Prevention: What's New
(and what we can do!)

Northwest Tribal Dental Support Center

Portland Area Dental Meeting

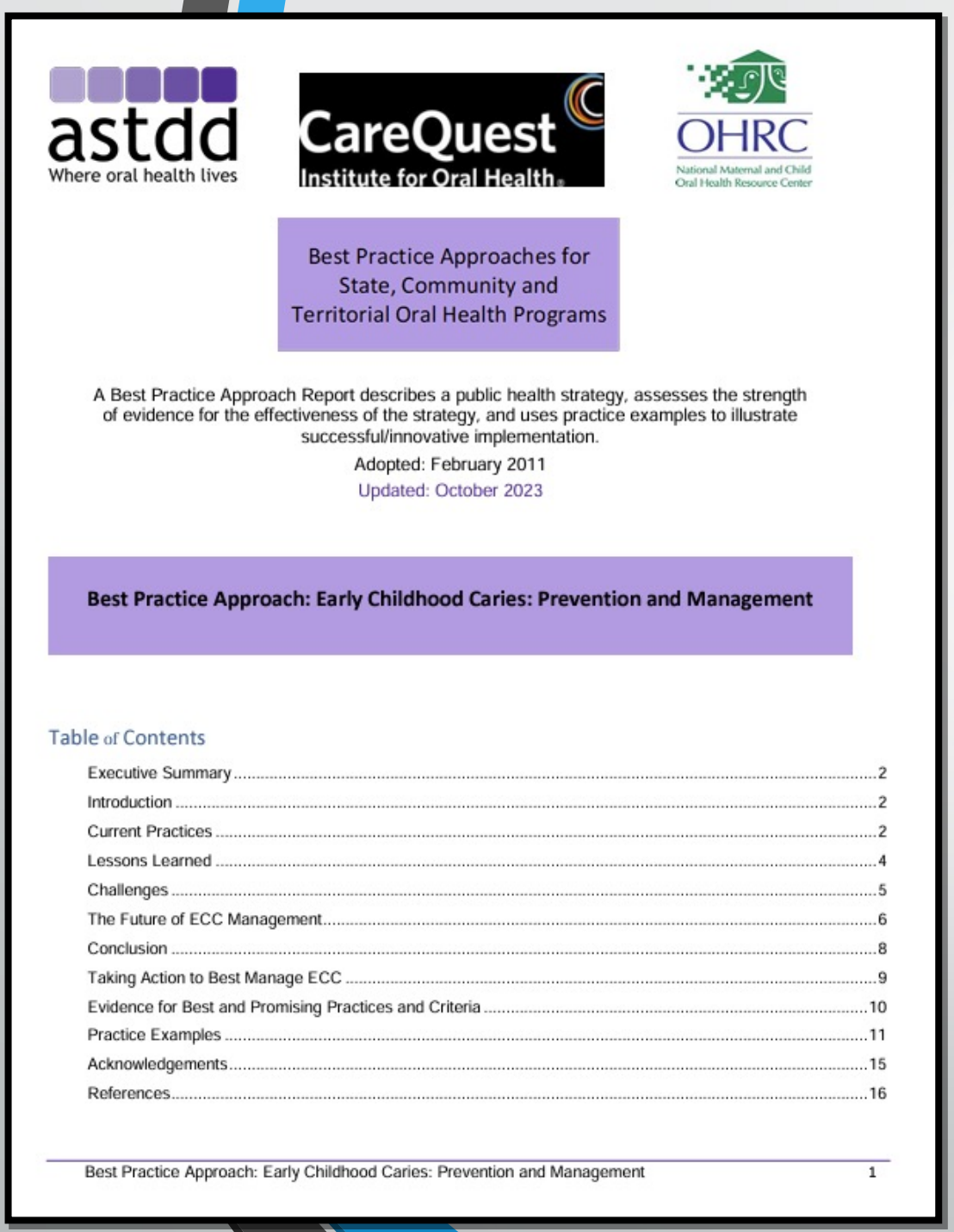
May 8, 2023

Miranda Davis, DDS, MPH

Prevention Consultant

Course Objectives:

1. Summarize the updated ASTDD guidelines for prevention and treatment of Early Childhood Caries
2. Describe two recent studies affirming population-level interventions that prevent dental caries
3. List six evidence-based ways to use SDF in clinical and outreach programs



astdd
Where oral health lives

CareQuest Institute for Oral Health

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Best Practice Approaches for State, Community and Territorial Oral Health Programs

A Best Practice Approach Report describes a public health strategy, assesses the strength of evidence for the effectiveness of the strategy, and uses practice examples to illustrate successful/innovative implementation.

Adopted: February 2011

Updated: October 2023

Best Practice Approach: Early Childhood Caries: Prevention and Management

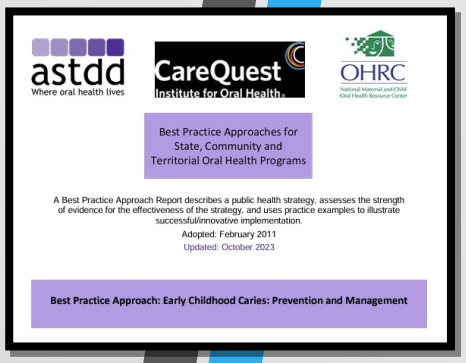
Table of Contents

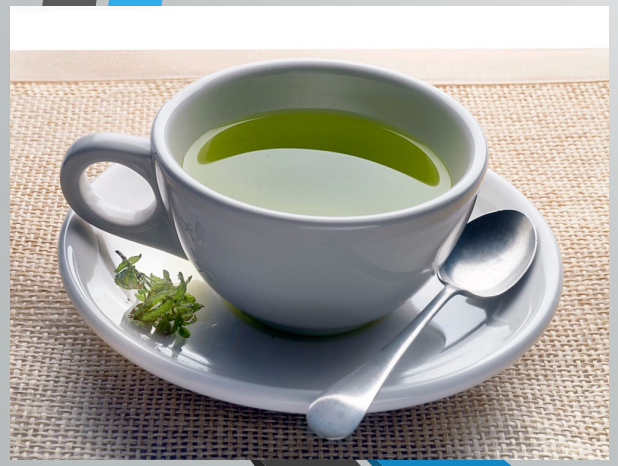
Best Practice Approach: ECC Prevention and Management

Key sections:

- Current Model:
  - Fluoride
  - Early access
  - Messaging and communication
- Lessons Learned
- Challenges
- The Future of ECC Management
  - Value-based care
  - Care beyond the dental office
  - Updated, positive health education and messaging
  - New therapies and technology
  - Tracking oral health outcomes

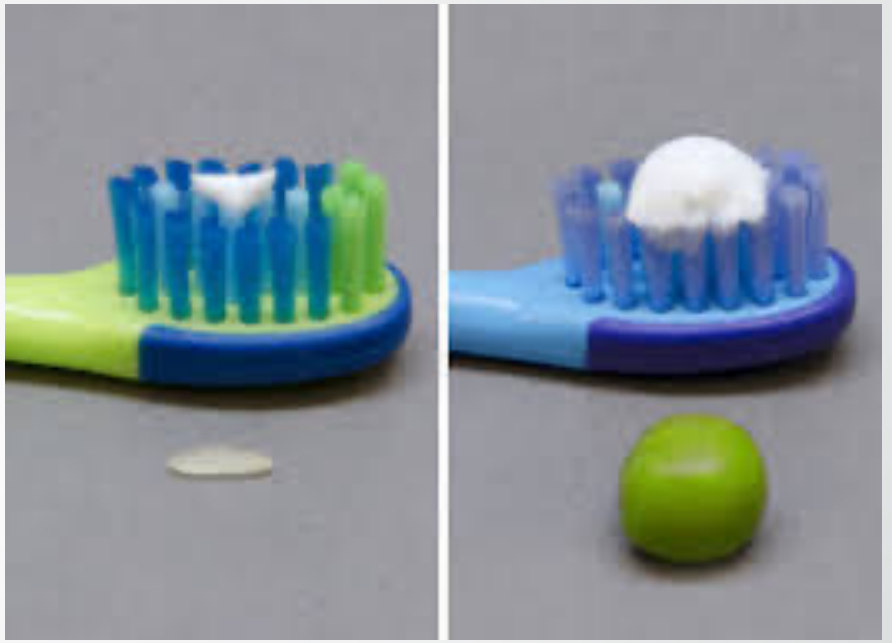
https://www.astdd.org/bestpractices/early-childhood-caries-prevention-and-management-bpar-2023.pdf

