurses to educate women about the following:

- diet including the adequate quality and quantity of nutrients for the mother-to-be and the unborn child. This education also should include information regarding the caries process and food cravings that may increase the mother's caries risk.
- comprehensive oral examination, dental prophylaxis, and treatment during pregnancy. Dental treatment during pregnancy, including dental radiographs with proper shielding and local anesthetic, is safe in all trimesters and optimal in the second trimester. Due to possible patient discomfort, elective treatment sometimes may be deferred until after delivery.
- proper oral hygiene, using a fluoridated toothpaste, chewing sugar-free gum, and eating small amounts of nutritious food throughout the day to help minimize their caries risk.

- continued breast-feeding along with complementary foods for a period of one year or longer.[52] The transfer of drugs and therapeutics into breastmilk should be considered, especially in infants younger than six months of age.[57]

Oral health care for the infant. Parents should be encouraged establish a dental home for infants by 12 months of age that includes the following:

- an initial visit with thorough medical (infant) and dental (parent and infant) histories, a thorough oral examination, performance of an age-appropriate tooth and gum cleaning demonstration, and fluoride varnish treatment if indicated.[38]
- assessing the infant's risk of developing caries and determining a prevention plan, anticipatory guidance regarding the effects of diet on the dentition, use of fluoride, and interval for periodic re-evaluation.
- caries management of infants and toddlers with known risk factors for ECC. This should be provided by practitioners who have the training and expertise to manage both the young child and the disease process.
- injury prevention counseling to prevent orofacial trauma. Discussions should include play objects, pacifiers, car seats, and electric cords.[38]
- counseling regarding teething. While many children have no apparent difficulties, teething can lead to intermittent localized areas of discomfort, irritability, and excessive salivation. Treatment of symptoms includes oral analgesics and chilled teething rings for the child.[58] Use of topical anesthetics, including over-the-counter teething gels, to relieve discomfort should be avoided due to potential toxicity of these products in infants.[59]
- discussion regarding atypical frenum attachments that may be associated with problems with breast-feeding. In some cases, frenuloplasty or frenectomy may be a successful approach to facilitate breast-feeding; however, there is a need for more evidence-based research to determine indications for treatment.[60]
- counseling regarding non-nutritive oral habits (e.g., digit or pacifier sucking, bruxism, abnormal tongue thrust) which may apply forces to teeth and dentoalveolar structures. It is important to discuss the need for early sucking and the need to wean infants from these habits before malocclusion or skeletal dysplasias occur.[38]

The desired goal of oral health counseling is for improved oral health behaviors. Motivational interviewing (**MI**) has been successful in promoting change in health behaviors.[61] MI is a personalized approach that raises caregiver and child awareness of the problems, setting oral health goals, and co-evaluating if current behaviors are consistent with the goals.

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Fluoride Therapy

Latest Revision

2018

How to Cite: American Academy of Pediatric Dentistry. Fluoride therapy. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2021:302-5.

Abstract

This best practice provides information for parents and practitioners regarding use of fluoride as an aid in preventing and controlling dental caries in pediatric dental patients. These recommendations address systemic fluoride (water fluoridation, dietary fluoride supplements, possibility of fluorosis), topical fluoride delivery via professional application (acidulated phosphate fluoride gel or foam, sodium fluoride varnish, silver diamine fluoride), and home use products (toothpastes, mouthrinses). The standard level for community water fluoridation (0.7 parts per million fluoride) helps balance the risk of caries and the possibility of fluorosis from excessive fluoride ingestion during the early years of tooth development. Specific recommendations for dietary supplementation of fluoride for children ages six months through 16 years are based on fluoride levels in the drinking water, other dietary sources of fluoride, and caries risk. The specific needs of each patient determine the appropriate use of systemic and topical fluoride products, whether delivered in a professional or a home setting. Fluoride has proven to be an effective therapy in reducing the prevalence of dental caries in infants, children, adolescents, and persons with special needs.

