Providing Hygiene in Title 1 Schools.

Aimee Cassinelli D.M.D.

Updates in Pediatric Dentistry

About me...

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Education and Training

- **University of Richmond, 1996**
- **University of Pittsburgh School of Dental Medicine, 2000**
- **Children's Hospital of Pittsburgh Resident 2001-2002**
- **Chief Resident 2002**


PITTSBURGH
STEELERS
Steelers
NFL

Experience

- Private Practice, Pittsburgh
- Faculty Member University of Pittsburgh School of Dental Medicine
- Cleveland Clinic Cleft Palate Cranio-Facial Team
- Private Practice Marietta, Georgia

- Specialized care for children and adolescents in a child friendly environment
- Focus on preventative care to build healthy habits
- Extensive experience in sedation dentistry
- Laser frenectomy and tongue tie release

About Our Practice

My Family

February is Children's Dental Health Month

SINCE 1970 Tom's OF MAINE

tooth decay is the *most common* childhood disease

3 out of every 5 children are affected by tooth decay

16 million lack access to basic dental care

5x more common than asthma

51 million school hours missed due to oral disease

tooth decay is *almost entirely* preventable!

Every $1 spent on prevention in oral care **can save you $8–$50** on restorative and emergency procedures

2 is too late! Take your child to see a dentist **before age 1**

$1 million Amount Tom's of Maine has provided to dental clinics to increase access to oral care

Brush your teeth at least **twice a day** for **two minutes**

Tooth decay is the most common childhood disease, affecting nearly 60 percent of children. **SOURCE: http://www.pewtrusts.org/our_work_detail.aspx?id=574** Tooth decay is the most common disease of childhood—five times more common than asthma. **SOURCE: http://www.cdc.gov/oralhealth/publications/factsheets/dental_caries.htm** Oral disease causes kids to miss 51 million school hours and their parents to lose 25 million work hours annually. **SOURCE: http://www.healthymouthshealthylives.org/** More than 16 million children still lack access to basic dental care. **SOURCE: Pew Center on the States, 2011, 50-state report card, http://www.pewstates.org/uploadedFiles/PCS_Assets/2011/The_State_of_Childrens_Dental_health.pdf** Every $1 spent on prevention in oral care can save you $8–$50 on restorative and emergency procedures. **SOURCE: American Dental Education Association- Health Care Reform Advocacy Report 2008**

Title One Schools

Title I, Part A (Title I) of the **Elementary** and Secondary Education Act, as amended (ESEA) provides financial assistance to local educational agencies (**LEAs**) and schools with high numbers or high percentages of **children** from low-income families to help ensure that all **children** meet challenging **state** academic standards.