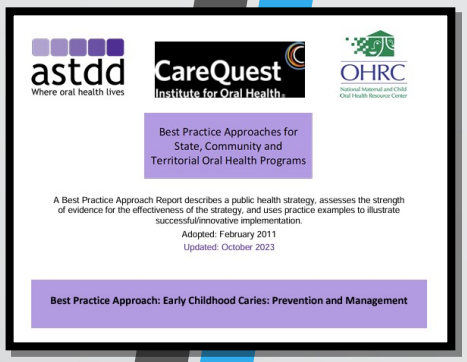




Fluoride

- Fluoride Toothpaste
  - 2x/day, leave on teeth
- Professional applications
  - Varnish, gel, foam
- Silver Diamine Fluoride
  - “SDF can stop the progression of ECC if applied with appropriate frequency and in combination with proper nutrition and improved oral hygiene practices.”
- Glass Ionomers
- Community Water Fluoridation



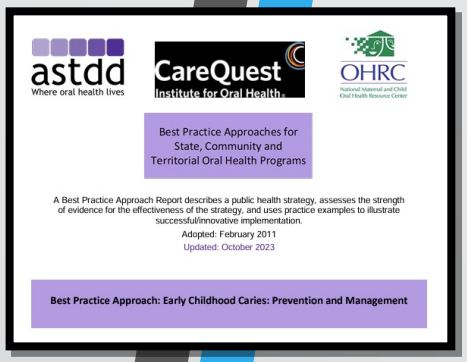


Early Access

- "Innovative, early touchpoints are critical for preventing ECC and… improving oral health literacy."
- Establish a dental home by 12 months of age.
  - TWO IS TOO LATE!!
- Oral Health Instruction for parents and caregivers during well-child visit is the **most efficient use of time and resources**."
- "Diet is ultimately the strongest determinant of oral and overall health."
- The most effective strategies address the underlying cause of the disease within the **family unit** while providing definitive care to the child with ECC.

Care beyond the dental office

- "A crucial strategy is moving oral healthcare beyond the walls of traditional dental offices."
- A comprehensive approach to preventing and managing ECC requires a broad workforce, including oral health professionals, health professionals in primary care settings, early childhood providers in community-based programs, community health workers and caregivers.
- Taking care beyond the dental chair involves developing a wide-ranging, embedded network of trained allied healthcare professionals, who can provide prevention and remineralization treatments, while advocating for oral health promotion in their communities.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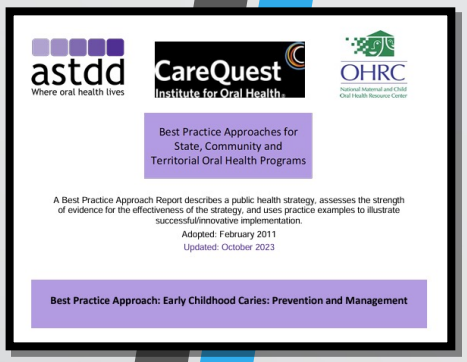
Adopted: February 2011
Updated: October 2023
Best Practice Approach: Early Childhood Caries: Prevention and Management

Lessons Learned

- "Ensuring early access to oral health care has been a key component in managing ECC, but when a young child is brought into the dental office with advanced stages of decay, the resulting **treatment often makes the teeth more prone to future disease**. **Drilling weakens tooth structure and does not address the cause of the disease**, which **increases the cost of oral health care and discourages families from seeking further care**. Early access to oral health care will not inherently mean children receive better care with healthy outcomes until a more comprehensive approach is adopted."



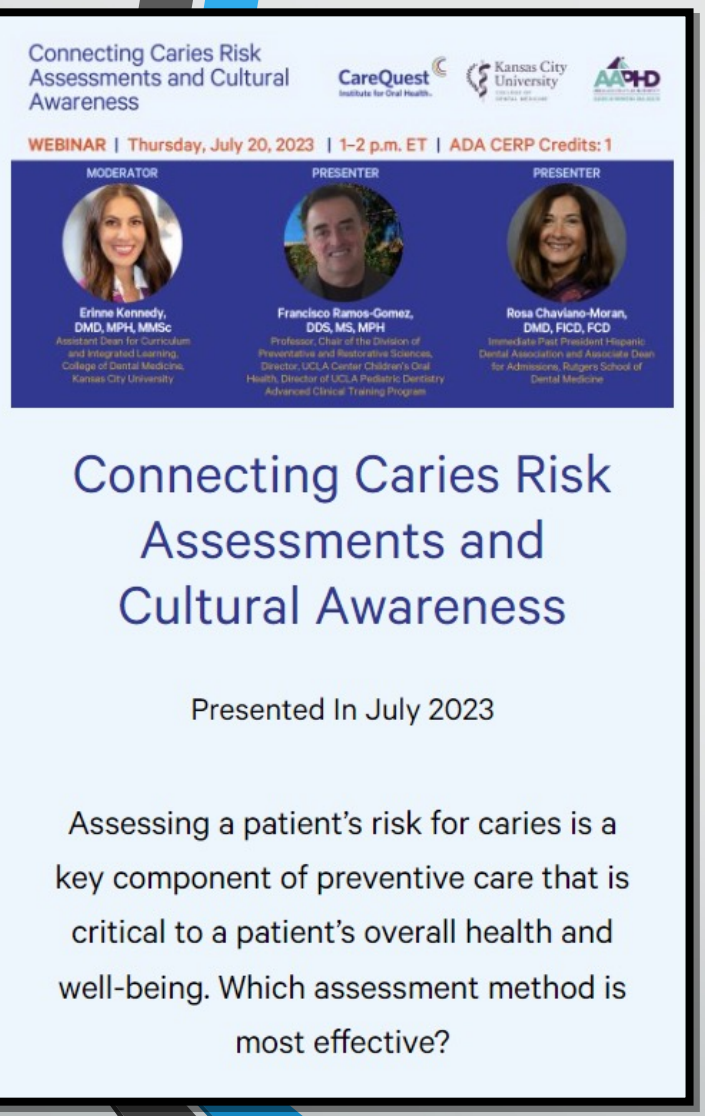
Positive Communication and Messaging

- Messaging should prioritize building rapport and come from a **person-centered** perspective
  - Motivational Interviewing
- **Empower patients and caregivers** to realize the control they have and the role they play in changing behaviors that contribute to dental diseases
- Consistent and coordinated communication across healthcare

New therapies and technology

- CAMBRA
  - "create a more favorable ecologic balance within patients' mouths "
- Iodine
  - In-office and at-home
- Xylitol and erythritol
- Arginine (toothpaste and foods)
- Peptide scaffold technology (Curodont)

Caries Management By Risk Assessment (CAMBRA)