Through a collaborative effort of the American Academy of Pediatric Dentistry Councils on Clinical Affairs and Scientific Affairs, this best practice was revised to offer updated information and recommendations to assist healthcare practitioners and parents in using fluoride therapy for management of caries risk in pediatric patients.

KEYWORDS: ADOLESCENT, CHILD, FLUORIDATION, FLUORIDE, ORAL HEALTH, TOOTHPASTE, SILVER DIAMINE FLUORIDE

Purpose

The American Academy of Pediatric Dentistry intends these recommendations to help practitioners and parents make decisions concerning appropriate use of fluoride as part of the comprehensive oral health care for infants, children, adolescents, and persons with special health care needs.

Methods

This document was developed by the Liaison with Other Groups Committee and adopted in 1967. These recommendations by the Council of Clinical Affairs are a revision of the previous version, last revised in 2014. To update this guidance, an electronic search of the scientific literature from 2012 to 2017 regarding the use of systemic and topical fluoride was completed. Database searches were conducted using the terms: fluoride caries prevention, fluoridation, fluoride gel, fluoride varnish, fluoride toothpaste, fluoride therapy, and topical fluoride. Because 720 papers were identified through these electronic searches, an alternate strategy of limiting the information gathering to systematic review using the term fluoride caries prevention yielded 95 papers since 2012. Nine well-conducted systematic reviews[1-9] and their references primarily were used for this update. Expert opinions and clinical practices also were relied upon for these recommendations.

Background

Fluoride has been a major factor in the decline in prevalence and severity of dental caries in the U.S. and other economically developed countries. It has several caries-protective mechanisms of action. Topically, low levels of fluoride in plaque and saliva inhibit the demineralization of sound enamel and enhance the remineralization of demineralized enamel. Fluoride also inhibits dental caries by affecting the metabolic activity of cariogenic bacteria.[10] High levels of fluoride, such as those attained with the use of topical gels or varnishes, produce a temporary layer of calcium fluoride-like material on the enamel surface. The fluoride is released when the pH drops in response to acid production and becomes available to remineralize enamel or affect bacterial metabolism.[11] The original belief was that fluoride's primary action was to inhibit dental caries when incorporated into developing dental enamel (i.e., the systemic route), but the fluoride concentration in sound enamel does not fully explain the marked reduction in dental caries. It is oversimplification to designate fluoride simply as systemic or topical. Fluoride that is swallowed, such as fluoridated water and dietary supplements, may contribute to a topical effect on erupted teeth (before swallowed, as well as a topical effect due to increasing salivary and gingival crevicular fluoride levels).

ABBREVIATIONS

F: Fluoride. **IQ:** Intelligence quotient. **NaFV:** Sodium fluoride varnish. **ppm F:** parts per million fluoride. **SDF:** Silver diamine fluoride.

Table. DIETARY FLUORIDE SUPPLEMENTATION SCHEDULE

Age	<0.3 ppm F	0.3 to 0.6 ppm F	>0.6 ppm F
Birth to 6 months	0	0	0
6 mo to 3 years	0.25 mg	0	0
3 to 6 years	0.50 mg	0.25 mg	0
6 to at least 16 years	1.00 mg	0.50 mg	0

Additionally, elevated plasma fluoride levels can treat the outer surface of fully mineralized, but unerupted, teeth topically. Similarly, topical fluoride that is swallowed may have a systemic effect.[12]

Fluoridation of community drinking water is the most equitable and cost-effective method of delivering fluoride to all members of most communities.[13] Water fluoridation at the level of 0.7-1.2 milligrams fluoride ion per liter (i.e., parts per million fluoride [**ppm F**]) was introduced in the U.S. in the 1940s. Since fluoride from water supplies is now one of several sources of fluoride, the Department of Health and Human Services has recommended not having a fluoride range, but rather to standardize all water to the 0.7 ppm F level. The rationale is to balance the benefits of preventing dental caries while reducing the chance of fluorosis.[1]