Hygienists Role in Title One Schools

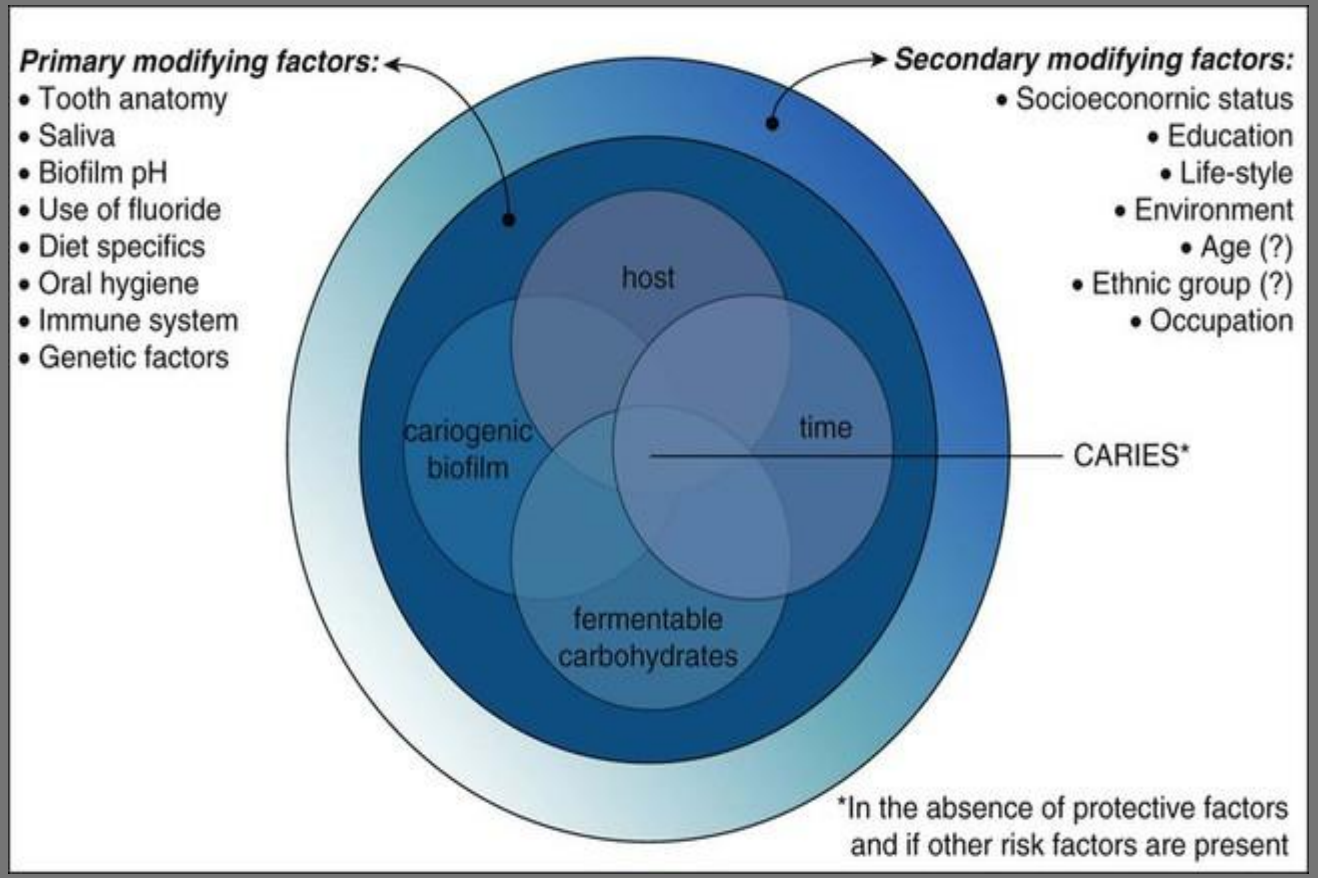
EXAM

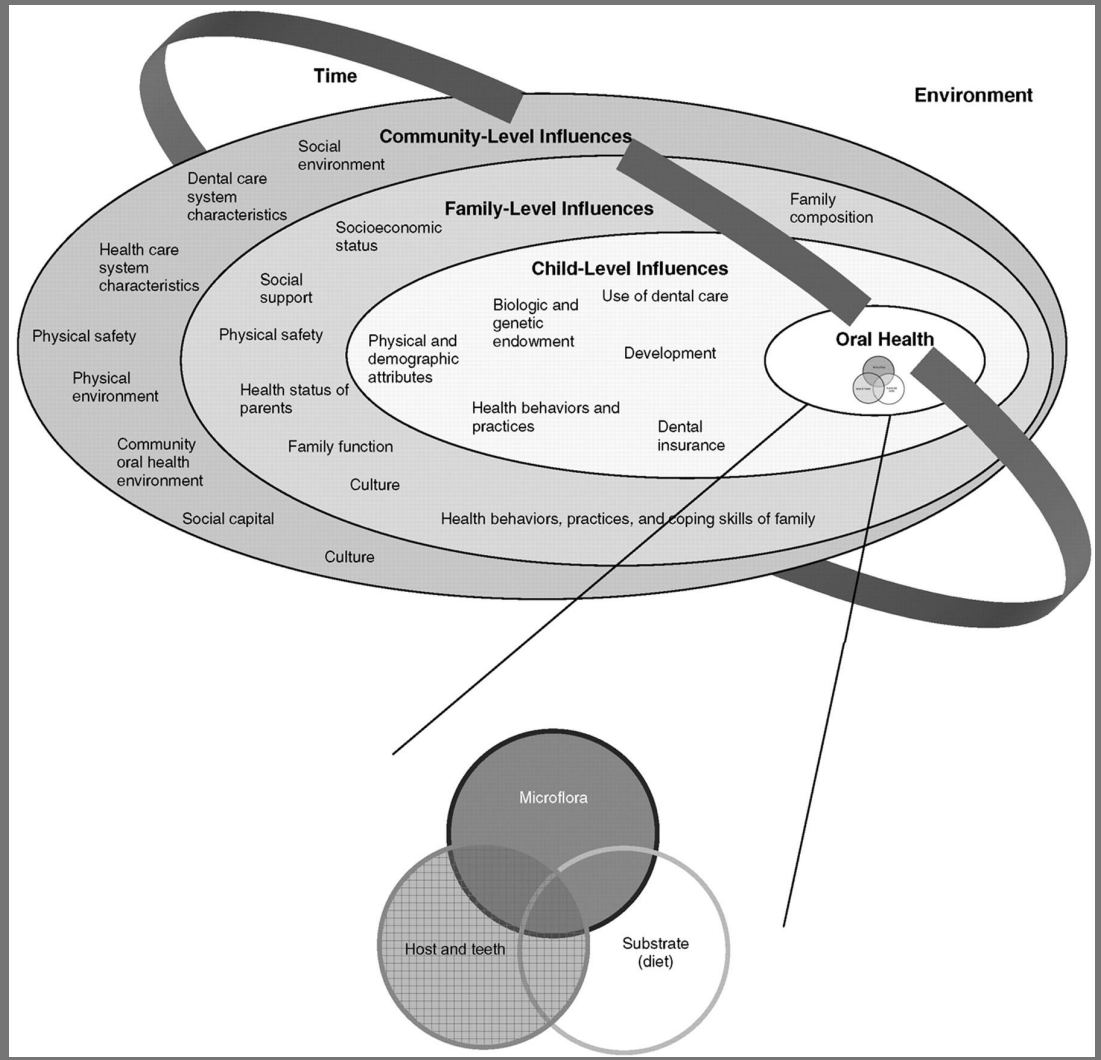
Scale/polish

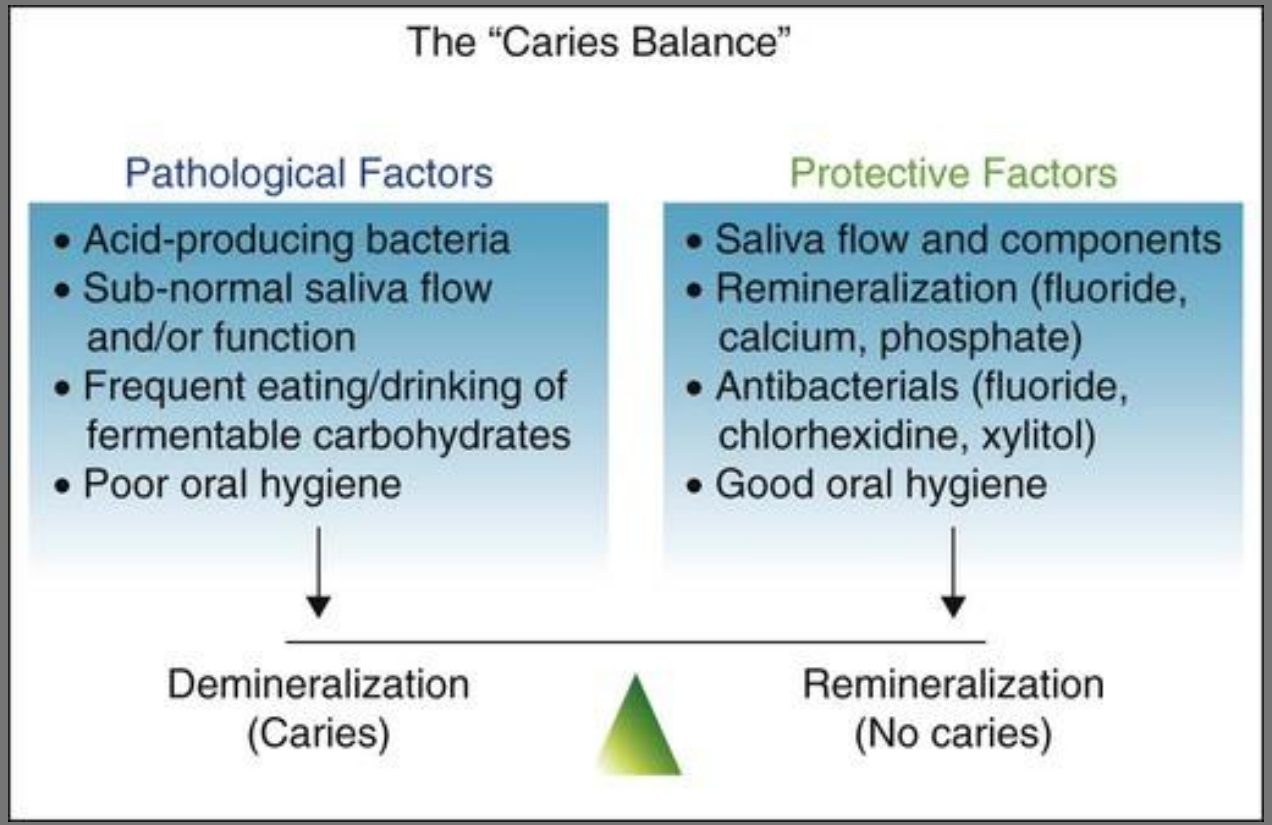
Sealants

EDUCATION!!! (Hooray)

NO XRAY (bummer)


Primary modifying factors:
• Tooth anatomy
• Saliva
• Biofilm pH
• Use of fluoride
• Diet specifics
• Oral hygiene
• Immune system
• Genetic factors
Secondary modifying factors:
• Socioeconornic status
• Education
• Life-style
• Environment
• Age (?)
• Ethnic group (?)
• Occupation
host
cariogenic biofilm
time
CARIES*
fermentable carbohydrates
*In the absence of protective factors and if other risk factors are present


Time
Environment
Community-Level Influences
Social environment
Dental care system characteristics
Health care system characteristics
Physical safety
Physical environment
Community oral health environment
Social capital
Culture
Family-Level Influences
Socioeconomic status
Social support
Physical safety
Health status of parents
Family function
Culture
Family composition
Health behaviors, practices, and coping skills of family
Child-Level Influences
Physical and demographic attributes
Biologic and genetic endowment
Use of dental care
Development
Health behaviors and practices
Dental insurance
Oral Health
Microflora
Host and teeth
Substrate (diet)


The "Caries Balance"
Pathological Factors
• Acid-producing bacteria
• Sub-normal saliva flow and/or function
• Frequent eating/drinking of fermentable carbohydrates
• Poor oral hygiene
Protective Factors
• Saliva flow and components
• Remineralization (fluoride, calcium, phosphate)
• Antibacterials (fluoride, chlorhexidine, xylitol)
• Good oral hygiene
Demineralization (Caries)
Remineralization (No caries)

Caries Rates 2017

Overall dental caries in the baby teeth of children 2 to 11 declined from the early 1970s until the mid 1990s.

From the mid 1990s until the most recent (1999-2004) National Health and Nutrition Examination Survey, this trend has reversed: a small but significant increase in primary decay was found.

Why??

Early Childhood Caries

Children at High Risk for Caries

Children at High Risk for Early Tooth Decay
• Children on Medicaid
• Children whose mother or primary caregiver has cavities
• Children with siblings who have cavities
• Premature or low birth weight children
• Children with special health care needs
• Children who use a bottle after 15 months of age or have sweets and starchy snacks more than 3 times a day

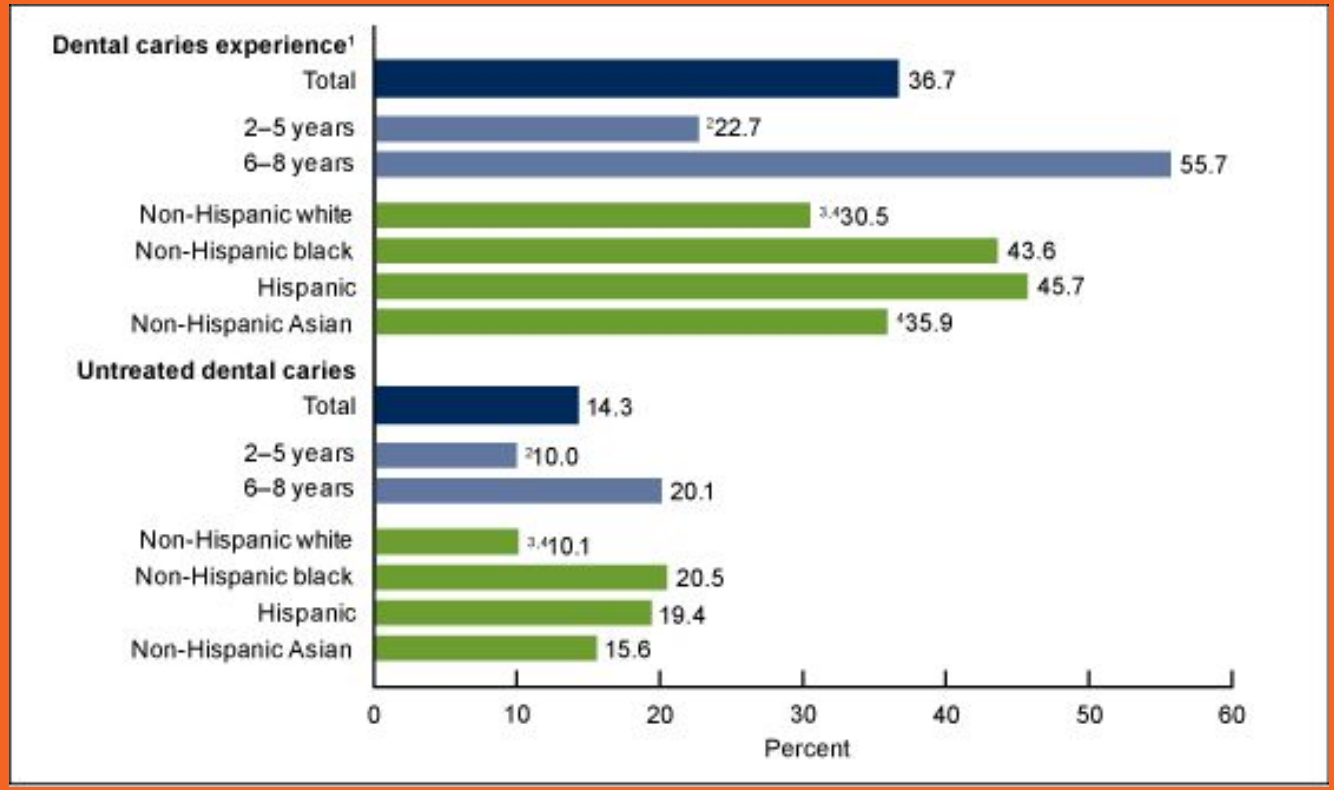
Caries in young children

Approximately 37% of children aged 2–8 years had experienced dental caries in primary teeth in 2011–2012

Dental caries among children aged 2–5 was nearly 23% compared with 56% among those aged 6–8.

Caries prevalence was higher for Hispanic (46%) and non-Hispanic black (44%) children compared with non-Hispanic white children (31%) aged 2–8.

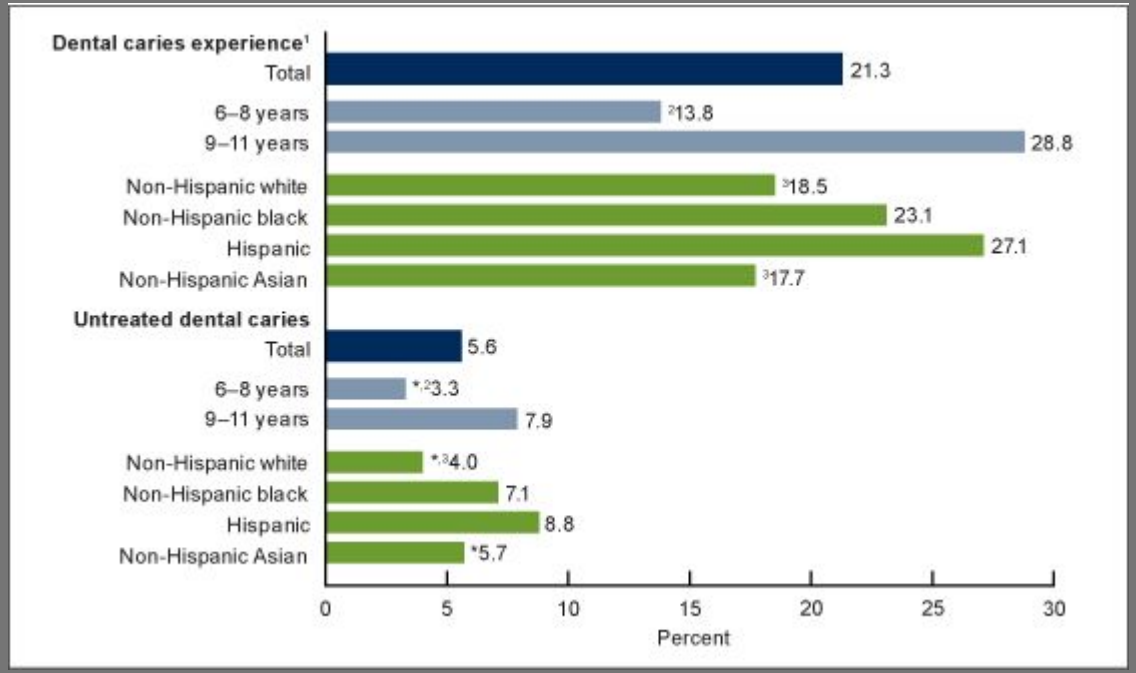
Non-Hispanic Asian children were less likely to have experienced dental caries (36%) compared with Hispanic children (46%) aged 2–8, but were not different from non-Hispanic white or non-Hispanic black children.