https://www.carequest.org/education/webinars/past

b **Caries Risk Assessment Form (Ages >6)**

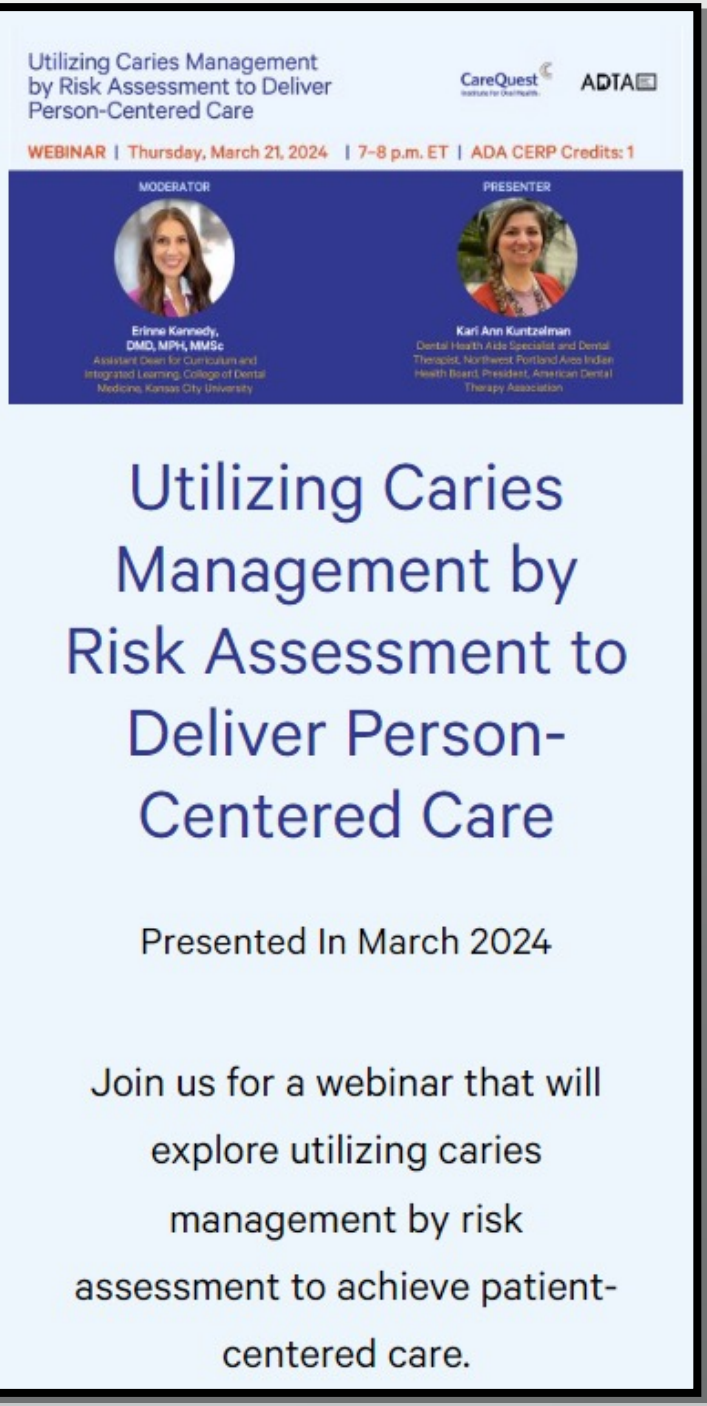
Patient Name: Score:
Birth Date: Date:
Age: Initials:

		Low Risk (0)	Moderate Risk (1)	High Risk (10)	Patient Risk
Contributing Conditions					
I.	**Fluoride Exposure** (through drinking water, supplements, professional applications, toothpaste)	Yes	No		
II.	**Sugary or Starchy Foods or Drinks** (including juice, carbonated or non-carbonated soft drinks, energy drinks, medicinal syrups)	Primarily at mealtimes		Frequent or prolonged between meal exposures/day	
III.	**Caries Experience of Mother, Caregiver** and/or Other **Siblings** (for patients ages 6-14)	No carious lesions in last 24 months	Carious lesions in last 7-23 months	Carious lesions in last 6 months	
IV.	**Dental Home:** established patient of record, receving regular dental care in a dental office	Yes	No		
General Health Conditions					
I.	**Special Health Care Needs***	No	Yes (over age 14)	Yes (ages6-14)	
II.	**Chemo/Radiation Therapy**	No		Yes	
III.	**Eating Disorders**	No	Yes		
IV.	**Smokeless Tobacco Use**	No	Yes		
V.	**Medications that Reduce Salivary Flow**	No	Yes		
VI.	**Drug/Alcohol Abuse**	No	Yes		
Clinical Conditions					
I.	**Cavitated or Non-cavitated** (incipient) **Carious Lesions or Restorations** (visually or radiographically evident)	No new carious lesions or restorations in last 36 months	1 or 2 new carious lesions or restorations in last 36 months	3 or more carious lesions or restorations in last 36 months	
II.	**Teeth Missing Due to Caries in past 36 months**	No		Yes	
III.	**Visible Plaque**	No	Yes		
IV.	**Unusual Tooth Morphology** that compromises oral hygiene	No	Yes		
V.	**Interproximal Restorations - 1or more**	No	Yes		
VI.	**Exposed Root Surfaces** Present	No	Yes		
VII.	**Restorations with Overhangs** and/or **Open Margins: Open Contacts** with Food Impaction	No	Yes		
VIII.	**Dental/Orthodontic appliances** (fixed or removable)	No	Yes		
IX.	**Severe Dry Mouth (Xerostomia)**	No		Yes	
				TOTAL:	

Patient Instructions:

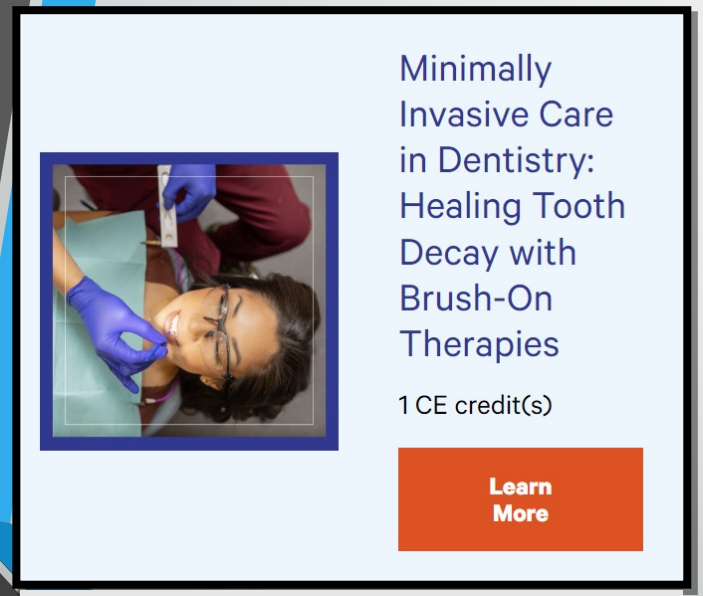
*Patients with developmental, physical, medical or mental disabilities that prevent or limit performance of adequate oral health care by themeselves or caregivers.

ADA American Dental Association®



Silver Diamine Fluoride and Povidone Iodine:

Free online courses



https://www.carequest.org/education/self-paced-courses

indiancountryecho.org/program/oral-health-echo-program/

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PAST PRESENTATION

Minimally Invasive Dentistry: Safe and Effective use of Silver Diamine Fluoride and Povidone Iodine | May 10, 2023

Date of Presentation: May 10, 2023

U.S. Department of Health and Human Services

Indian Health Service
The Federal Health Program for American Indians and Alaska Natives

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IHS DIVISION OF ORAL HEALTH

DE0755	Indian Country Echo Series - Minimally Invasive Dentistry [Virtual, live webinar]	5/10/2023 - 5/10/2023	Online	Basic	Completed

SDF Updates

- SDF gel works just as well as liquid
  - https://www.researchgate.net/publication/357824694_Dentin_tubule_occlusion_by_a_38_silver_diamine_fluoride_gel_an_in_vitro_investigation
- SDF reduces plaque and gingival inflammation in older adults
  - 3 consecutive weeks, followed for one month.
  - https://www.sciencedirect.com/science/article/pii/S0300571224000605 - Feb 2024 Journal of Dentistry

- SDF increases tertiary dentin formation when applied near pulp
  - https://www.researchgate.net/publication/358401332_Effect_of_silver_diamine_fluoride_on_vital_dental_pulp_A_systematic_review#:~:text=Conclusion%20According%20to%20the%20limited,and%20increased%20tertiary%20dentine%20formation
- Parents are highly satisfied with SDF as a treatment for MIH
  - chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nature.com/articles/s41598-024-55456-0.pdf

- SDF is not inferior to sealants to prevent dental caries
  - https://pubmed.ncbi.nlm.nih.gov/38436947/ and Caried Away Study

Caried*Away* Findings

- 2098 children ages 5-13 across 47 NYC primary schools
- Treated once (2019), then followed up after 2+ years

Findings:

- >80% caries prevented by 1x SDF *or* GI sealants
- Noninferiority of 1x SDF vs sealants for caries prevention
- Noninferiority of SDF application by trained RNs vs RDHs

Science News *from research organizations*

School dental program prevents 80 percent of cavities with one-time, non-invasive treatment

Silver diamine fluoride, as well as sealants, protected against cavities in school-based program

Date: February 10, 2023

Source: New York University

Summary: In a study of nearly 3,000 schoolchildren, silver diamine fluoride -- a liquid that is brushed onto the surface of teeth to prevent cavities or keep them from worsening -- was as effective against cavities as dental sealants, the standard of care. A single dose of either topical treatment given in elementary schools prevented roughly 80% of cavities and kept 50% of cavities from worsening when children were seen two years later.