Community water fluoridation has been associated with the decline in caries prevalence in U.S. adolescents, from 90 percent in at least one permanent tooth in 12-17-year-olds in the 1960s, to 60 percent in a 1999-2004 survey.[14] When used appropriately, fluoride is both safe and effective in preventing and controlling dental caries. Although adverse health effects (e.g., decreased cognitive ability, endocrine disruption and cancer) have been ascribed to the use of fluoride over the years, the preponderance of evidence from large cohort studies and systematic reviews does not support an association of such health issues and consumption of fluoridated water.[1] Regarding cognitive ability, a recent study of mothers' urinary fluoride levels and their child's intelligence quotient (**IQ**) levels suggested an association with exposure levels greater than those recommended in the U.S. for water fluoridation.[15] However, a prospective study in New Zealand did not support an association between fluoridated water and IQ measurements,[16] and a national sample in Sweden found no relationship between fluoride levels in water supplies and cognitive ability, non-cognitive ability, and education.[17] Consumption of fluoride during the mineralization of teeth, however, can cause fluorosis (children 1-3 years of age being most susceptible for fluorosis of the permanent incisors). The National Health and Nutrition Examination Survey 1999-2004 study found 23 percent of the U.S. population had very mild or mild fluorosis.[18] Decisions concerning the administration of fluoride are based on the unique needs of each patient, including the risks and benefits (e.g., risk of mild or moderate fluorosis versus the benefits of decreasing caries increment and, in some cases preventing, devastating dental disease).

Fluoride supplements also are effective in reducing prevalence of dental caries and should be considered for children at high caries risk who drink fluoride-deficient (less than 0.6 ppm F) water[19] (see Table). Determination of dietary fluoride before prescribing supplements can help reduce intake of excess fluoride. Sources of dietary fluoride may include drinking water from home, day care, and school; beverages such as soda[20], juice[21], and infant formula[22]; prepared food[23]; and toothpaste. Concentrated infant formulas requiring reconstitution with water have raised concerns regarding an increased risk of fluorosis.[24] Infants may be particularly susceptible because of the large consumption of such liquid in the first year of life, while the body weight is relatively low.[12] An evidence-based review found that consumption of reconstituted infant formula can be associated with an increased risk of mild fluorosis, but recommended the continued use of fluoridated water.[25] One study has shown that dental fluorosis levels do not vary in fluoridated areas regardless of premixed versus reconstituted formula.[26] Standardization of the optimal fluoride levels in drinking water to 0.7 ppm F, however, makes this issue moot.

Professionally-applied topical fluoride treatments are efficacious in reducing prevalence of dental caries. The most commonly used agents for professionally-applied fluoride treatments are five percent sodium fluoride varnish ([**NaFV**] 2.26 percent fluoride [**F**], 22,600 ppm F) and acidulated phosphate fluoride ([APF]; 1.23 percent F, 12,300 ppm F). Meta-analyses of 23 clinical trials, most with twice yearly application, favors the use of fluoride varnish in primary and permanent teeth.[2] Unit doses of fluoride varnish are the only professional topical fluoride agent that are recommended for children younger than age six.[2] Meta-analyses of placebo-controlled trials show that fluoride gels, applied at three months to one year intervals, also are efficacious in reducing caries in permanent teeth.[27] Some topical fluoride gel and foam products are marketed with recommended treatment times of less than four minutes, but there are no clinical trials showing efficacy of shorter than four-minute application times.[28] There also is limited evidence that topical fluoride foams are

