



Health
Care
Academy

3M™ ESPE™
Preventive Care

“The Power of Prevention”

George J Martinez National Prevention Specialist

PREVENTION:

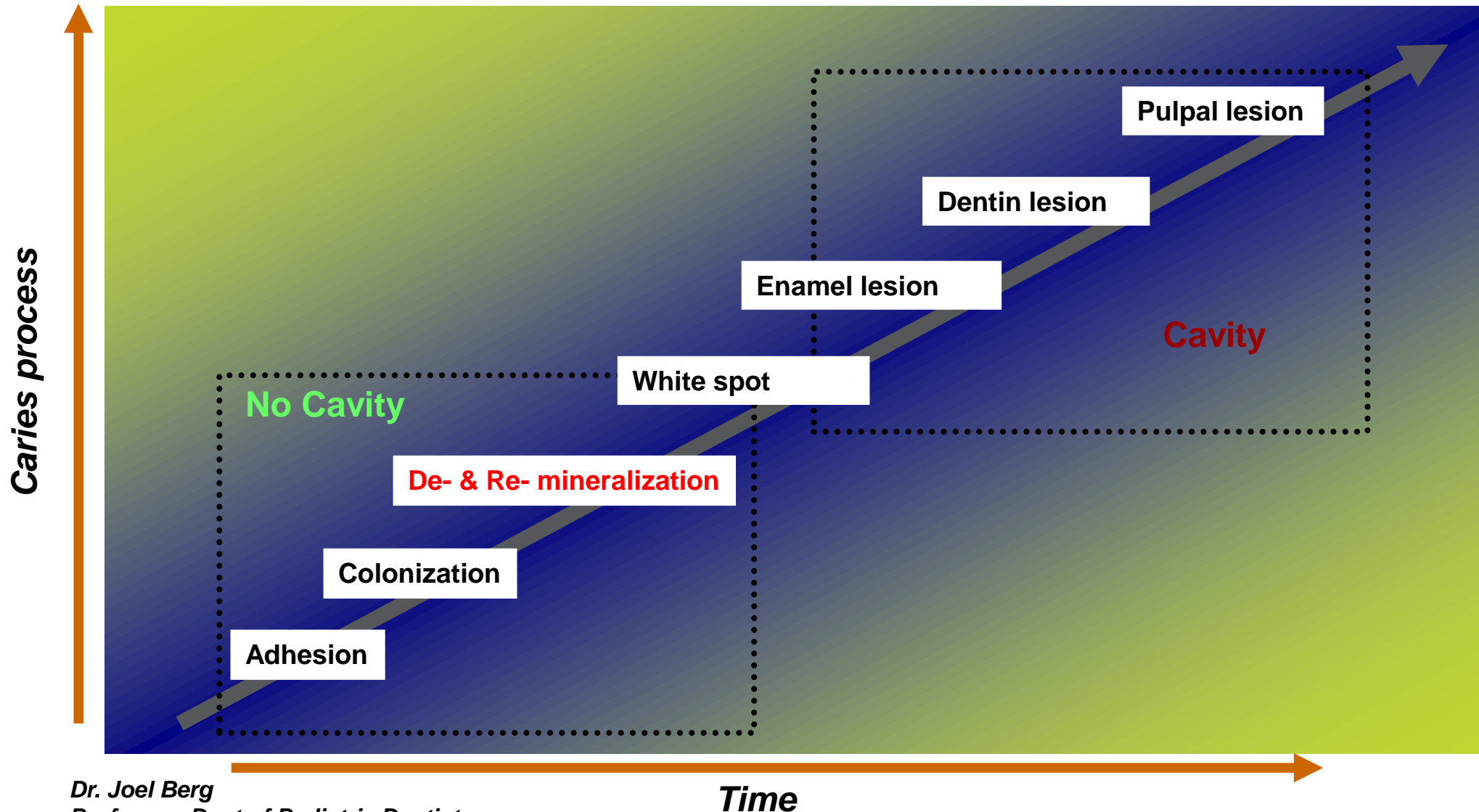
THE ACT OR PRACTICE OF STOPPING SOMETHING BAD FROM HAPPENING



To protect the patient from future disease.

Understanding The Caries Process

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Dr. Joel Berg
Professor, Dept of Pediatric Dentistry
University of Washington

