Clip Tips in Restorative Dentistry (the good and the bad) – Milton Keynes – Thursday 4th Feb 2016

Peter Briggs  BDS (Hons) MSc MRD FDS RCS(Eng)

Handout – hodsollhousedental.co.uk / teaching & education / course downloads
Benchmarking can be difficult and stressful
Case Example

Dob: 2.10.88
Way, Kennington, Ashford,

Thank you for asking me to see the above pleasant patient Farningham on 24.10.15.

I would agree that she has...
Patient unhappy about the appearance of her anterior teeth

- 27 year old female
- Wants teeth to look better
- ODS has placed direct composite on lingually - placed LL2
Patient unhappy about the appearance of her anterior teeth

- Fit and well 27 year old
- BPEs mainly 1s
- High upper lip line
Describe

• Appearance of teeth
• The aesthetic issues that might require Rx
Questions

• What is your diagnosis?
• Explain the treatment options
• How would you manage the LL2?
Would you?

- Micro-abrade?
- Bleach?
- Bleach & bond?
- Bleach and veneer?
- Veneer?
How long would you bleach, what will you warn the patient of, how effective is bleaching and how well will the colour be maintained in the future?
How does bleaching work? / What do you think I did with LL2? / When do we stop?
Would you use more bleaching work? / If so how would you ask the patient to do it?
I want to introduce you to a patient that I was asked to see last week.
Dear Peter,

I recently saw a lovely lady who has recently had cosmetic work done. She originally enquired about tooth whitening to improve her smile. Her UR2 was instanding and she may have had mild tetracycline staining. Her dentist persuaded her to have 7 upper veneers and she is not happy with form, function or appearance. She is seeking a refund from the dentist and she came to see me about restoring her smile. I wanted her to experience your expertise in restoring her smile and so I have asked her to see a specialist like yourself. Please could you:

1. provide a second opinion as to how you can help her
2. see whether the UR2 needs orthodontic movement
3. inform her how you can restore her speech impediment (lisp)
4. give her a treatment option that will be long term

She is not a litigious person but will be expecting the dentist to fully fund the restoration as she feels that it was an elective process without full informed consent.

I am attaching her photos as well.
What would you do here then?
Recent veneers: UR321 & UL123 – note that UR1 UL1 redone
As promised I’ve listed below the problems that remain following fitting of the veneers by you.

- **Lisp** – I have never lisped previously. I now have a lisp.
- **Sensitivity** - mildly sensitive to cold on middle teeth and to cold air when outside. Sensitivity is to floss between middle fronts.
- **Middle lip** has dropped back / sagged behind where it used to be.
- **Saliva and air** coming through tops of teeth. Get bubbles of saliva coming through if talking or when saying the 'fff' sound.
- **Middle teeth** now seem short in comparison to outer teeth (i.e. canines) - can no longer touch bottom teeth with middle teeth when I move lower jaw forward. Canines do touch bottom teeth if moving jaw. The whole arc of my mouth has changed in a way that it should not have.
- **Discomfort** .... left hand side of mouth feels ok. Right hand side of mouth where crooked tooth feels what I can only describe as annoying when I move my mouth. It is a constant feature in my every second awareness!
- **Can hear a slight click** from teeth at times, almost as though they are moving
- **Rough edge** at bottom of right front ... floss catches on it.

I have to confirm also the points that were raised during our conversation and a description of the process that has occurred to bring me to this point.
I attended for whitening trays. I remember you wanting to book an appointment for preparation for veneers after 10 days of home whitening following the in-house laser whitening to achieve the optimum affect. The day you were suggesting was not possible for me due to work commitments. I remember feeling you were being a little bit pushy on that point. The laser whitening day had been booked already but surely the easiest thing was to reschedule the laser whitening appointment to fit in with a day I could attend for the preparation work. In the end I rearranged the laser whitening appointment by phone when I got home. I wish I understood why you were pushing for the date you wanted.

