

# Reducing the Proportion of Older Adults with Untreated Root Surface Decay (OH-4)

CareQuest Institute Continuing Education Webinar

May 3, 2023

# Housekeeping

- We will keep all lines muted to avoid background noise.
- We will send a copy of the slides and a link to the recording via email after the live program.
- We'll also make the slides and recording available on [carequest.org](https://carequest.org).

## To receive CE Credits:

- Look for the evaluation form, which we'll send via email within 24 hours.
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**We appreciate your feedback to help us improve future programs!**



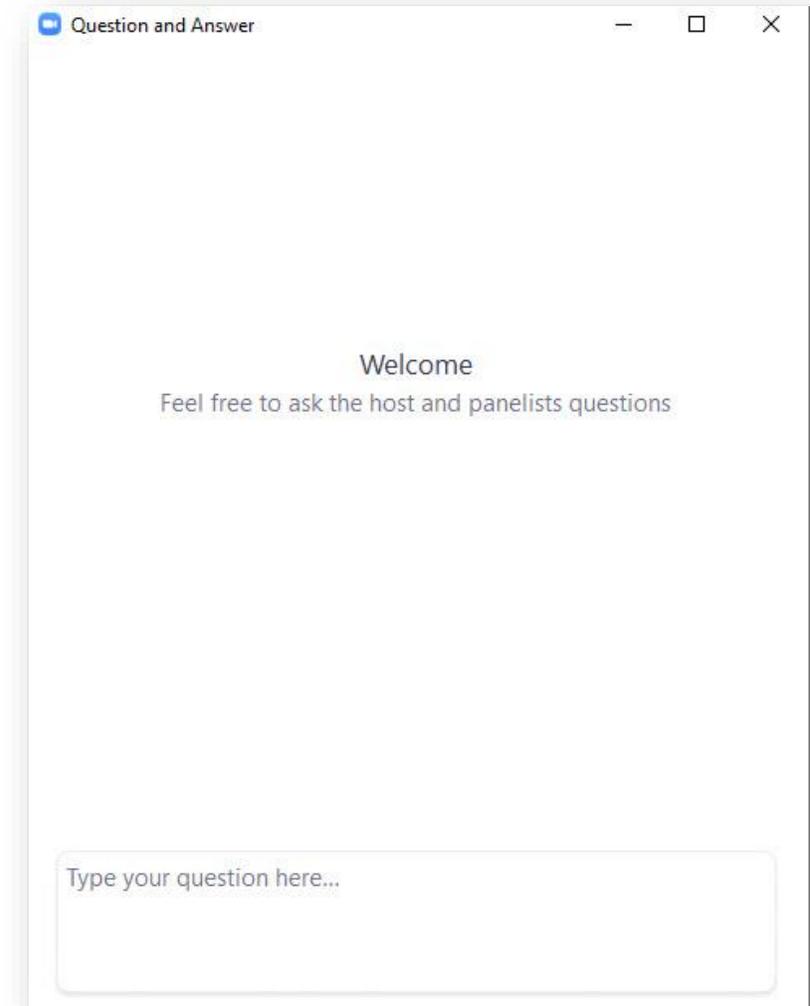
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\*Full disclosures available upon request



# Question & Answer Logistics

- Feel free to enter your questions into the **Question & Answer box** throughout the presentations.
- We will turn to your questions and comments toward the end of the hour.



# Healthy People 2030 Oral Health Promotion Series:

## *Reducing the Proportion of Older Adults with Untreated Root Surface Decay*

May 3, 2023



The speaker(s) have no disclosures to report as related to this presentation. No commercial products are discussed, and all images are publicly available. In addition, where non-Healthy People graphics are used, appropriate references are included.

Upon completion of this webinar, participants should be able to:

1. Identify the etiology and causes of root decay (OH-4).
2. Describe the disparities that exist in older adults with untreated root decay (OH-4).
3. Explore the importance of early intervention in the treatment of root exposure.
4. Recognize the benefits and limitations of modern surgical techniques and technologies in preventing root exposure.
5. Implement at least one activity in your community to help reduce the proportion of older adults with untreated root surface decay (OH-4).



## Presentation Overview

- Overview of Healthy People Oral Health Objective OH-04: Dr. Tim Ricks
- Prevention and Minimally Invasive Treatment of Root Surface Decay in Older Adults: Wai-Sum Leung
- Interception of Root Exposure and Root Decay: Surgical Treatment of Root Exposure Using Modern Technology: Dr. Kayvon Javid
- Q&A: Dr. Gina Thornton-Evans
- Summary & Announcing Next HP 2030 Webinar: Dr. Tim Ricks



# Presenters



Tim Ricks,  
DMD, MPH, FICD, FACD, FPFA

IHS Representative  
Healthy People 2030  
Oral Health Workgroup



Wai-Sum Leung, RDH, MS

Project Coordinator,  
CareQuest Institute for  
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Kayvon Javid,  
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Chairman of International  
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Surgery



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CDC Representative & Lead,  
Healthy People 2030  
Oral Health Workgroup



## *Reducing the Proportion of Older Adults with Untreated Root Surface Decay (OH-4)*



*Photo courtesy of Dr. Kayvon Javid*

### Part 1:

Overview of Healthy People Objective OH-04:  
Tim Ricks, DMD, MPH, FICD, FACD, FPFA

OH-04: Reduce the proportion of older adults with untreated root surface decay.

- Baseline: 29.1%
- Target: 20.1%

# Risk Factors for Root Caries



- Poor oral hygiene
- Microbial plaque
- Periodontal disease
- Coronal caries
- Dietary Habits
- Xerostomia
- Low socioeconomic status
- Infrequent dental visits
- Age/gingival recession/POH



*Photo courtesy of Dr. Kayvon Javid*

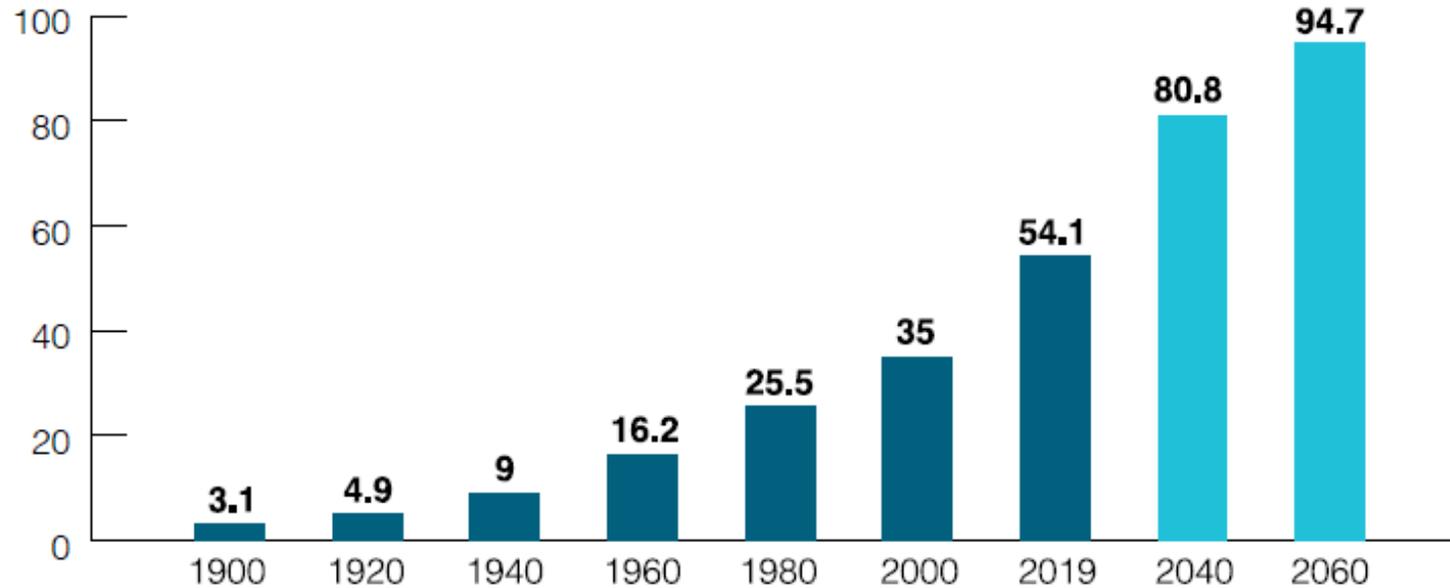
Youngs G. Risk factors for and the prevention of root caries in older adults. PMID: 7871465.

<https://pubmed.ncbi.nlm.nih.gov/7871465/#:~:text=Among%20these%20are%20poor%20oral,of%20teeth%20to%20root%20decay.>

# The Aging Population



**Number of Persons Age 65 and Older, 1900 - 2060  
(numbers in millions)**



*Note: Increments in years are uneven. Lighter bars (2040 and 2060) indicate projections.*

*Source: U.S. Census Bureau, Population Estimates and Projections*

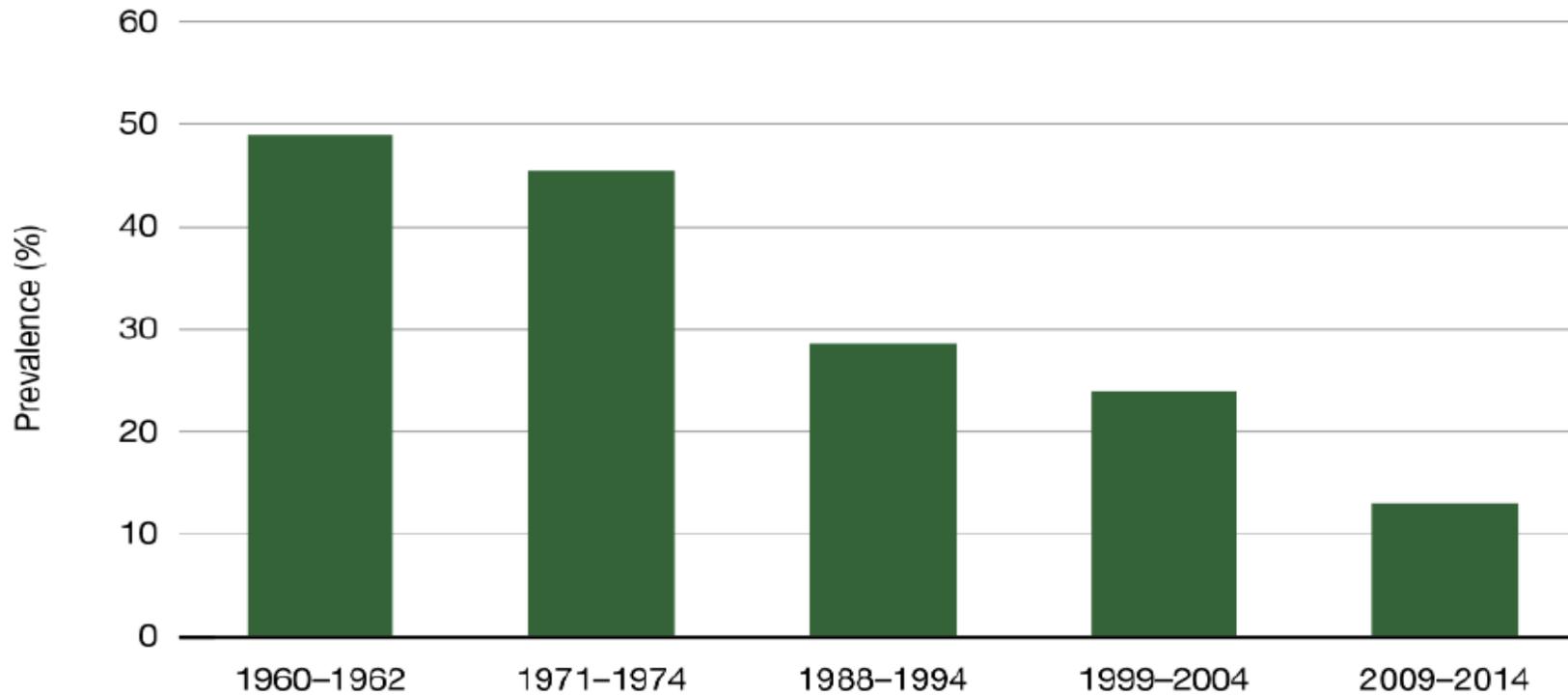
Administration for Community Living, Department of Health and Human Services. 2020 Profile of Older Americans.  
[https://acl.gov/sites/default/files/aging%20and%20Disability%20In%20America/2020Profileolderamericans.final\\_.pdf](https://acl.gov/sites/default/files/aging%20and%20Disability%20In%20America/2020Profileolderamericans.final_.pdf)



