

Prevention in Action: Dental Sealants

Irene Hilton, DDS, MPH – NNOHA Dental Consultant
Candace Owen, RDH, MS, MPH – NNOHA Education Director

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Missouri Oral Health Coalition

Objectives

- Review the evidence base for applying dental sealants.
- Describe strategies to increase sealant placement.
- Learn how to help families understand the benefits of sealants

Today's Session

- 45 minutes- whole group
 - What and why of sealants
 - National & MO state data
 - Sealant Myths
- 45 minute- breakouts
 - DDS & RDH
 - Non-dental providers

About NNOHA

- Founded in 1991 by FQHC Dental Directors who identified a need for peer-to-peer networking, collaboration, research, and support
- Membership now includes more than 3,500 dentists, dental hygienists, supporters, and partners



HRSA National Oral Health Training/Technical Assistance Grantee

- Learning Collaboratives
- Annual Conference
- Webinars
- NNOHA Listserv
- NOHLI
- Resources – Operations manuals, dental forms library,

www.nnoha.org or email info@nnoha.org

What and Why of Sealants

What are Sealants?

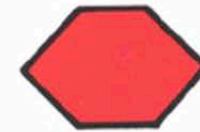
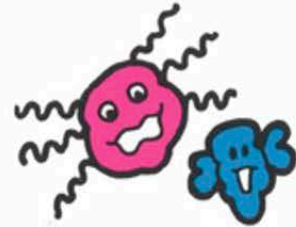


Before

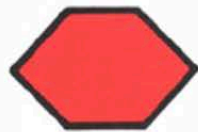


After

Decay Equation



Sugar + Strep Mutans $\xrightarrow{\text{FORMS}}$ **Acid**



Acid + Healthy Tooth $\xrightarrow{\text{FORMS}}$ **Decay**

Sealant Protecting Inner Pit From Decay

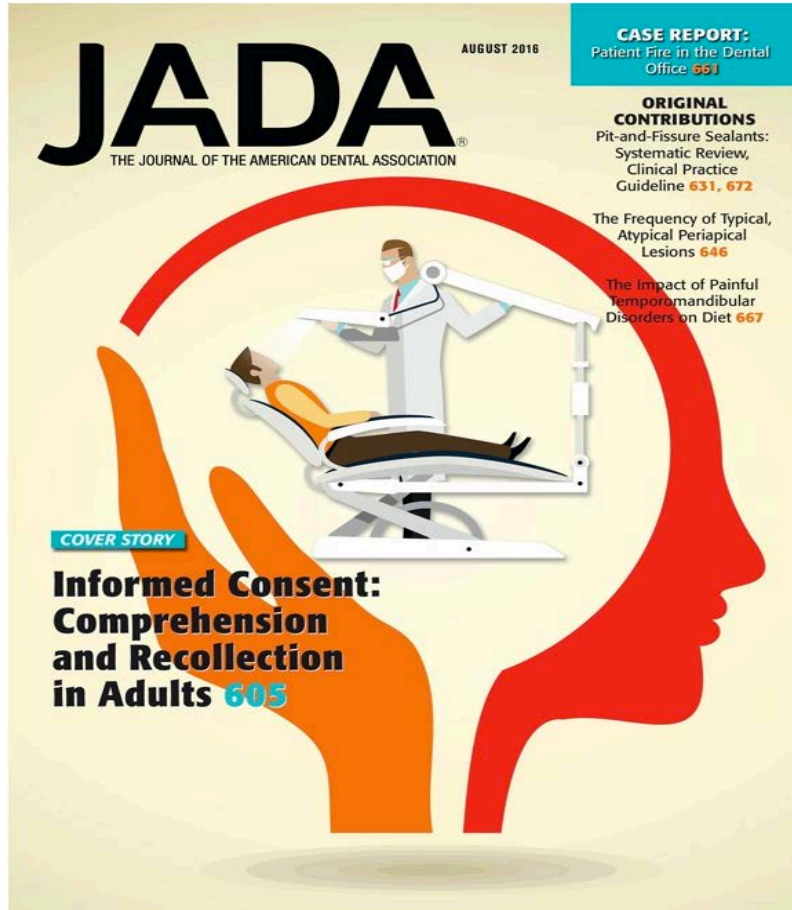


- Mother nature incompletely fuses our enamel and we are doomed to get caries, no matter how much fluoride exposure
- About 80 % of caries occurs in pits and fissures