I didn’t know what I didn’t know until after the preparation had taken place (ie no going back stage)

i) Can’t eat nuts - This was the first shock. This only came out on the day I attended for the permanents and only because the left canine part of the temporary had come off the previous morning. I had no prior knowledge that I would have to be careful what I eat in any way shape or form, for fear of chipping or breaking the veneers. I am vegetarian..(or a fishetarian at times actually), but I never eat animal meat. So I eat a lot of nuts for protein.
Guarantee?

ii) Your guarantee - 2 years - this was mentioned only on the day the permanents were fitted. 2 years is not a very long time. It implies that the product may not last beyond 2 years. That was a bit of a shocker, though I said nothing. I'm not a high earner, so was left wondering what would happen when they needed replacing again...potentially after 2 years...and just how many times would they need redoing across the remainder of my life? Again...something that should have been declared up front.

iii) Size of the teeth

I had no idea that the size, by which I mean both length and thickness, would be so vastly different from my natural teeth. The temporaries were no reflection of what the permanents were going to be either. There was a massive difference between the size of the temporaries and the permanents. I have the temporary canine that broke off here at home. It simply doesn’t match.
Palatal / Occlusal Views & Lip line
Thank you for your letter of 21st January 2016 and for taking the time to write to me, and I am very sorry you are still unhappy with the veneers. As I have indicated in our telephone conversations, I am keen to resolve the matter fully to your satisfaction.

At this stage, I understand that you have a number of concerns about the veneers with regard to both their appearance and function. You have also highlighted you are worried about the long term prognosis of the teeth and veneers, and that they may need replacement in the future.

You may recall that you first raised the issue of the appearance of your teeth in August 2015. At this appointment we did have a detailed discussion regarding the possible options that were available to improve your smile. Not only did we discuss veneers, but we also talked about orthodontic treatment. Having run through all the possibilities, you decided that veneers were the best solution for you. I am sorry if you feel that I did not fully explain the nature of veneers in as much detail as you would have liked, and please be assured it was my intention to provide you with the best possible outcome. As I am sure you will appreciate, I have spent considerable time and effort in trying to address your concerns by both adjusting and even replacing some of the veneers. However, I do accept that I have still been unable to meet your expectations.

I would not want any of my patients to feel disappointed or disadvantaged following any treatment that I have provided, and so am keen to fully resolve your problems. In the first instance, I feel the most appropriate way to do this would be by arranging an independent report from a specialist dentist. I would of course be happy to fund this consultation and once we have this report we will be in a better position to know how we can achieve the outcome you had hoped for.

With this in mind, I would like to invite you back to the practice to discuss who you would like me to refer you to. I would of course understand if you would prefer to arrange this consultation yourself. If you are unable to find any specialists, I would be more than happy for my practice manager to
Patient has Specific Complaints
I worry for the future...that the veneers will fail and that I will have to find the money to have them redone, again and again. I appreciate that nothing is forever, including crowns and possibly even natural teeth...though both of those do tend to last, and with crowns on a back tooth..if they chip a little it is not the end of the world. Front teeth it is a little different is it not and I dread the idea of one of them coming off.

It is impossible to escape from this lisp and it is impossible to escape from the feeling I have in my mouth with saliva passing through the tops of my teeth and the sagging of my upper lip. I do think there needs to be some remedy. Attending a specialist is now the only way forward. I have no idea what the cost of that will be but I would suggest that that should be considered once the person is identified.

Dr Kumar was asked for advice. He is not known to me personally other than the one meeting I have had with him and a couple of phone calls. He has no reason to support me nor has anything to gain from any intervention. He has tried to assist with a resolution for which I am grateful.

Yours sincerely,
What are the issues?