# Tooth Retention



**Figure 5.** Trend in edentulism among adults ages 65–74: United States, 1960–1962 to 2009–2014



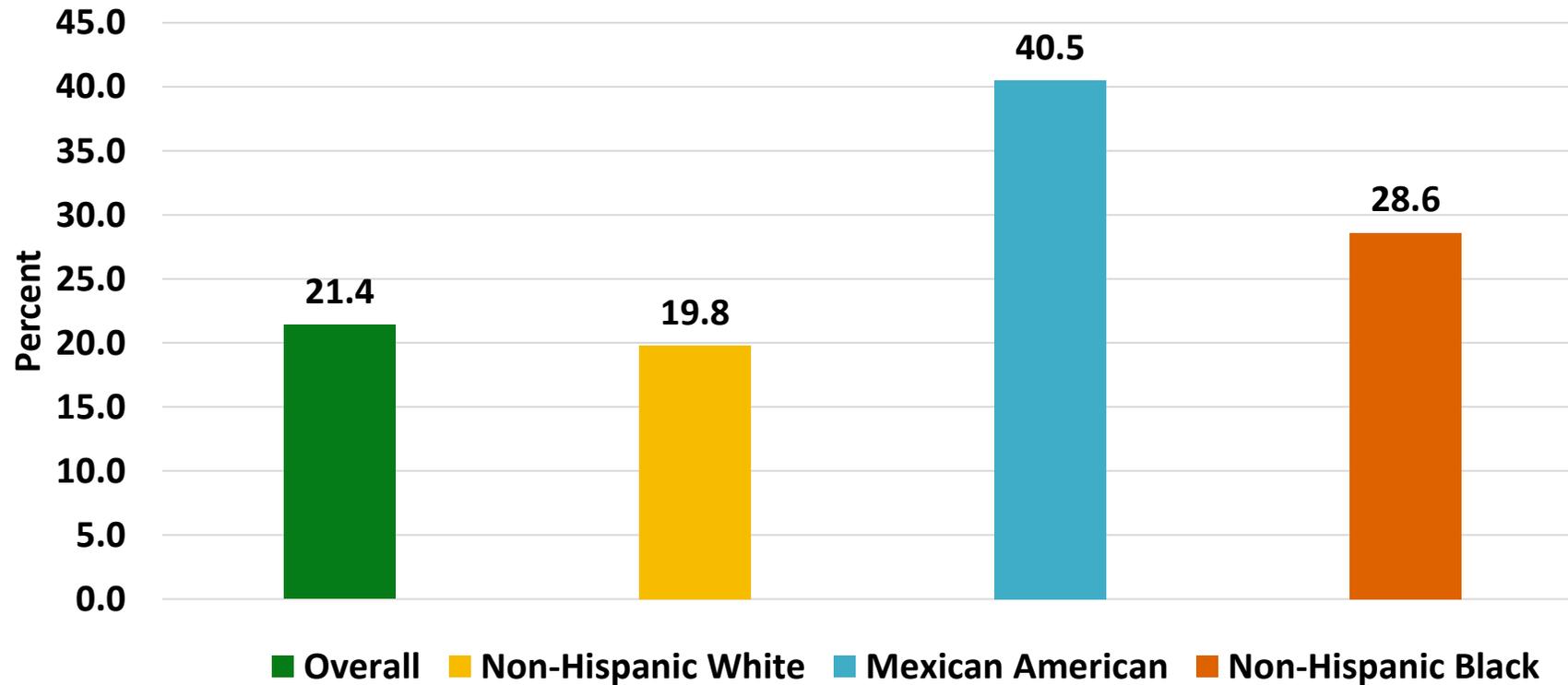
Note: Edentulism is complete loss of all natural permanent teeth.

National Institutes of Health, Department of Health and Human Services. Oral Health in America: Advances and Challenges. Page 3B-7 (417).

<https://www.nidcr.nih.gov/research/oralhealthinamerica>.



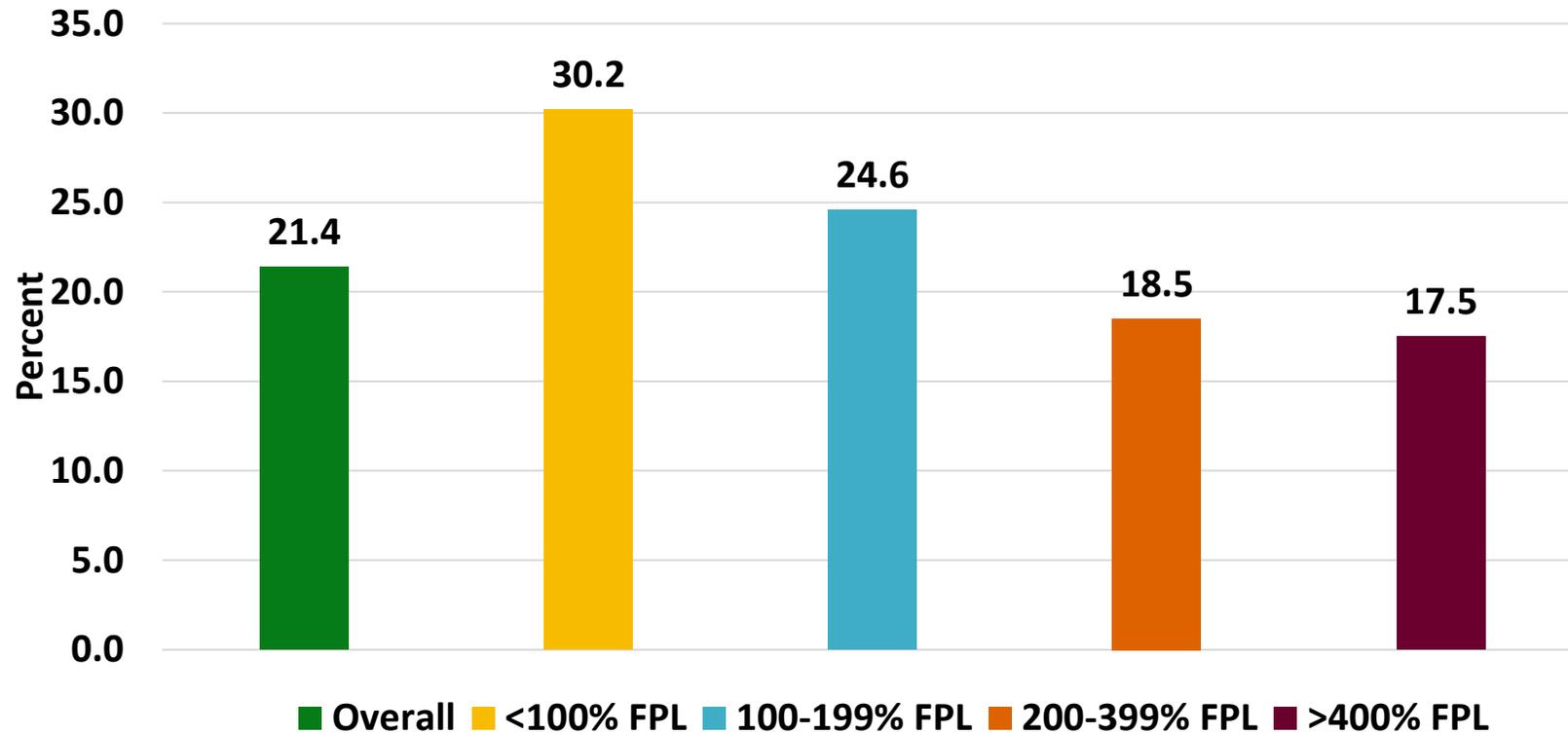
# Disparities in Root Caries By Race/Ethnicity



Data Source: NHANES 2015-2016, courtesy of Dr. Gina Thornton-Evans



# Disparities in Root Caries By Income



Data Source: NHANES 2015-2016, courtesy of Dr. Gina Thornton-Evans





Tim Ricks, DMD, MPH, FICD, FACD, FPFA, RADM  
(Ret.), U.S. Public Health Service  
Dental Public Health Specialist  
IHS Headquarters Division of Oral Health  
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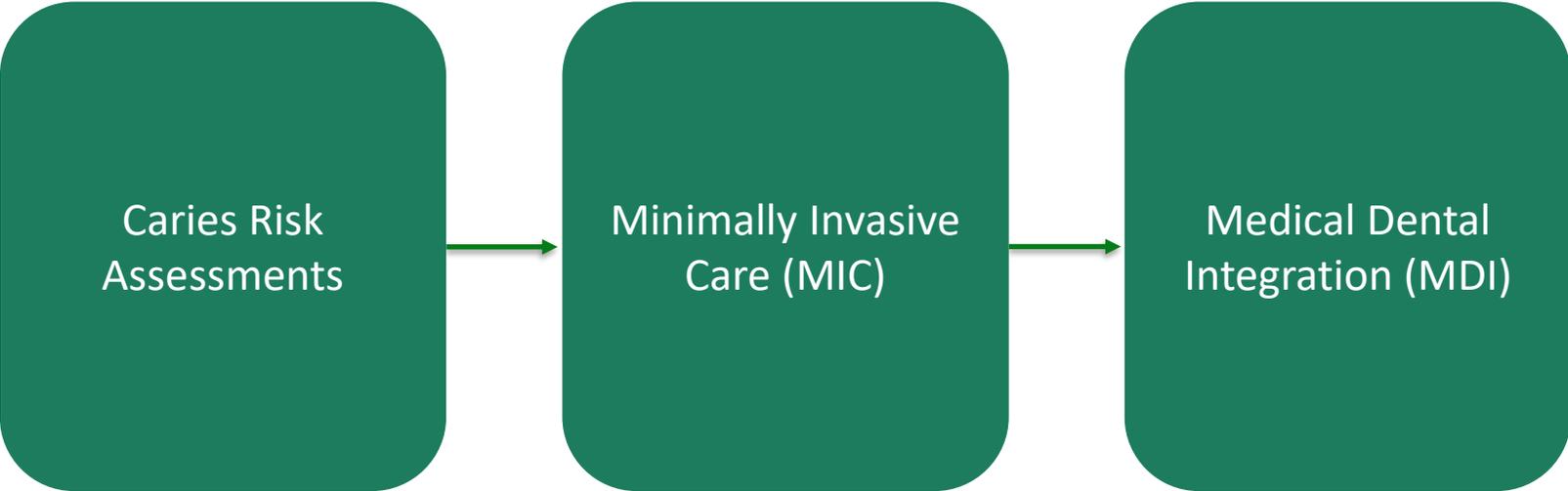
## *Reducing the Proportion of Older Adults with Untreated Root Surface Decay (OH-4)*

### Part 2:

Prevention and Minimally Invasive Treatment of Root Surface Decay in Older Adults  
Wai-Sum Leung, RDH, MS



# Reducing the Proportion of Older Adults with Untreated Root Surface Caries



# Oral Risk Assessments



## CARIES RISK ASSESSMENT FORM – CHILDREN AGE 6 AND OVER/ADULTS

Patient Name: \_\_\_\_\_ I.D.# \_\_\_\_\_ Age: \_\_\_\_\_  
 Date: \_\_\_\_\_ Assessment Date: \_\_\_\_\_ Is this (please circle) baseline or recall

NOTE: Any one YES in Column 1 signifies likely "High Risk" and an indication for bacteria tests	YES = CIRCLE			Comments:
	1	2	3	
<b>1. Risk Factors (Biological Predisposing Factors)</b>				
(a) Has active dental decay in the past year	YES			
(b) Frequent (> 3 times/day) between-meal snacks		YES		# times/day: _____
(c) Drinks sports beverages		YES		Types: _____
(d) Recreational drug/tobacco/alcohol use		YES		
(e) Saliva-Reducing factors (medications/radiation/systemic)		YES		
(f) Child or adolescent has special health care needs		YES		
(g) Orthodontic appliances		YES		
<b>2. Protective Factors</b>				
(a) Home/work/school in fluoridated community			YES	Zip Code: _____
(b) Fluoride toothpaste at least 2x daily			YES	# times/day: _____
(c) Fluoride mouthrinse (0.05% NaF) daily			YES	
(d) 5000 ppm F fluoride toothpaste daily			YES	
(e) Fluoride varnish in last 6 months			YES	
(f) Chlorhexidine prescribed/used one week each month during the last 6 months			YES	
(g) Xylitol gum/lozenges 4x daily last 6 months			YES	
(h) Calcium and phosphate paste during last 6 months			YES	
<b>3. Disease Indicators - Clinical Examination</b>				
(a) Visible cavities or radiographic penetration of the dentin	YES			
(b) Radiographic proximal enamel lesions (not in dentin)	YES			
(c) White spots on smooth surfaces	YES			
(d) Restoration in the last 3 years	YES			
(e) Plaque is obvious on the teeth and/or gums bleed easily		YES		
(f) Visually inadequate saliva flow		YES		
(g) Exposed roots		YES		
(h) Deep pits and fissures		YES		
(i) New remineralization since last visit (List teeth):			YES	Teeth: _____
<b>Overall Caries Risk (circle):</b> HIGH      MODERATE      LOW				
EXTREME RISK-HIGH RISK + SEVERE SALIVARY GLAND HYPOFUNCTION				
Bacteria/Saliva Test Results:    MS:    LB:    Flow Rate:    ml/min:    Date: _____				

**Self-management goals:** \_\_\_\_\_  
 1. \_\_\_\_\_  
 2. \_\_\_\_\_

**Since Last Visit:**  
 New Cavitation: Y / N  
 New White Spot Lesions: Y / N  
 Dental Pain: Y / N  
 Referral Type: O.R. I.V. Oral Sedation

Clinician's Signature: \_\_\_\_\_ Date: \_\_\_\_\_ (Updated: 8/19/14)

CAMBRA Caries Risk Assessment – UCSF

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

### Carries Risk Assessment Form (Age >6)

Patient Name: \_\_\_\_\_  
 Birth Date: \_\_\_\_\_ Date: \_\_\_\_\_  
 Age: \_\_\_\_\_ Initials: \_\_\_\_\_

	Low Risk	Moderate Risk	High Risk
<b>Contributing Conditions</b> Check or Circle the conditions that apply			
I. Fluoride Exposure (through drinking water, supplements, professional applications, toothpaste)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
II. Sugary Foods or Drinks (including juice, carbonated or non-carbonated soft drinks, energy drinks, medicinal syrups)	Primarily at mealtimes <input type="checkbox"/>		Frequent or prolonged between meal exposures/day <input type="checkbox"/>
III. Caries Experience of Mother, Caregiver and/or other Siblings (for patients ages 6-14)	No carious lesions in last 24 months <input type="checkbox"/>	Carious lesions in last 7-23 months <input type="checkbox"/>	Carious lesions in last 6 months <input type="checkbox"/>
IV. Dental Home: established patient of record, receiving regular dental care in a dental office	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
<b>General Health Conditions</b> Check or Circle the conditions that apply			
I. Special Health Care Needs (developmental, physical, medical or mental disabilities that prevent or limit performance of adequate oral health care by themselves or caregivers)	<input type="checkbox"/> No	Yes (over age 14) <input type="checkbox"/>	Yes (ages 6-14) <input type="checkbox"/>
II. Chemo/Radiation Therapy	<input type="checkbox"/> No		<input type="checkbox"/> Yes
III. Eating Disorders	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
IV. Medications that Reduce Salivary Flow	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
V. Drug/Alcohol Abuse	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
<b>Clinical Conditions</b> Check or Circle the conditions that apply			
I. Cavitated or Non-Cavitated (incipient) Carious Lesions or Restorations (visually or radiographically evident)	No new carious lesions or restorations in last 36 months <input type="checkbox"/>	1 or 2 new carious lesions or restorations in last 36 months <input type="checkbox"/>	3 or more carious lesions or restorations in last 36 months <input type="checkbox"/>
II. Teeth Missing Due to Caries in past 36 months	<input type="checkbox"/> No		<input type="checkbox"/> Yes
III. Visible Plaque	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
IV. Unusual Tooth Morphology that compromises oral hygiene	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
V. Interproximal Restorations - 1 or more	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
VI. Exposed Root Surfaces Present	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
VII. Restorations with Overhangs and/or Open Margins; Open Contacts with Food Impaction	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
VIII. Dental/Orthodontic Appliances (fixed or removable)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
IX. Severe Dry Mouth (Xerostomia)	<input type="checkbox"/> No		<input type="checkbox"/> Yes
<b>Overall assessment of dental caries risk:</b> <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> High			
Patient Instructions: _____			

© American Dental Association, 2009, 2011. All rights reserved.