Dental Caries

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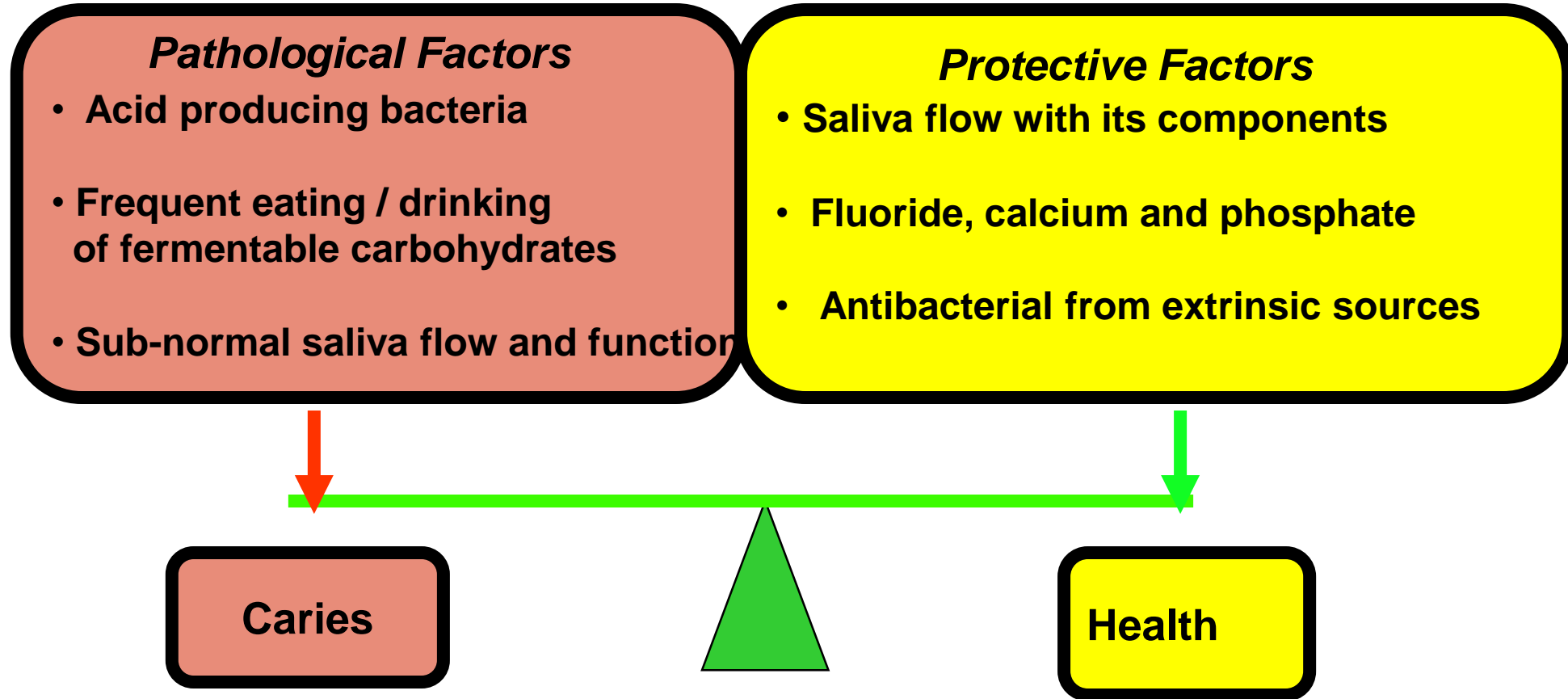
“Dental Caries is a bacterially based, *infectious*, transmissible disease that progresses when acid produced by bacteria travels into the tooth and dissolves the carbonated hydroxyapatite mineral.

The Caries Balance: Contributing Factors and Early Detection
John D.B Feathersone, MS, PhD
CDA Journal vol 31 No 2

