The following pages contain a summary of information designed to assist you with the armamentarium, preparation, and cementation of anterior aesthetic restorations. This will include preparation design, adhesives, and dental materials used to complete these aesthetic restorations.

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**Adhesive Dentistry**

Total-Etch (rinse) $\rightarrow$ 2 bottles Primer + Adhesive 4th

Total-Etch (rinse) $\rightarrow$ 1 bottle Primer + Adhesive 5th

Self-etch (no rinse) $\rightarrow$ 2 bottles Primer + Adhesive 6th

Self-Etch (no rinse) $\rightarrow$ 1 bottle Primer + Adhesive 7th

*Universal Adhesives $\rightarrow$ Phosphoric acid Optional 8th?

**Important Qualities of An Adhesive:**

- Lack Of Sensitivity
- Handling
- Bond Strength
- Simplicity
Factors in Smile Design

The Proportion of the Centrals
The centrals are the cornerstone of the smile. As the most prominent feature, much of the esthetics of a smile is based on the proportion of these teeth. The ideal width to length ratio is around 75% - 80%, with the tooth being longer than they are wide. In other words, if the tooth is 10mm long, it should be 7.5mm to 8mm wide.

The Golden Proportion
What are the golden proportions? If the laterals are a factor of one, the centrals are 1.618 the size of the laterals (looking straight on from the front) and the laterals are .618 the size of the centrals. So if the laterals are viewed as 6mm looking two dimensionally straight from the front, the centrals should appear 9.5mm and the cuspids 3.5mm.

Midline and Canting
The midline should be placed in the middle of the face and perpendicular to the plane between the eyes. The plane of the maxillary arch should be parallel to a line drawn through the eyes.

Axial Inclination
The esthetic smile has teeth that have a slight mesial inclination of the vertical incline. This is a line drawn from the gingival apex to the center of the incisal edge or incisal apex with the cuspids. The centrals are the straightest to the midline with a gradually increasing mesial inclination back to the first bicuspid. From the first bicuspid back, they all have same inclination.

Lip Line vs. Incisal Edge
In a natural smile, the incisal edges should follow the contour of the lower lip. If there is a distance between the lip and teeth, it should be approximately the same distance back to the cuspids or first bicuspid.
Contact Points
The contact points gradually decline gingivally as you move posteriorly. The contact point of the centrals is closer to the incisal edge than the contact point between the laterals.

Length of Teeth or Gradation
The teeth get shorter from the cuspids back. The first bicuspid is shorter than the cuspid, the second bicuspid is shorter than the first, and the first molar is shorter than the bicuspids.

Arch Form
If you were to draw a line on an occlusal view of an arch from cuspid to cuspid, in 92% of the people that line would dissect the incisive papilla. Using that as a guide, you can determine the natural curvature to an arch.

Gingival Symmetry
If gingival tissue is exposed upon smiling, it is imperative that the gingival height of the corresponding teeth on each side be symmetrical. If the lips cover the gingival level of the teeth, then this can be ignored without an esthetic consequence.

Gingival Height or Contour
If you were to draw a line from the gingival height of the central to the gingival height of the cuspid, the lateral gingival height would be 1 - 2mm below that line. Interestingly, the gingival zenith on the laterals is most appealing if right in the middle of the long axis of the tooth, where the centrals and cuspids should be slightly distal to the long axis.

Evaluating these rules and conditions upon smile analysis and design will lead to a more pleasing result for you and your patient. Many times they will not like their smile without realizing why, when it could be a violation of one of these esthetic principals.
Porcelain Systems and Cementation

Pressed Ceramics

- IPS Empress @200MPa+ when bonded in very aesthetic crowns and veneers, inlays and onlays
- Finesse All –low fusing porcelain similar properties as Empress Crowns veneers inlays, onlays
- Preparation: 2mm occlusal .5mm + for veneers/crown on facial

Zirconia

- Cercon 900MPa + Crowns, large bridges can not etch internal aspects of framework Can create entire arches with proper support Best if not more than 2 pontic between abutments
- Lava 900MPa + Crowns, large bridges can not etch internal aspects of framework Can be very esthetic. Multi-unit bridges can be fabricated.
- ZirPress Pressed ceramics onto zirconia framework limited size due to pressing
- Monolithic Zirconia Solid zirconia that is stained only. No layering porcelain.

Lithium Disilicate E-Max/ Lithium Silicate (Glidewell)

- E Max Pressed @ 400 MPa  single crowns, premolar bridges
- E max Cad/Cam @360 MPa mainly single crowns
- Lithium silicate (Glidewell) 375MPa Crowns veneers anterior bridge work
- Preparation 2mm occlusal .5+mm facial
Cementation Options

Pressed Ceramics/Feldspathic Porcelain?