JAMA Network Open.

Original Investigation | Pediatrics

Effect of Silver Diamine Fluoride on Caries Arrest and Prevention
The CariedAway School-Based Randomized Clinical Trial

Ryan Richard Ruff, PhD; Tamarinda Barry-Godin, DDS; Richard Niederman, DMD

Abstract

IMPORTANCE Dental caries is the most common global childhood disease. To control caries, the Centers for Disease Control and Prevention recommends school-based caries prevention, and the World Health Organization lists glass ionomer cement and silver diamine fluoride as essential medicines for oral disease.

OBJECTIVE To determine the noninferiority of silver diamine fluoride with fluoride varnish vs traditional glass ionomer sealants with fluoride varnish after 2 years when provided to children via a school-based health care program.

DESIGN, SETTING, AND PARTICIPANTS The CariedAway study is an ongoing single-blind, cluster randomized, noninferiority trial conducted between February 1, 2019, and June 1, 2023, among 2998 children in 47 New York City primary schools. Children aged 5 to 13 years of any race and ethnicity were recruited from block-randomized schools. Inclusion criteria for schools were a student population of at least 50% Hispanic or Latino or Latina ethnicity and/or Black race and at least 80% of students receiving free or reduced-cost lunch. Statistical analysis is reported through March 2022.

INTERVENTIONS Children received a single application of silver diamine fluoride with fluoride varnish or an active comparator of glass ionomer sealants and atraumatic restorations with fluoride varnish.

MAIN OUTCOMES AND MEASURES Primary outcomes were caries arrest and incidence after a 2-year follow-up, assessed using mixed-effects multilevel models and clustered 2-sample proportion tests. The noninferiority margin was 10%. Intention-to-treat analysis was performed using multiple imputation.

RESULTS A total of 2998 children (1566 girls [52.2%]; mean [SD] age at baseline, 6.6 [1.2] years; 1397 Hispanic or Latino or Latina children [46.6%]; 874 [29.2%] with untreated dental caries) were recruited and treated from September 16, 2019, to March 12, 2020. Follow-up observations were completed for 1398 children from June 7, 2021, to March 2, 2022. The mean (SE) proportion of children with arrested caries was 0.56 (0.04) after experimental treatment and 0.46 (0.04) after control treatment (difference, −0.11; 95% CI, −0.22 to 0.01). The mean (SE) proportion of patients without new caries was 0.81 (0.02) after experimental treatment and 0.82 (0.02) after control treatment (difference, 0.01; 95% CI, −0.04 to 0.06). Analysis of imputed data for the full sample did not deviate from per-protocol analyses. There were no adverse events.

CONCLUSIONS AND RELEVANCE In this randomized clinical trial, silver diamine fluoride with fluoride varnish was noninferior to sealants and atraumatic restorations with fluoride varnish for caries arrest and prevention. Results may support the use of silver diamine fluoride as an arresting and preventive agent in school-based oral health programs.

(continued)

Key Points

Question Is silver diamine fluoride noninferior to dental sealants, the standard of care, for the arrest and prevention of caries in a school-based program?

Findings In this cluster randomized noninferiority trial, the proportion of children with arrested caries after 2 years was 0.56 among those receiving silver diamine fluoride and 0.46 among those receiving glass ionomer sealants. The proportion of children who remained free from caries was 0.81 among those receiving silver diamine fluoride and 0.82 among those receiving sealants.

Meaning This study found that silver diamine fluoride was noninferior to traditional sealants when used in a school-based program.

+ Visual Abstract

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Clinical Report

Using sequential applications of a novel silver diamine fluoride gel and sodium fluoride varnish to arrest severe early childhood caries lesions

A clinical trial with single group assignment

Tania Carola Padilla Cáceres, DDS; Sheyla Cervantes-Alagón, DDS; Jorge Luis Castillo, DDS, PhD; Claudia Mariela Vera Reyes, DDS; Marilynn Rothen, RDH, MS; Lloyd A. Mancl, PhD; Peter Milgrom, DDS

ABSTRACT

Background. Silver diamine fluoride (SDF) gel was developed to overcome the clinical limitations of liquids with children. The authors conducted a clinical trial to determine caries lesion arrest in primary teeth at 1-year follow-up when 38% SDF gel and 2.5% sodium fluoride varnish were applied sequentially at the same appointment. Parent satisfaction was assessed.

Methods. The study design was an open-label prospective, clinical trial with single group assignment. Participants were 237 children aged 3 through 4 years at enrollment and from 5 centros educativos iniciales (preschools). Eligible children had 1 or more d3 (cavitation into dentin) active caries lesions. Teeth with active caries lesions (cavitation confined to enamel [d2] or d3) were treated by applying 1 or 2 drops of viscous 38% SDF gel (Advantage Silver Dental Arrest Gel, Elevate Oral Care, LLC) dabbing the excess with cotton. Treated teeth were covered with 2.5% sodium fluoride varnish (Fluorimax, Elevate Oral Care, LLC) to mask the taste. Treatment was repeated at 5 months postexamination. The primary outcome was caries lesion (d2-d3) arrest at 1 year.

Results. Two hundred nineteen children were available at the 1-year follow-up. There was a median of 21 (interquartile range [IQR], 13-34) active carious surfaces (d2-d3) at baseline. Median arrested carious surfaces was 92.6% (IQR, 81.1%-100.0%; 95% CI, 86.8% to 95.2%). When parents were asked whether they were bothered by the color change of teeth, the median response on a 10-point scale in which 1 equaled not bothered at all and 10 equaled very bothered was 1.0 (IQR, 1.0-2.0).

Conclusions. Two applications of 38% SDF gel and 2.5% sodium fluoride varnish arrested greater than 90% of carious surfaces at 1 year and with high levels of parental satisfaction.

Practical Implications. Combined treatment was highly efficacious in a population with many caries lesions. This clinical trial was registered at ClinicalTrials.gov. The registration number is NCT05395065.

Key Words. Children; severe early childhood caries; silver diamine fluoride; sodium fluoride varnish; caries arrest.

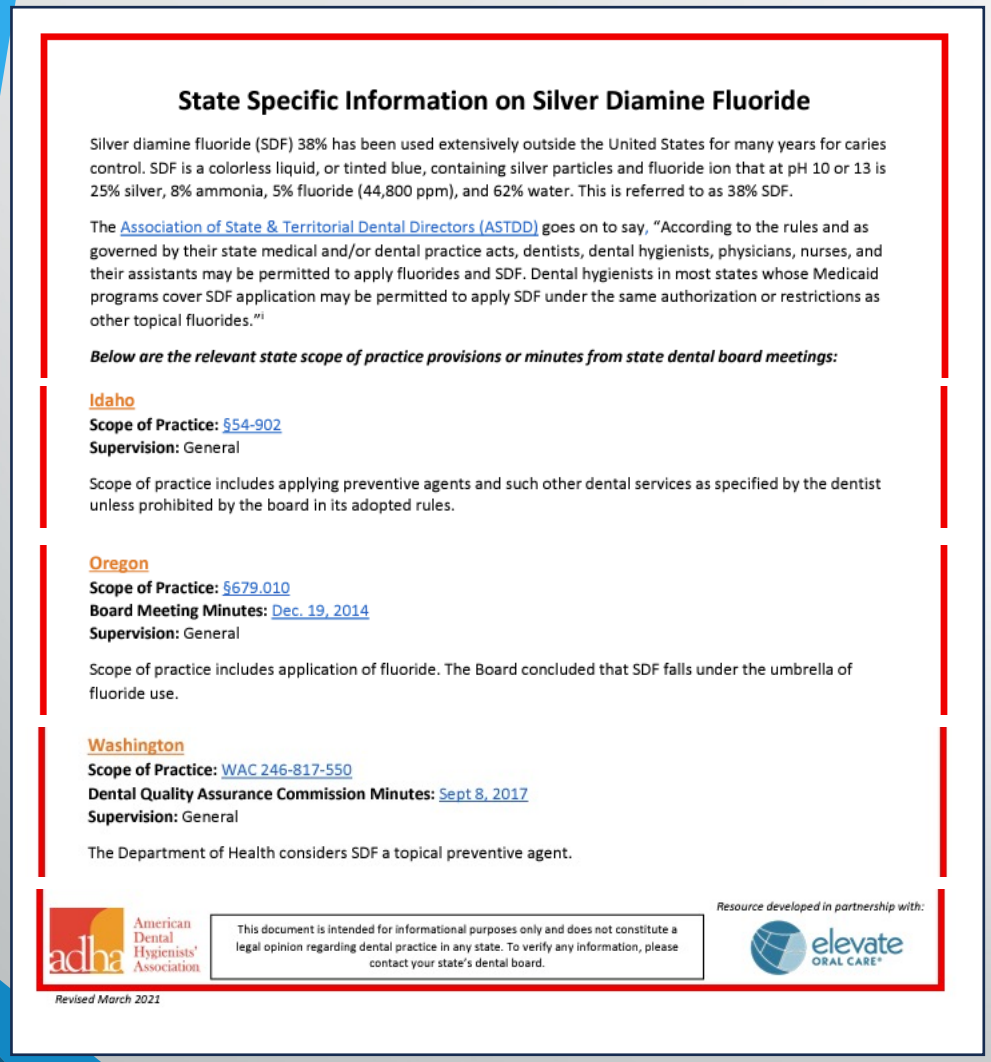
JADA 2024:■(■):■-■
https://doi.org/10.1016/j.adaj.2024.02.013