Dental caries experience[1]
Total
36.7
2–5 years
[2]22.7
6–8 years
55.7
Non-Hispanic white
[3,4]30.5
Non-Hispanic black
43.6
Hispanic
45.7
Non-Hispanic Asian
[4]35.9
Untreated dental caries
Total
14.3
2–5 years
[2]10.0
6–8 years
20.1
Non-Hispanic white
[3,4]10.1
Non-Hispanic black
20.5
Hispanic
19.4
Non-Hispanic Asian
15.6
0
10
20
30
40
50
60
Percent

What percentage of children had any dental caries in permanent teeth?

In 2011–2012, 21% of children aged 6–11 had experienced dental caries in permanent teeth (Figure 2). Dental caries among children aged 6–8 was nearly 14% and was twice as high for children aged 9–11 (29%). Caries prevalence was higher among Hispanic children aged 6–11 (27%) compared with non-Hispanic white children (19%) or non-Hispanic Asian children (18%).

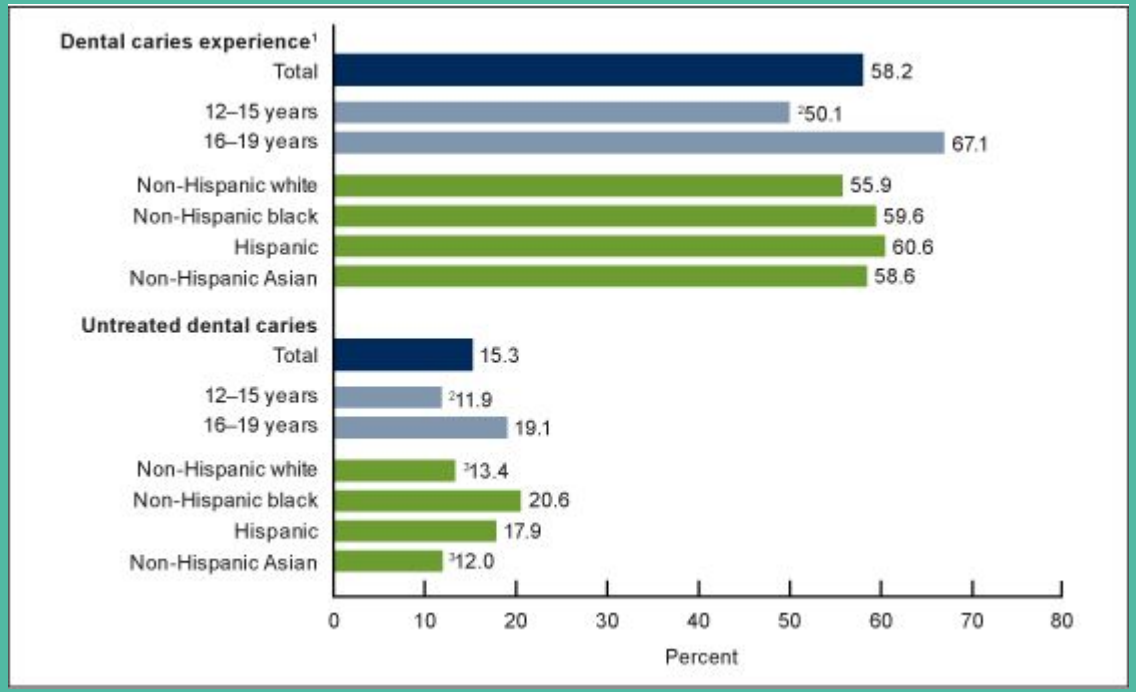
Approximately 6% of children aged 6–11 had untreated tooth decay in permanent teeth. Untreated caries in permanent teeth was twice as high for children aged 9–11 (8%) compared with children aged 6–8 years (3%). Prevalence of untreated caries was higher for Hispanic children (9%) compared with non-Hispanic white children (4%) aged 6–11 years.


Dental caries experience[1]
Total
21.3
6–8 years
[2]13.8
9–11 years
28.8
Non-Hispanic white
[3]18.5
Non-Hispanic black
23.1
Hispanic
27.1
Non-Hispanic Asian
[3]17.7
Untreated dental caries
Total
5.6
6–8 years
*,[2]3.3
9–11 years
7.9
Non-Hispanic white
*,[3]4.0
Non-Hispanic black
7.1
Hispanic
8.8
Non-Hispanic Asian
*5.7
0
5
10
15
20
25
30
Percent

Among adolescents, how prevalent was dental caries in permanent teeth?

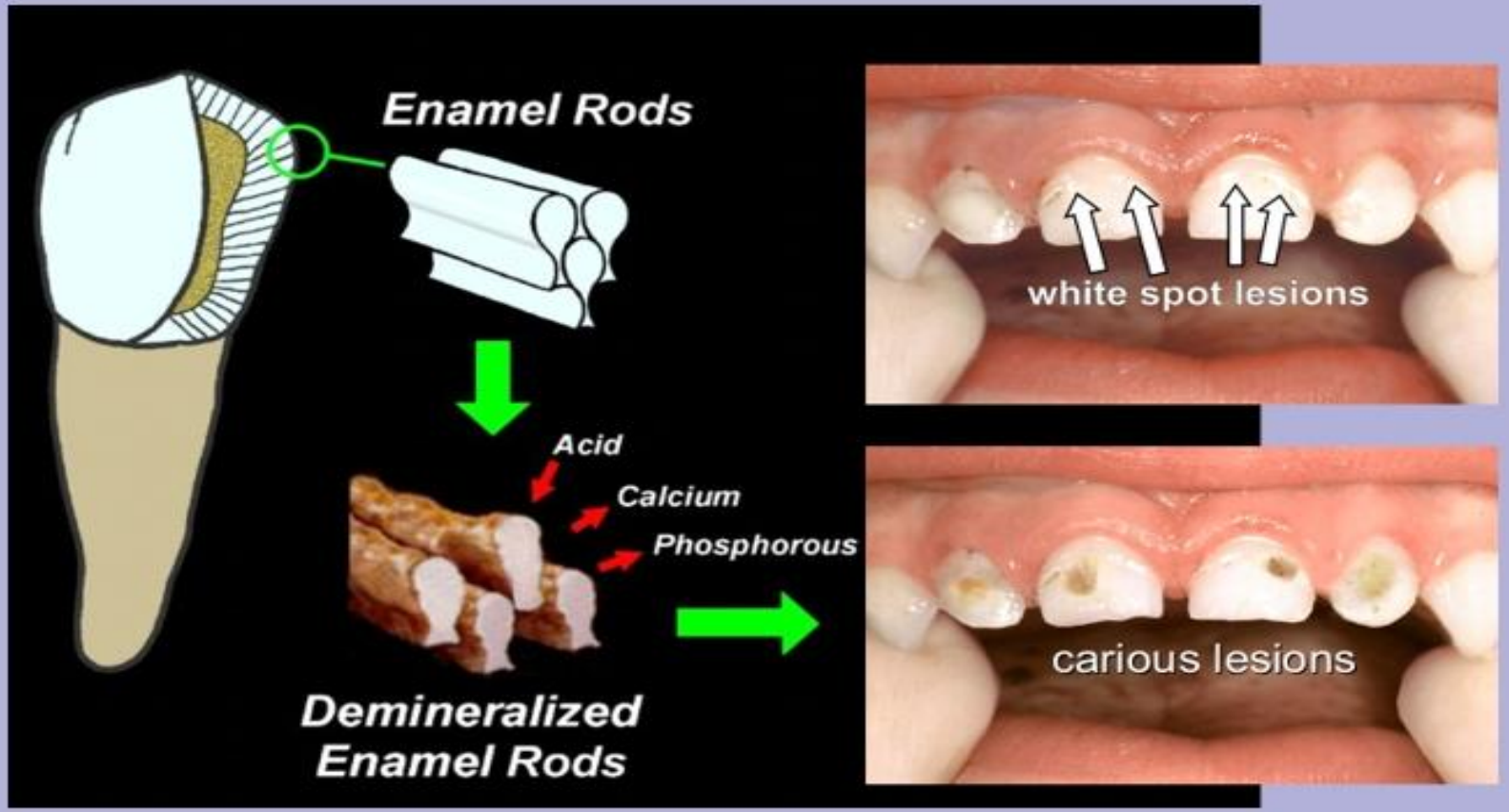
Among adolescents aged 12–19, 58% had experienced dental caries in permanent teeth in 2011–2012 (Figure 3). The prevalence of dental caries experience was higher among adolescents aged 16–19 (67%) compared with those aged 12–15 (50%). Overall, the percentage with caries experience did not significantly differ by race and Hispanic origin among adolescents.

Fifteen percent of adolescents aged 12–19 had untreated caries in permanent teeth in 2011–2012. Untreated tooth decay was higher among adolescents aged 16–19 (19%) compared with those aged 12–15 (12%). Untreated caries was higher for non-Hispanic black adolescents (21%) compared with non-Hispanic white (13%) or non-Hispanic Asian (12%) adolescents.