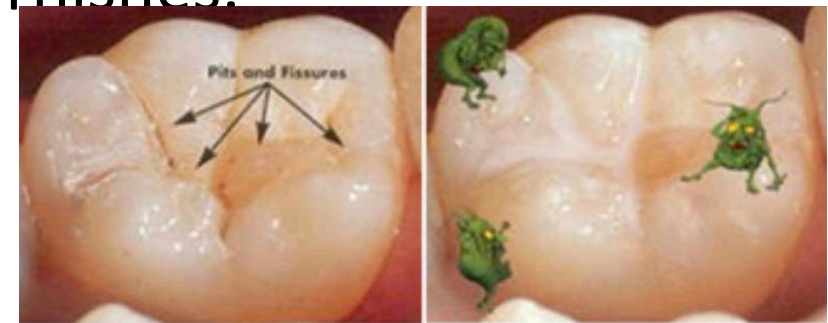
Poll

- I have had a cavity in at least one of my back teeth (molars)
 - Yes
 - No

2016 JADA Guidelines



- Sealants are effective in preventing and arresting pit-and-fissure occlusal carious lesions of primary and permanent molars in children and adolescents compared with the non-use of sealants or use of fluoride varnishes.

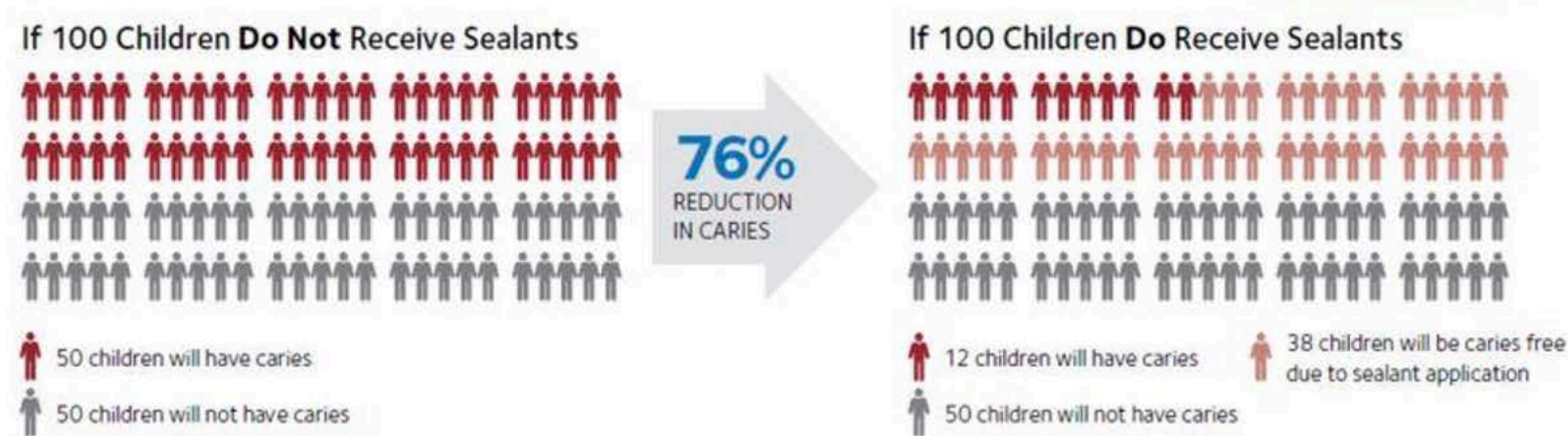


UNPROTECTED MOLAR
PRONE TO DECAY

MOLAR WITH PIT
AND FISSURE SEALANT

Sealants for Caries Prevention

- Use of pit-and-fissure sealants compared with nonuse of sealants, **reduces** the incidence of **occlusal carious lesions in permanent molars by 76% after 2 to 3 years of follow-up**



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Potential to save **38 out of every 100 kids** from a lifetime of restorations & repairs

Recommendation

QUESTION	RECOMMENDATION	QUALITY OF THE EVIDENCE	STRENGTH OF RECOMMENDATION
Should dental sealants, when compared with nonuse of sealants, be used in pits and fissures of occlusal surfaces of primary and permanent molars on teeth deemed to have clinically sound occlusal surfaces or noncavitated carious lesions?	The sealant guideline panel recommends the use of sealants compared with nonuse in permanent molars with both sound occlusal surfaces and noncavitated occlusal carious lesions in children and adolescents*	Moderate	Strong