Carries Risk Assessment – ADA



# What Is Minimally Invasive Care (MIC)?



“Maximal preservation of healthy dental structures when possible through use of information and techniques such as accurate diagnosis of caries, caries risk assessment and prevention to technical procedures.”

– *CareQuest Institute of Oral Health*



# Minimally Invasive Care



- Topical Fluoride Varnish
- Silver Fluoride
- Peptide Repair Technology



# Fluoride Varnish Application



“A more concentrated form of fluoride that is painted onto the top and sides of a patient’s teeth. It should stay on for several hours, allowing fluoride to seep into enamel and strengthen the teeth.”

– *NC Oral Health Collaborative*

# Silver Fluoride (Silver Diamine Fluoride)



- “Colorless liquid cleared for use in treatment of tooth sensitivity. It’s off-label use is to arrest caries for children and adults without removal of sound tooth tissue. When applied to a carious lesion, SDF (silver fluoride) has shown to also decrease caries risk of adjacent tooth surfaces.”

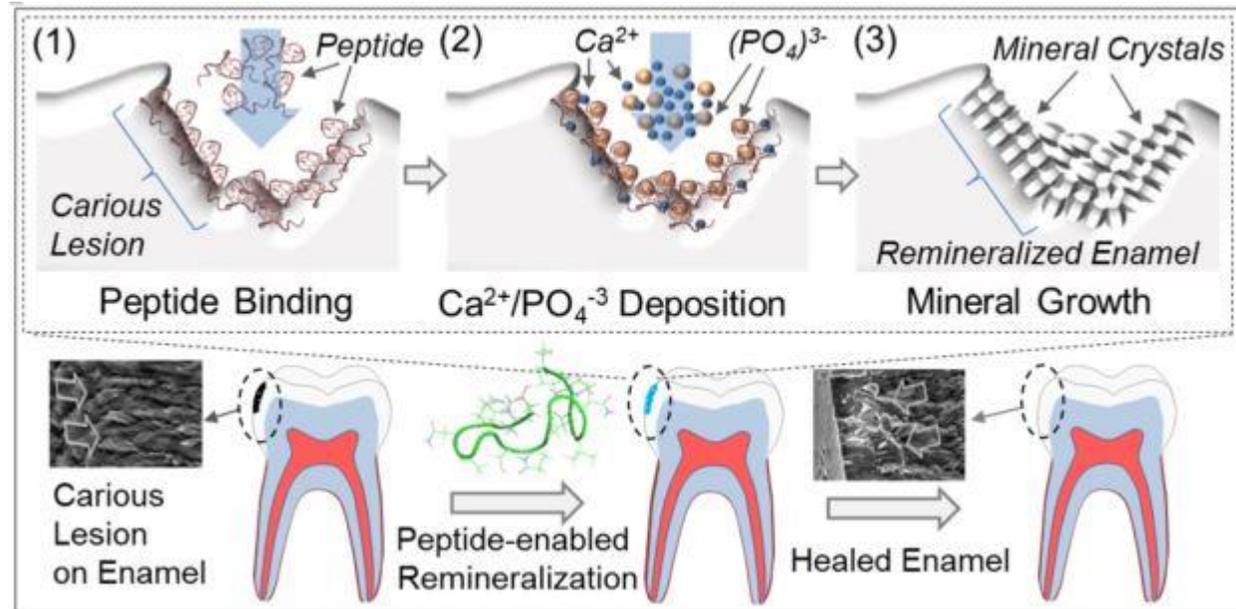
– *American Dental Association*



# Peptide Repair Technology



Technology that uses proteins to **rebuild tooth enamel** and treat dental caries. Peptides bind onto tooth surfaces and novice calcium and phosphate ions that allows the deposition of 10 to 50 micrometers of new enamel on teeth after each use.



*Schematic illustration of peptide-guided biomimetic tooth repair technology. ACS Publications*



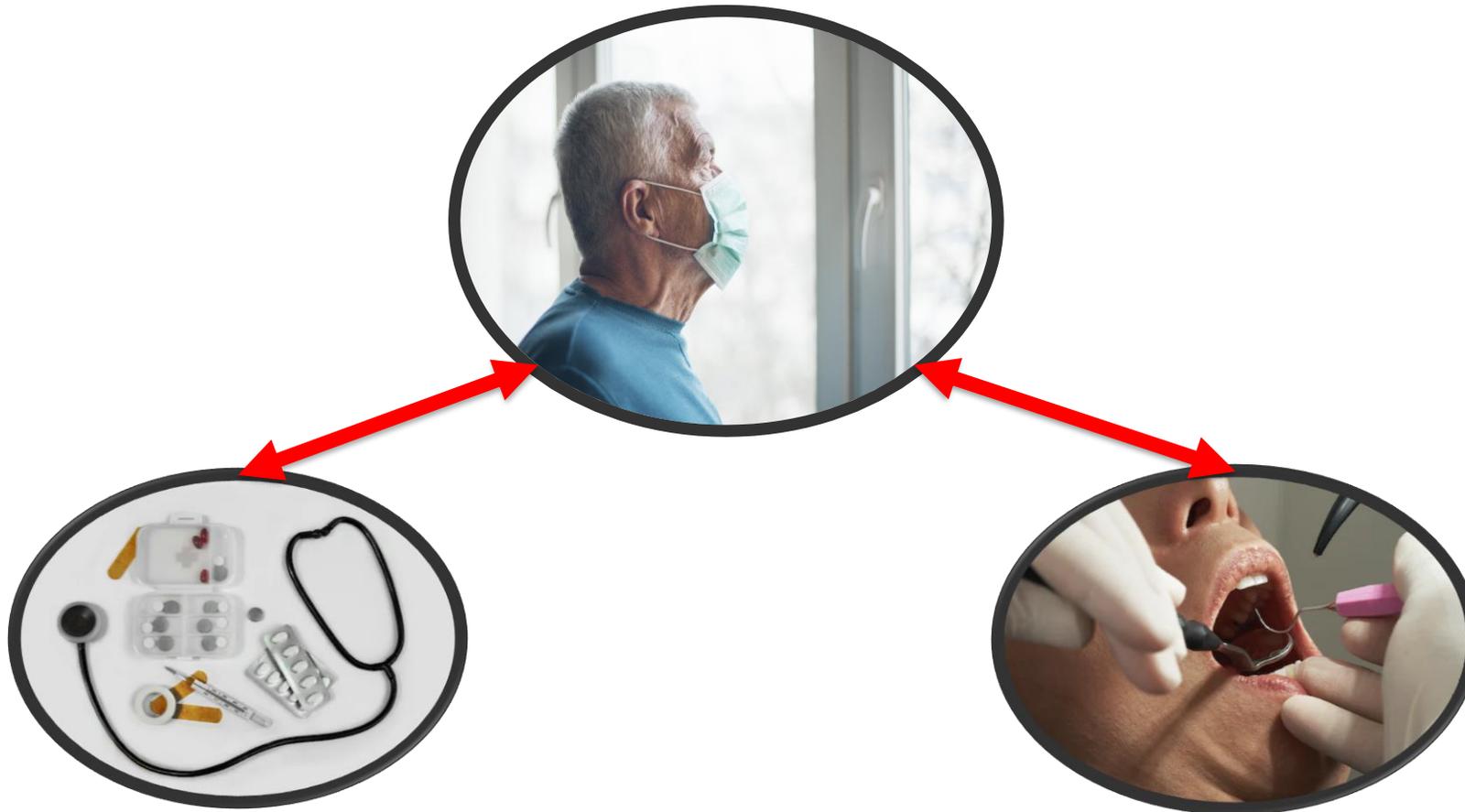
## What is medical-dental integration (MDI)?

“An approach to care that integrates dental medicine into primary care and behavioral health. It also promotes the practice of dental providers integrating services such as screenings for chronic diseases into their care”