Dental caries experience[1]
Total
58.2
12–15 years
[2]50.1
16–19 years
67.1
Non-Hispanic white
55.9
Non-Hispanic black
59.6
Hispanic
60.6
Non-Hispanic Asian
58.6
Untreated dental caries
Total
15.3
12–15 years
[2]11.9
16–19 years
19.1
Non-Hispanic white
[3]13.4
Non-Hispanic black
20.6
Hispanic
17.9
Non-Hispanic Asian
[3]12.0
0
10
20
30
40
50
60
70
80
Percent

Dragon's Beard Candy

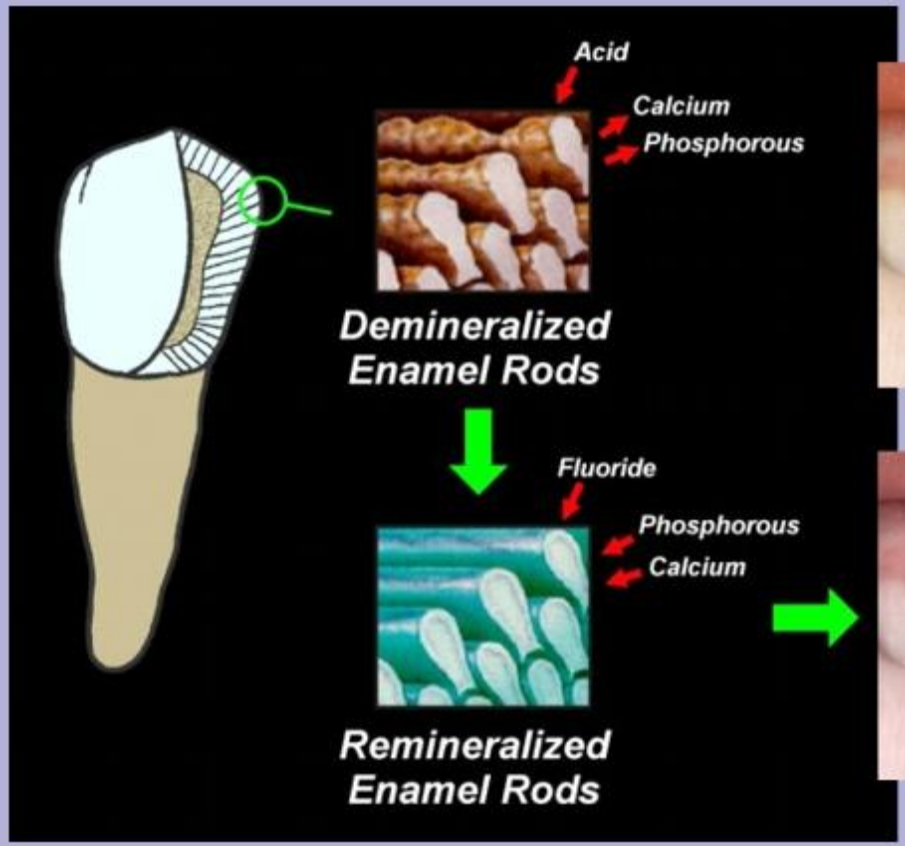
What is Demineralization?



Demineralization

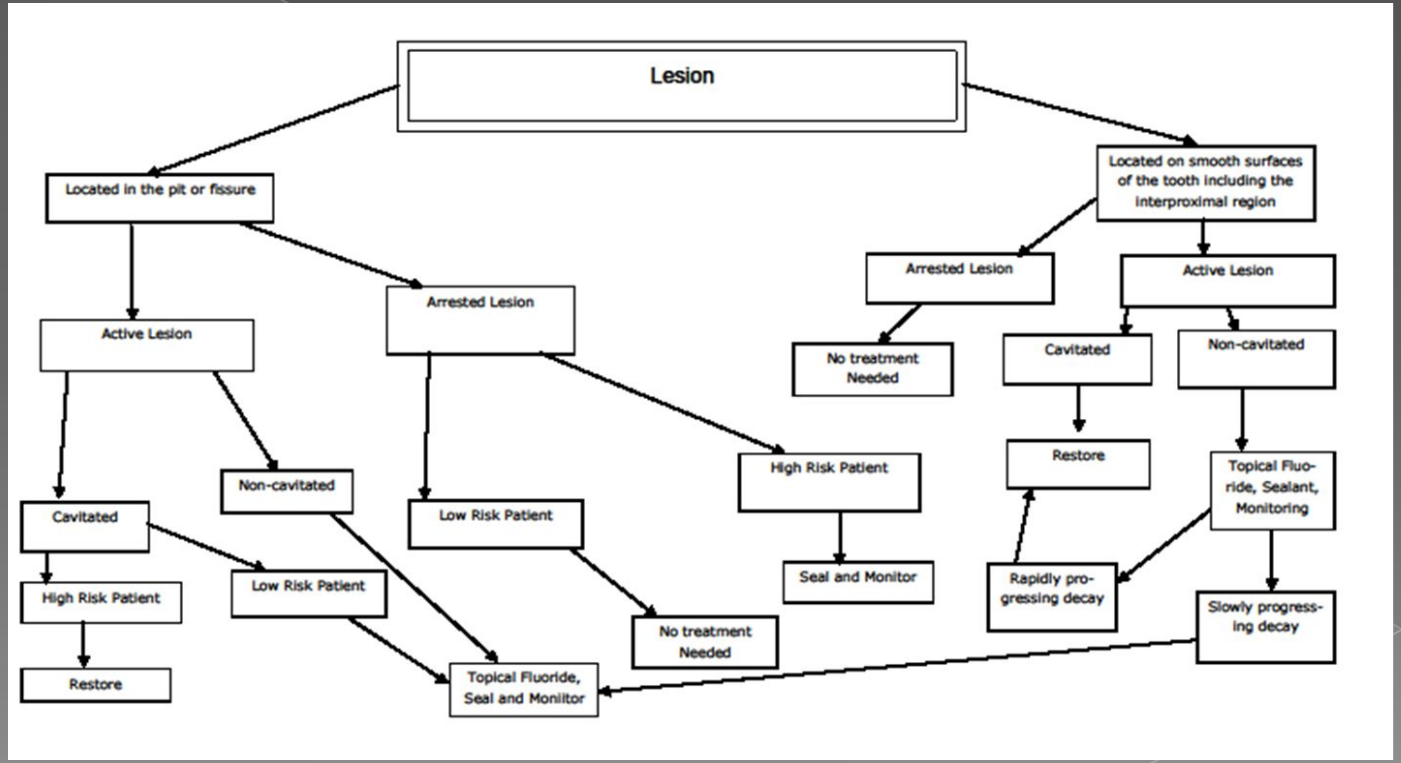
Demineralization occurs when acid lowers the pH at the tooth surface. This causes calcium, phosphate, and other minerals to diffuse out of the enamel and creates a subsurface lesion. The earliest loss of mineral during the demineralization process is not visible to the naked eye. The first clinical sign may appear as a chalky-white, demineralized area on the tooth surface. These demineralized areas are referred to as “white spot lesions”. Left unabated, the cycle will lead to a frank, cavitated, invasive lesion.

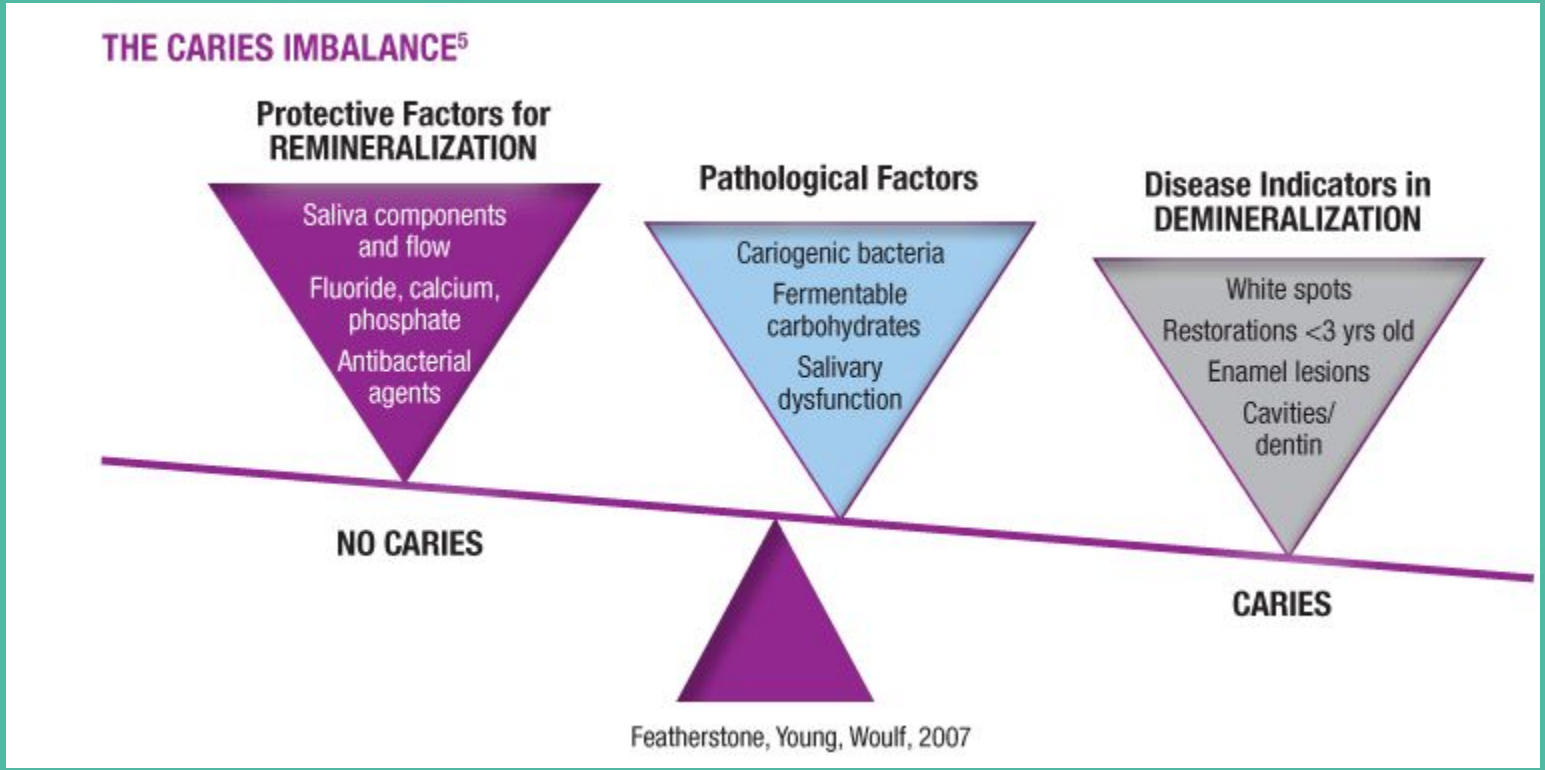
What is Remineralization?



