

# Clinical success with porcelain veneers

By Dr Raymond L. Bertolotti, DDS PhD



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Now that we have clinical experience<sup>1</sup> of over 20 years with porcelain veneers, we really know a lot about them. We know what prep results in the strongest veneers, we know that unlike crowns, veneered teeth can be equivalent in strength to natural teeth<sup>2</sup>, and we know that they can last for a very long time. Many leading clinicians in North America and Europe strongly prefer veneers over crowns for clear and sufficient reasons. Some current concepts in porcelain veneers will now be reviewed with particular attention to recent advances in clinical procedures.

## Smile design

The first question is smile design. I try to avoid computer simulations since they can over-promise. What I often do is mockup in the mouth, using either Show Off (Cosmedent) or Estelite Sigma (Tokuyama, my absolute favorite universal composite). Second, we decide prep, no-prep, and if prep how much. If the tooth length needs to be reduced; just "cut off" the tooth with an alcohol soluble marker pen as part of the mockup. An example is left (pics 1-4).



Picture 1: Pre-op



Picture 2: "Shortened"



Picture 3: Composite mockup added



Picture 4: Completion

## Tooth Preparation

I tend to follow the "Castelnuevo prep" design<sup>3</sup>, that is plan for 2 mm of incisal free-standing porcelain, a lingual butt joint and a facial reduction of about 1/2 the enamel. I do not routinely break the contacts. Should your lab be unable to deal with separation of the teeth on the cast, just place a small section of metal matrix band between the teeth and make a "pick up" impression. The stone teeth will now be separated by the metal matrix. It is helpful to punch two small holes on the matrix for best grip by the impression material.

## Impression

I prefer putty/wash for accuracy and ease of impression. Putty/wash seems to be overlooked by a lot of Australians but it is the most popular in Europe. I specifically do not use "H and H" for veneers since they are not subgingival, where H and H is preferred. I like Danville's Star VPS putty since it does not stick to my gloved fingers.

For the wash, I prefer the First Quarter Light or for a big case, the slower Star VPS Light.

To prevent tears on the impression where it goes below the contact, it is helpful to place some of Ultradent's Blue Blockout to the lingual area and light cure it. The resulting impressions are very clear and free of tears (see pics 5-6).



Picture 5



Picture 6

## Temporaries

I etch a small spot in the center of the facial surface, and then apply a light curing enamel bond such as Danville's E-Bond. Light cure the bond and an oxygen inhibited, unpolymerized surface will remain on the E-Bond after curing. For one or two veneers, I then hand sculpt some Estelite Sigma composite to the facial surface and light cure it. Thus the composite is spot bonded. For a larger case, I use TurboTemp 2 and preliminary First Quarter Monophase VPS impression. Monophase is available in a chocolate-mint flavor, a hit with patients. The preliminary impression is made after mocking up the teeth so that the proposed "addition" changes are in the temps. After the TurboTemp 2 is cured for about two minutes, I remove the impression and use Danville's Retract instrument (the small size) to cut off the gingival flash. Now I light cure through the TurboTemp 2. The TurboTemp 2 attaches to the previously light cured E-Bond spot.

## Try-in

For try-in, silane is placed on the HF lab-etched veneers while they are clean. Now there are two recommended procedures. For years I have used Danville's E-Bond on the veneer to protect the silane from contamination. First, I try-in for fit with the silane and E-Bond on the veneers. Then I add composite (Accolade PV Try-in, see below) to the E-Bond and try in for color. The E-Bond is light sensitive so it has some effect on limiting the try-in time. The second procedure, a great innovation from Danville, uses Accolade PV Try-in Composite placed directly on the silane, no E-Bond. The

veneer is tried in for fit and color simultaneously. This Accolade PV Try-in is real composite but has minimal light sensitive initiators, thus allowing accurate color evaluation with nearly unlimited try-in time. Using a composite rather than a glycerine based try-in materials not only speeds the procedure but also eliminates the possibility of contamination by the try-in material. After try-in, the trick is to remove at least 50% of the non-catalyzed Try-in composite and then replace it with the normal catalyzed Accolade PV composite. The remnant Try-in material is polymerized by what's known as "diffusion polymerization". This concept is unique in the industry and I very highly recommend it.

For further efficiency of try-in, I try-in with two shades of composite simultaneously as illustrated below. By observing the two composites, I can "dial-in" a blend if required or just choose the best shade. If there is more than one veneer, I usually try in with different shades on each veneer. For a big case, sometimes I try in a "right half" and a "left half" differing in shades. The unlimited try-in time allows the patient to take as much time as required for try-in and I proceed only when they are happy with the shade. No more color remakes on me! As my good friend, Dr. Tom Hughes says, the patient "buys the shade" before the veneers are bonded. The patient can take as much time as needed. (see pics 7-9).

### Bonding the veneers.

After try-in is satisfactory and patient "buys the shade", the veneers with Try-in Accolade PV composite are removed from the teeth. The teeth are pumiced with a prophyl cup to remove all try-in materials. The veneers are brushed with Prelude adhesive #2 (included in Accolade PV kits), to dissolve most of the Try-in composite. Then regular Accolade PV is placed on the veneers, not completely rid of Try-in material. These materials are now light sensitive so protect from light. Etch the teeth with phosphoric acid (the self etching primer, "Prelude #1, is not used) and place the Prelude #2 adhesive on the teeth and then the veneers. Light cure as usual. An alternative procedure, used in situations where

complete light cure is doubtful, is to use total etch and Clearfil Photo Bond in place of the Prelude #2 on the teeth. Photo Bond is dual-cured and will perform well even if not light cured at all. So Photo Bond would be a wise choice for opaque or thick veneers while Prelude is fine for light curable veneers.

### Conclusion

Clinical efficiency results from use of the described veneering procedures. This efficiency is yet another good reason to reject crowns when veneers are the preferred option.

(There is a current version of the veneer bonding procedure on my web site: <http://adhesion.com/newsltr.html>) ♦

### References:

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3. Castelnuevo et al., Fracture load and mode of failure of ceramic veneers with different preparations., J Pros Dent 2000; 83:171-180

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Danville products as described in this article are available in Australia exclusively from Amalgadent Dental Supplies  
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Picture 7: Prepared tooth



Picture 8: Veneer two shades of Accolade PV Try-in



Picture 9: Immediately after bonding

## CPD QUESTIONS

1. Why is a computer simulation of 'before and afters' a bad idea?
2. What is "the Castelnuevo prep" design?
3. Why is the H&H impression technique not recommended for veneer?
4. What is a preferable technique for impression taking for veneers?
5. How do you ensure a Bis-acryl or composite temporary veneer can easily be removed, and at the same time not fall off?
6. How does Accolade Try-in differ from normal composite?
7. Are other try-in pastes the same?
8. Do you use Prelude bottle one (Primer), then bottle 2 (Adhesive) then Accolade PV to bond on the porcelain veneer?

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