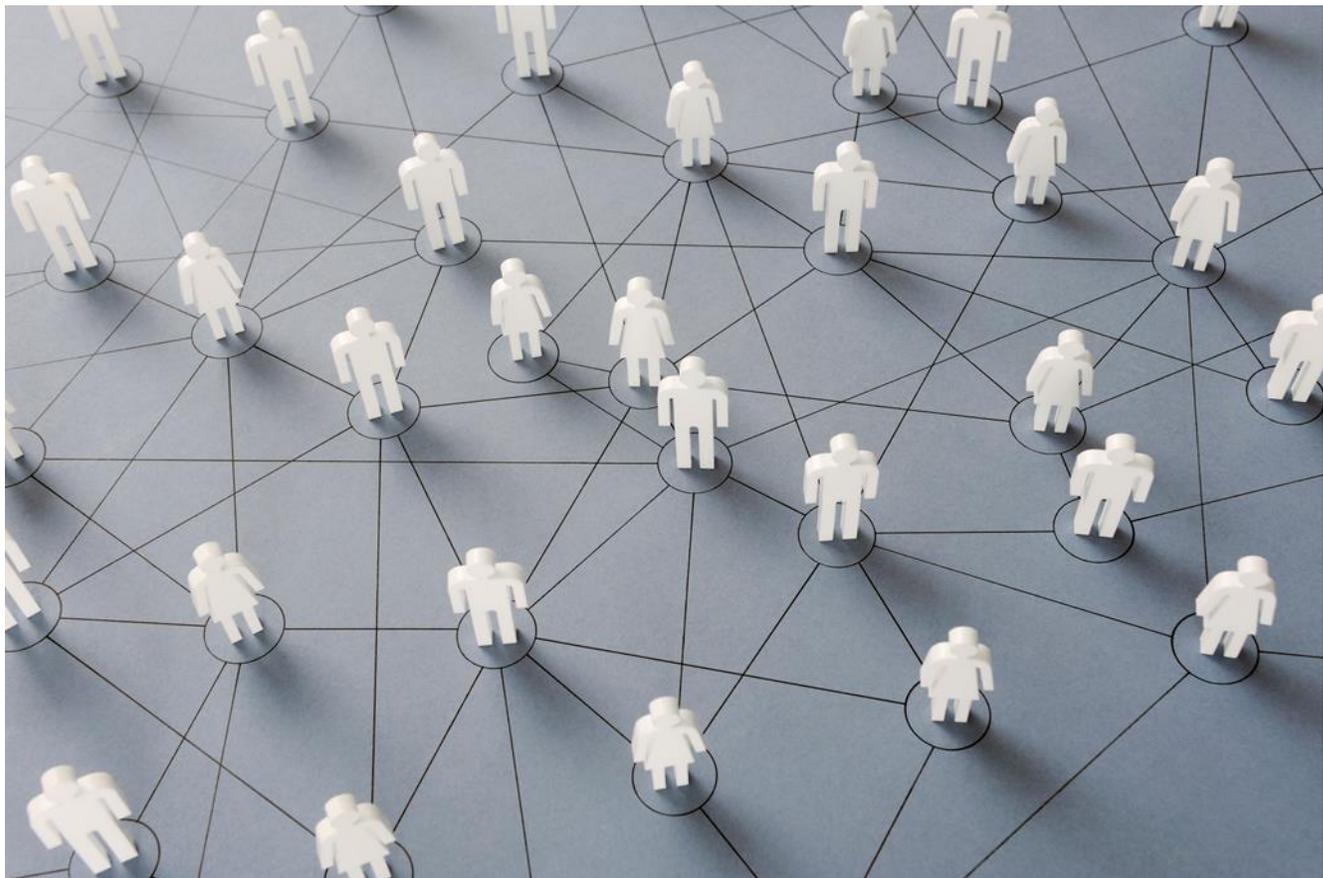
— *CareQuest Institute for Oral Health*

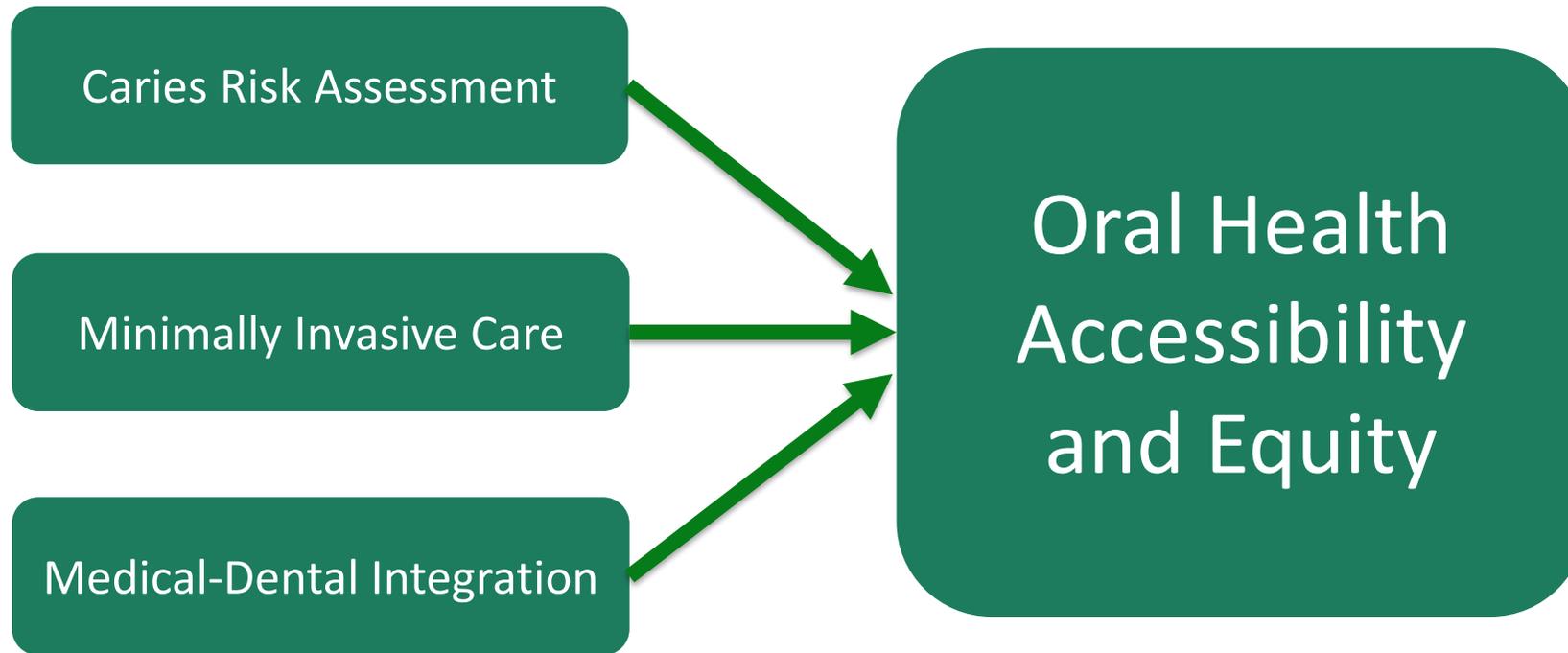
1. Caries Risk Assessments
2. Integrated Care Coordination
3. Brush-on Treatments

# Integrated Care Coordination



# Call to Action





1. Ericson D. What is minimally invasive dentistry? *Oral Health Prev Dent.* 2004;2 Suppl 1:287-92. PMID: 15646587.
2. Harrison-Barry L, Elsworth K, Pukallus M, Leishman SJ, Boocock H, Walsh LJ, Seow WK. The Queensland Birth Cohort Study for Early Childhood Caries: Results at 7 Years. *JDR Clin Trans Res.* 2022 Jan;7(1):80-89. doi: 10.1177/2380084420981882. Epub 2020 Dec 17. PMID: 33331221.
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4. Featherstone JDB, Crystal YO, Alston P, Chaffee BW, Doméjean S, Rechmann P, Zhan L, Ramos-Gomez F. A Comparison of Four Caries Risk Assessment Methods. *Front Oral Health.* 2021 Apr 28;2:656558. doi: 10.3389/froh.2021.656558. PMID: 35048004; PMCID: PMC8757708.
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6. Sung YH, Son HH, Yi K, Chang J. Elemental analysis of caries-affected root dentin and artificially demineralized dentin. *Restor Dent Endod.* 2016 Nov;41(4):255-261. doi: 10.5395/rde.2016.41.4.255. Epub 2016 Aug 19. PMID: 27847746; PMCID: PMC5107426.
7. North Carolina Oral Health Collaborative. <https://oralhealthnc.org/what-is-fluoride-varnish/>
8. American Dental Association. Silver Diamine Fluoride. 2021 Jul. [Silver Diamine Fluoride | American Dental Association \(ada.org\)](https://www.ada.org/2021/07/01/silver-diamine-fluoride)
9. CareQuest Institute for Oral Health. *The CPT Code for the Application of Silver Diamine Fluoride, Explained.* 2022 Oct. [Silver Diamine Fluoride CPT Code | CareQuest Institute](https://www.carequestinstitute.com/2022/10/05/silver-diamine-fluoride-cpt-code/)
10. [Centers for Disease Control and Prevention. Dental Care Often Overlooked for Older Americans. May, 2019. CDC: Dental Care Often Overlooked for Older Americans \(usnews.com\)](https://www.cdc.gov/od/oc/2019/s5-oral-care-older-americans.html)
11. Biomimetic Tooth Repair: Amelogenin-Derived Peptide Enables in Vitro Remineralization of Human Enamel. Sami Dogan, Hanson Fong, Deniz T. Yucesoy, Timothee Cousin, Carolyn Gresswell, Sefa Dag, Greg Huang, and Mehmet Sarikaya. *ACS Biomaterials Science & Engineering* 2018 4 (5), 1788-1796 DOI: 10.1021/acsbomaterials.7b00959

12. Prasad M, Manjunath C, Murthy AK, Sampath A, Jaiswal S, Mohapatra A. Integration of oral health into primary health care: A systematic review. *J Family Med Prim Care*. 2019 Jun;8(6):1838-1845. doi: 10.4103/jfmpc.jfmpc\_286\_19. PMID: 31334142; PMCID: PMC6618181.
13. Wolf TG, Cagetti MG, Fisher JM, Seeberger GK, Campus G. Non-communicable Diseases and Oral Health: An Overview. *Front Oral Health*. 2021 Sep 3;2:725460. doi: 10.3389/froh.2021.725460. PMID: 35048049; PMCID: PMC8757764.
14. Ramos, D.V.R., Miraglia, J.L., Monteiro, C.N. *et al*. Risk assessment for oral urgent treatment in Primary Healthcare: a cross-sectional study. *BMC Health Serv Res* **20**, 1012 (2020). <https://doi.org/10.1186/s12913-020-05859-2>
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## *Reducing the Proportion of Older Adults with Untreated Root Surface Decay (OH-4)*

### Part 3:

Interception of Root Exposure and Root Decay: Surgical Treatment of Root Exposure Using Modern Technology  
Kayvon Javid, PhD, DDS, DICOI, FIADFE, FCII, AFWCLI, CPT1

- **The Etiology of Root Decay**
- **Root Exposure Treatment Options**
- **Non-Carious Cervical Lesions (NCCL)**
- **Orthodontic Treatment and Root Exposure**
- **Abfraction and Root Exposure**
- **Surgical Techniques**
- **Final Considerations**

# The Etiology of Root Decay



- **The Urgent Need to Understand Root Caries**
- With the rapid aging of the world population and the anticipated concurrent increase in root caries, there is an urgent need to know more about the risk factors of root caries. (Zhang et. al., 2020)
- In 2020, the number of people aged 60 years and older outnumbered children younger than 5. (WHO 2022)



# The Etiology of Root Decay



## Causes and Risk Factors of Root Decay

- **Aging**
- Poor oral hygiene
- Dry mouth
- Diet
- **Root Exposure** or Periodontal retraction
- Medications



# The Etiology of Root Decay



## Oral Microbiota and Root Caries

Microbe	Associated with Root Caries
S. mutans	✓
Lactobacilli sp.	✓
Streptococcus sobrinus	✓
Candida	✓
Streptococcus sanguis	✗
Streptococcus salivarius	✗

Zhang, J., & Lo, E. C. M. (2020). Epidemiology of dental root caries: a review of risk factors. *Frontiers of Oral and Maxillofacial Medicine*



## Overview of Root Exposure

The symptoms of root exposure may include **sensitivity** to hot, cold, or sweet foods, **pain** or **discomfort** when chewing, and discoloration or darkening of the affected tooth.



# Root Exposure Leading to Root Decay



## Prevention Strategies

- Brushing and flossing regularly
- Limit sugary and acidic food and beverages
- Use fluoride treatments
- **Treat underlying conditions**
- Regular dental check-ups



# Root Exposure Treatment Options



## Treatment options

- Dental fillings
- Crowns
- Root canal treatment
- **Soft tissue (gingival) grafting**
- Nightguard



# Non-Carious Cervical Lesions



A non-carious cervical lesion (NCCL) is described as the wear of the tooth substance at the level of the gingival one-third of the tooth due to reasons other than dental caries.

## Main indications for the treatment:

- Esthetics, especially when the lesion is pigmented and/or associated with gingival recession
- Dentin hyper-sensitivity, which may be the cause of discomfort/pain or faulty plaque control for the patient
- Demineralization with or without dentin hypersensitivity
- Bacterial plaque accumulation due to the shape and/or depth of abrasion that make oral health care difficult/ineffective



Zucchelli G, Gori G, Mele M, Stefanini M, Mazzotti C, Marzadori M, Montebugnoli L, De Sanctis M. Non-carious cervical lesions associated with gingival recessions: a decision-making process. J Periodontol. 2011 Dec;82(12):1713-24.



# Non-Carious Cervical Lesions



## Classification

*NCCL type 1: the maximum root coverage level (MRC) was located >1mm coronal to the coronal step of the NCCL.*

*NCCL type 2: the MRC was located at the level of the coronal step of the NCCL.*

*NCCL type 3: the MRC was located in the deepest portion of the abrasion defect.*

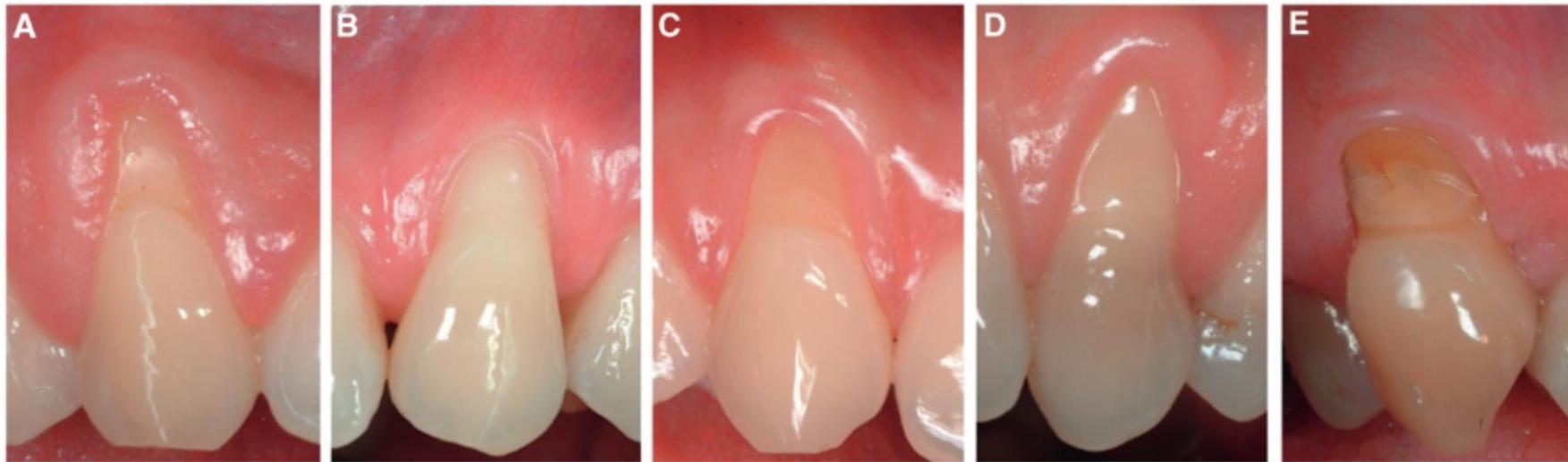
*NCCL type 4: the MRC was located apical to the deepest portion of the abrasion defect due to a mild loss of papilla height.*

*NCCL type 5: the MRC was located at the level of the most apical extension of the NCCL due to a severe loss of papilla height.*

Zucchelli G, Gori G, Mele M, Stefanini M, Mazzotti C, Marzadori M, Montebugnoli L, De Sanctis M. Non-carious cervical lesions associated with gingival recessions: a decision-making process. J Periodontol. 2011 Dec;82(12):1713-24.



## Classification



**Figure 7.**

Baseline frontal view: **A)** NCCL type 1. **B)** NCCL type 2. **C)** NCCL type 3. **D)** NCCL type 4. **E)** NCCL type 5.

Zucchelli G, Gori G, Mele M, Stefanini M, Mazzotti C, Marzadori M, Montebugnoli L, De Sanctis M. Non-carious cervical lesions associated with gingival recessions: a decision-making process. J Periodontol. 2011 Dec;82(12):1713-24.