#1
Active caries

The Caries Balance

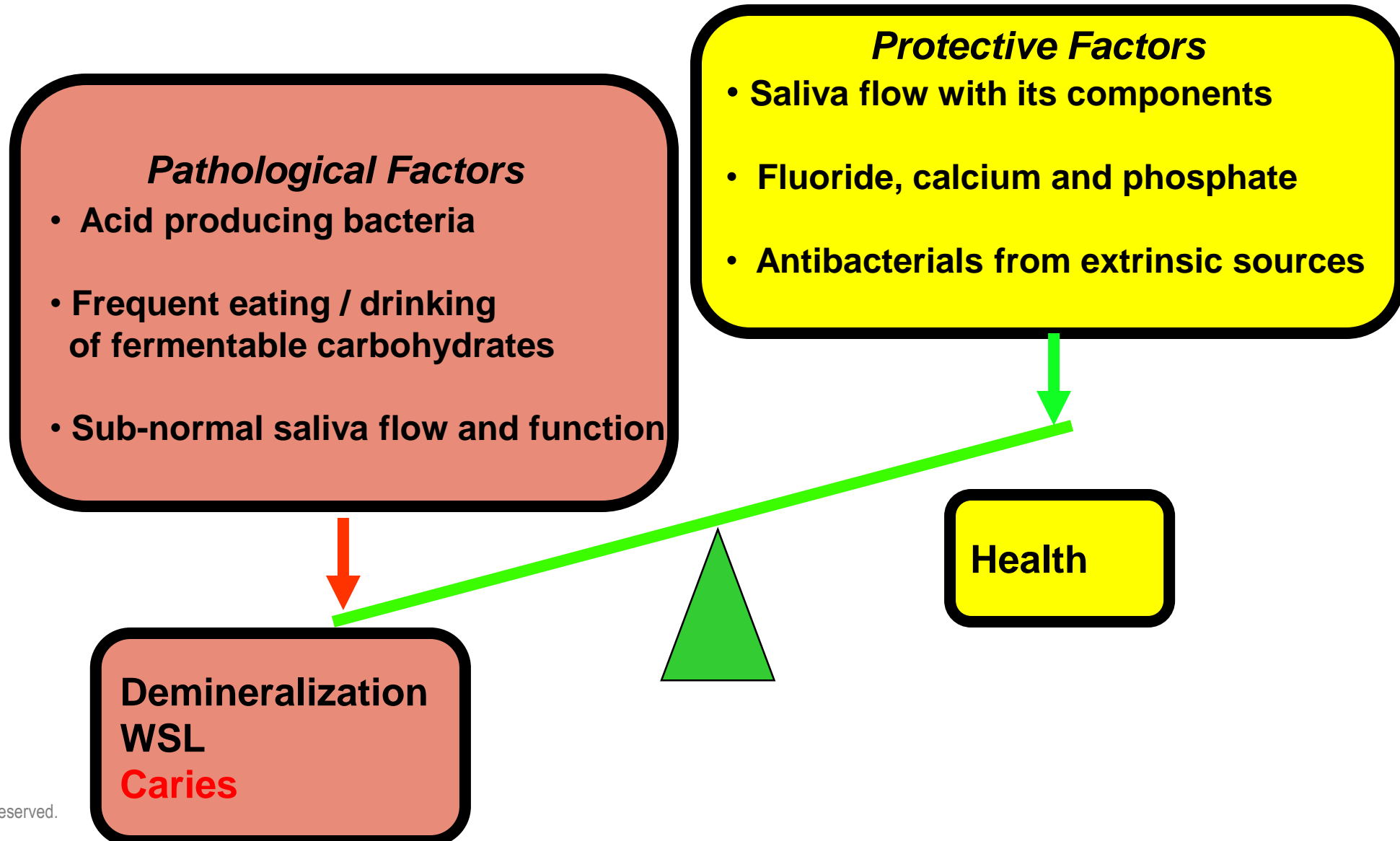
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If the *protective factors* prevail, the caries process is halted or reversed.”

The Caries Balance

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Frequent snacks between meals represents a constant acid challenge for children of all ages.



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Erosion

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THE THRESHOLD FOR ENAMEL

SOLUBILITY IS A **5.5 PH**

SOURCE: MINNESOTA DENTAL ASSOCIATION

| Product | pH < 5.5 is BAD | Sugar (tsp) per 12 oz |
|----------------------|--------------------|--------------------------|
| Battery Acid | 1.0 | 0.0 |
| Pepsi | 2.5 | 9.8 |
| Coke Classic | 2.6 | 9.3 |
| Orange Minute Maid | 2.8 | 11.2 |
| Hawaiian Fruit Punch | 2.8 | 10.2 |
| Dr. Pepper | 2.9 | 9.5 |
| Gatorade | 3.0 | 3.3 |
| Surge | 3.0 | 10.0 |
| Mountain Dew | 3.2 | 11.0 |
| Red Bull | 3.3 | ? |
| Diet Coke | 3.4 | 0.0 |
| Diet Dr. Pepper | 3.4 | 0.0 |
| Sprite | 3.4 | 9.0 |
| Diet 7-Up | 3.7 | 0.0 |
| Orange Juice | 4.1 | ? |
| Barq's Root Beer | 4.6 | 10.7 |
| Milk | 6.5 | ? |
| Tap water | 7.6 | 0.0 |
| Springwater | 7.9 | 0.0 |

Ph and ingredient comparison

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| Brand | Ph | Carbs per Per serving (g) | Caffein | Calories | |
|---------------|------|------------------------------|---------|----------|--|
| AMP | 2.7 | 30 | 75 | 130 | |
| Coca-Cola | 2.5 | 27 | 34 | 97 | |
| Coffee | 5.5 | 0 | 139 | 0 | |
| Full Throttle | 1.45 | 14.5 | 36 | 0 | |
| Monster | 2.7 | 27 | 80 | 100 | |
| Mtn Dew | 3.2 | 46 | 36 | 110 | |
| Red Bull | 3.3 | 28 | 80 | 110 | |
| Rock Star | 1.5 | 15.5 | 80 | 140 | |





Importance of Normal Saliva Flow

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#3

Subnormal saliva flow

SALIVA PROPERTIES:

- **DELIVERS FLUORIDE TO STRENGTHS THE ENAMEL.**
- **DELIVERS CALCIUM AND PHOSPHATES (REMINERALIZATION).**
- **ANTIBACTERIAL SUBSTANCES (*MICROBES MULTIPLY 10 TIMES FASTER*).**
- **BUFFERS THE PH.**

CAUSES OF XEROSTOMIA: MARCH2008,60-65, RDHMAG.COM

CIANCIO S. (2004). MEDICATIONS' IMPACT ON ORAL HEALTH. JADA,135,1440-1448

A normal saliva flow is about 3 to 4 pints a day
A restricted saliva flow means less protective effects