• Consent – expectations / mixed messages
• Diagnosis – what is the Rx aimed at solving?
• Planning phases – what will it look like?
• Execution of Restorative Phases of Rx
• Internalisation & lost trust
What would you do for this patient and why?
Replacing veneers – possible but difficult and often done poorly
Dismantle – over 70% of all dentistry is re-do
Repair, Re-treat, Restore or Replace?
Occlusion and the use of direct resin restorations to manage TSL (2015)

The survival of direct composite restorations in the management of severe tooth wear including attrition and erosion: A prospective 8-year study

A. Milosevic\textsuperscript{a,}\textsuperscript{*}, G. Burnside\textsuperscript{b}

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Prospective Observational Cohort study – level III evidence -

- Used a hybrid composite – Spectrum (DentsplyDeTrey) for all restorations
- One specialist operator (AM) placed all restorations
- Patients recruited as offered secondary care at Liverpool Dental Hospital
Distribution of restorations placed

Fig. 4. Distribution of upper and lower direct composite restorations showing the number of direct composites placed per tooth in each quadrant.
1010 restorations placed in 164 patients
71 of the 1010 restorations failed during follow-up. 5.4% failure in first year
Mean restoration follow up time: 33.8 months!

**Results:** A total of 1010 direct composites were placed in 164 patients. Mean follow-up time was 33.8 months (s.d. 27.7). 71 of 1010 restorations failed during follow-up. The estimated failure rate in the first year was 5.4% (95% CI 3.7–7.0%). Time to failure was significantly greater in older subjects ($p = 0.005$) and when a lack of posterior support was present ($p = 0.003$). Bruxism and an increase in the occlusal vertical dimension were not associated with failure. The proportion of failures was greater in patients with a Class 3 or edge-to-edge incisal relationship than in Class 1 and Class 2 cases but this was not statistically significant. More failures occurred in the lower arch (9.6%) compared to the upper arch (6%) with the largest number of composites having been placed on the maxillary incisors ($n = 519$).

**Conclusion:** The worn dentition presents a restorative challenge but composite is an appropriate restorative material.

**Clinical significance:** This study shows that posterior occlusal support is necessary to optimise survival.
Look how many restorations are ‘at risk’ over time

**Fig. 1.** Kaplan–Meier survival plot for all restorations, with number of restorations at risk. Note: 95% pointwise confidence limits are not adjusted for multiple restorations per patient.
Look how many restorations are ‘at risk’ over time

Number of Restorations

Months ‘at risk’
Criteria of success?

- Seems from the paper to be complete loss of restoration or chipping – all or nothing – how does this affect interpretation?
- No partial loss, chipping, staining etc.
- No variables compared & contrasted
Lack of Posterior Support or not? – half number of restorations placed with LOPS
Lack of posterior support associated with greater severity of TSL

The signs and symptoms of tooth wear in a referred group of patients

B. El Wazani, M. N. Dodd and A. Milosevic

Aim To determine the prevalence of signs and symptoms in a group of tooth wear patients referred to a hospital-based consultant clinic. Method The clinical records of 290 patients referred to the Liverpool University Dental Hospital for tooth wear were reviewed retrospectively. A systematic sampling technique was used to select every alternate patient held on the consultant database. Results There were significantly more males than females in a ratio of 2.3:1. Significantly more males (56%) presented with severe tooth wear compared with females (31%) (p <0.001). Aesthetic concerns were the most prevalent presenting complaint (59%) and sensitivity was the second most common presenting complaint (40%). Functional problems and pain were less prevalent at 17% and 14% respectively. Subjects who had lost posterior support had more severe wear and more worn anterior teeth, which was statistically significant (p = 0.001). The proportion of subjects with undiagnosed apical pathology on worn teeth was 13%. Conclusions Tooth wear predominated in males in this study. Patient dissatisfaction with appearance is the most common complaint and endodontic signs and symptoms are low in prevalence. Contrary to previous studies, lack of posterior support resulted in greater severity of wear, therefore restoring support is recommended.
Type of tooth wear
Attrition, Erosion or Multi-aetiology

Fig. 3. Kaplan–Meier survival plots for direct composite restorations according to the type of tooth wear modality (attrition, erosion or multiple), with number of restorations at risk. Note: 95% pointwise confidence limits are not adjusted for multiple restorations per patient.
What was significant?