- Total Etch with Light cure resin cements
- Universal adhesives (Prime & Bond Elect) with light cure/dual cure resin cements
- Self-etch adhesive resin luting cements *(Not recommended)*

Lithium Disilicate *(E-Max)/Lithium Silicate (Glidewell)*

- Total Etch with Light cure/dual cure resin cements (Calibra)
- Self-etch adhesives Prime & Bond Elect with light cure/dual cure resin cements (Calibra)
- Self-etch adhesive luting cements (SmartCem)

Zirconia (Cercon, Lava)

- Total Etch with Light cure/dual cure resin cements (Calibra)
- Self-etch adhesives Prime & Bond elect with light cure/dual cure resin cements (Calibra resin cement)
- Self-etch adhesive luting cements (SmartCem)
Veneer Case Checklist

Pt. ____________________

☐ Impressions
☐ Photos
☐ Shape ____________________ _______________________
☐ Shade ____________________ _______________________
☐ Length ____________________ _______________________
☐ Radiographs
  Note if decay is present ____________________________
☐ Financial Arrangements ____________________________
☐ Comfort Checklist
☐ Prep and Seat Appointments __________________________
☐ Send Case to Lab

Lab ____________________ Due Date ____________________
The Painless Injection

- Heated anesthetic is a must. It is less shock to the system.

- First use 4% Citanest Plain (Astra) and start on the most distal tooth to be prepared. This anesthetic has a neutral pH of 7 so it will not burn.

- Start slowly just under the tissue and balloon a little bubble size (about ¼ carpule).

- Push the anaesthetic “bubble” mesially to the next tooth and then place ¼ more of the Citanest into the moved bubble. The already existing anesthetic will then be used to inject the next site without the patient filling the needle.

- Continue around to the midline and then start on the other most distal tooth in the other quadrant and move toward the midline.

- After the entire area to be prepared has been infiltrated with Citanest repeat with a longer lasting anesthetic in the same method.
Preparation for Non/minimal Prep Veneers

- Never promise no prep until you have a consult
- Make sure your patient understands there will be a slight thickness
- Make sure the patient understands there will be a “speed bump” at the gingival
- If patient is making 3 shade or higher transition that you will have to minimally strip the contacts
- Send models to the laboratory to get there perspective
- Determine path of draw (facial or occusal)
- Some patients may have minimal prep instead of no prep
- Best candidates for minimal prep is post ortho and or slight spacing (tooth-space relationship)
- Visualize how the case will be finished.
- A partial wax-up may be needed so “mock-up” can be done
- If one of the teeth is a crown replacement you may have to prepare slightly on the adjacent teeth to match
Preparation Sequence For Veneers

- Determine the shape and shade that patient desires and have a laboratory wax-up, preparation matrix (AquaSil Putty), and template for temporary veneers.

- Round arch first. Take away anything facial or lingual to the ideal arch form

- Place depth cuts

- Prepare teeth, smooth margins and round line angles

- Verify occlusion, clearance and take impression

- Determine stump shade (Photo would be ideal)

- Clean teeth with clorhexidine air dry then place Calm It and air dry, Do not rinse

- Load laboratory matrix (AquaSil Putty) made from the lab with desired Bis-Acrylic material like Integrity place in mouth appropriate time

- Carefully remove matrix while leaving the bis-acrylic in the mouth

- Trim margins with 7901 carbide bur, verify occlusion and polish with composite polishing points and burs

- Take impressions and photos of (Integrity) temporaries for the lab

- Call patient in 24-48 hours to confirm shape and phonetics

SATISFACTION AND COLOR APPROVAL
I have inspected my veneers/cosmetic work with a preview gel in my mouth. I am satisfied with the appearance, including color, length, and shade of the teeth. Therefore, I have instructed Dr. Poss and staff to place the final restorations in my mouth.

CONSENT TO TAKE AND PUBLISH PHOTOGRAPHS AND INFORMATION

From time to time, Dr. Poss will use anonymous information and photographs from patient cases for the purpose of continued dental education and lecturing, promotional purposes and the like.

I hereby authorize Dr. Stephen D. Poss and such assistants, photographers, and technicians as he may engage, to take such photographs of me as Dr. Poss may desire before, during, and after the cosmetic or other dental work which is to be performed upon me and I hereby consent to having such photographs published and republished in professional journals, websites and medical books or for any other purpose which Dr. Poss may deem fit. I further consent to permit the publication of information relating to my case, either separately or in connection with the publication of the photographs taken of me.

Signed: _______________________________ _______________________ _______
Patient Parent or legal guardian
(If Patient is under 18)

Date: _______________________

Sequence For Cementation For Veneers
• Clean teeth with chlorhexidine and rinse

• Etch 2-3 teeth at a time. Selective enamel etch is an optional or complete etch.

• Place a coat of universal adhesive like Prime& Bond Elect and evaporate solvent and cure

• Place light cure resin cement only and place luting cement Calibra in veneer in the two central incisors and firmly place on teeth

• Use tacting tip and cure at apical portion for 3-5 seconds

• Place veneers 7,6,5 then 10,11,12, and tact to place

• Carefully floss each veneer and light cure completely

• Using scalers clean off excess cement. Then clean cervical margins with Enhance cups. Use Shimmer Polishing Paste to smooth if needed.