# Types of Root Exposure

## Non-Carious Cervical Lesions (NCCL)



- Periodontal
- Orthodontics
- Abfraction



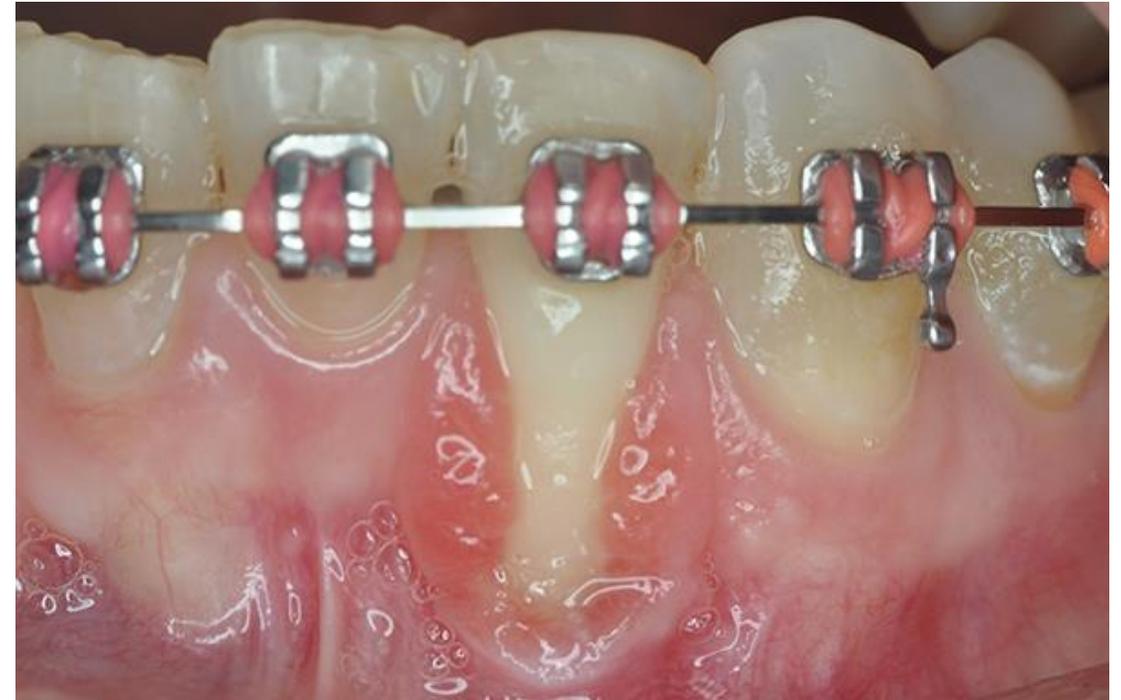
# Considerations About Root Exposure in NCCCL Conditions Leading to Root Exposure



Periodontal



Orthodontic treatment can improve the function and aesthetics of the mouth, but it can also cause complications such as cervical bone loss and periodontal retraction if not carefully managed. (Cao et al., 2015)



Cao T, Xu L, Shi J, Zhou Y. Combined orthodontic-periodontal treatment in periodontal patients with anteriorly displaced incisors. *Am J Orthod Dentofacial Orthop.* 2015 Nov;148(5):805-13. doi: 10.1016/j.ajodo.2015.05.026

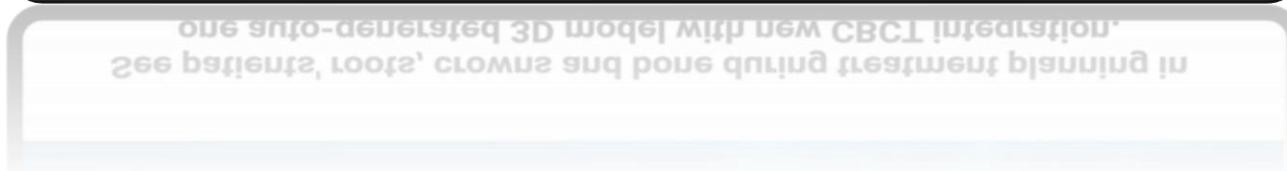
## Using modern technology to reduce root exposure

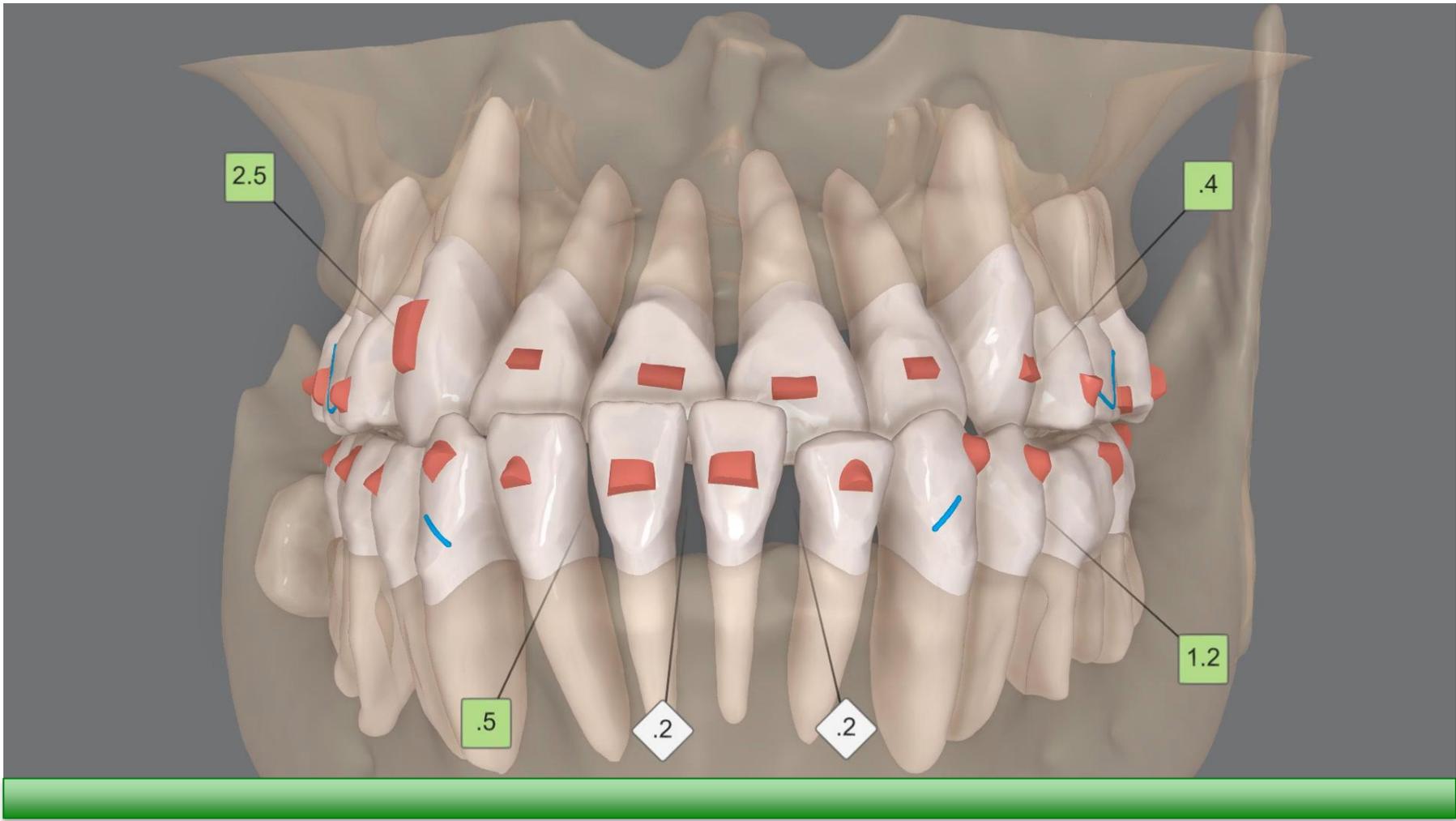
**See more, treat more comprehensively with CBCT integration in Pro 6.0 software.**

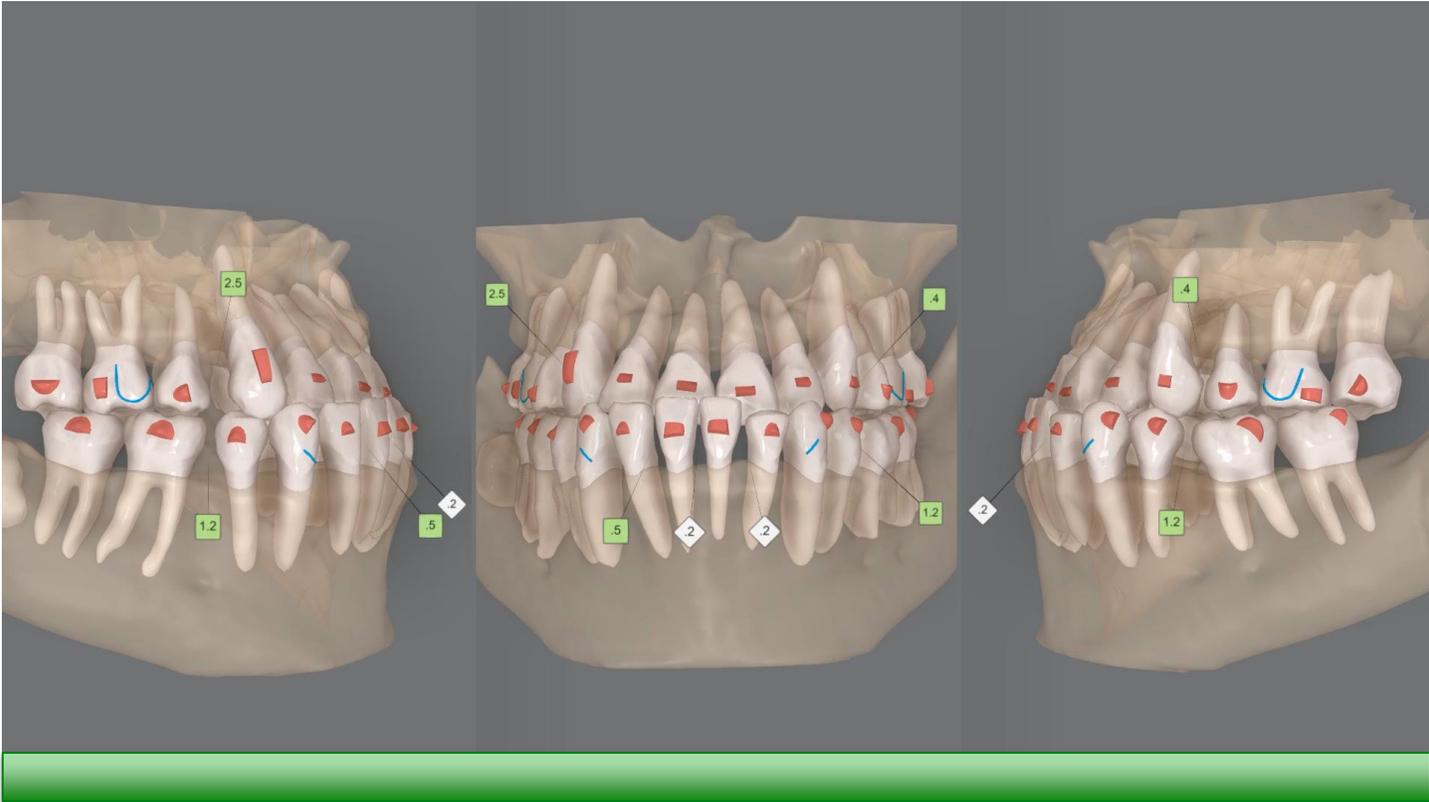
Our treatment planning software is constantly evolving based on the data of more than 12 million smiles transformed\* to help you confidently and more comprehensively treat patients.



**See patients' roots, crowns and bone during treatment planning in one auto-generated 3D model with new CBCT integration.**