SDF is effective for deep caries lesions

- https://www.researchgate.net/publication/380102074_Using_sequential_applications_of_a_novel_silver_diamine_fluoride_gel_and_sodium_fluoride_varnish_to_arrest_severe_early_childhood_caries_lesions_A_clinical_trial_with_single_group_assignment
- Children ages 3-4 with at least one D3 (deep) lesion
- 2 applications (exam date and 5 months later) SDF gel + FV
- **92.6%** of surfaces remained arrested at 1 year
- Parents highly satisfied with care, not bothered by color

Hygienists and Assistants may apply SDF in WA, OR, ID

(under supervision of a dentist)



State Specific Information on Silver Diamine Fluoride

Silver diamine fluoride (SDF) 38% has been used extensively outside the United States for many years for caries control. SDF is a colorless liquid, or tinted blue, containing silver particles and fluoride ion that at pH 10 or 13 is 25% silver, 8% ammonia, 5% fluoride (44,800 ppm), and 62% water. This is referred to as 38% SDF.

The Association of State & Territorial Dental Directors (ASTDD) goes on to say, "According to the rules and as governed by their state medical and/or dental practice acts, dentists, dental hygienists, physicians, nurses, and their assistants may be permitted to apply fluorides and SDF. Dental hygienists in most states whose Medicaid programs cover SDF application may be permitted to apply SDF under the same authorization or restrictions as other topical fluorides."[i]

Below are the relevant state scope of practice provisions or minutes from state dental board meetings:

Idaho
Scope of Practice: §54-902
Supervision: General

Scope of practice includes applying preventive agents and such other dental services as specified by the dentist unless prohibited by the board in its adopted rules.

Oregon
Scope of Practice: §679.010
Board Meeting Minutes: Dec. 19, 2014
Supervision: General

Scope of practice includes application of fluoride. The Board concluded that SDF falls under the umbrella of fluoride use.

Washington
Scope of Practice: WAC 246-817-550
Dental Quality Assurance Commission Minutes: Sept 8, 2017
Supervision: General

The Department of Health considers SDF a topical preventive agent.

adha American Dental Hygienists' Association

This document is intended for informational purposes only and does not constitute a legal opinion regarding dental practice in any state. To verify any information, please contact your state's dental board.

Resource developed in partnership with: elevate ORAL CARE

Revised March 2021

May dentists delegate silver diamine fluoride to dental hygienists, dental assistants, or expanded function dental auxiliaries?

Yes. Silver diamine fluoride is a fluoride preventative treatment. WAC 246-817-550 (5) and 246-817-525 (6)(b) allows dentists to delegate under general supervision to licensed dental hygienists and licensed expanded function dental auxiliaries. WAC 246-817-520 (f) allows dentists to delegate under close supervision to registered dental assistants.

https://doh.wa.gov/licenses-permits-and-certificates/professions-new-renew-or-update/dental-assistant/frequently-asked-questions (accessed April 2024)

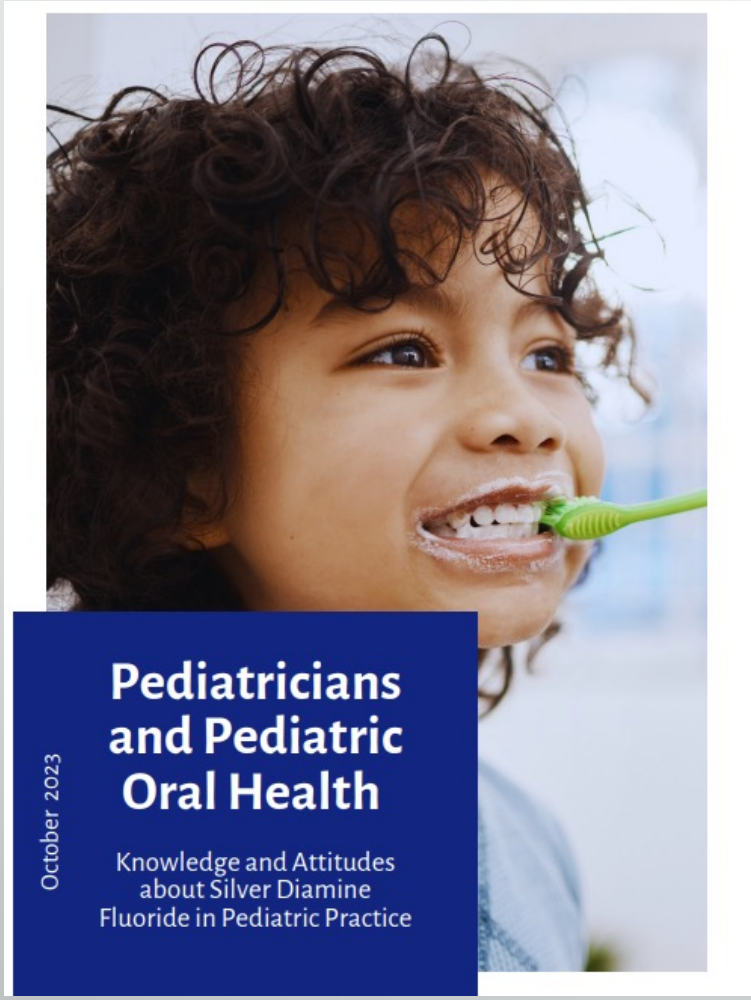
STATE OF OREGON BOARD OF DENTISTRY DENTAL PRACTICE ACT

2021 LEGISLATIVE SESSION

818-042-0040
Prohibited Acts

(6) Administer any drug except fluoride, topical anesthetic, desensitizing agents, over the counter medications per package instructions or drugs administered pursuant to OAR 818-026-0050(5)(a), OAR 818-026-0060(12), OAR 818-026-0065(12), OAR 818-026-0070(12) and as provided in OAR 818-042-0070, OAR 818-042-0090 and OAR 818-042-0115.

Physician/medical professionals may apply SDF



- CPT code: 0792T

Community Dent Oral Epidemiol. 2023 Oct 24. doi: 10.1111/cdoe.12925. Online ahead of print.