Xerostomia:

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The most underrated risk factor

- **MEDICATIONS**
Antianxiety, Antidepressants, Antipsychotic, Antihistamines.
- **Genetics**
- **Diseases**
- **Radiation to head and neck and chemotherapy can knock out salivary glands**

Significant Six

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✓ 1. Active decay (Peridex)

➡ 2. Frequent eating or drinking of fermentable carbohydrates

✓ 3. Subnormal saliva flow

4. Cancer treatment to head or neck (Severe High Risk)

✓ 5. Active orthodontic treatment

✓ 6. Exposed roots

No More Excuses Caries Management

Caries Management by Risk Assessment

Significant Six Protocol

Protocol for High Caries Risk

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Enamel Saturation and Bacteria Control

- **Fluoride Varnish**
- **Brush 5 times a day with OTC strength toothpaste**
or nightly with **5000 PPM of sodium fluoride (Clinpro 5000)**
- **Caries active - Rinse in the morning with Peridex daily for one week**
- **Xylitol**
- **Sealants**

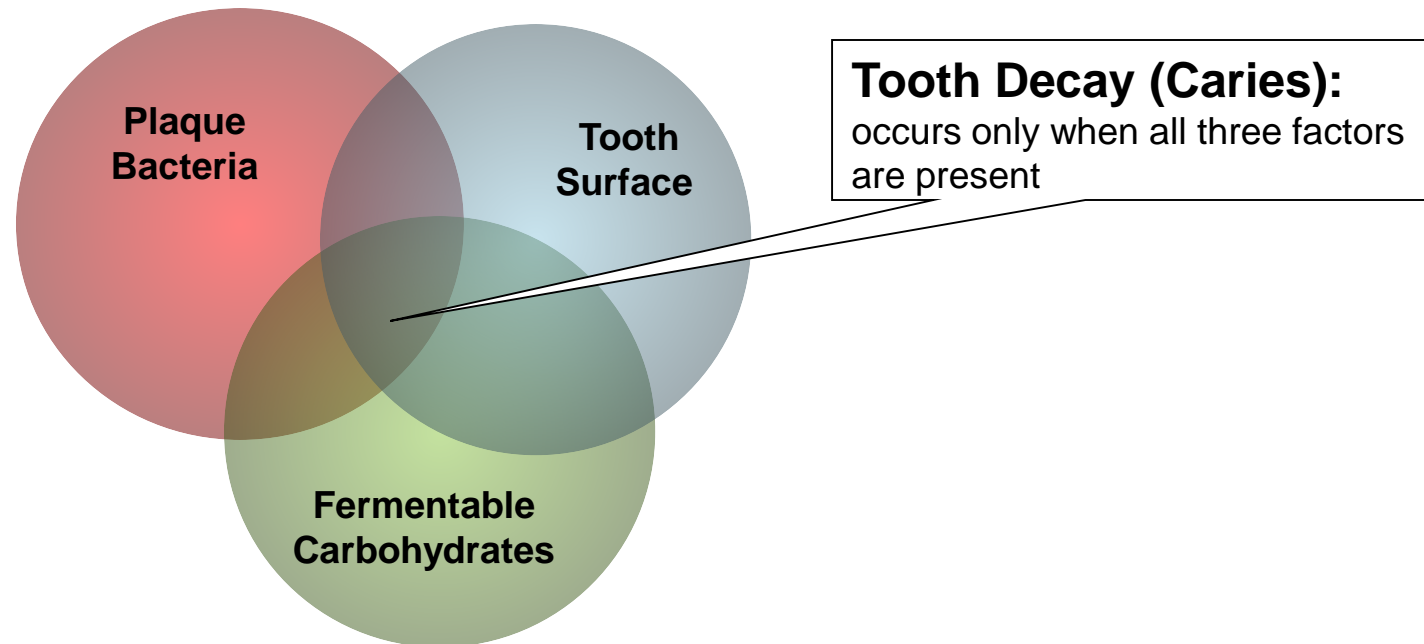
Periodic oral exam every 3 - 4 months

- **Review compliance with medications and oral hygiene**
- **Fluoride varnish**

Dental Caries

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“Dental caries is a bacterially based, transmissible, infectious, communicable disease. Because dental caries is a bacterially derived disease, it is necessary to deal with a *high bacterial challenge because fluoride alone, in many instances, will not adequately deal with the challenge.*”



Elements of a Successful Caries Prevention Program
John DB Feathersone, MSc, PhD
Compendium of Continuing Education in Oral Hygiene

RESTORATION PROTECTION

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Are you treating the symptoms and the causes?

If we mechanically repair cavities while ignoring the disease that caused them, did we cure this patients?

Using Topical Fluoride Agents for Caries Management and Prevention

Determination of Caries Risk: There are many systems to determine caries risk [see ADA*, AAPD**].