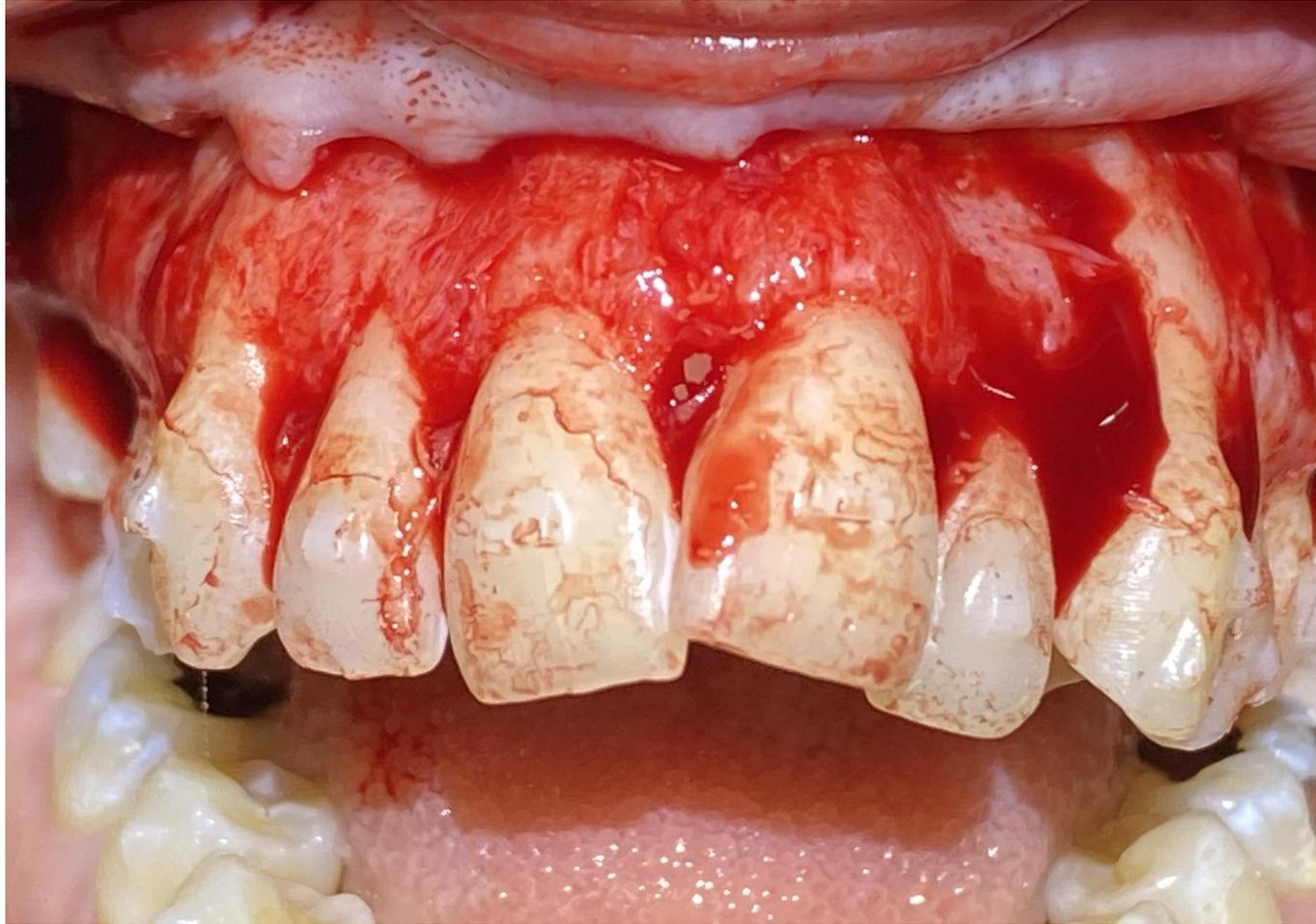


# Orthodontic Treatment and Root Exposure

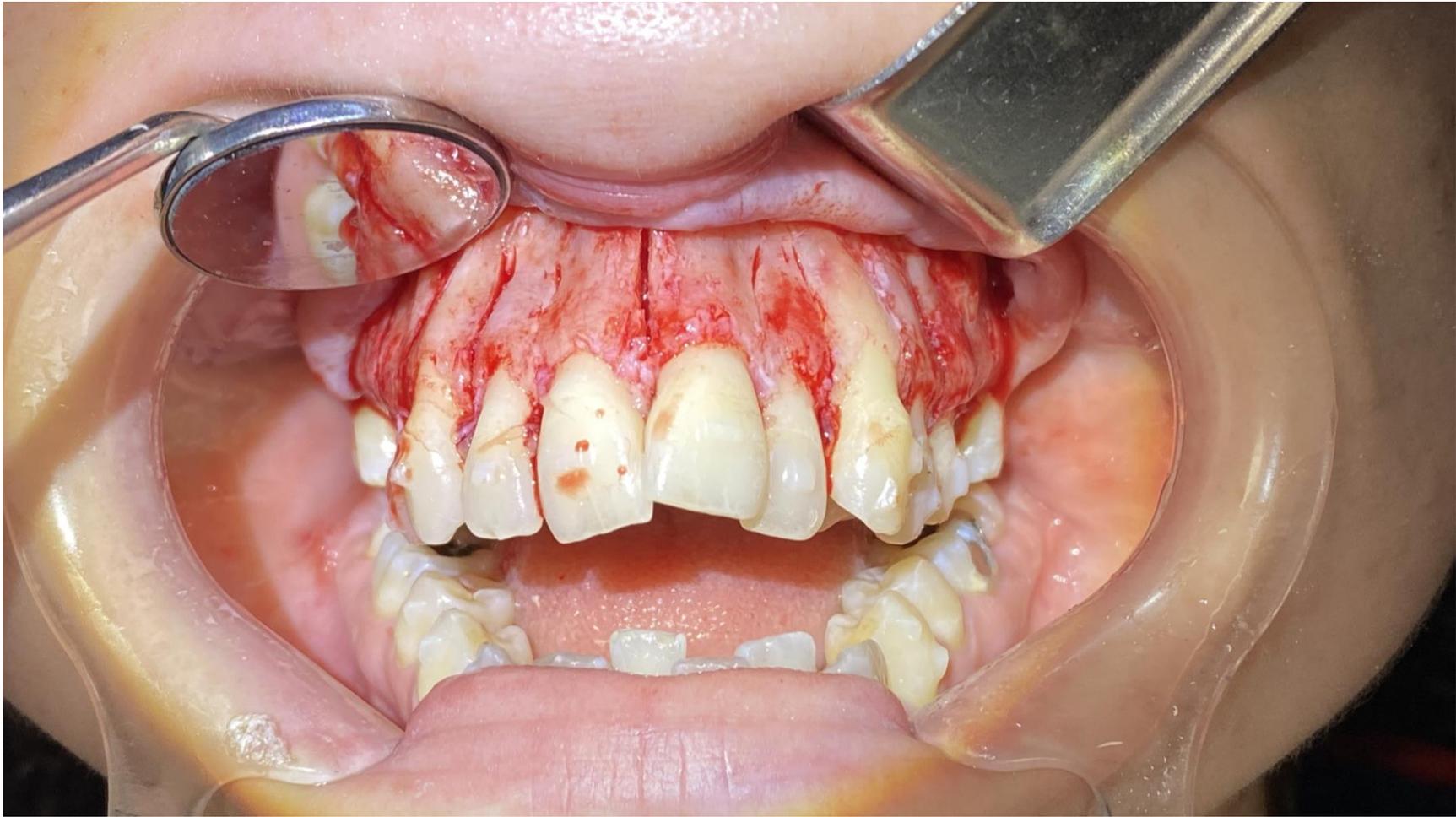


# Periodontal Accelerated Osteogenic Orthodontics (PAOO)<sup>TM</sup>













# Before and After





# Abfraction and Root Exposure



## Etiology

- The etiology of noncarious cervical lesions is considered multifactorial, with combinations of friction (attrition and abrasion), bio corrosion, and occlusal stress. (Teixeira et al., 2020)
- However, abfraction has a direct association with occlusal stress. (Duangthip et al., 2017)



Duangthip D, Man A, Poon PH, Lo ECM, Chu CH. Occlusal stress is involved in the formation of non-carious cervical lesions. A systematic review of abfraction. *Am J Dent.* 2017 Aug;30(4):212-220.

Nota A, Pittari L, Paggi M, Abati S, Tecco S. Correlation between Bruxism and Gastroesophageal Reflux Disorder and Their Effects on Tooth Wear. A Systematic Review. *J Clin Med.* 2022 Feb 19;11(4):1107. doi: 10.3390/jcm11041107.



# Abfraction and Root Exposure



## Abfraction:

A type of noncarious cervical lesion caused by the loss of tooth tissue.



## Hunter-Schreger Band:

Thin enamel structure and low packing density at the cervical area make it prone to fractures



## Mechanism:

Occlusal compressive forces and tensile stresses cause tooth flexure.



## Gingival Recession:

Leads to the exposure of root surfaces to the oral cavity.

Abfraction is a NCCL caused by the loss of tooth tissue, which is facilitated by the thin enamel structure and low packing density of the Hunter-Schreger band at the cervical area. It can be associated with gingival recession, exposing root surfaces to the oral cavity.

Nascimento, M. M., Dilbone, D. A., Pereira, P. N., Duarte, W. R., Geraldeli, S., & Delgado, A. J. (2016). Abfraction lesions: etiology, diagnosis, and treatment options. *Clinical, cosmetic and investigational dentistry*.



## Abfraction vs. Periodontal Retraction

While abfraction does not directly cause periodontal retraction, it can contribute to this condition by causing stress on the tooth structure that can lead to gum tissue pulling away from the teeth. (Fan and Caton, 2018)



Fan J, Caton JG. Occlusal trauma and excessive occlusal forces: Narrative review, case definitions, and diagnostic considerations. J Periodontol. 2018 Jun;89 Suppl 1:S214-S222. doi: 10.1002/JPER.16-0581.

## Surgical Management to Treat Root Exposures

- Soft tissue graft
- Subepithelial connective tissue graft
- Tunneling techniques, laser assisted gum lift



# Surgical Techniques



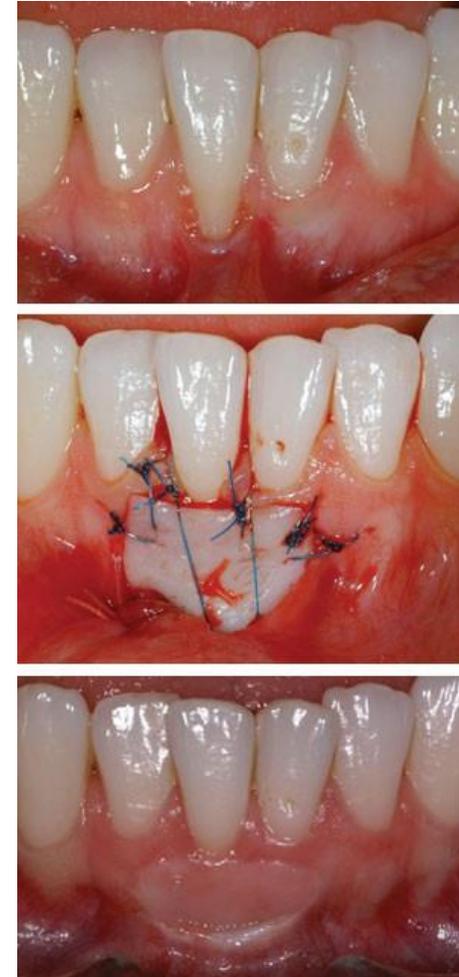
- Soft tissue graft
- Subepithelial connective tissue graft



# Surgical Techniques



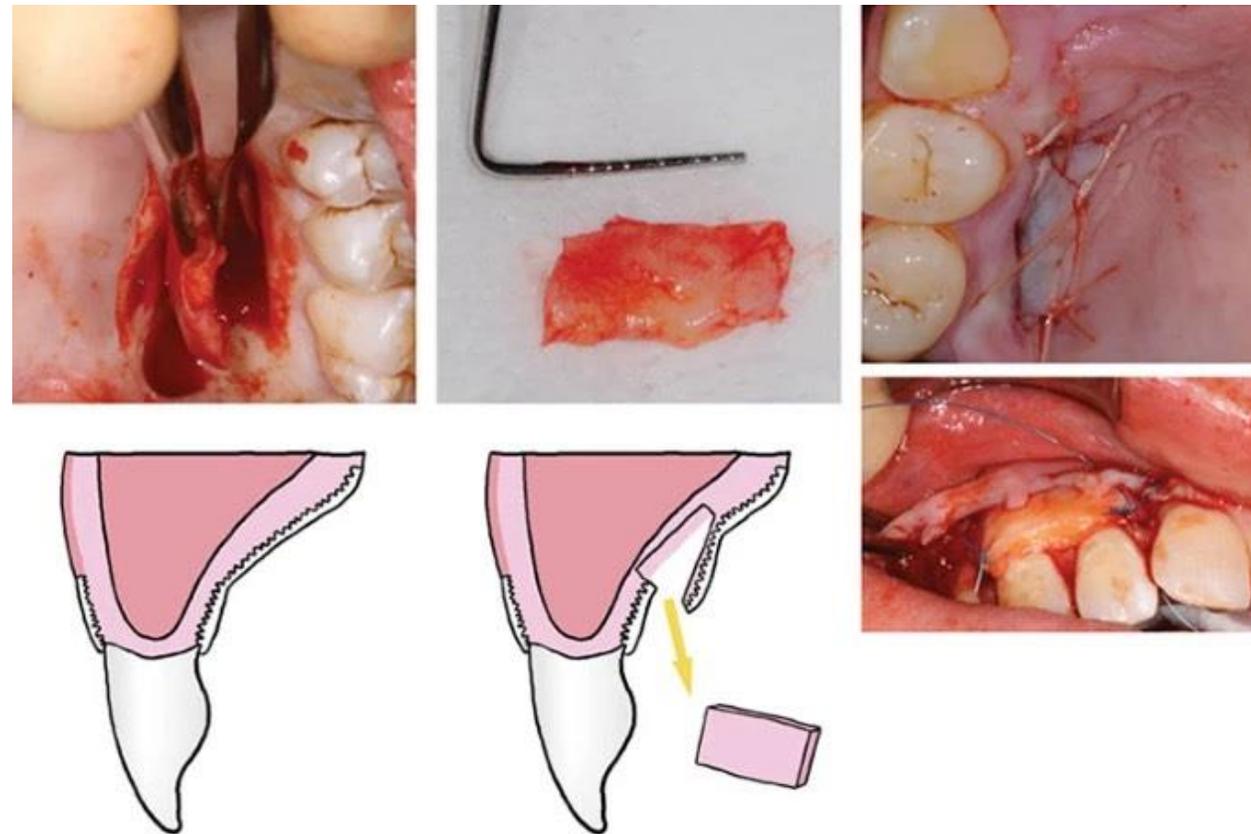
Free grafts are used as an alternative to pedicle grafts, especially in areas where the gingival biotype is thin or lacks **keratinized tissue**. They offer advantages, such as customized size and shape, making them suitable for various gum recession cases.



Patel, M., Nixon, P. & Chan, MY. *Gingival recession: part 3. Surgical management using free grafts and guided tissue regeneration.* *Br Dent J* 211, 353–358 (2011). <https://doi.org/10.1038/sj.bdj.2011.861>



The **subepithelial connective tissue graft** with a coronally advanced flap is a highly effective procedure considered the gold standard in grafting. It involves removing connective tissue from the palate and transplanting it to the recipient site. A coronally advanced flap is then used to cover the graft, promoting new tissue growth and achieving root coverage.



Patel, M., Nixon, P. & Chan, MY. Gingival recession: part 3. Surgical management using free grafts and guided tissue regeneration. *Br Dent J* 211, 353–358 (2011). <https://doi.org/10.1038/sj.bdj.2011.861>

# Surgical Techniques



A



B



C



D



E



F



G



H

Weinberg, E.; Kolerman, R.; Kats, L.; Cohen, O.; Masri, D.; Sebaoun, A.; Slutzkey, G. Coronally Advanced Flap with Connective Tissue Graft for Treating Orthodontic-Associated Miller Class III Gingival Recession of the Lower Incisors: A One-Year Retrospective Study. *J. Clin. Med.* **2022**, *11*, 235.