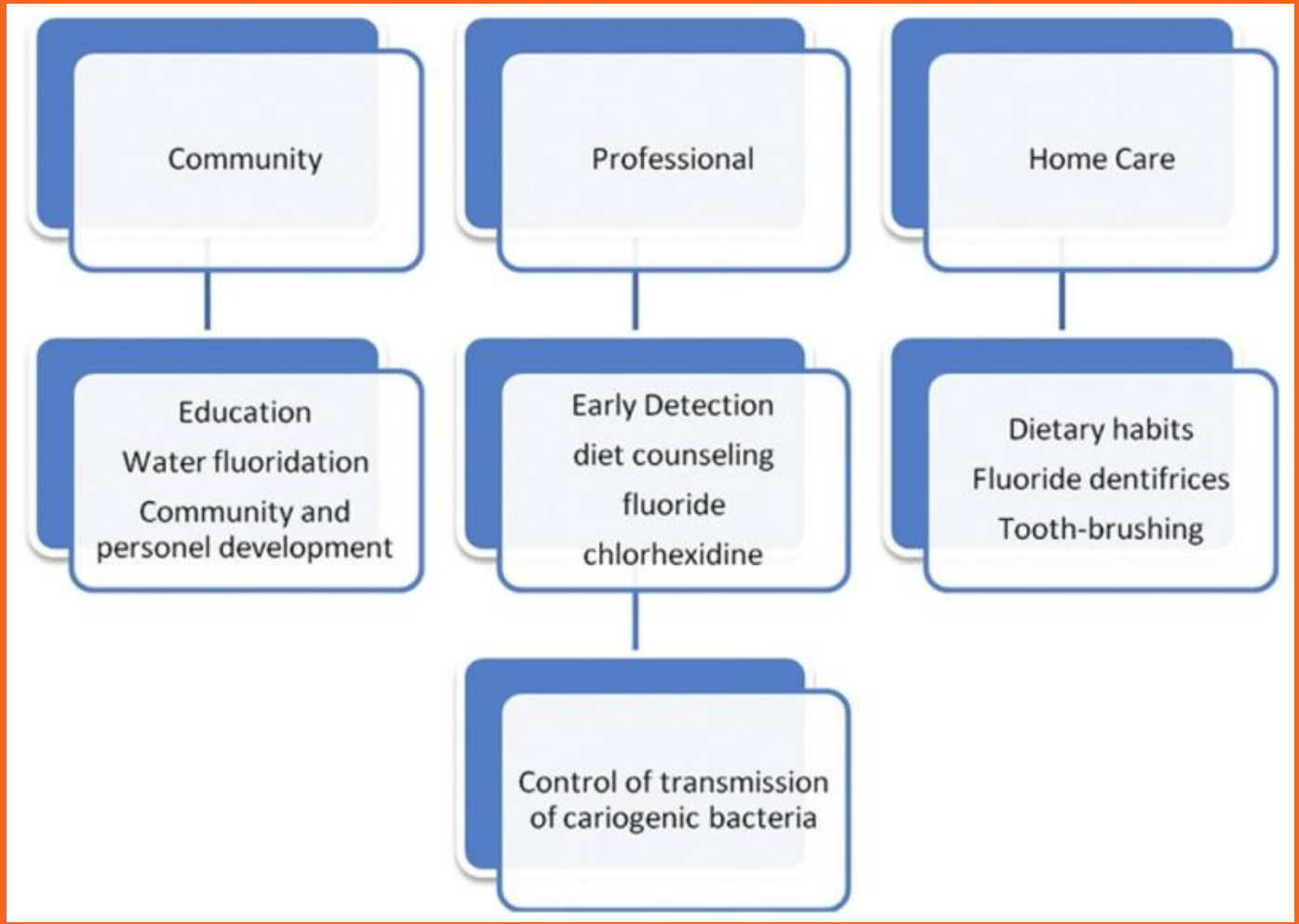
Remineralization

Remineralization represents the opposite reaction. During remineralization, mineral is redeposited in the subsurface lesion. Fluoride, even in low concentrations, can enhance the remineralization of enamel and may actually result in a crystal structure that is more caries resistant.


Lesion
Located in the pit or fissure
Located on smooth surfaces of the tooth including the interproximal region
Active Lesion
Arrested Lesion
Arrested Lesion
Active Lesion
No treatment Needed
Cavitated
Non-cavitated
Non-cavitated
Cavitated
High Risk Patient
Low Risk Patient
Restore
Topical Fluo-ride, Sealant, Monitoring
High Risk Patient
Low Risk Patient
Seal and Monitor
Rapidly pro-gressing decay
Slowly progress-ing decay
Restore
No treatment Needed
Topical Fluoride, Seal and Monitor


THE CARIES IMBALANCE[5]
Protective Factors for REMINERALIZATION
Saliva components and flow
Fluoride, calcium, phosphate
Antibacterial agents
Pathological Factors
Cariogenic bacteria
Fermentable carbohydrates
Salivary dysfunction
Disease Indicators in DEMINERALIZATION
White spots
Restorations <3 yrs old
Enamel lesions
Cavities/ dentin
NO CARIES
CARIES
Featherstone, Young, Woulf, 2007

What can you do as a hygienist?


Community
Professional
Home Care
Education
Water fluoridation
Community and personel development
Early Detection
diet counseling
fluoride
chlorhexidine
Dietary habits
Fluoride dentifrices
Tooth-brushing
Control of transmission of cariogenic bacteria

Fluoride in Toothpaste


TRINITY SCHOOL
TRINITY SCHOOL

—

Here's a summary of expert advice for children of different ages:

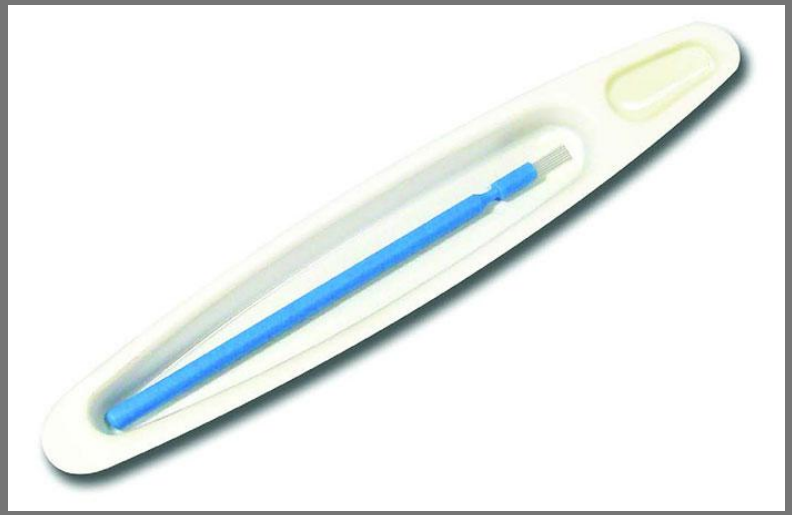
- For babies and toddlers, use a dab of fluoridated toothpaste the size of a grain of rice as their teeth come in.

- Children ages 4 and 5 should use a pea-sized amount of fluoridated toothpaste. Supervise them to prevent them from swallowing toothpaste. I don't recommend giving them water to rinse with unless you are confident they know how to rinse with it. The natural instinct can be to simply drink the water rather than spit it out.

Rice Size under age 4

Pea Size over age 4

Fluoride Varnish 5%PPM Sodium Fluoride



Fluoride Varnish

Applying Fluoride Varnish - Instructions for Provider

- Have everything ready.
- Open varnish packet and mix it well.
- Wipe child's teeth dry with a clean gauze.
- Paint child's teeth with varnish using disposable applicator.
- Instruct parents.
  - *Do not brush the child's teeth until the next day.*
  - *The child's teeth may be slightly yellow until they are brushed.*
  - *The child can eat and drink right away but should avoid hot liquids.*

Pediatricians and Fluoride

Pediatricians applying fluoride

At Well Checks

"Fluoride Use in Caries Prevention in the Primary Care Setting," the American Academy of Pediatrics recommended fluoride varnish at least once every 6 months – and preferably every 3 months – starting at tooth emergence (Pediatrics. 2014 Sep;134[3]:626-33).

Pediatricians get paid for the service

Encourage the parents to ask for it!!

And in September 2015, fluoride varnish was added to the Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents and integrated into the Bright Futures–AAP periodicity schedule.

Clinpro 5000

1.1% Sodium Fluoride
Calcium
Phosphate

PhoCal

Fluoride Disks
Contains 0.1135mg of sodium fluoride
Difficult to Place, but hold promise

Patented Phocal disks are semi-permeable fluoride in a unique P disk form for insertion between the teeth. Once positioned interproximally, they soften and expand forming a gel. The disks prevent and repair early interproximal decay at the microscopic, nanoscopic and molecular levels. Phocal fluoride disks weigh 5mg, contain 1.02% fluoride ions

Phocal disks are semi-permeable fluoride in a unique disk form for insertion between the teeth. Once positioned interproximally, they soften and expand forming a gel. They prevent and repair early interproximal decay at the microscopic, nanoscopic and molecular levels. The patented Phocal fluoride disks weigh 5mg, contain 1.02% fluoride ions.

Xylitol

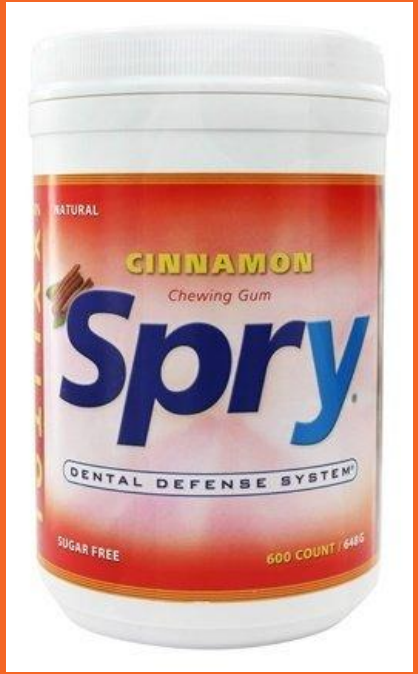
Xylitol is a naturally occurring sugar alcohol found in virtually all fruits. With a molecular structure different from regular sugars, xylitol actually inhibits bacterial growth. As a food additive, xylitol limits the formation of tooth-destroying acids and reduces the ability of plaque to adhere to intraoral surfaces.

Xylitol

Studies further indicate that the effects of xylitol actually compound the benefits of fluoride, such as remineralization of tooth enamel. Also the sweet, cool taste of xylitol increases salivary flow, optimizing pH level in the mouth to promote dental health.

XYLITOL

5 carbon sugar alcohol sweetener.
40% fewer calories than Sucrose.
Reduces acid production of plaque, plaque adherance, and MS.
High doses (therapeutic doses) cause diarrhea.
20-30 minutes at least 3 times a day.


NATURAL
CINNAMON
Chewing Gum
Spry
DENTAL DEFENSE SYSTEM
SUGAR FREE
600 COUNT / 648G


ICE BREAKERS
LONG LASTING FLAVOR
ICE CUBES
ARCTIC GRAPE™
NATURAL & ARTIFICIAL FLAVOR
SUGAR FREE GUM
40 PIECES

Sealants

How prevalent were dental sealants among children?