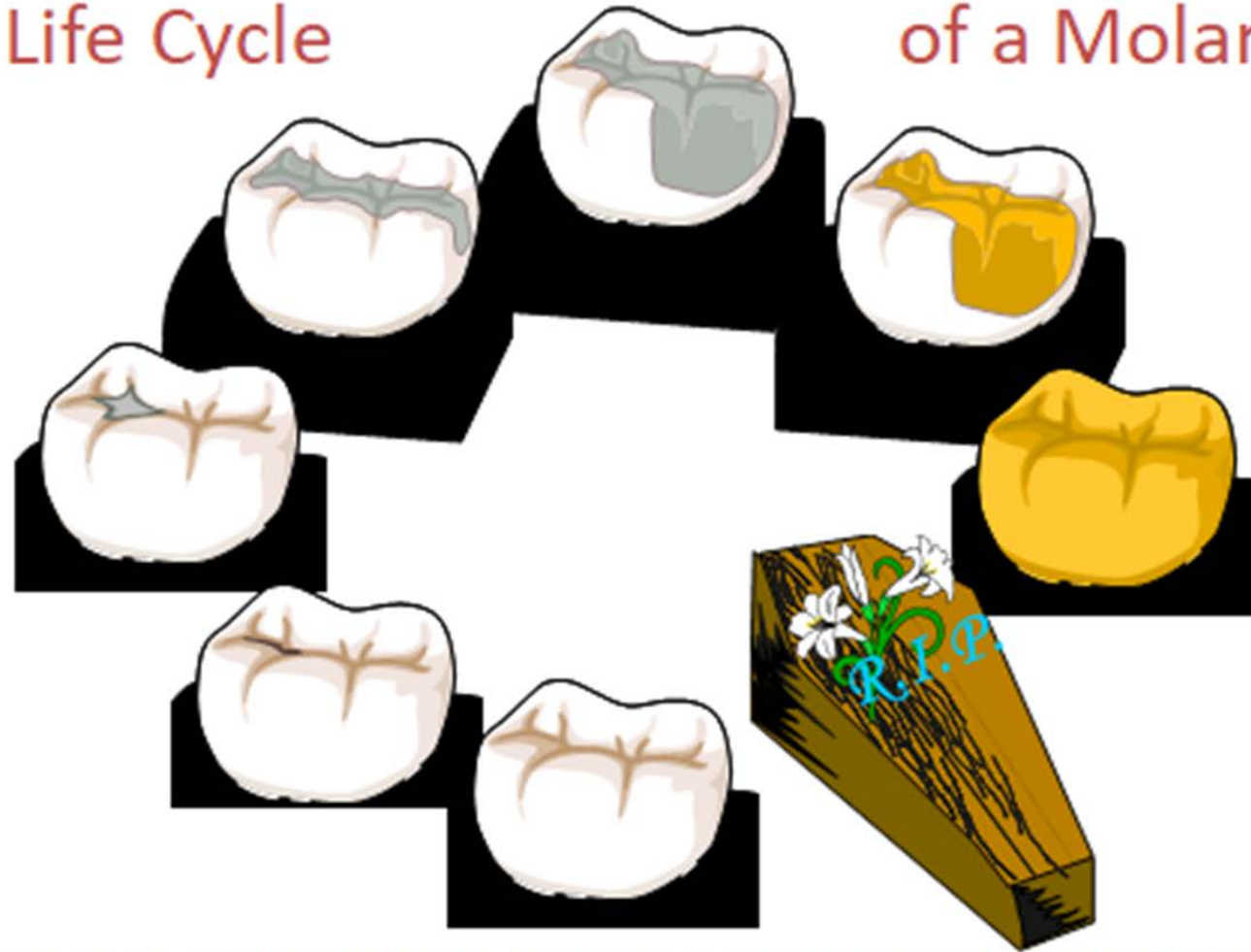


Before and after photo of tooth with dental sealant Photo source: Dentaltown board on Pinterest