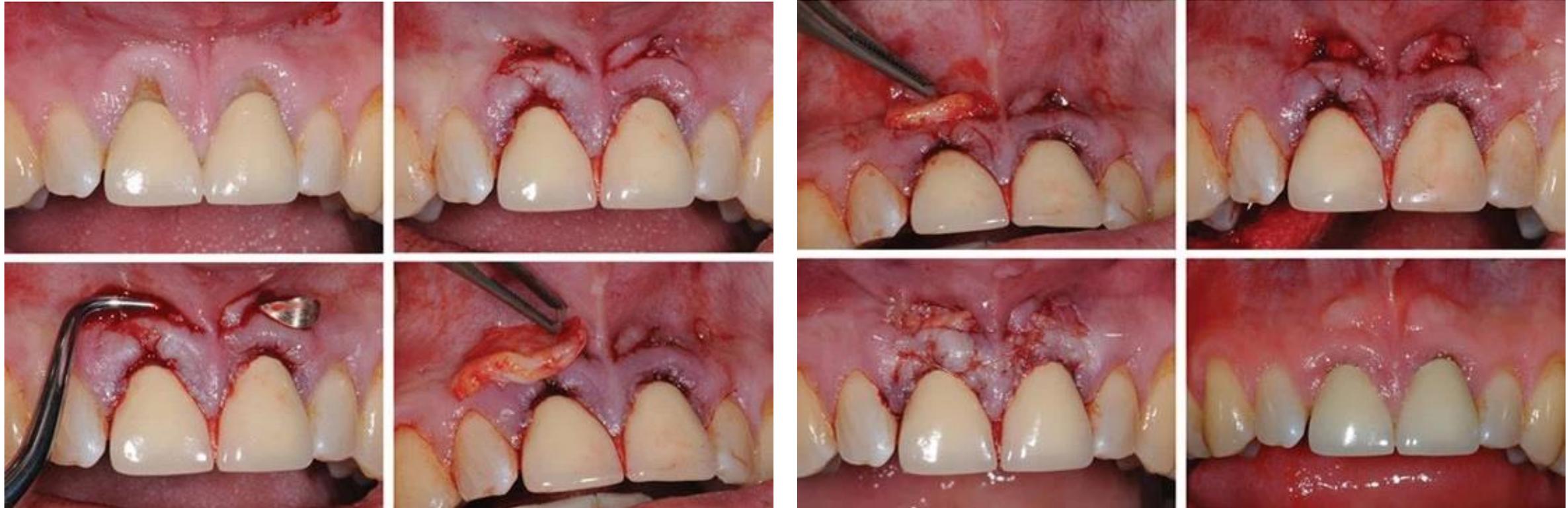
# Surgical Techniques



Patel, M., Nixon, P. & Chan, MY. Gingival recession: part 3. Surgical management using free grafts and guided tissue regeneration. *Br Dent J* 211, 353–358 (2011). <https://doi.org/10.1038/sj.bdj.2011.861>



# Surgical Techniques



Patel, M., Nixon, P. & Chan, MY. Gingival recession: part 3. Surgical management using free grafts and guided tissue regeneration. *Br Dent J* 211, 353–358 (2011). <https://doi.org/10.1038/sj.bdj.2011.861>



## Tunneling techniques

### Laser-assisted gum lift

# Surgical Techniques

## *Laser-Assisted Gum Lift*



- Bonding preparation for suturing
- Blood collection
- Preparation of platelet-rich fibrin (PRF)
- Hard tissue and soft tissue conditioning
- Tunneling technique and lift
- Suturing



# Surgical Techniques

## Laser-Assisted Gum Lift



# Surgical Techniques

## Bonding Procedure



- Etch
- Spot bond
- Composite



# Surgical Techniques

## Bonding Procedure

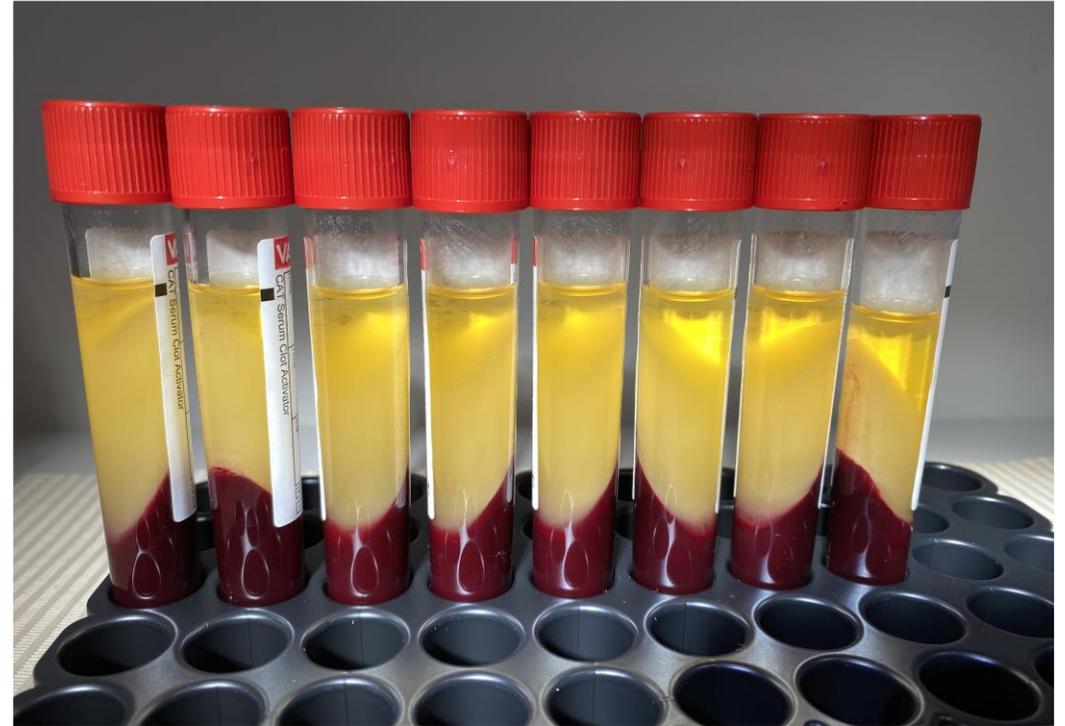


Splint



## Blood Draw?

Patient selection  
and evaluation



## Platelet-rich fibrin clots



# PRF Advantages

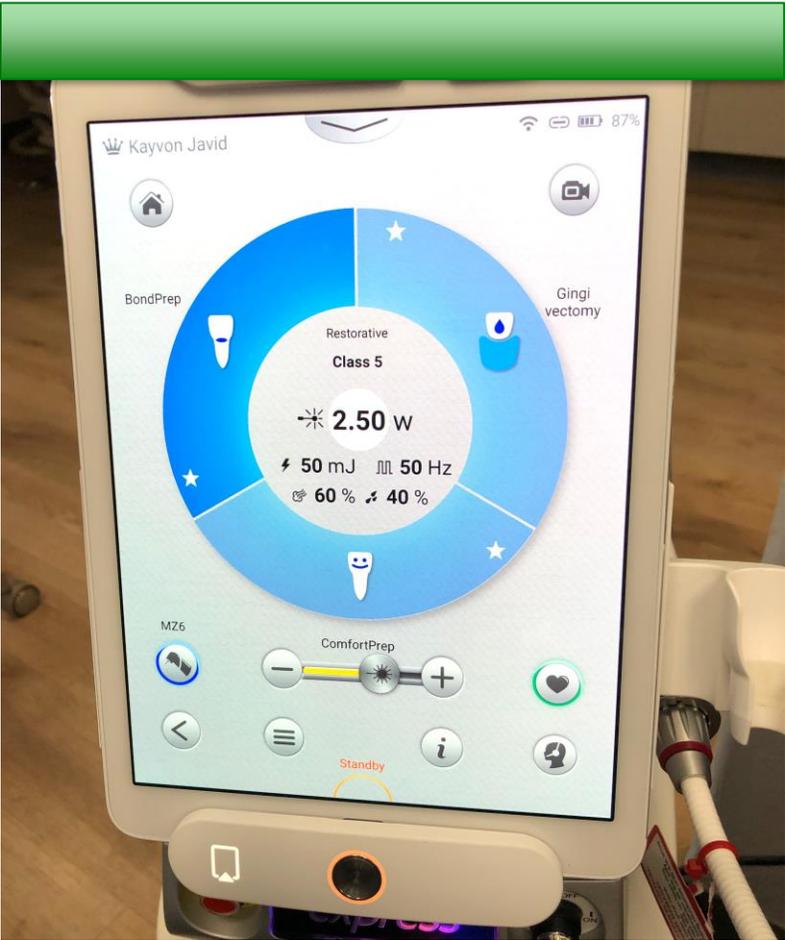
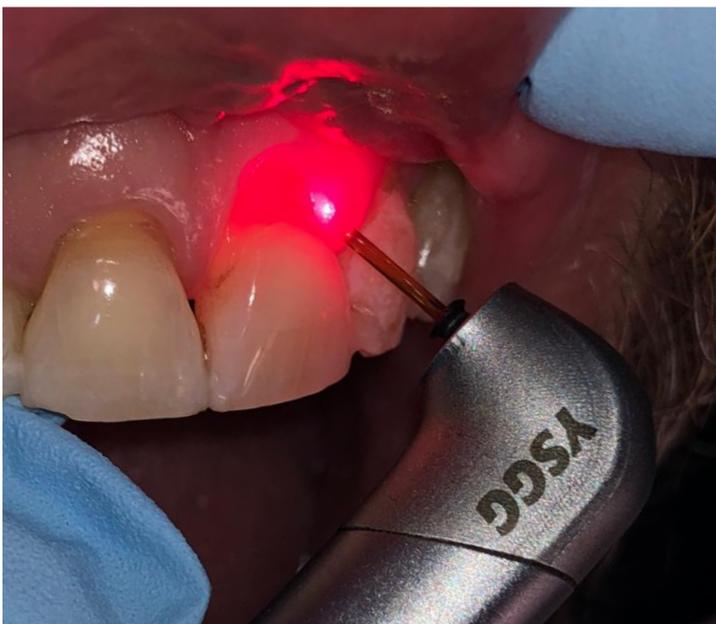


- Helps soft tissue healing
- Post operative pain
- Reduces inflammation
- Reduces swelling

Mourão CF, de Mello-Machado RC, Javid K, Moraschini V. The use of leukocyte- and platelet-rich fibrin in the management of soft tissue healing and pain in post-extraction sockets: A randomized clinical trial. J Craniomaxillofac Surg. 2020 Apr;48(4):452-457. doi: 10.1016/j.jcms.2020.02.020



## Root surface cleaning and soft tissue conditioning using laser

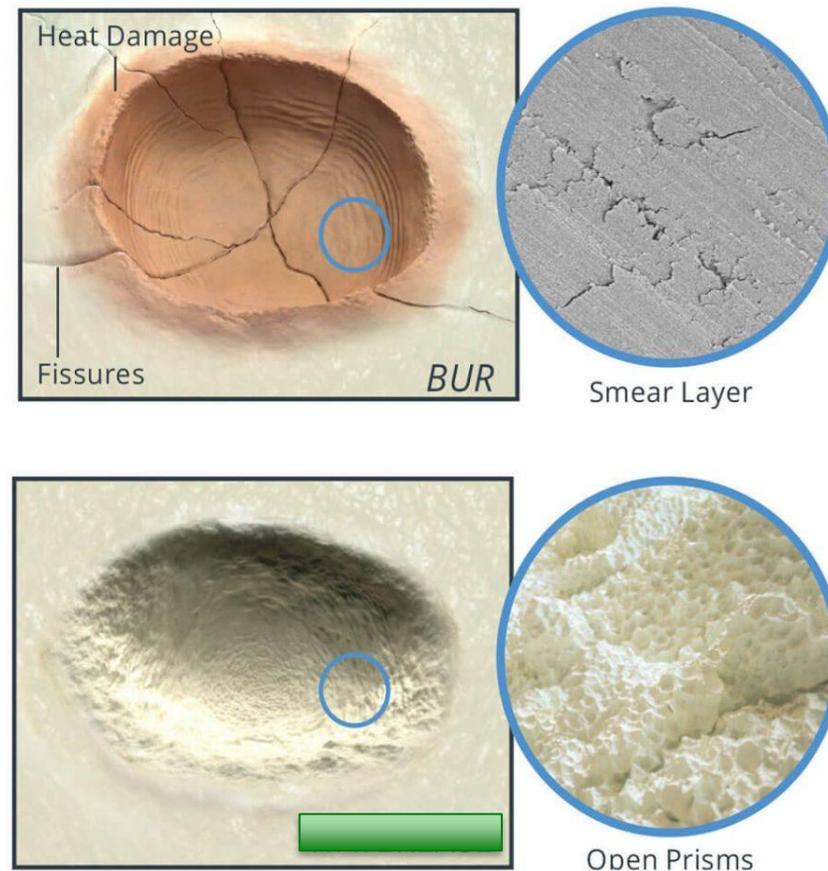


## Effect of Er,Cr:YSGG on soft tissue



## Why Er,Cr:YSGG?

- Laser-treated surfaces provide a suitable environment for cell adhesion and growth
- Er,Cr:YSGG laser conditioning can promote fibroblast attachment on dentinal root surfaces



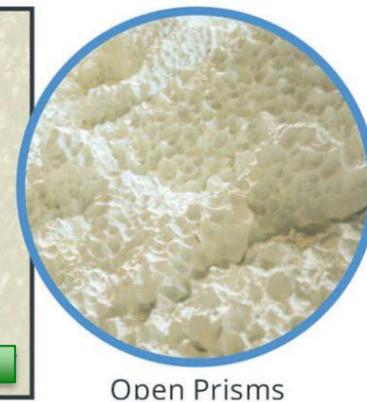
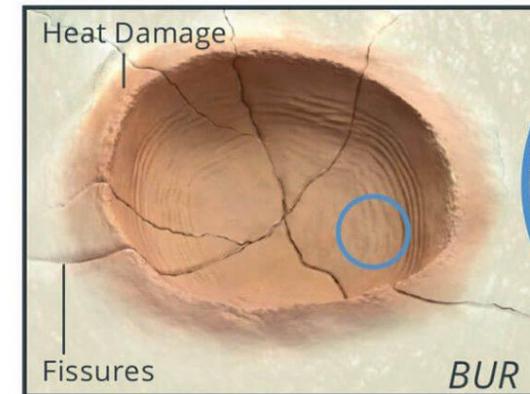
Fekrazad, R., Lotfi, G., Harandi, M., Ayremlou, S., & Kalhori, K. A. (2015). Evaluation of fibroblast attachment in root conditioning with Er, Cr: YSGG laser versus EDTA: a SEM study. *Microscopy Research and Technique*, 78(4), 317-322.