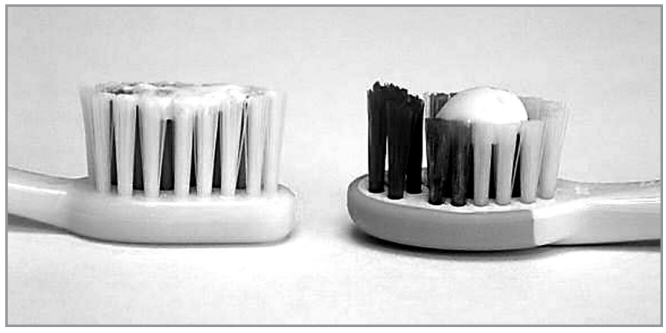

Figure. Comparison of a smear (left) with a pea-sized (right) amount of toothpaste.

efficacious in children.[2] Children at risk for caries should receive a professional fluoride treatment at least every six months.[28]

Silver diamine fluoride ([**SDF**]; five percent F, 44,800 ppm F) recently has been approved by the U.S. Food and Drug Administration and currently is used most frequently to arrest dentinal caries. SDF arrests caries by the antibacterial effect of silver and by remineralization of enamel and dentin.[9] Some clinical trials show a caries arrest rate greater than 80 percent,[7] but such studies have a high risk of bias and a wide variation of results, leading to conditional recommendations at this time.[29] Although the product is highly concentrated, less than a drop is needed to treat several caries lesions. The only reported side effects of SDF are that caries lesions stain black after treatment, and it will temporarily stain skin with contact.

Home use of fluoride products for children should focus on regimens that maximize topical contact, in lower-dose higher-frequency approaches.[30] Meta-analyses of more than 70 randomized or quasi-randomized controlled clinical trials show that fluoride toothpaste is efficacious in reducing prevalence of dental caries in permanent teeth, with the effect increased in children with higher baseline level of caries with higher concentration of fluoride in the toothpaste, greater frequency of use, and supervision of brushing.[31,32] A meta-analysis of eight clinical trials on caries increment in preschool children also shows that tooth brushing with fluoridated toothpaste significantly reduces dental caries prevalence in the primary dentition.[6] Using no more than a smear or rice-size amount of fluoridated toothpaste for children less than three years of age may decrease risk of fluorosis. Using no more than a pea-size amount of fluoridated toothpaste is appropriate for children aged three to six[8] (see Figure). To maximize the beneficial effect of fluoride in the toothpaste, supervised tooth-brushing should be done twice a day and rinsing after brushing should be kept to a minimum or eliminated altogether.[4] Other topical fluoride products (e.g., prescription-strength home-use 0.5 percent fluoride gels and pastes; prescription-strength, home-use 0.09 percent fluoride mouthrinse) have benefit in reducing dental caries in children six years or older.[2]

Recommendations

1. There is confirmation from evidence-based reviews that fluoride use for the prevention and control of caries is both safe and highly effective in reducing dental caries prevalence.
2. There is support from evidence-based reviews that fluoride dietary supplements are effective in reducing dental caries and should be considered for children at caries risk who drink fluoride-deficient (less than 0.6 ppm) water.
3. There is support from evidenced-based reviews that professionally applied topical fluoride treatments as five percent NaFV or 1.23 percent F gel preparations are efficacious in reducing caries in children at caries risk.
4. There is support from evidence-based reviews that fluoridated toothpaste is effective in reducing dental caries in children with the effect increased in children with higher baseline level of caries, higher concentration of fluoride in the toothpaste, greater frequency in use, and supervision. Using no more than a smear or rice-size amount of fluoridated toothpaste for children less than three years of age may decrease risk of fluorosis. Using no more than a pea-size amount of fluoridated toothpaste is appropriate for children aged three to six.
5. There is support from evidenced-based reviews that prescription-strength home-use 0.5 percent fluoride gels and pastes and prescription-strength home-use 0.09 percent fluoride mouthrinse also are effective in reducing dental caries.
6. There is support from evidence-based reviews to recommend the use of 38 percent silver diamine fluoride for the arrest of cavitated caries lesions in primary teeth as part of a comprehensive caries management program.

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