3. Results

A total of 164 patients with a mean age of 51.35 years were included in the study. There were many more males ($n = 138$) than...

Table 2
Multivariable Cox regression, using a frailty model to allow for clustering of teeth within patients.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hazard ratio (95% CI)</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOPS</td>
<td>2.87 (1.31, 6.31)</td>
<td>0.004</td>
</tr>
<tr>
<td>Bruxism</td>
<td>0.50 (0.18, 1.35)</td>
<td>0.098</td>
</tr>
<tr>
<td>Age</td>
<td>1.02 (0.99, 1.05)</td>
<td>0.198</td>
</tr>
<tr>
<td>Gender—female</td>
<td>0.56 (0.11, 2.78)</td>
<td>0.419</td>
</tr>
<tr>
<td>No OVD increase</td>
<td>2.05 (0.84, 5.04)</td>
<td>0.063</td>
</tr>
<tr>
<td>Toothwear type</td>
<td>Reference category</td>
<td></td>
</tr>
<tr>
<td>Attrition</td>
<td>Reference category</td>
<td></td>
</tr>
<tr>
<td>Erosion</td>
<td>0.69 (0.26, 1.83)</td>
<td>0.461</td>
</tr>
<tr>
<td>Multiple</td>
<td>0.19 (0.05, 0.64)</td>
<td>0.007</td>
</tr>
<tr>
<td>Lower arch</td>
<td>1.56 (0.86, 2.81)</td>
<td>0.118</td>
</tr>
</tbody>
</table>
The significant differences

- Time to failure greater in older patients (SD / 0.005)
- Greater failure with Lack of Posterior Support (SD 0.004)
- Multiple TSL aetiology (SD 0.007)
The non-significant differences

- Multiple TSL aetiology (SD 0.007)
- Erosion (NS 0.007)
- Class III more failures (NS)
- Increasing VD not significant (NS)
- Vertical dimension change (NS)
- Lower Arch (NS) 9.5% failure upper jaw (6%)
The survival of direct composite restorations in the management of severe tooth wear including attrition and erosion: A prospective 8-year study

A. Milosevic, G. Burnside

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5. Conclusion

Over an average follow-up time of 33 months, only 71 of 1010 restorations in this sample failed. Directly placed composite restorations are a viable treatment modality to restore the worn dentition. Lack of posterior support was the main factor associated with failure. It is recommended that missing posterior teeth are replaced in order to reduce anterior loading on composite restorations.
Restored in 1996 – 2015 review

Restorative dentistry: The Clinical Application of Posterior Resin-bonded Cast Metal Restorations

**CPD:** 238 0:15 (closed)  
**Feedback:** 0 comments, 0 ratings

**Abstract:** There has been much interest in the development of adhesive dentistry over recent years. Greater understanding of materials and bonding methods have improved the clinical predictability of restorations. Resin-bonded cast metal restorations can now provide a genuine alternative to conventional fixed restorations for both premolar and molar teeth. This paper illustrates the clinical application of such restorations.

**Clinical relevance:** Resin-bonded cast metal restorations can provide a conservative and predictable alternative to traditional crowns. They can be applied to a wide variety of clinical situations and have many clinical advantages when used to restore severely damaged posterior teeth.

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**Objectives:** To give examples of the clinical applications and techniques for posterior resin-bonded cast metal restorations.
Amalgam in 2016
An amalgam-free world – are we and our patients ready?

Peter Briggs. Consultant and Specialist in Restorative Dentistry, Barts and The London Dental Hospital and Hodson House Specialist Dental Practice, Farningham, Kent

I qualified 32 years ago in 1983 and can, sadly, still remember that one of the questions in my final written examination was to compare and contrast the properties of the different plastic materials available to restore posterior teeth. After varied general jobs in primary and secondary care, my career choice was to undertake specialist training in Restorative Dentistry. I completed my certificate of completion for specialist training (CCST) in Restorative Dentistry 11 years after qualification in 1994.