Individual risk factors increasing risk for developing caries may include, but are not limited to:

- * Active caries in previous 12 months
 - High titers of cariogenic bacteria
 - Poor oral hygiene
 - Drug/alcohol abuse
 - Poor family dental health
- * Cariogenic diet
 - Genetic abnormality of teeth
 - Many multi-surface restorations
 - Chemo or H/N radiation therapy
 - Eating disorders
 - Active orthodontic treatment
 - Irregular dental care
- Suboptimal fluoride exposure
- Developmental or acquired enamel defects
- Prolonged nursing (bottle or breast)
- Presence of exposed root surfaces
- Restoration overhangs and open margins
- Physical or mental disability with inability or unavailability of performing proper oral health care
- * Xerostomia (medication, radiation, or disease-induced)

* ADA.org/5157.aspx?currentTab=2

** www.aapd.org/media/Policies_Guidelines/G_CariesRiskAssessment.pdf

| Recommended Topical Fluoride Agents | Fluoride Concentration | | |
|--|------------------------|------------------|-------------------------|
| | PPM Fluoride | Percent Fluoride | Percent Sodium Fluoride |
| Professionally-applied Agents: | | | |
| * 2.26% fluoride varnish | 22,600 | 2.26 | 5.0 |
| Acidulated phosphate fluoride (APF) gel (with 0.1 M phosphoric acid) | 12,300 | 1.23 | 2.7 |
| Prescription-strength, Home-Use Agents: | | | |
| * Gel or paste with or without acidulation (0.1M phosphoric acid) | 5,000 | 0.50 | 1.1 |
| Mouthrinse | 900 | 0.09 | 0.2 |

The following were not reviewed, but are presented as a reference:







Over-the-counter Strength:

- Toothpaste with 1150 ppm (0.12%) fluoride or less [i.e., 0.25% sodium fluoride]
- Mouthrinse with 100 ppm (0.01%) or 225 ppm (0.02%) fluoride [i.e., 0.02/0.05% sodium fluoride]

ADA. Center for Evidence-Based Dentistry™
70-2013-0083-0

Clinical Recommendations for Use of Professionally-Applied or Prescription-Strength, Home-Use Topical Fluoride Agents for Caries Prevention in Patients at Elevated Risk of Developing Caries¹

Strength of recommendations: Each recommendation is based on the best available evidence. The level of evidence available to support each recommendation may differ.

| | | | | | |
|---|--|--|--|---|--|
|  Strong Evidence strongly supports providing this intervention |  In favor Evidence favors providing this intervention |  Weak Evidence suggests implementing this intervention only after alternatives have been considered |  Expert Opinion For Evidence is lacking; the level of certainty is low. Expert opinion guides this recommendation |  Expert Opinion Against Evidence is lacking; the level of certainty is low. Expert opinion suggests not implementing this intervention |  Against Evidence suggests not implementing this intervention or discontinuing ineffective procedures |
|---|--|--|--|---|--|

| Age Group or Dentition Affected | Professionally-Applied Topical Fluoride Agent | Prescription-Strength, Home-Use Topical Fluoride Agent |
|---------------------------------|---|---|
| Younger than 6 years | * 2.26% fluoride varnish at least every 3 to 6 months ● In Favor | * |
| 6–18 years | * 2.26% fluoride varnish at least every 3 to 6 months ● In Favor OR 1.23% fluoride (APF*) gel for 4 minutes at least every 3 to 6 months ● In Favor | * 0.09% fluoride mouthrinse at least weekly ● In Favor OR 0.5% fluoride gel or paste twice daily ● Expert Opinion For |
| Older than 18 Years | * 2.26% fluoride varnish at least every 3 to 6 months ● Expert Opinion For OR 1.23% fluoride (APF*) gel for 4 minutes at least every 3 to 6 months ● Expert Opinion For | * 0.09% fluoride mouthrinse at least weekly ● Expert Opinion For OR 0.5% fluoride gel or paste twice daily ● Expert Opinion For |
| Adult Root Caries | 2.26% fluoride varnish at least every 3 to 6 months ● Expert Opinion For OR 1.23% fluoride (APF*) gel for 4 minutes at least every 3 to 6 months ● Expert Opinion For | 0.09% fluoride mouthrinse daily ● Expert Opinion For OR 0.5% fluoride gel or paste twice daily ● Expert Opinion For |

Additional Information:

- 0.1% fluoride varnish, 1.23% fluoride (APF*) foam, or prophylaxis pastes are not recommended for preventing coronal caries in all age groups (● **Expert Opinion Against** or ● **Against**). See JADA publication for recommendation strength by age group.¹ The full report, which includes more details, is available at ebd.ada.org.
- No prescription-strength or professionally-applied topical fluoride agents except 2.26% fluoride varnish are recommended for children younger than 6 years (● **Expert Opinion Against** or ● **Against**), but practitioners may consider the use of these other agents on the basis of their assessment of individual patient factors that alter the benefit-to-harm relationship.
- Prophylaxis before 1.23% fluoride (APF*) gel application is not necessary for coronal caries prevention in all age groups (● **Expert Opinion Against** or ● **Against**). See JADA publication for recommendation strength by age group.¹ No recommendation can be made for prophylaxis prior to application of other topical fluoride agents. The full report, which includes more details, is available at ebd.ada.org.