The effectiveness of medical nurses in treating children with silver diamine fluoride in a school-based caries prevention program

Ryan Richard Ruff [1], Tamarinda Barry Godín [1], Richard Niederman [1]

Affiliations – collapse

Affiliation

1 Department of Epidemiology & Health Promotion, New York University College of Dentistry, New York, New York City, USA.

PMID: 37873685
DOI: 10.1111/cdoe.12925

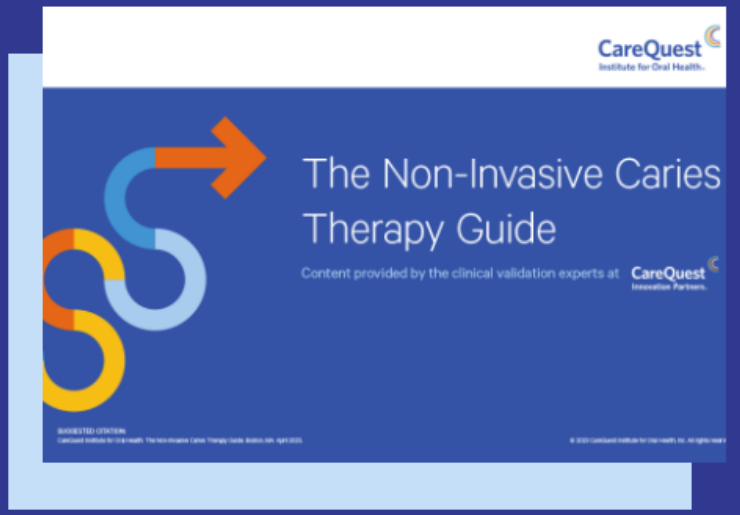
Sum-up: ways to use SDF

- **Desensitization** (not with a restoration) – **D9910**
  - May allow future restoration without anesthetic
- **Caries arrest** without sealant/restoration **– D1354**
  - Delay or avert GA/sedation
- **Caries prevention** for at-risk teeth – **D1355**
  - Not inferior to sealants
- Medical provider applying SDF **- 0792T**
- Reduce gingival inflammation and plaque accumulation
- Restoration liner – GIC recommended; use restoration code
- 2-step SMART – use restoration code; check guidelines

SDF essential steps

- Apply lip balm / Vaseline
- Isolate: keep dry, protect soft tissues
- Dry the tooth surface first!!!
- Dry + microbrush sufficient for interproximal
- Cover it up (FV), and a lollipop ☺
- Follow up!

The Non-Invasive Caries Therapy Guide



The Guide is an illustrated manual on diagnostics, preventives, and therapeutics to fight dental caries without removing tooth structure, including instructions and tips to:

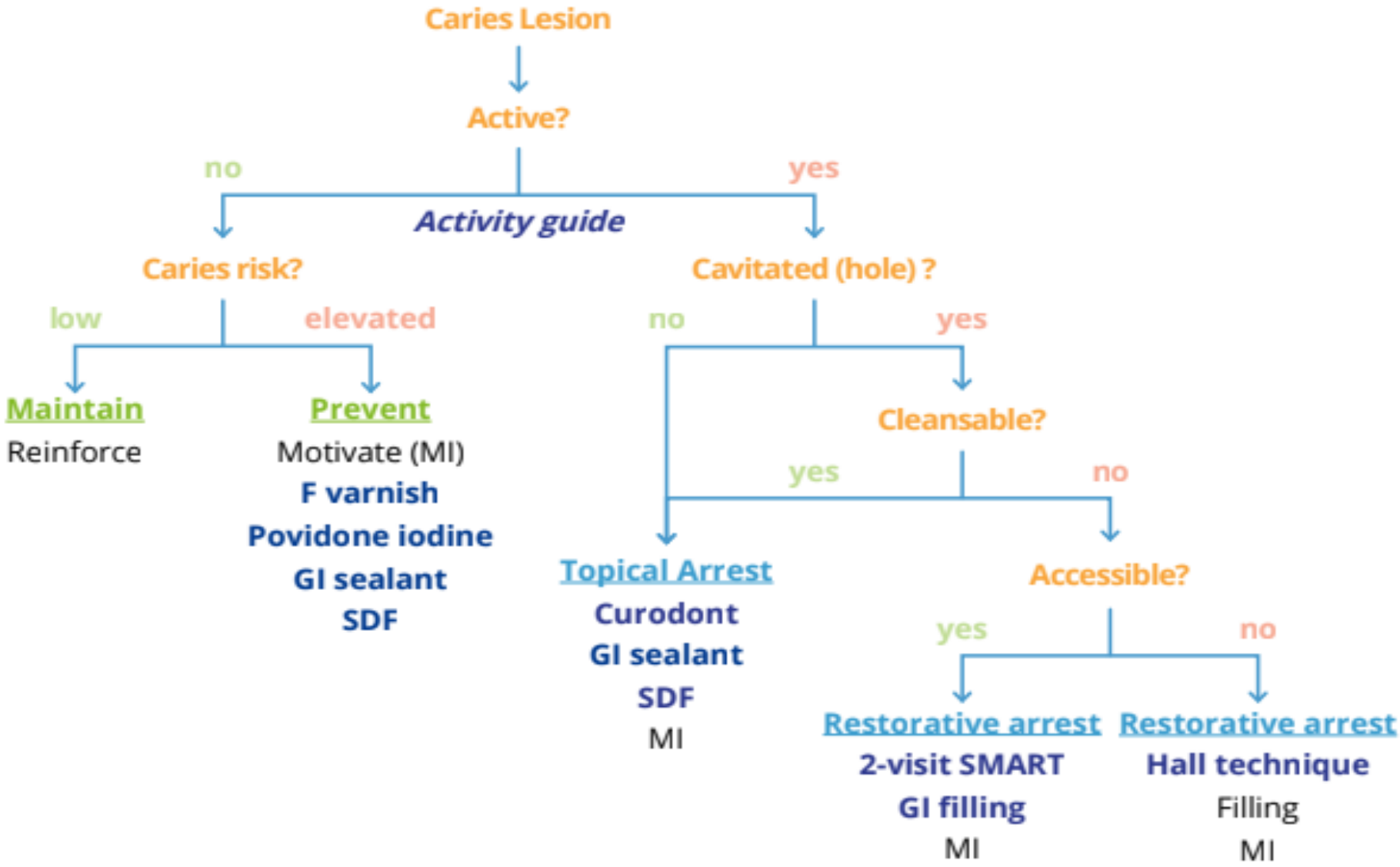
- Differentiate active vs. arrested caries lesions
- Apply silver diamine fluoride, self-assembling peptide P11-4, and more
- Perform the Hall Technique

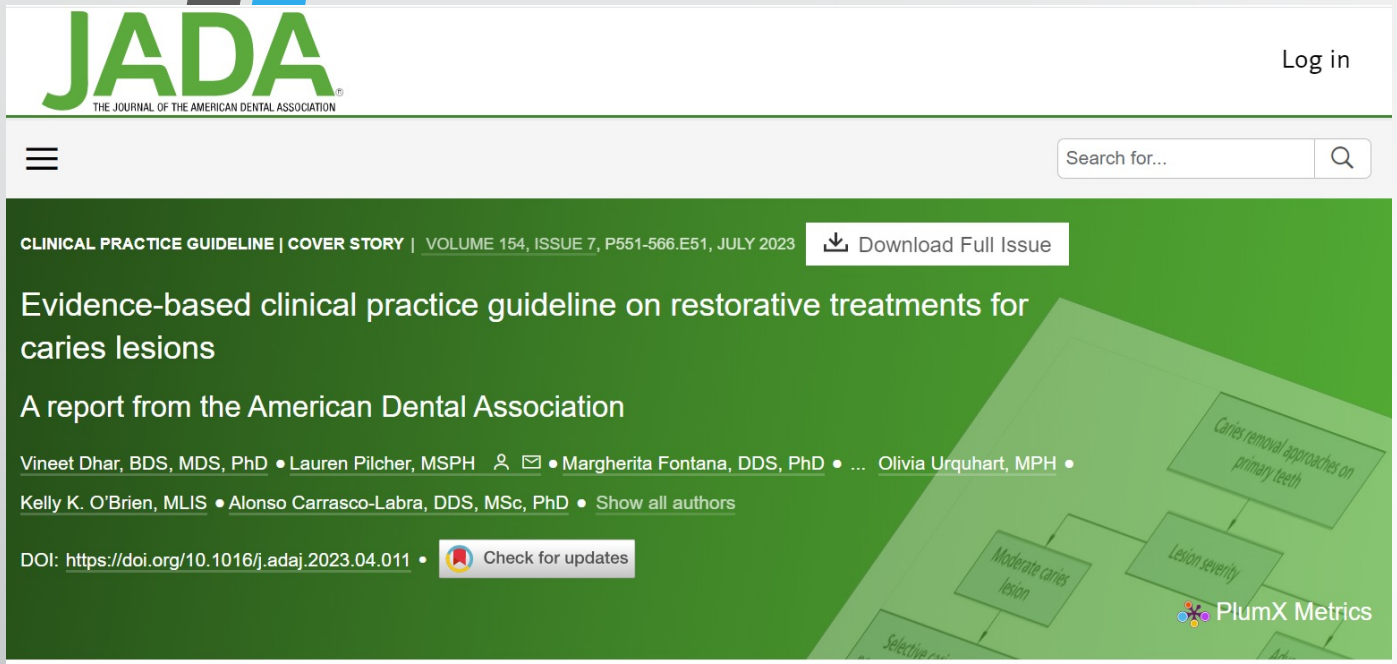
Download Free Guide

https://www.carequest.org/content/non-invasive-caries-therapy-guide

Non-Invasive Dentistry flow chart

CareQuest Innovation Partners





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- ADA Expert Panel
  - ADA Council on Scientific Affairs
  - ADA Science and Research Institute program for Clinical and Translational Research