I have always tried, where possible, to be evidence-based and would describe myself as an early adopter to anything that I think will improve the quality of what I can provide to patients. I have attempted to upskill with virtually every major development relevant to Restorative Dentistry over the last 30 years. This has included: direct and indirect adhesive ‘additive’ dentistry, utilization of the Dahl concept, implants, augmentation and regeneration, operating microscopes with illumination, rotary (and reciprocation) endodontic instruments, 3D vertical warm obturation systems, digitization of radiographs, the use of CT and CBCT, HD video-capturing, websites, etc.
An amalgam free world for older patients?

Guest Editorial

Phase-down and potential future ban of dental amalgam in the UK. There was concern that, if dental amalgam is not available, then more teeth are likely to be extracted and more will likely suffer significant biological complications as an unintended consequence of the loss of the material.

Many still feel that we are still some distance away from finding a new material that performs as well in difficult and compromised circumstances as dental amalgam. Without amalgam, this problem is likely to affect our most vulnerable patients in particular – to include those with special needs, the elderly and the medically-compromised. I am sure that we can all agree that UK dentistry should aspire to use as little dental amalgam as is possible in the future.

Bspd would like to hear your view on the following:

- Is this topic still important for UK dentistry in 2016?
- If yes, should it be escalated to the top of the dental agenda for debate?
- Should a National Prosthodontic society like bspd (and similar groups) be involved with canvassing/lobbying for an agreement that allows continued clinical use of dental amalgam for specific clinical circumstances?

- Should we as a profession be moving towards agreement of a formal understanding of what ‘exceptional clinical circumstances’ might mean for the limited continued clinical use of dental amalgam after a formal phase-down?

Do you think that the clinical application of dental amalgam should still be taught in UK dental schools?

Both bspd and I look forward to hearing your views via email:

Email: amalgam@bspd.org
Web-link for the amalgam debate:
www.bspd.org/amalgamdebate
Amalgam in 2016?

Details

Confronting the Grey Areas - the British Society of Prosthodontics 2015 Annual Conference

Friday 27th & Saturday 28th March 2015

British Library, Conference Centre, St Pancras, London

The British Society of Prosthodontics will hold its 2015 conference in London under the Presidency of Peter Briggs. The scientific programme will take place at the conference centre in the British Library. It will focus on the controversial area of clinical prosthodontics.

Peter has pulled together a dynamic and well-known group of speakers to tackle the Grey Areas of Prosthodontics. The main conference hotel is the Pullman St Pancras which is next door to the British Library. There is accommodation for all budgets in this area of Camden. The conference meal will take place on Friday, 27th March 2015 at the Pullman.

The society will debate the implications of a phase-down of dental amalgam with the help of Phil Taylor and Trevor Burke. Prof. Stefan Edelhoff from Germany will outline the Grey areas of CAM and ceramic technology for clinical dentistry. Richard Pascoe will tackle the diagnosis and best management of cracked tooth and non-vital teeth. Dominic D’Souza will present his views on when patients are ready to receive any treatment for teeth lost from periodontal disease. Kent Hemmings will outline the grey areas of decision-making between adhesive and conventional prosthetic options to manage compromised and worn dentitions. Paul Tyson will update the society on his views on the important grey areas of occlusion and Jimmy Makridis and Shaked Shefardi will discuss what imaging and planning should be used in the 21st century for prosthodontic reconstruction. Finally Ken Lewes will outline the dental grey areas of prosthodontic clinical practice and the challenges of some of the newer prosthodontic techniques. There will also be a robust scientific programme to include poster sessions, prize presentations and parallel educational sessions including treatment planning sessions. We look forward to seeing you all in 2015.
What would you do here?

Case Discussion 4

What would be your preferred material choice for restoring this tooth?

