Repair, Re-treat, Restore or Replace?
Dismantle – over 70% of all dentistry is re-do
Repair, Re-treat, Restore or Replace?
2014 BDA Seminar Series
Repair, Re-treat, Restore or Replace?
Friday 12th September 2014
Huddersfield, West Yorkshire

Complete Dentures – Copy or Re-make?
Strategic Teeth – important things to get right
Case examples – what to do with failure – the occlusal things to get right?
Professionalism in 2014
The challenge of future – ageing patients
Foundation Health of Root: Periodontal Health and Endodontic
Options I 2014 option appraisal & why?
Prognosis and outcome comparison of re-restored natural teeth compare to implants?
Complete dentures are still common in 2009

• 6% of population edentate.
• 6% of 60 million is 3.6 million by my calculation
• Many more have very extensive partial dentures
• Why are complete dentures hardly taught in some UK dental schools?
Remember that technically correct dentures will better satisfy patients than poor quality ones


Should this must be part of the skill-set of a dentist in 2014?
Such an unSexy area of dentistry that it is becoming a vanishing skill
DOB 4/5/1920

Opinion:
In my opinion this patient requires just a simple copy technique of her existing dentures with the goal of providing new dentures that copy most of the positive features of her existing dentures with improved interdigitation and occlusal shape. It may be possible to increase vertical dimension by a couple of millimetres but one has to be careful not to over ride the patient's tolerance envelop. The patient is certainly up for a new set of dentures and I therefore had to have some discussion with the patient and her son that these should ideally be made. Clearly no promises can be given to the patient or her son about any new denture will
To me this is a straight forward copy / duplication case – If I think this so then why is the GDP not happy to help this ‘exceptionally-lovely’ patient?

- Good past history
- Good physical capacity
- Good anatomy
- Positive attitude
- Good family support
- Well made and extended existing C/Cs

Never make **non-reversible changes to old dentures** with which a patient has had success – you can reversibly diagnostically reline & modify it to see what helps -
How difficult is this?

• Establish VD – reversible changes to lower denture - Use Trim easy to mould, shape and remove

• Improve fit of existing C/C – with temp reline / soft-lining material

• Use diagnostically - but do not damage – the old C/Cs
Trim addition – reversible change
All-Wax copies allows us and technician to replace one tooth at a time
How difficult is this?
– patient muscle adaptability is the key -

Who should be doing this – GDPs / CDTs / DwESs?
What do we do with these patients?

89 year old in residential home unhappy with #’d OI mandibular fixed bridge and food-packing beneath substructure referred to NHS (St. G’s) Nov 2013. Signif Peri-implantitis & on IV Bisphosphonate infusions

Repair, Re-treat, Restore or Replace?
Who is going to do and pay for this type of Rx as patients age and physically decline?

This is what secondary care should be for:

- 89 year old unhappy with #10/11 mandibular fixed bridge and food-packing beneath substructure referred to NHS (St. G’s) Nov 213. Signif Peri-implantitis & on IV Bisphosphonate infusions.

Repair, Re-treat, Restore or Replace?
Identify Teeth of Strategic Worth / Importance

• Teeth that are important in maintaining function, aesthetics and that avoid the need for a denture
• Important prosthodontic abutments
• Extraction associated with significant medical risk to patient (IV Bisphos for oncology / Radiotherapy to jaws etc)
Dealing with dental disease / failure of strategically important teeth
• Bitewing & PA
• Strip down
• Remove caries
• Assess restorability in context with plaque, caries activity, periodontal ability, pulpal status and ability of patient to tolerate the Rx
• Consider most simple plastic restorative option first – composite not likely to be the best choice for significantly damaged posterior teeth
• Be careful with composite in such teeth – amalgam goes much better and is much more forgiving & less damaging to the pulp in sub-optimal circumstances
Restorability & Restoration – Coronal Seal

Post-operative:

- Good coronal restoration (Eleven-fold increase in odds of success)

THE ROLE OF THE CORONAL RESTORATION ON ROOT FILLED TEETH


Results: 97% of these teeth were retained after eight years following non-surgical root canal treatment.

The Failures: The majority (85%) of the extracted teeth had no complete coronal restoration, which was significantly different from those teeth with full coverage.


Ng, Mann & Gulabivala; International Endodontic Journal, 2011
Objectivise decision-making

When are they best extracted and replaced?