*APF: Acidulated phosphate fluoride

Patients at low risk of developing caries may not need additional topical fluorides other than over-the-counter fluoridated toothpaste and fluoridated water.

Products and Medicaments

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Fluoride

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FDA indicated to prevent dental caries

Reduces tooth solubility

A strong electro negative ion

Ca + PO₄ = hydroxyapatite

Ca + PO₄ + fl = fluorapatite (up to 30,000 PPM fluoride)

Enhances remineralization

Interferes with bacterial metabolism reducing acid production

Clinically- proven that reverses white- spots

First added to drinking water in 1940s (USA and canada)

Types of fluorides

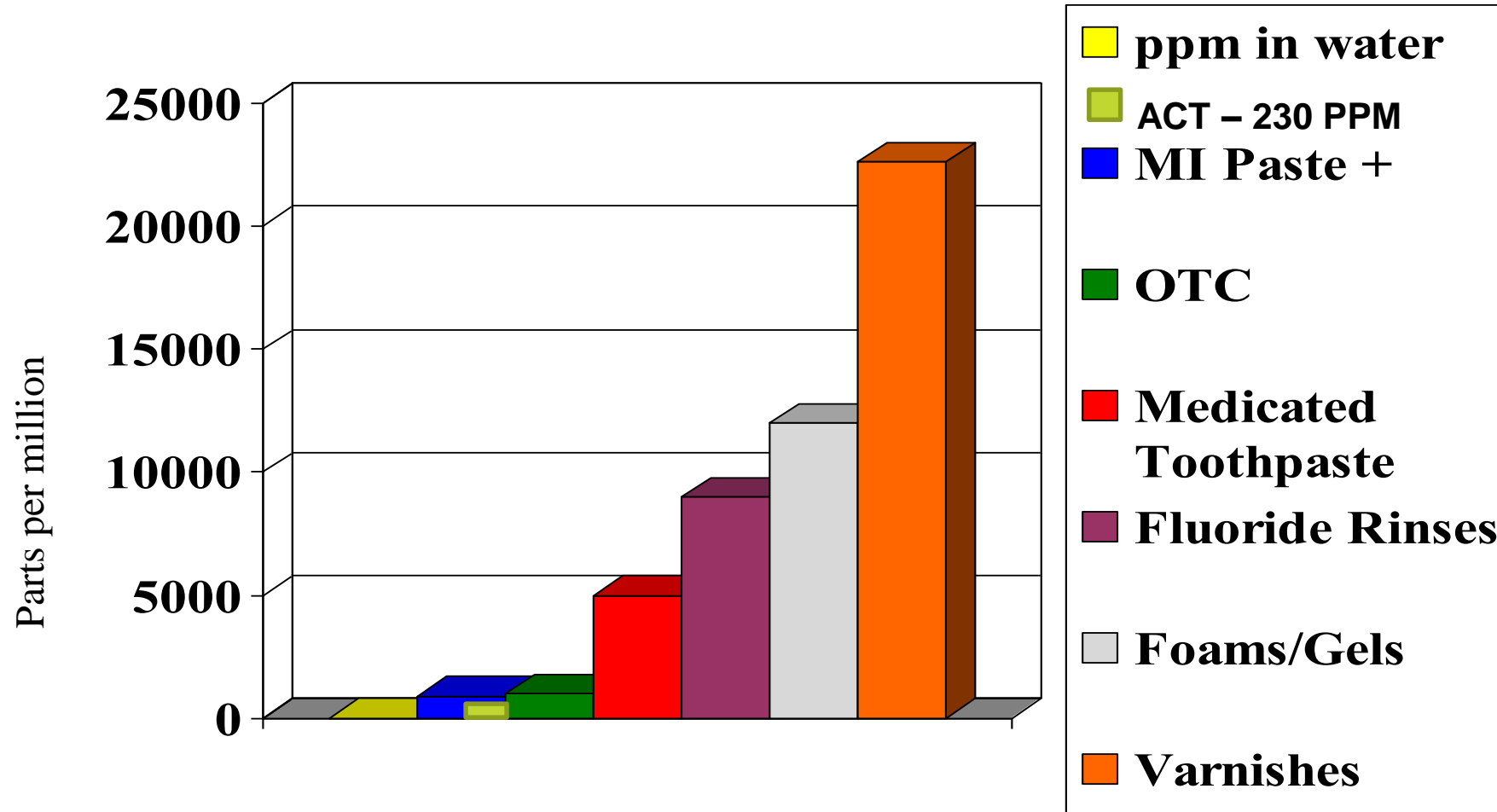
Sodium (hard tissue)

Stannous (hard and soft tissue)

Acidulated phosphate (hard tissue)

Parts per million of fluoride

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Higher concentrations are recommended for patients with High Caries Risk

Varnish

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Vanish

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5% Sodium Fluoride White Varnish

Functionalized Tri-Calcium Phosphate fTCP

- Teeth must be wet
- *Invisible on teeth*
- *Migrates*
- *Tenacious on teeth*
- *Contains xylitol*



Tri-Calcium Phosphate (TCP) – What is it?