<table>
<thead>
<tr>
<th>Answers</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect restoration with metal-ceramic</td>
<td>3</td>
<td>2.0%</td>
</tr>
<tr>
<td>Direct restoration with composite</td>
<td>18</td>
<td>11.9%</td>
</tr>
<tr>
<td>Indirect restoration with ceramic</td>
<td>18</td>
<td>11.9%</td>
</tr>
<tr>
<td>Indirect restoration with composite</td>
<td>23</td>
<td>15.2%</td>
</tr>
<tr>
<td>Direct restoration with amalgam</td>
<td>28</td>
<td>18.5%</td>
</tr>
<tr>
<td>Indirect restoration with metal</td>
<td>61</td>
<td>40.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>151</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Trevor Burke
- Direct restoration with resin composite.
- The box is, in my view, too wide for a sectional matrix, so in this case, I would use a Supermat matrix. If there is a crack in the lingual cusp (there is a suggestion of that in the pic), I would consider coverage of the palatal cusp.

Phil Taylor
- **Amalgam**
  - Would consider making full cuspal coverage if it was the definitive restoration maybe on grounds of cost.
  - Long-term service of extensive amalgams and amalgin crowns.
  - (Performed worse than crowns but still lasted 24 yrs.)
  - Then consider mixed indirect restoration. Probably non-precious metal.
Fight for limited use or give up?

General Questions

Assuming that there will phase down of dental amalgam use, should we be fighting for continued use of dental amalgam in selected clinical situations?

- Not Sure: 1.3%
- No: 9.2%
- Yes: 89.5%
For those wanting to still use amalgam why?
Will more teeth be lost / extracted?

Having listened to the debate, do you believe that more teeth will be extracted if amalgam is not available?

- Yes: 37.8%
- No: 53.4%
- No sure: 8.8%
Having listened to the debate, do you believe that the clinical performance of amalgam and composite are equal for approximal posterior restorations?

- 66.7%: No, Amalgam performs better than composite
- 24.4%: No, Composite performs better than amalgam
- 8.9%: Yes, equal performance
Should it still be taught?
DFs (6 months into DF year)

Having worked for 6 months as a DF trainee, do you think composite is the solution for all clinical situations when restoring posterior teeth?

- Yes: 93.9%
- Not sure: 3.0%
- No: 3.0%
DFs (6 months in post)

Those who have said no - state examples of clinical situations for which composite has not been the solution
An amalgam coronal-radicular dowel and core technique for endodontically treated posterior teeth


Medical College of Georgia School of Dentistry, Augusta, Ga.

Engineering principles indicate that the structural strength of the natural crown of a tooth is dependent on the quantity and inertial strength of dentin and the integrity of the anatomic form. Frequently, a significant amount of dentin has been lost as a result of caries and/or extensive restorations in teeth requiring endodontic treatment. The integrity of the anatomic crown is also disrupted by coronal access, canal enlargement, and chemomechanical preparation. The required removal of dentin from inside the crown and root results in decreased strength. In addition, inherent dentin strength may be adversely affected by the action of the pulp which results in a decrease of maximum crown content of dentin.* It has been hypothesized, but not proved, that loss of the pulp reduces elasticity and tensile strength of the dentin.** Therefore, as a result of a decreased amount of dentin, disruption of anatomic form, and possible loss of intrinsic strength, endodontically treated teeth have increased susceptibility to horizontal and vertical fracture.

The importance and need of providing internal support for endodontically treated teeth prior to placement of coronal restorations is well documented.*** To supply additional retention and to protect against fracture, vertical and horizontal support should be provided. Protection of the weakened tooth is enhanced with intracoronal support and an extracoronal core restoration.**** To provide internal support and retention for multidivided

General Guidelines for Post Placement

ANTERIOR TEETH

◆ If no crown is required, a post is generally unnecessary.
◆ If a crown is necessary, a post is generally required.

POSTERIOR TEETH (crowns generally required)

◆ Molar teeth with an adequate pulp chamber do not require a post.
◆ Molar teeth with inadequate pulp chamber may require a post.
◆ Maxillary bicuspids generally require a post.
◆ Mandibular bicuspids require independent consideration.
How would you restore this molar?
An example of synthesis and reflective learning with clinical (craft skill) gaps as DF

‘...the more that I practise the luckier I get....’