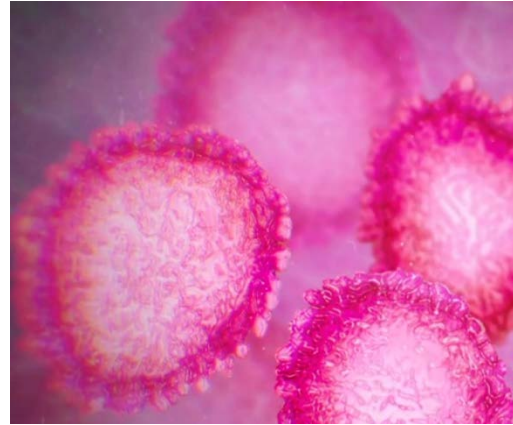
Poll

- I believe that I have had at least one sealant placed in my mouth during my life time
 - Yes
 - No
 - Unsure/Don't know

Life Cycle of a Molar



Simonsen. New materials on the horizon. *Journal of the American Dental Association* 1991; 122(8):25-31.



Sealants More Important than EVER
Prevent future Aerosol Generating Procedures!

National & State Data

Caries Prevalence Permanent Teeth Children 6-11

NHANES 2015-16

Description	Percentage
Children ages 6-11	50.5 %
MO 3 rd Graders	54.8 % 2018-19
< 100% FPL Children 2-19	56.3 %
100-199% FPL Children 2-19	51.8 %
200-299% FPL Children 2-19	42.2 %
300 or more FPL Children 2-19	34.8%



Sealant prevalence increased by 35% among children

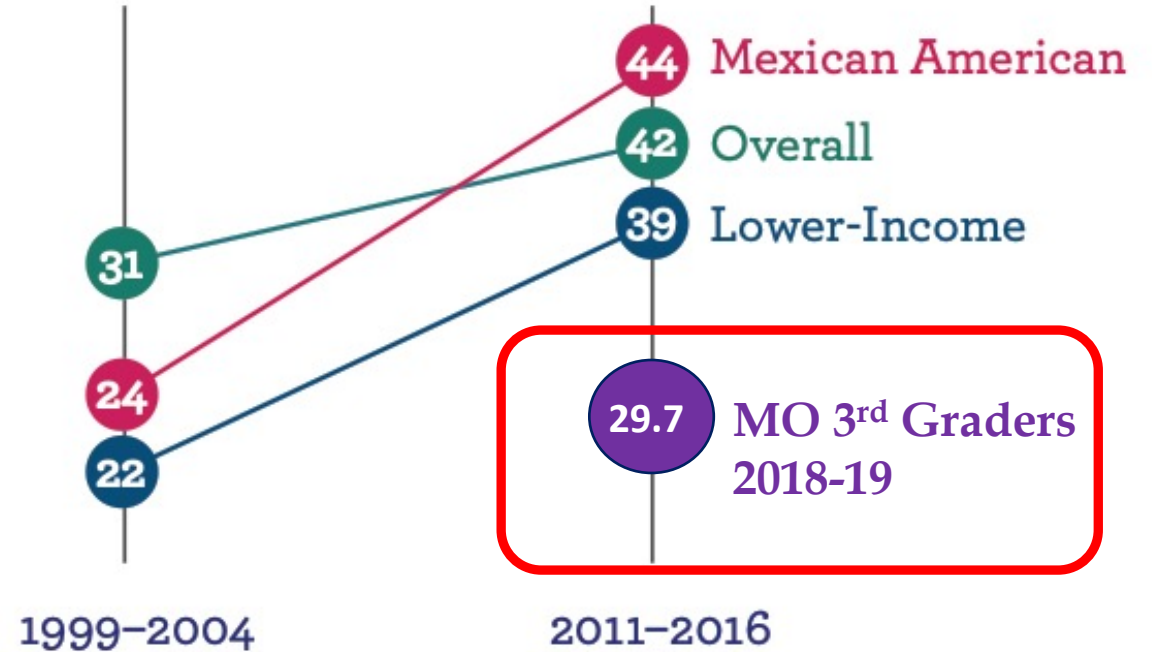


4 in 10 children aged 6–11 years had dental sealants on permanent teeth.