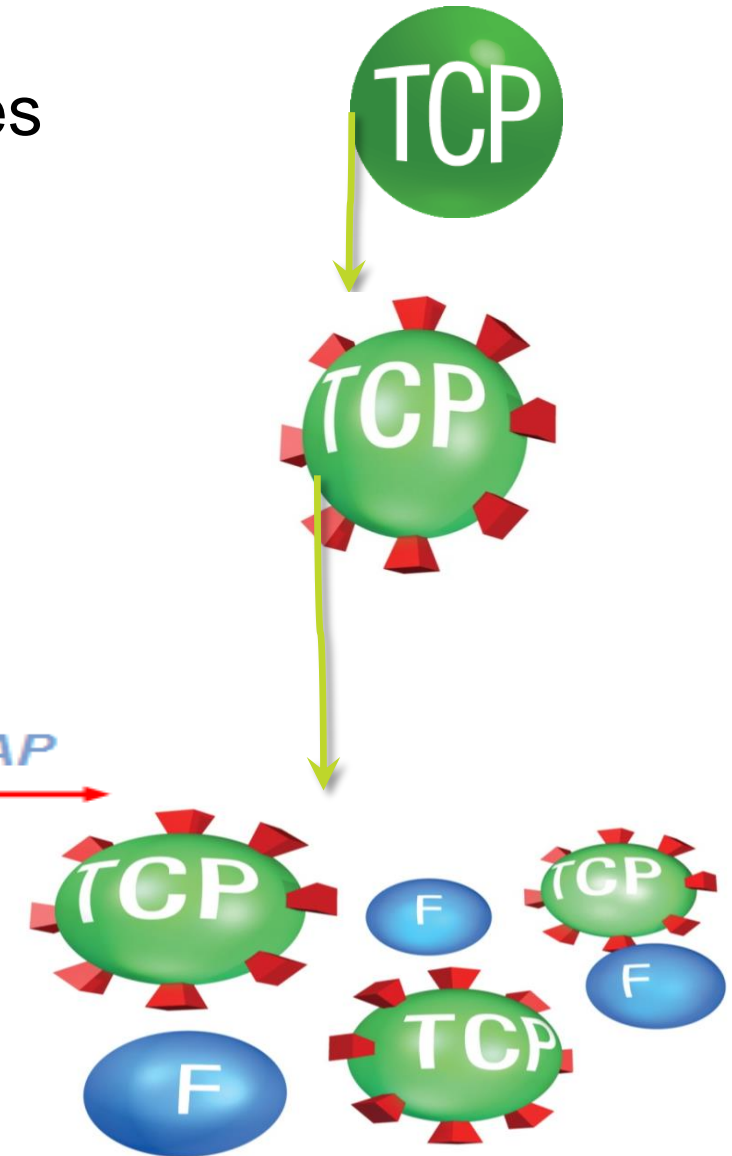
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- Mineral used in bone-related implant procedures
- Source of calcium and phosphate
- *Similar in structure to natural teeth*
- Resistant to acid
- Strong like enamel

*Ease of solubility at pH 7.0**

ACP > TTCP > α -TCP > DCPD ~ OCP > β -TCP > HAP

ACP vs TCP



Prescription Strength Fluoride

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Clinpro™ 5000

3M™ ESPE™ Preventive Care

Functionalized Tri-Calcium Phosphate fTCP

- Innovative formula containing fTCP
- Greater fluoride uptake than other 5000 ppm dentifrices
- Hardens teeth better than other 5000 ppm dentifrices
- **RDA score of 60-gentle on root surfaces**
- 4 oz package (6 month supply)
- One step patient use



Prevention of WSL and decay is better than trying to get rid of them once they exist

Just For Kids / Omni Gel

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.4% stannous fluoride (970 ppm)