ADA Recommendations

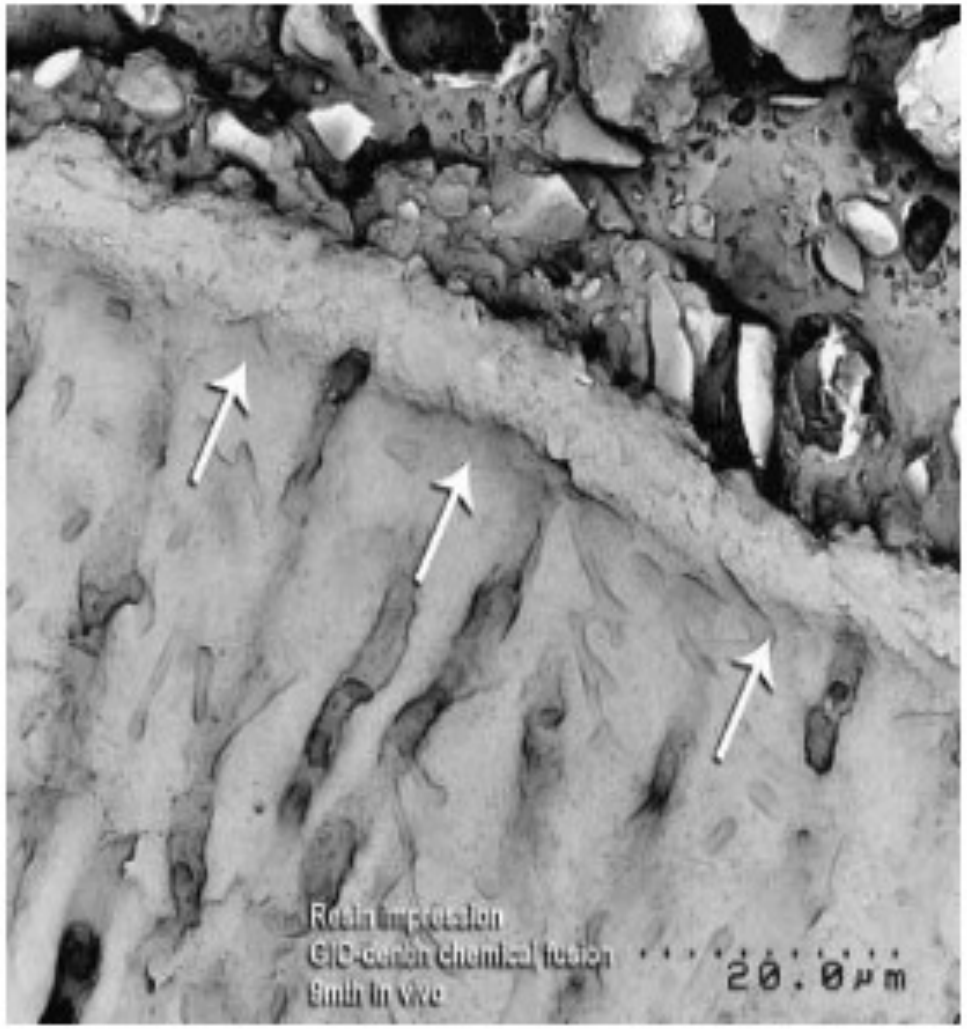
Caries Removal

- Vital primary teeth with advanced caries lesions: selective caries removal *or* *no caries removal*
- Vital permanent teeth with moderate or advanced caries lesions: selective caries removal

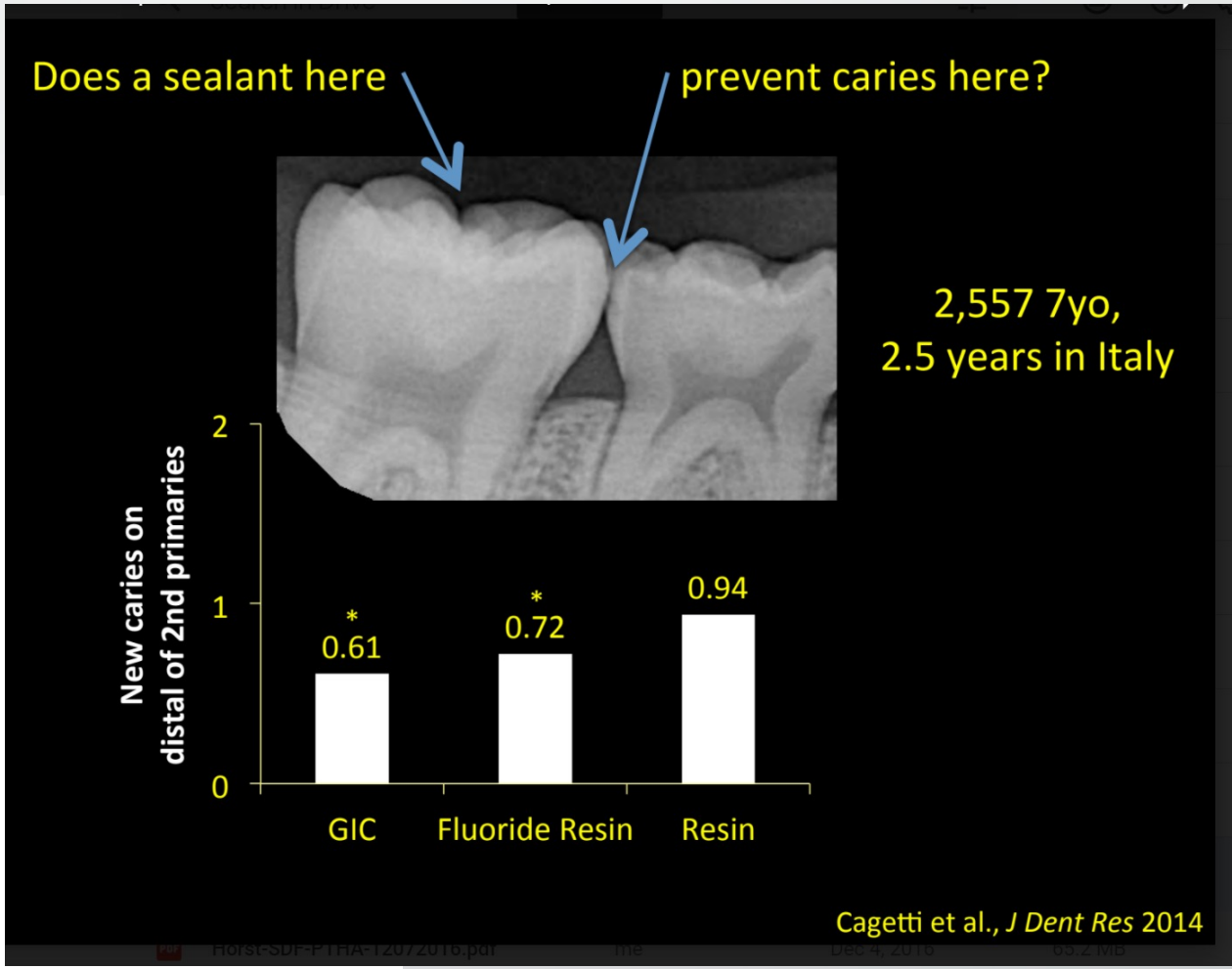
Restorative Material

- Primary class I: GIC, RMGI, RC, or preformed crown
- Primary class II: RMGI, RC, or preformed crown
- All class III: nanocomposite / hybrid resin
- All class V: GIC or RMGI
- All root caries: GIC or RMGI
- Permanent anterior class I: GIC or RMGI
- Permanent posterior class I: GIC, amalgam, RC, RMGI
- Permanent class II: amalgam, RC, or RMGI
- Avoid amalgam in children

Glass ionomers: chemical fusion zone



SEM technique for examining the glass–ionomer cement chemical fusion zone. Milicich G. Journal of Microscopy, Vol. 217, Pt 1 January 2005, pp. 44–48



Fluoride release: halo effect

Glass ionomer for sealants and restorations

indiancountryecho.org/program/oral-health-echo-program/

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PAST PRESENTATION

Minimally Invasive Dentistry: Glass Ionomer Cement (GIC) Sealants | April 10, 2024

Audience: Clinical

Program: Oral Health ECHO Program

Keywords: #caries #dentist #dentistry #glass ionomer cement #minimally invasive dentistry #oral #silver diamine fluoride #teeth

https://www.indiancountryecho.org/resources/minimally-invasive-dentistry-glass-ionomer-cement-sealants-april-10-2024/

Randomized Controlled Trial > J Esthet Restor Dent. 2024 May;36(5):702-709.
doi: 10.1111/jerd.13181. Epub 2023 Dec 18.