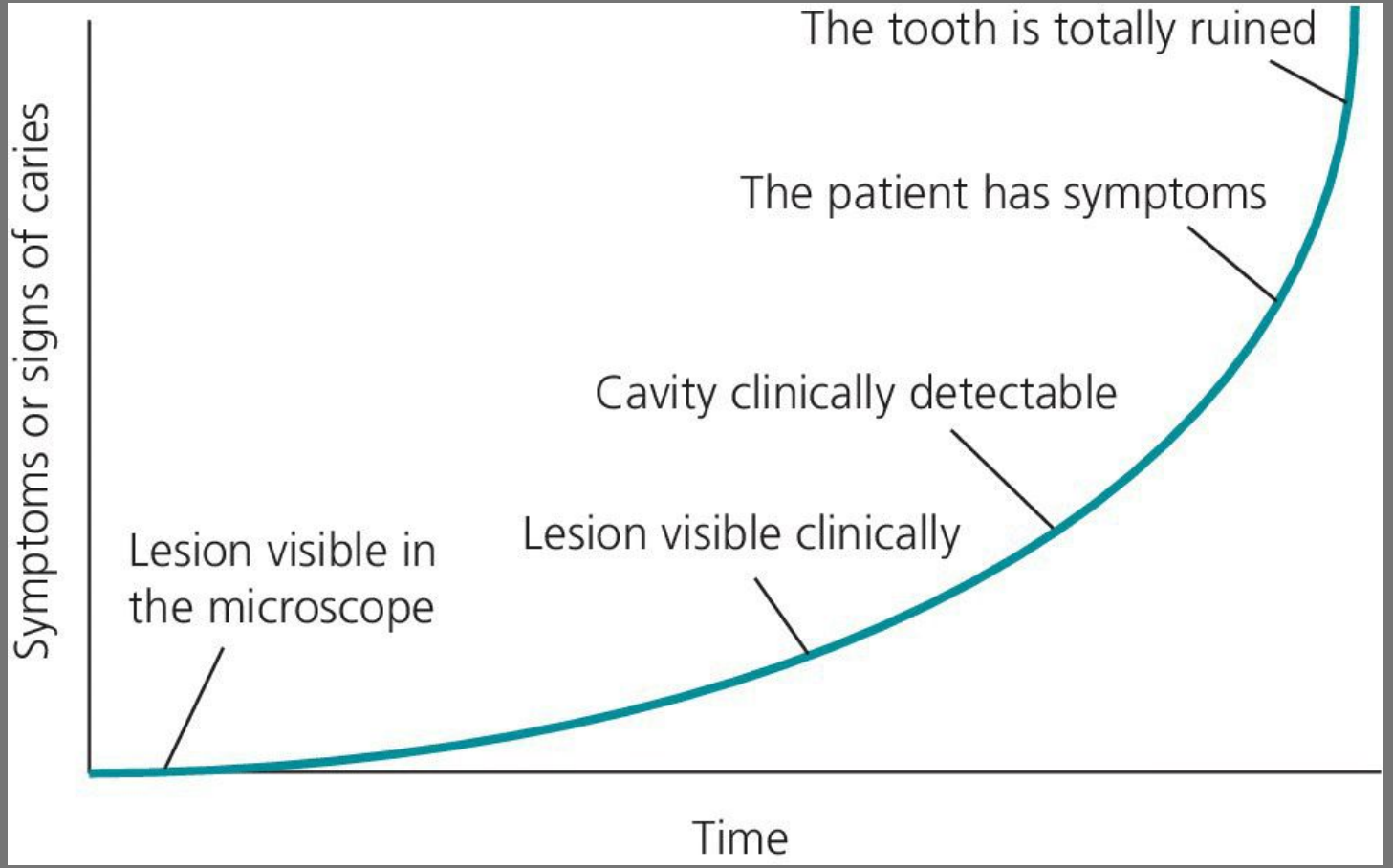
Nearly one-half of children aged 9–11 had at least one dental sealant on a permanent tooth, whereas 31% of children aged 6–8 had a dental sealant. Non-Hispanic black and non-Hispanic Asian children aged 6–11 (31%) had lower dental sealant prevalence compared with non-Hispanic white children (44%).

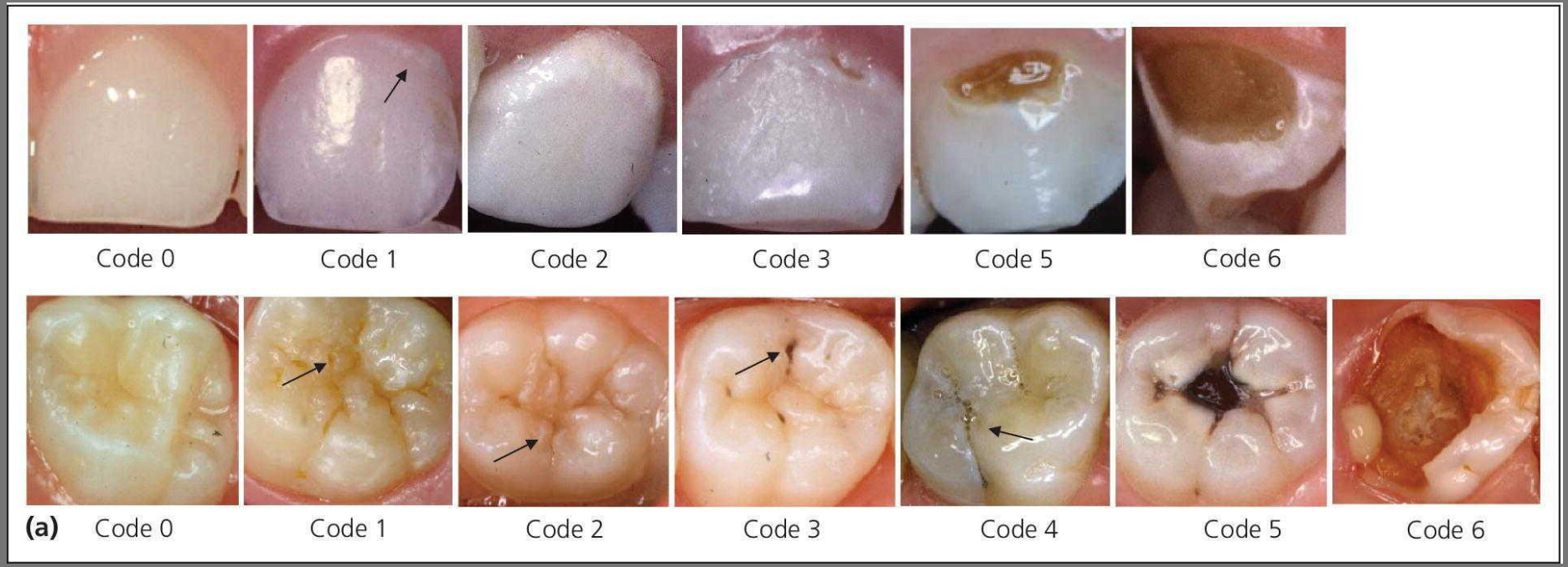
Hispanic children (40%) had higher dental sealant prevalence compared with non-Hispanic black children aged 6–11 (31%).

Non-Hispanic black and non-Hispanic Asian children aged 6–11 (31%) had lower dental sealant prevalence compared with non-Hispanic white children (44%).

Sealant Placement

Sealants-When are we doing more harm than good?


The tooth is totally ruined
The patient has symptoms
Cavity clinically detectable
Lesion visible clinically
Lesion visible in the microscope
Symptoms or signs of caries
Time


Code 0
Code 1
Code 2
Code 3
Code 5
Code 6
(a)
Code 0
Code 1
Code 2
Code 3
Code 4
Code 5
Code 6

Buccal and lingual caries (clinical recordings)

Grade 1 (B1)
White or discolored enamel.
No cavitation clinically.

Grade 2 (B2)
Small cavitation in enamel.

Grade 3 (B3)
Moderate sized cavity in enamel with exposed dentin (verified by probing).

Grade 4 (B4)
Large cavity in enamel and moderate cavity in dentin.

Grade 5 (B5)
Extensive cavity in enamel and substantial loss of dentin.

Occlusal caries (clinical and radiographic recordings)

Grade 1 (O1)
White or brown discoloration in enamel.
No clinical cavitation. No radiographic evidence of caries.

Grade 2 (O2)
Small cavity formation, or discoloration of the fissure with surrounding gray/opaque enamel and/or radiolucency in enamel on radiograph.

Grade 3 (O3)
Moderate sized cavity and/or radiolucency in the outer third of dentin.

Grade 4 (O4)
Big cavitation and/or radiolucency in the middle third of dentin.

Grade 5 (O5)
Very big cavity and/or radiolucency in the inner third of dentin.

Approximal caries (radiographic recordings)

Grade 1 (A1)
Radiolucency in outer half of enamel.

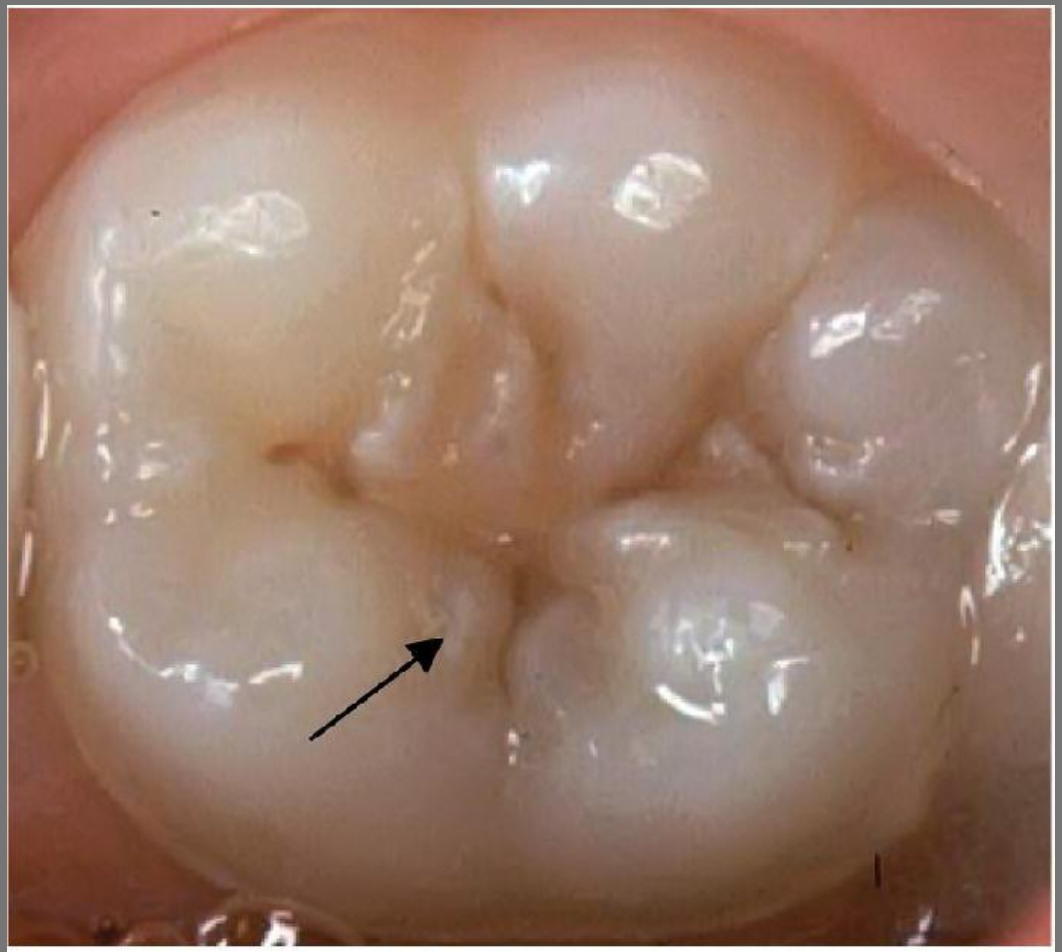
Grade 2 (A2)
Radiolucency in inner half of enamel.