Home care: Brush nightly

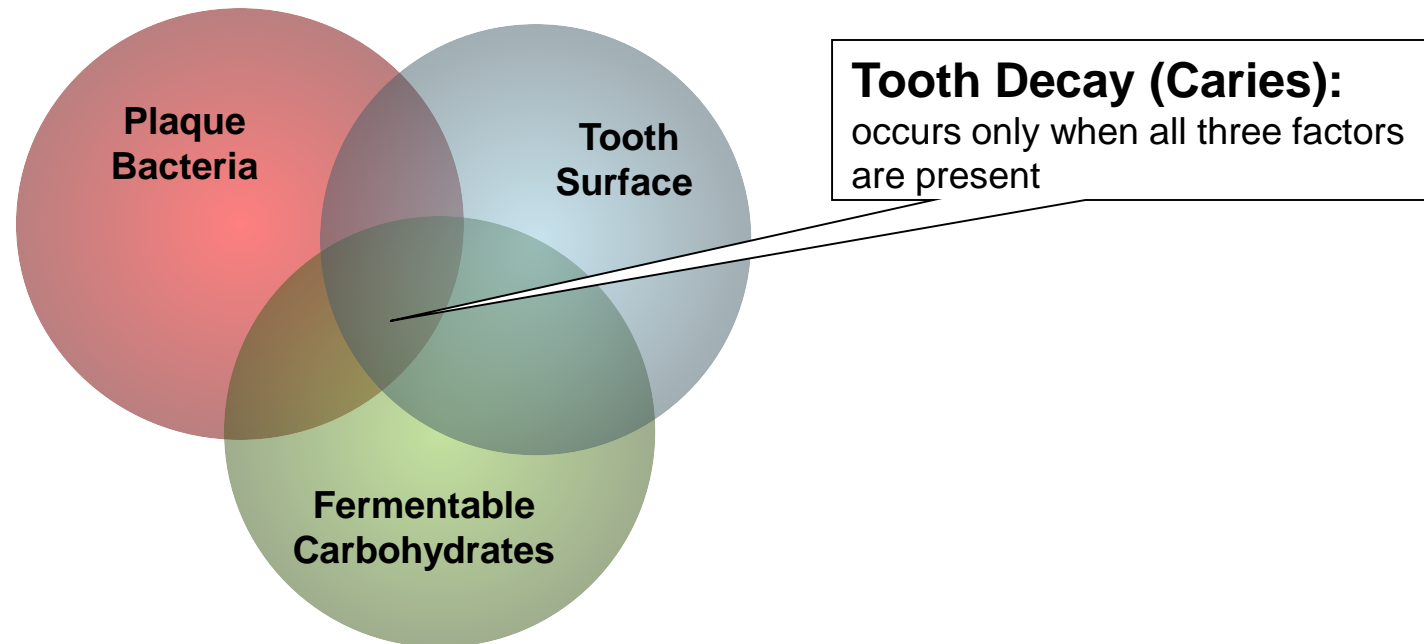
For children with active decay or prevention



Dental Caries

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Clinpro Sealant

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INDICATIONS

- Seals enamel pits and fissures to aid in the prevention of caries

FEATURES

- Convenient direct delivery syringe for easy application
- Contains and releases fluoride
- Color change technology to visualize placement
- Low viscosity to flow easily into pits and fissures
- Self occluding
- No etching no rinsing when used with Scotchbond Universal adhesive



See the Difference in Our Color-change Technology



Photography by Dr. Chris Bryant

Scotchbond Universal

Selective etch adhesive

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- ***New technology. New chemistry***
- Uncompromising results in ***total etch & self etch***
- ***Reliable bond strength. Virtually no sensitivity***
- ***Vitrebond= performs on moist or dry dentin***

Easy to use

- **After prophyl scrub Scotchbond Universal for 20 seconds**
- **Air dry for 5**
- **Apply Clinpro Sealant**
- **Light cure Sealant and bonding together for 10 seconds**

Many indications

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DIRECT INDICATIONS:

- Bonding of pit and fissure *sealants* without etching
- All direct classes of fillings with composite or compomer
- Sealing of cavities prior to cementation of amalgam restorations
- Root surface desensitization
- Protective varnish/sealant for glass ionomer fillings
- Repair of composite or compomer fillings

The all in one adhesive

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INDIRECT INDICATIONS:

- Cementation of veneers when combined with relyx™ veneer cement
- Bonding of dual-cure and chemical-cure cements, core build-up materials and composites when used with Scotchbond™ Universal DCA dual cure activator
- Bonding of core build-ups made of composite or core build-up materials
- Intraoral repair of existing composite, porcelain fused to metal, and all ceramic restorations without extra primer
- Sealing of cavities and preparations of tooth stumps prior to temporary cementation of indirect restorations
- Cementation of indirect restorations of composite, ceramic and metal when combined with Relyx™ adhesive resin cement

Vanish™ XT—What It Is:

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- Light-cured glass ionomer material
- Site specific for **exposed dentin** and **at-risk enamel surfaces**
- Penetrates and *seals dentinal tubules* to immediately relieve sensitivity and to *protect site from demineralization*
- Extended durability for 6 months or longer
- Extended release of fluoride, calcium and phosphate



Vanish XT Extended Contact

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All the major benefits of glass ionomer materials

PROTECTIVE COATING FOR AT-RISK SURFACES

- **Surfaces susceptible to acid erosion**
- **Non-cavitated lesions (white spots)**
- **Partially erupted molars**
- **Around orthodontic brackets.**
- **Recharged daily brushing with Clinpro 5000 with calcium and phosphate .**
- **Fluoride recharge effect lasts several hours (up to 4 hours).**



Application Technique: Orthodontics

3M™ ESPE™ Preventive Care

Prevent Demineralization on Enamel Surfaces



THANK YOU !

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