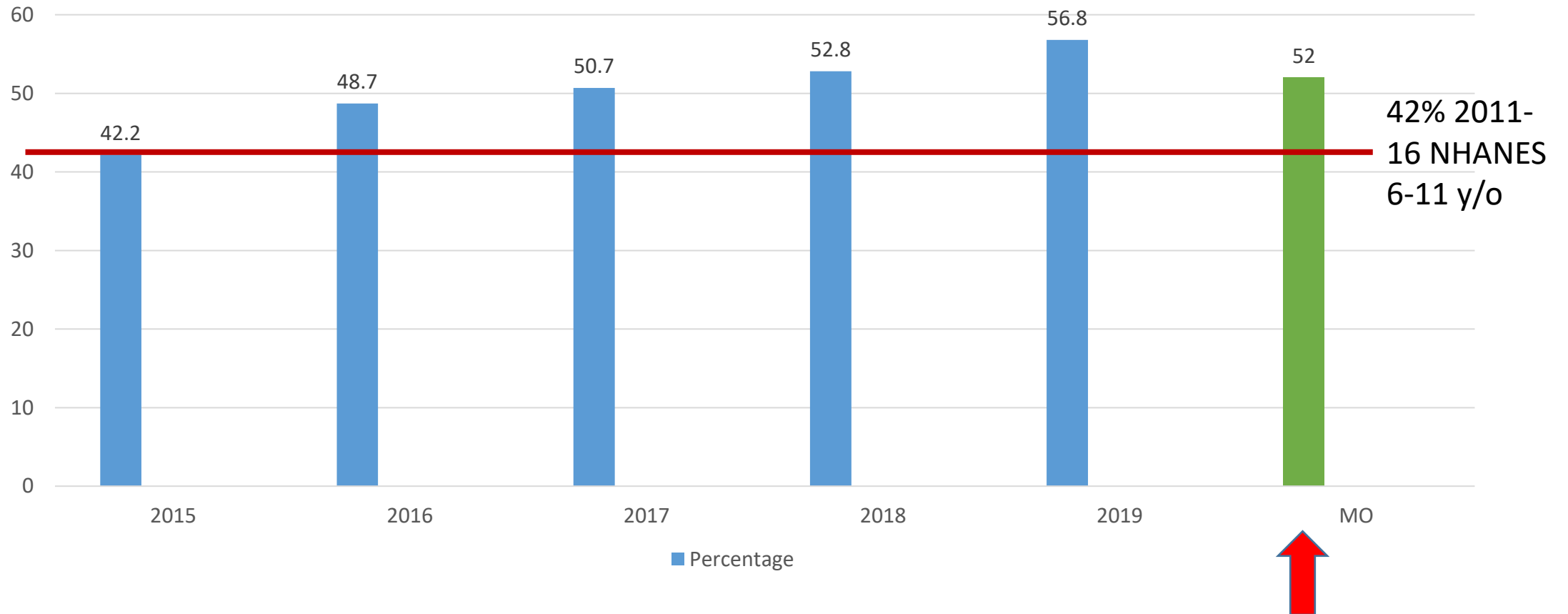
Sealant prevalence among **Mexican American** and **lower-income** children nearly doubled.

<http://bit.ly/OralHealthReport>

Percentage of children aged 6–11 with sealants



2019 UDS Sealants Measure (FQHCs) Great Progress & Improved Outcomes



Poll

- I did not know that Missouri is below the national average for sealant placement (prevalence)
 - Yes
 - No

Dental Sealant Myths

Sealants Don't Work

- Use of pit-and-fissure sealants compared with nonuse of sealants, reduces the incidence of occlusal carious lesions in permanent molars by 76% after 2 to 3 years of follow-up ([https://jada.ada.org/article/S0002-8177\(16\)30473-1/pdf](https://jada.ada.org/article/S0002-8177(16)30473-1/pdf))
- Cochrane Library (https://www.cochrane.org/CD001830/ORAL_sealants-preventing-tooth-decay-permanent-teeth)
- Recommended by ADA, AAPD, CDC, NIH

Sealants Don't Work

- Consistent evidence from private dental insurance and Medicaid databases that placement of sealants on first and second permanent molars in children and adolescents is associated with reductions in the subsequent provision of restorative services
(<https://jada.ada.org/action/showPdf?pii=S0002-8177%2814%2961434-3>)

Sealants Don't Last

- Sealant retention consistently exceeds 90% in one- to three-year clinical trials (<https://www.aapd.org/globalassets/media/publications/archives/asdc-aap-05-01.pdf>)
- Most public and private insurances pay for sealants every three years
- Sealants wear down but materials remains in the grooves
- **Demanding more from sealants?**
 - Most dental procedures are not permanent/ the final procedure that will be done on a tooth