Could bulk fill glass hybrid restorative materials replace composite resins in treating permanent teeth? A randomized controlled clinical trial

Fatma Üzümcü Uyumaz [1], Merve Abaklı İnci [2], Hazal Özer [2]

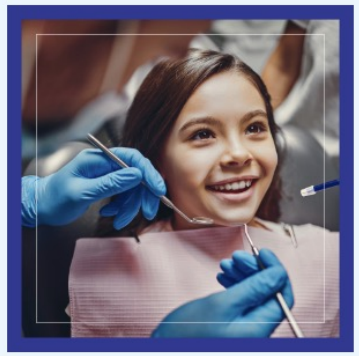
Affiliations + expand

PMID: 38108583 DOI: 10.1111/jerd.13181

Objective: This study aims to compare the clinical and radiographic efficacy of Equia system bulk fill glass hybrid material with composite resins in the permanent restoration of pediatric patients' permanent teeth.

Conclusion: After a year, the clinical performance of both Equia and composite resins was equivalent and successful in the majority of the measures against which they were evaluated.

Free CDE Course



Glass Ionomer Cement: Prevention and Beyond

1 CE credit(s)

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BRIEF • January 2024

Center for Health Care Strategies

Emerging Approaches in Oral Health Care: Considerations for Minimally Invasive Care in Medicaid

By Madeline Steward, Greg Howe, and Tuyen Tran, Center for Health Care Strategies

TAKEAWAYS

- Minimally invasive care (MIC) is an approach in dentistry that prioritizes dental caries (tooth decay) risk assessment and prevention, early dental caries detection and restoration, and the preservation of tooth structure in dental caries treatment.
- By supporting and prioritizing MIC, state Medicaid agencies can help: (1) increase access to oral health care in non-traditional settings; (2) advance health equity; (3) expand the oral health care workforce; and (4) integrate oral health care services into physical health care.
- This brief also describes opportunities for state Medicaid programs to support the availability of MIC through payment strategies that encourage the uptake of these services.

Medicaid plays an important role in meeting the health care needs of more than 92 million people across the United States.[1] While coverage of oral health care services varies significantly across state Medicaid programs, there are myriad opportunities for state officials to pursue innovative models of care to improve health outcomes and experience for children and adults enrolled in Medicaid. Minimally invasive care (MIC) is one strategy states can use to increase access to oral health care, including opportunities to expand the oral health care workforce, advance health equity, and integrate oral health into overall health care.[2]

MIC uses preventive care and restorative services to address tooth decay and is an approach to deliver high quality oral health care to people without invasive surgical interventions.[3] Many oral health care providers, including those who serve Medicaid members, are incorporating MIC into patient care and are exploring how to expand its use in their practices.[4]

Made possible through support from CareQuest Institute for Oral Health.

Takeaways

- Minimally invasive care (MIC) is an approach in dentistry that prioritizes dental caries (tooth decay) risk assessment and prevention, early dental caries detection and restoration, and the preservation of tooth structure in dental caries treatment.
- By supporting and prioritizing MIC, state Medicaid agencies can help: (1) increase access to oral health care in non-traditional settings; (2) advance health equity; (3) expand the oral health care workforce; and (4) integrate oral health care services into physical health care.
- This brief also describes opportunities for state Medicaid programs to support the availability of MIC through payment strategies that encourage the uptake of these services.

Zooming out

Community-level interventions: recent studies

Sugar tax in England reduced hospitalizations/GA for dental caries

- Rogers NT, Conway DI, Mytton O, *et al.* Estimated impact of the UK soft drinks industry levy on childhood hospital admissions for carious tooth extractions: interrupted time series analysis. *BMJ Nutrition, Prevention & Health* 2023;**6:**doi: 10.1136/bmjnph-2023-000714
  - https://nutrition.bmj.com/content/6/2/243
- Dental caries reduced by 28.6% in children ages 0-4, and by 5.5% for ages 5-9. 12% overall.
  - (Actual compared with counterfactual, 2018-2020)

Removing **community water fluoridation** increased caries and hospitalizations

- Yazdanbakhsh E, Bohlouli B, Patterson S, Amin M. Community water fluoride cessation and rate of caries-related pediatric dental treatments under general anesthesia in Alberta, Canada. Canadian Journal of Public Health. 2024 Feb 22:1-0
  - https://link.springer.com/article/10.17269/s41997-024-00858-w
- Study of two Canadian communities
- Cessation of Water Fluoridation was significantly associated with increased rate of caries-related GA events for ages 0-11
- The risk of dental treatments under GA was also positively associated with post-cessation time.

Community level Solutions

- **Traditional foods projects**
  - Gardens
  - Cooking classes
- **Share information:**
  - Newsletters
  - Social media
  - Boards/fairs
- **New policies**
  - What would help in your community?
  - Bring ideas to Tribal leadership

Low vitamin D associated with increased risk of dental caries

Li et al. BMC Oral Health (2023) 23:768
https://doi.org/10.1186/s12903-023-03422-z

BMC Oral Health

RESEARCH Open Access

Correlation between vitamin D levels in serum and the risk of dental caries in children: a systematic review and meta-analysis

Zizhan Li[1,2], Xiao Wei[3], Zhongjun Shao[3], Huan Liu[2*] and Shizhu Bai[4*]

Abstract

Background Vitamin D plays a crucial role in oral health, and its deficiency is associated to significant changes in oral health diseases. We aimed to explore the relationship between levels of 25-hydroxyvitamin D (25(OH) D) and dental caries in children.

Methods Four electronic databases were searched by two investigators including PubMed, Embase, Web of Science, and Cochrane Library. Dental caries results were presented as either prevalence or based on the index of primary and permanent teeth/surfaces with decaying, missing, and filled areas, while vitamin D levels were determined through laboratory testing. Two researchers independently selected studies, collected information, assessed risk of bias, and evaluated the study quality. Any disagreements were resolved through discussion.

Results A total of 13 studies were included, comprising 5 cross-sectional studies, 5 cohort studies, 3 case–control studies, all of which had high methodological quality. Our meta-analysis showed that children with vitamin D deficiency had a 22% higher risk of dental caries than those with normal vitamin D levels, with a relative risk (RR) of 1.22 and a 95% confidence interval (CI) of 1.18 to 1. 25. Further subgroup analysis according to the three types of studies showed that the risk of dental caries in children with vitamin D deficiency was higher than that in normal vitamin D level group (cohort studies: 62%; cross-sectional studies, 19%; and case–control studies, 5%). Additionally, according to age, subgroup analysis also showed that the risk of dental caries in children with vitamin D deficiency was higher than that in normal vitamin D level group (permanent teeth studies, 28%; deciduous teeth studies, 68%; and mixed dentition studies 8%).

Conclusions Levels of 25 (OH) D have been found negatively associated with dental caries in children, indicating that low vitamin D levels may be considered a potential risk factor to this dental disease.

Keywords Dental caries, Vitamin D, Children, Meta-analysis

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Overcoming Dental Fear with the Tap of an App

Researchers from NYU and Penn are using smartphones and virtual reality to help people face their fears

Feb 26, 2024

by Rachel Harrison

Modified Feb 26, 2024

Posted in

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Dental FearLess app. Photo credit: David Song/NYU

Dental Fearless

https://www.nyu.edu/about/news-publications/news/2024/february/dental-fear.html#:~:text=Facing%20fear%20(from%20home)&text=In%20the%20app%2C%20participants%20are,communication%20and%20challenging%20unhelpful%20thoughts

(accessed April 2024)

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Thank you!

mdavis@npaihb.org