Grade 3 (A3)
Radiolucency in the outer third of dentin.

Grade 4 (A4)
Radiolucency in the middle third of dentin.

Grade 5 (A5)
Radiolucency in the inner third of dentin.

(b)



(a)

Causes of Sealant Failure

1. **Aging**

    - Sealant has reached its maximum service life and has become dry, brittle, cracked and/or crazed and shows sign of significant aging.

2. **Incorrect Sealant for Application**

    - Sealant installed was not appropriate for application due to inadequate performance characteristics. The correct sealant should be identified based on the nature of the sealant failures observed.

3. **Inadequate Surface Preparation**

    - Sealant is exhibiting adhesive failure due to dirt, dust, debris, and/or other contaminants present on joint face at time of sealant application.
    - Omission of manufacturer's required sealant primer.

4. **Excessive Joint Movement**

    - Actual thermal joint movement has exceeded the designed movement capabilities of the installed joint sealant causing cohesive sealant failures.

5. **Early Joint Movement During Sealant Cure Cycle**

    - Early joint movement caused by extreme temperature swings has occurred during the initial sealant cure cycle and has caused surface wrinkling and/or cracking leading to cohesive sealant failures.

6. Improper Sealant Application

- Improper sealant dimensions (width to depth ratio) leading to excessive or insufficient sealant depth.
- Sealant was not properly mixed leading to insufficient cure and poor sealant performance (applicable to multi-component sealants only).
- Three-sided adhesion due to inappropriate or non-existent sealant backing.
- Inadequate sealant tooling causing lack of contact at sealant / substrate interface resulting in adhesive failures or insufficient cure.

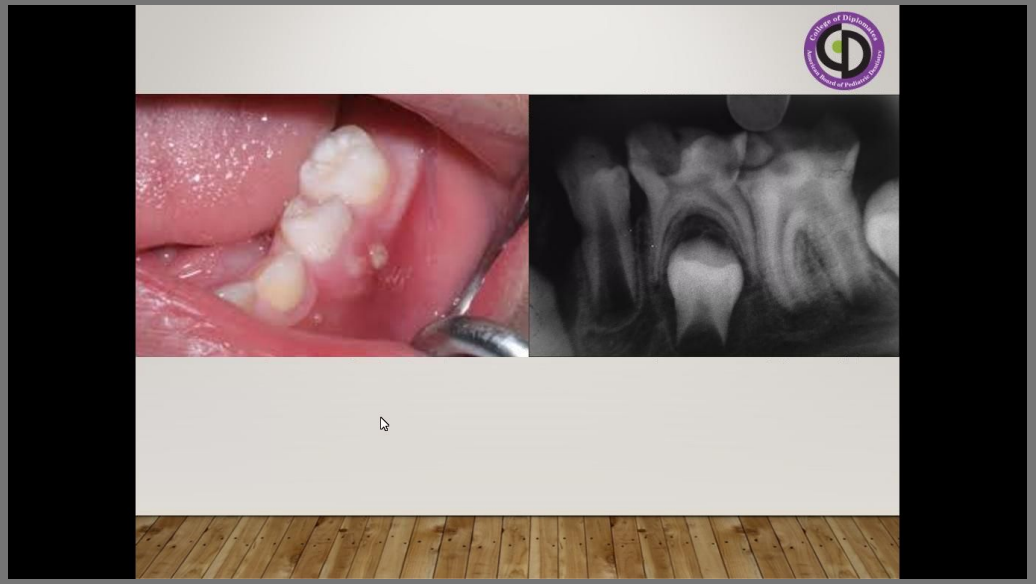
Sodium Diamine Fluoride

Advantage Arrest

Any decalcifcation stains-stays black.

Reality!

Infection! What does it look like?



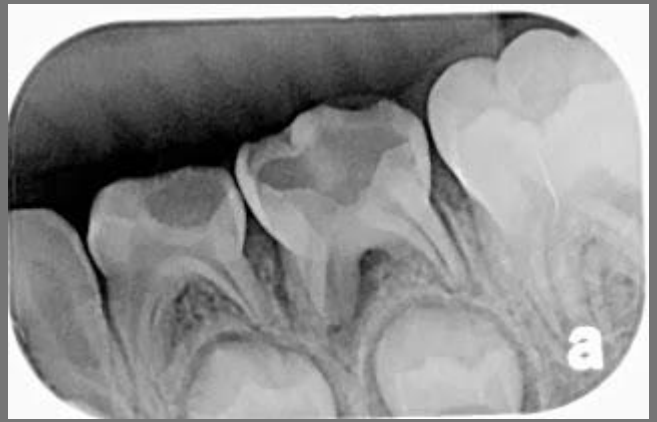
Tip

Remember. Infection can be dangerous-it is critical to get these patients care by a dentist or pediatrician ASAP.


ByeByeDoctor.com


ByeByeDoctor.com

Primary Tooth Infection



Permanent Tooth Infection

SERIOUS INFECTION: DEVIATION OF THE AIRWAY

Where to go?

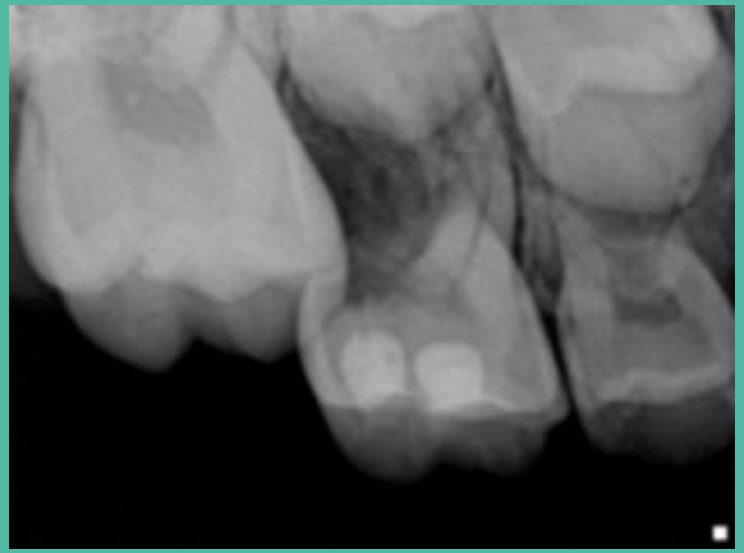
Pediatrician, ER, etc.

Ectopic Eruption

6 year old lower anterior “shark teeth”

6 year molars
Can cause
Ectopic eruption
too.


a



10-12 year olds double row-most know!

Ectopic Bicuspid

Ectopic Canine

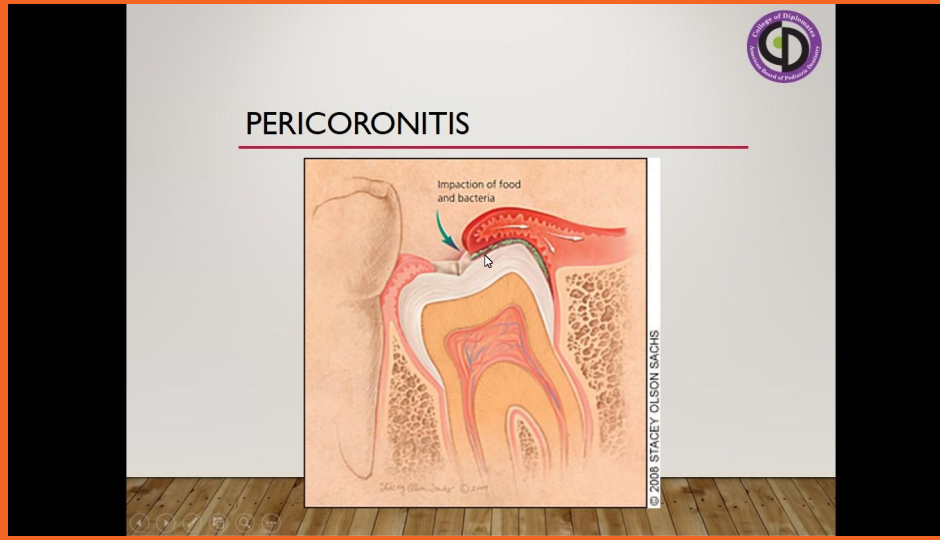
Eruption Cyst


Oral Answers


Oral Answers

Pericornitis- Uncomfortable

Can cause serious infection.



Mouth Guards

Encourage Athletes to wear mouthguards

Inexpensive

Boil and Bite Guard

Mouthguard can be adjusted as child exfoliates primary teeth.

Hanks Balanced Solution or Milk


Milk

Save That Tooth!

A front tooth can be knocked out in accidents, during play, sports, road traffic accidents, falls or fights.

Immediate Action Could Save that Tooth:

1 Keep Calm! Make sure that it is an adult tooth; baby teeth should not be put back in.

Telephone the dentist to tell them you're on your way

2 Find the tooth and pick it up by the crown (the white part). Avoid touching the root as this can damage the membrane which is essential to saving that tooth.

3 If the tooth is dirty, wash it briefly (10 seconds) using milk, saline solution or cold running water.

4 Replant the tooth, using the shape of the teeth at either side of the gap as a guide to positioning. The injured person should bite on a handkerchief for 15-20 minutes to hold the tooth in position.

5 If the tooth cannot be replanted immediately, it can be carried:

Inside the injured person's mouth, between the teeth and the inside of the cheek

OR

In milk or a special storage medium for knocked out teeth, if available. Avoid storage in water.

