Pulpal Protection: bases, liners, sealers, caries control
Module C: Biomaterials
Cavity sealers

ScotchBond MP

Barrier

Xeno IV

Optibond Solo
Cavity Sealers

- Provide protective coating seal for freshly cut tooth structure in a cavity preparation
- Cavity sealers provide a transition between cut tooth and restorative material
- Two forms
  - Varnish- natural gum or resin dissolved in organic solvent (amalgam only)
  - Resin based adhesive sealer
Classification of contemporary adhesives

Classification based upon adhesion strategy and clinical application steps

RESIN ADHESIVES
- Etch and rinse (also known as total etch or etch and rinse)
- Self etch
- (REFER to READINGS on Resin adhesives by Strassler and Sensi)

GLASS Ionomers
- Resin-modified glass-ionomer adhesives
Cavity liners

- **Calcium hydroxide (Dycal)**
  - Ca(OH) used for assisting formation of reparative dentin-secondary dentin
  - Due to its high alkalinity has an antibacterial effect (pH=14)
  - **Best used for direct pulp cap**
  - Use only small amount
Cavity liners

Resin Modified Glass Ionomer (RMGI) (VitreBond)
- Chemical bond - fluoride release
- Chemically compatible with composite resins
Cavity bases-Glass ionomer material of choice

- Generally not used for pulpal therapeutic effect (calcium hydroxide is therapeutic)
- Provides primary sealing of dentin (to prevent postop sensitivity with posterior composites)
Cavity base-liner: Glass ionomer material of choice

- Restorative RMGI - primary use to blockout undercuts in cavity preparations for indirect restorations (crowns, inlays, onlays)
- Glass ionomer material of choice (Fuji IILC, Fuji IX)
Dispensing and mixing materials
Resin modified glass ionomer
(Fuji II LC)

Clinical application for resin modified glass ionomer (Fuji II LC)
Primary use: Class V-caries/NCCL
Secondary use: Caries control cavity base
Glass ionomer classification

- **Conventional glass ionomer**
  - Setting reaction: acid-base reaction
  - Aluminosilicate glass + polyacrylic acid
  - For caries control and temporary restorations: Fuji IX

- **Resin modified (reinforced) glass ionomer**
  - Primary setting reaction: acid-base reaction (in absence of light)
  - Resin (10% resin) for light curing (photopolymerization)
  - Base-liners: Vitrebond
  - Restorative resins: Fuji II LC for Class V
Dispensing and mixing materials
Resin modified glass ionomer (Fuji II LC)

- Acid-base primary setting reaction
- Dual setting- 10% light cured resin
- Fluoride release
- Capsule mixed on triturator
- Applicator syringes ionomer into tooth preparation (use correct applicator)
- Self-adhesive (DO NOT acid etch- use cavity cleanser - a 10% polyacrylic acid, cleans cavity preparation but does not etch)
Bonding mechanism Glass Ionomer
Chemical bond- ionic bond

Fluoride release and fluoride can be recharged by fluoride containing toothpaste
Fuji II LC
(resin modified glass ionomer)

Applicator gun

Available in multiple shades

Capsule for mixing and syringing
Fuji II LC: resin modified glass ionomer
Capsule activation before mixing

To activate Capsule, on a flat Surface push in the Plunger
Once activated, Mix using the Triturator for 10 seconds

Capsule inserted in applicator gun
Fuji II LC capsule activation and application

- Tap or shake capsule to loosen powder
- Depress plunger on flat tabletop surface

- Mix with triturator for 10 sec
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Readings: Fundamentals of Operative Dentistry, 3rd Edition; Summitt, et al Chapters 5, 6 and 8

REST 528A Operative #3C
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