## Root Surface Cleaning



## Why Er,Cr:YSGG?

- Rapid, precise, and clean removal of target tissues — without **heat damage**, **fractures**, or **smear layer created** by dental burs
- Laser energy has been shown to have an **anti-bacterial** effect in root canals, reducing *E. faecalis* by 99.71%



Fekrazad, R., Lotfi, G., Harandi, M., Ayremlou, S., & Kalhori, K. A. (2015). Evaluation of fibroblast attachment in root conditioning with Er, Cr: YSGG laser versus EDTA: a SEM study. *Microscopy Research and Technique*, 78(4), 317-322.

# Laser Advantages



## Minimal Invasive Soft Tissue Access

*Er,Cr:YSGG penetrates water 300% deeper than Er:YAG, which results in efficient cutting with better hemostasis, deeper coagulation and less bleeding.*



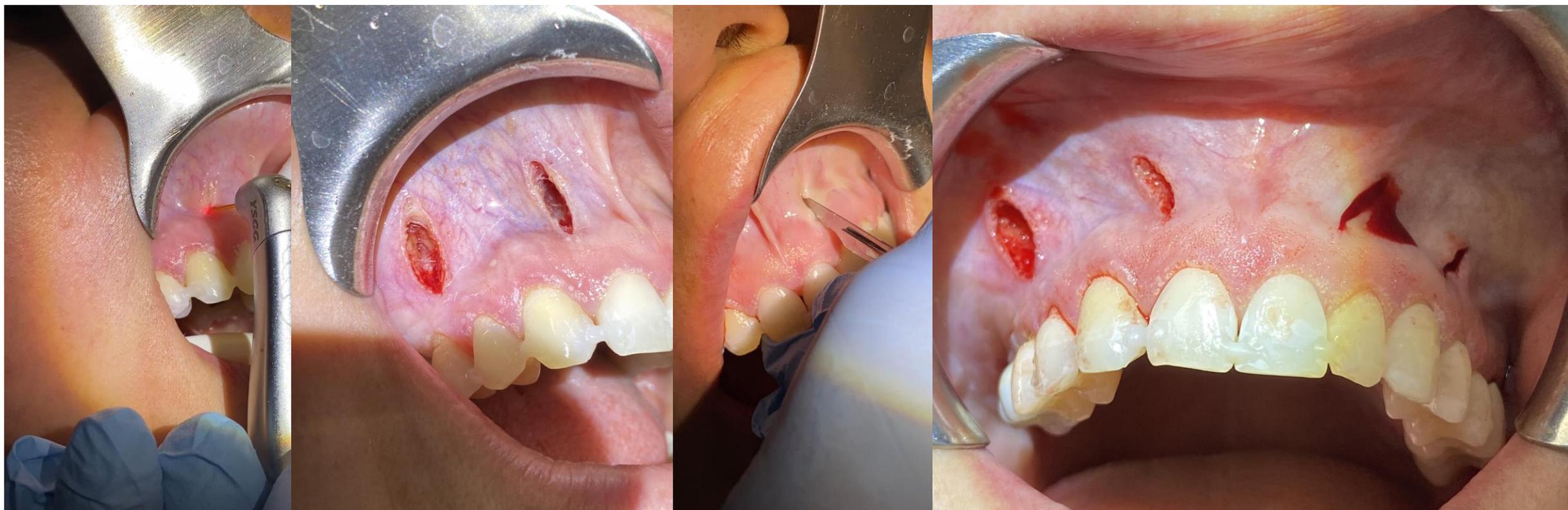
Fekrazad, R., Lotfi, G., Harandi, M., Ayremlou, S., & Kalhori, K. A. (2015). Evaluation of fibroblast attachment in root conditioning with Er, Cr: YSGG laser versus EDTA: a SEM study. *Microscopy Research and Technique*, 78(4), 317-322.



# Laser Advantages



Using laser technology to reduce bleeding and inflammation



## Instruments



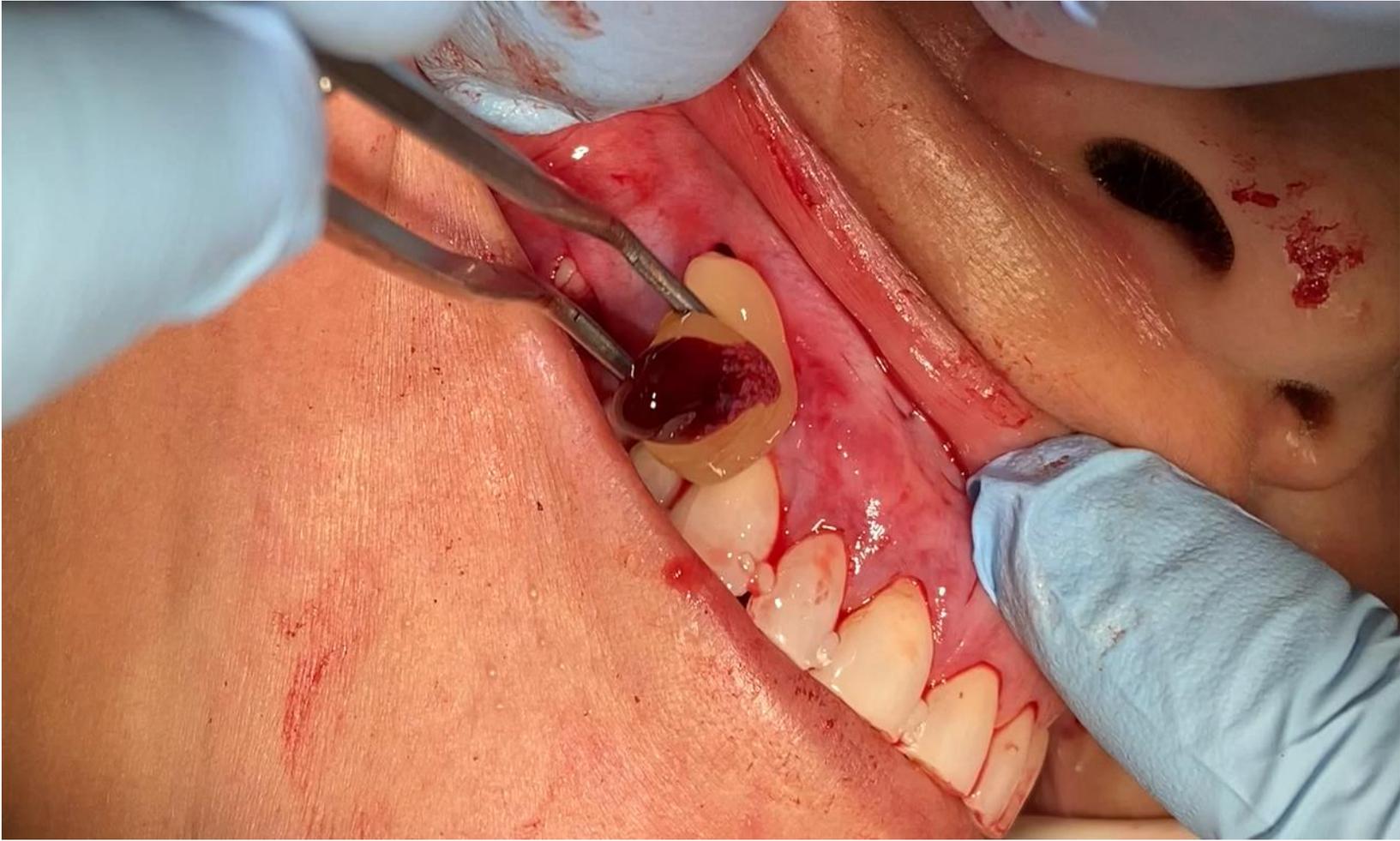
# Surgical Techniques



## Detachment



# Surgical Techniques



Suture



# Surgical Techniques Lower Arch



# Surgical Techniques

## Laser-Assisted Gum Lift



# Surgical Techniques

## Maxillary Arch Day of Surgery



# Surgical Techniques



Clear aligners were delivered (14 days post op)



# Surgical Techniques



6 months



# Surgical Techniques



6 months post op



# Surgical Techniques



6 months



5 years post op



5 years post op



5 years post op



# Surgical Techniques Before & After



Periodontal tissue grafting and regeneration are successful procedures for achieving root coverage and improving the health and appearance of the gum tissue. These procedures require careful planning, skilled execution, and proper follow-up care to ensure optimal outcomes and prevent complications. Studies have shown that periodontal tissue grafting, and regeneration can provide long-lasting results with high patient satisfaction. These procedures are effective treatment options for root coverage. They can improve the health and aesthetics of the gum tissue, improving overall oral health and quality of life for patients.



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## *Reducing the Proportion of Older Adults with Untreated Root Surface Decay (OH-4)*

Q & A

Gina Thornton-Evans, DDS, MPH



## OH-04: Reduce the proportion of older adults with untreated root surface decay.

1. Improve access to care, especially to minority populations and those in rural America, using an integrated model approach.
2. Increase use of topical fluorides in older adults through increased education, access, and application by other healthcare professionals.
3. Take oral health to where older adults are: senior centers, community events, assisted/senior living, etc.

- June 14, 2023 at noon ET
- Increasing the number of states and the District of Columbia that have an oral and craniofacial health surveillance system (OH-D01)
- Partners: Association of State and Territorial Dental Directors, American Association of Public Health Dentistry, and Centers for Disease Control and Prevention Division of Oral Health
- Registration Link: [https://astdd-org.zoom.us/meeting/register/tZllcOCorzMtHt0dhLp69pKRY\\_Z9LH0xc1mQ](https://astdd-org.zoom.us/meeting/register/tZllcOCorzMtHt0dhLp69pKRY_Z9LH0xc1mQ)



## *For More Information:*

- Healthy People 2030, Building a healthier future for all:  
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- Oral Conditions:  
<https://health.gov/healthypeople/objectives-and-data/browse-objectives/oral-conditions>
- Leading Health Indicators:  
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# Question and Answer

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## Missed Connections

### Providers and Consumers Want More Medical-Dental Integration

Oral health and overall health are inextricably linked. There is mounting evidence to suggest that poor oral health is related to a variety of chronic health conditions, such as high blood pressure, dementia, diabetes, and obesity. Despite this known connection, dental care is still largely siloed from medical care. The Centers for Disease Control and Prevention (CDC) estimates that integrating basic health screenings into a dental setting could save the health care system up to \$100 million every year.<sup>1</sup>

CareQuest Institute for Oral Health conducted a nationally representative survey in January and February 2021 to assess consumers' perspectives on oral and overall health (n=5,320). CareQuest Institute also conducted a nationwide survey of oral health providers to assess perspectives and current behaviors related to interprofessional practice (n=377). Consumers and oral health providers described a lack of integration between medical and oral health care, and a desire for increased interprofessional collaboration.

**Key Findings:**  
**Medical-dental collaboration is currently uncommon.**

- 63% of consumers report that their primary medical doctor "rarely" or "never" asks about their oral health.
- 33% of consumers report that their oral health provider "rarely" or "never" asks about their overall health.
- 45% of responding oral health providers report "rarely" integrating their care with clinicians outside of dentistry, with only 14% reporting it is part of their "daily" practice.
- Less than a third of consumers report receiving general health screenings from their oral health provider.
- A majority (89%) of adults report never receiving a referral from their oral health provider to a non-oral health professional.
- Almost a fourth (24%) of participating oral health providers report currently implementing interprofessional practice.

# Webinar Evaluation

Complete the **evaluation by Friday, May 12** to receive CE credit. You will receive a link to the survey within 24 hours.

## *Next Webinar:*

**May 18:** Using Oral Health Equity Data to Improve Patient Care at 4–5 p.m. ET

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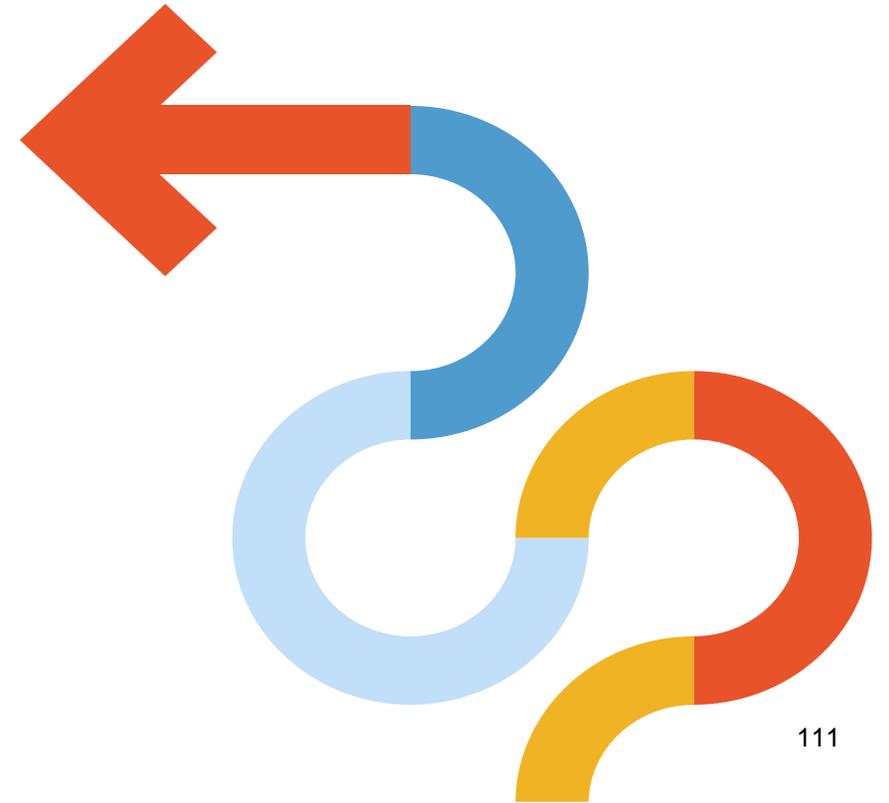
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