Seek emergency dental treatment immediately

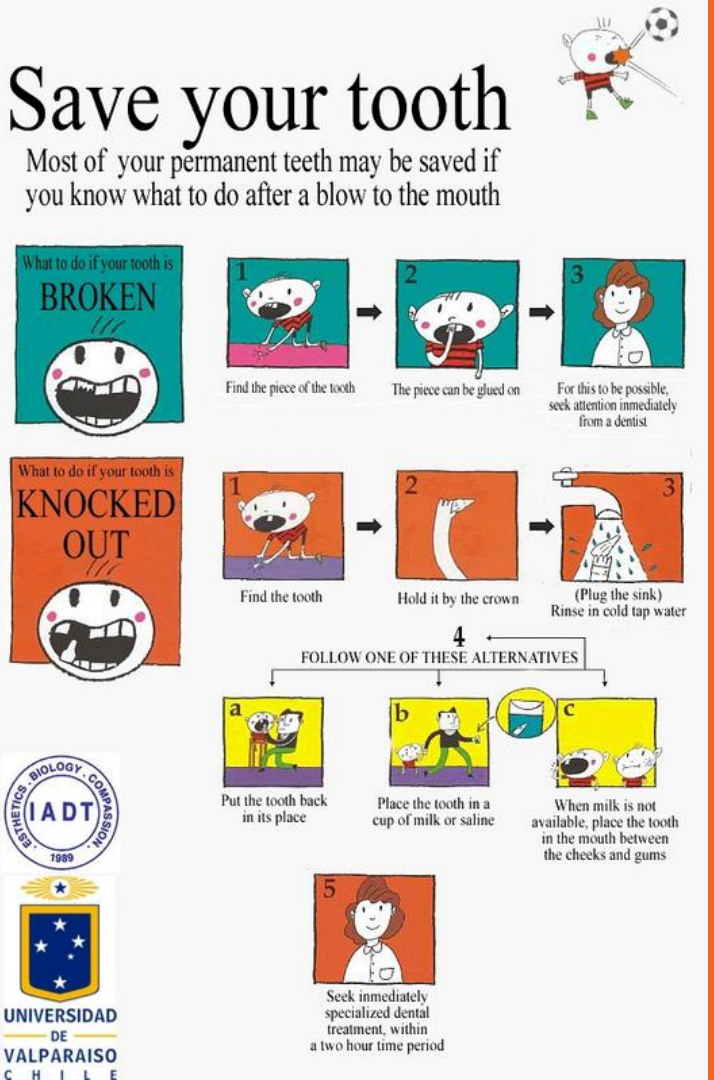
Available for download from: www.dentalhealth.ie

UCC

Dental Health Foundation Ireland

TRAUMA EDUCATION

Send worksheets to parents.



Educational Resources

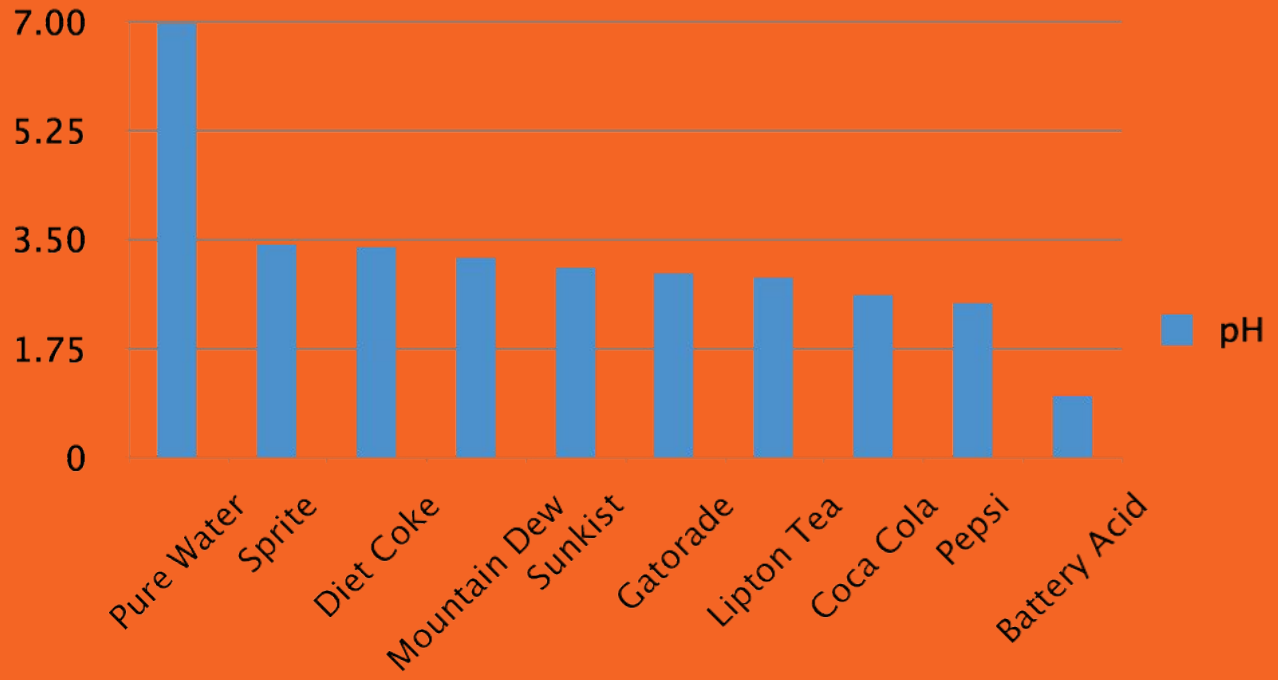
You can make a difference!

American Dental Association

http://www.mouthhealthykids.org/en/educators/smile-smarts-dental-health-curriculum

Juice/Soda Aisle

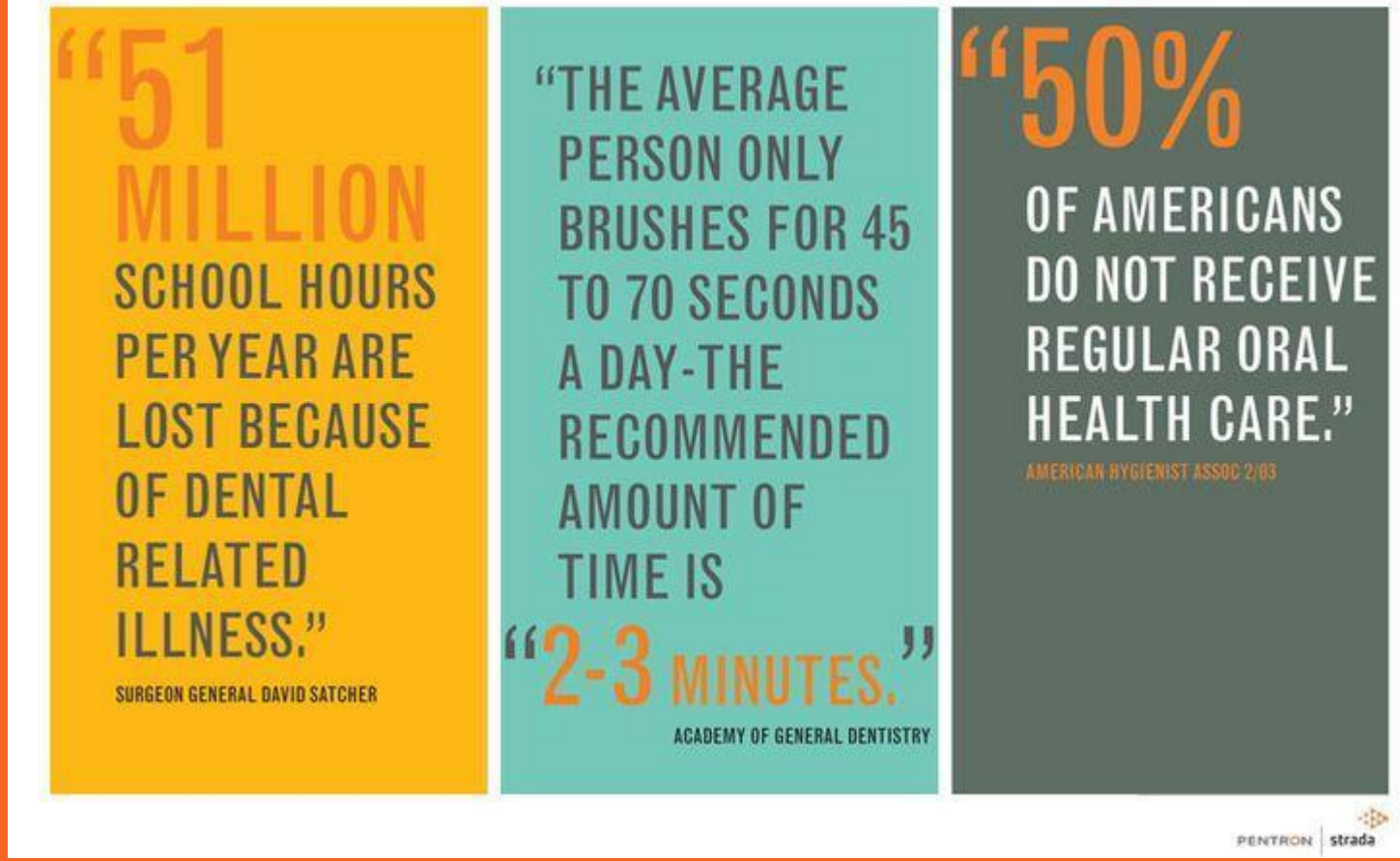
Bigger than ever!


7.00
5.25
3.50
1.75
0
Pure Water
Sprite
Diet Coke
Mountain Dew
Sunkist
Gatorade
Lipton Tea
Coca Cola
Pepsi
Battery Acid
pH

Education

Education

Kids will listen and follow directions.


"51 MILLION SCHOOL HOURS PER YEAR ARE LOST BECAUSE OF DENTAL RELATED ILLNESS."
SURGEON GENERAL DAVID SATCHER
"THE AVERAGE PERSON ONLY BRUSHES FOR 45 TO 70 SECONDS A DAY-THE RECOMMENDED AMOUNT OF TIME IS "2-3 MINUTES."
ACADEMY OF GENERAL DENTISTRY
"50% OF AMERICANS DO NOT RECEIVE REGULAR ORAL HEALTH CARE."
AMERICAN HYGIENIST ASSOC 2/03
PENTRON | strada

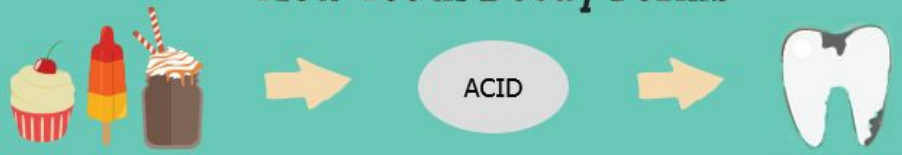
3 Ways to Prevent Tooth Decay in Kids

Did You Know...

Approximately 48% of third graders in the Commonwealth have experienced tooth decay, which affects more than smiles ☹

Bacteria in the mouth turns starch and sugar into acid that can weaken teeth

How Tooth Decay Forms



Keep Your Child's Smile Healthy with These Best Practices

Brush 2x a Day

Make sure to use toothpaste containing fluoride to strengthen your child's teeth

Consume Less Sugary Foods & Drinks

Limiting sugary foods & drinks will help prevent tooth decay

Drink Water Containing Fluoride

Drinking water containing fluoride strengthens tooth enamel

Source: Department of Public Health (DPH)

Mass.Gov


You look worn-out. I'll take over.
Thanks.