If I Seal Over Decay (accidentally or on purpose), it's Going to be Worse

- Placement of pit-and-fissure sealants **significantly reduces the percentage of non-cavitated carious lesions that progress** in children, adolescents and young adults for as long as five years after sealant placement, compared with unsealed teeth.
 - Grade of evidence: 1a- Evidence from systematic reviews of randomized controlled trials (*Griffin SO, Oong E, Kohn W, Vidakovic B, Gooch BF, CDC Dental Sealant Systematic Review Work Group, et al. The effectiveness of sealants in managing carious lesions. J Dent Res 2008;87(2):169-174*)

2008 ADA Sealant Guidelines

[https://jada.ada.org/action/showPdf?pii=S0002-8177\(14\)61434-3](https://jada.ada.org/action/showPdf?pii=S0002-8177(14)61434-3)



If I Seal Over Decay (accidentally or on purpose), it's Going to be Worse

- There are **no findings that bacteria increase under sealants**. When placed over existing caries, sealants lower the number of viable bacteria by at least 100-fold and reduce the number of lesions with any viable bacteria by 50 percent.
 - Grade of evidence: 1a- Evidence from systematic reviews of randomized controlled trials (*Oong EM, Griffin SO, Kohn W, Gooch BF, Caufield P. The effect of dental sealants on bacteria levels in caries lesions: a review of the evidence. JADA 2008;139(3):271*)
- 2008 ADA Sealant Guidelines [https://jada.ada.org/action/showPdf?pii=S0002-8177\(14\)61434-3](https://jada.ada.org/action/showPdf?pii=S0002-8177(14)61434-3)

Poll

- It is new to me that you can place sealants over early decay and stop the decay process
 - Yes
 - No

Sealants are Too Technique Sensitive

	Resin	Glass Ionomer
Main reason for lack of retention	Moisture contamination	Insufficient moisture
Level technique sensitivity	High	Low-moderate
Ability to master placement with standardized procedures and practice	High	High



Sealants have Dangerous Chemicals in Them

- *Bisphenol A (BPA)* - can bind to estrogen receptors, may affect estrogen-responsive tissue and cells. Studies suggest numerous health disorders associated with high BPA levels, typically associated with industrial exposure
 - Used in the synthesis of monomers common to dental resins
 - *Plastic/composite materials*
 - *Resin sealants*
 - *Orthodontic cement*
- Saliva may break down mouth-contacting layer of fresh resin and release trace amounts of BPA
- Ways to reduce releasing trace amounts
 - Maximize set of resin materials with correct light cure use
 - Minimum distance between curing resin & light
 - Rinsing after curing
 - Use non-resin sealant material
- <https://www.ada.org/en/member-center/oral-health-topics/bisphenol-a>



http://www.mouthhealthy.org/~media/MouthHealthy/Images/Articles/ADA_sealants_are_safe_facebook.jpg

SEALANTS ARE SAFE



96%
5800 ng
Food and
Drink



2%
138 ng
Receipts



1%
58 ng
Dust



1%
22 ng
Cosmetics



0.13%
8 ng
Air



0.001%
0.09 ng
Dental
Sealants

Breathing air exposes people to about 100 times more BPA than dental sealants.

Other Sealant Resources

- National Institute of Health: <https://www.nidcr.nih.gov/health-info/sealants>
- National Maternal and Child Oral Health Resource Center: <https://www.mchoralhealth.org/highlights/dental-sealants.php>
- American Dental Association (ADA): <https://www.ada.org/en/member-center/oral-health-topics/dental-sealants>
- 2016 Dental Sealant Guidelines (ADA): <https://ebd.ada.org/en/evidence/guidelines/pit-and-fissure-sealants>
- Centers for Disease Control and Prevention: <https://www.cdc.gov/oralhealth/fast-facts/dental-sealants/index.html>

NNOHA Sealant Resources

- NNOHA UDS Sealant FAQ: <https://nnoha.org/resources/hrsa-sealant-measure-faqs/>
- NNOHA Webinar Recordings: <https://nnoha.org/resources/webinar-slides-and-recordings/>

Questions?

Contact Us!



Candace Owen, RDH, MS, MPH
NNOHA Education Director
candace@nnoha.org



Irene V. Hilton, DDS, MPH, FACD
NNOHA Dental Consultant
irene@nnoha.org

National Network for Oral Health Access
181 E 56th Avenue, Suite 401
Denver, CO 80216
Phone: (303) 957-0635
Fax: (866) 316-4995
info@nnoha.org

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