Tooth Restorability Index
McDonald & Setchell. Dental Update. 2005;32:343-348

- Height & width of axial dentine after restoration removal + crown prep
  - 0 = None (no axial dentine above finishing line)
  - 1 = Inadequate (dentine walls <1.5mm thick or more than 2x as high as their thinnest part)
  - 2 = Questionable (between 1 and 3)
  - 3 = Adequate (adequate height, thickness and distribution of axial dentine walls)
Can you objectivise decision – making on restorability?
Strategic importance – teeth do best looking after themselves (not lost friends)

Think Single Tooth looking after itself
Heavily broken down posterior teeth
what are the challenges?
What is the biggest factor to take into consideration for the restorability of UL6 – is it not the recording of the distal margin of the UL6?
When are they best extracted and replaced?

- **Sub-gingival margin(s)**
- **Thick gingival tissue has rolled over the margin**
- **Need for good quality impression in one visit – instant trough around tooth within which impression material will flow**

![Quality of the Impressions of the Prepared Teeth](image)

*Figure 2. Quality of the impressions of prepared teeth (NHS/Private/All Contracts)*

*Storey and Coward (2013)*
Visible Cosmetic Zone

A 50 year old female with a symptomatic UL1 past post crown – can I resolve the ‘infection’ problem and still have a predictably restorable tooth?
Assuming the root intact, no deep localised pockets and treatment done well (5mm GP / decent post and crown) then one is looking at a very high survival of single and multi-rooted teeth supporting single fixed restorations (*Salvi et al* 2007).

**Creugers and Mentink**

*Int J Prosthodont 2005 18: 34-39*

The amount, height, thickness & ferrule of remaining tooth structure is the most important factor on outcome - much more so than the type & length of post and the type of core.
**A Briggsy tip (Abbott 2004)**

*Never* ever use the presence of a post to drive decision-making – it should be the strategic worth, what you are asking of the tooth, amount of caries, remaining supragingival tooth tissue present and the risk to reward of the other options.
Greater risk of periapical infection when there is a radiographic space between the root filling and the post

(Moshonov et al 2005)
We need to get the cement right down the root and not just place on the post to wipe up coronally when you insert the post!
An assessment of endodontic re-treatment decision-making in an educational setting
How would you take a jaw registration to ensure that your chosen crown for the strategically important LR6 conforms to the existing occlusion?
Beauty wax (or equivalent) over the occlusal surface of distal molar refine with Temp-bond

What about this situation?

I like firm Optosil putty in such circumstances.
Clinical Examples

What about fixed Restorations?

Repair, Re-treat, Restore or Replace?
Mrs R – Repair or Re-Treat

Case Discussion
Mrs R

• Fit & well 45 year old female
• Existing maxillary bridges 10 years old
• Bridges have never felt comfortable but no acute pain
• In recent months fracture of porcelain off both bridges - metal now visible and unsatisfactory
Mrs R

• Why do you think that the porcelain has fractured?
• What solutions can you suggest?
• What and where are the problems?
• How predictable will it be?
Evaluation of alternative intra-oral repair techniques for fractured ceramic-fused-to-metal restorations

by Mutlu Özcan


Reviewer
Evaluation of alternative intra-oral repair techniques for fractured ceramic-fused-to-metal restorations

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Summary  Ceramic fractures are serious and costly problems in dentistry. Moreover, they pose an aesthetic and functional dilemma both for the patient and the dentist. This problem has created demand for the development of practical repair options which do not necessitate the removal and remake of the entire restoration. Published literature on repair techniques for fractured fixed partial dentures, concentrating on the data obtained both from in vitro and in vivo studies, reveals that the repair techniques based on sandblasting and cementation are the most durable in terms of adhesive and cohesive failures compared with those using different etching agents.

Keywords: Fracture, ceramics, intra-oral repair

www.hodsollhousedental.co.uk
Mrs R
Porcelain fracture

- Lack of metal support of porcelain
- Occlusal problem?
- Parafunctional activity?
Mrs R
Removing UL bridge

- Patients warned that we never know what might be found beneath the bridge(s)
Removing PFM - never tap off

Long diamond for the ceramic
Redo, Re-treat, Restore or Replace?

• Where you are re-treating short teeth with limited retention – consider PolyF as your temp cement of choice
Mrs R
Removing UR bridge

- Why has this happened and what’s the treatment?
Last molar cases
when removing / replacing occlusal coverage restorations

- Try and copy what you started – pre-op Index
- Leave a little bit of the occlusal part of tooth and remove at crown fit
- Do teeth in front first (if you can)
- Prepare more off the terminal teeth to create the room?
- Cement in high?
Mrs R
Try in & Fit of UL bridge

- Be prepared to adjust restorations in excursive movements
- However the static occlusal contacts should be very close / near
Face Bow – do we need one and why?

Repair or Re-Treat
Clinical Examples

Face Bow – do we need one and why?
Do we need to take a jaw registration and if so why?
Do we need to take a jaw registration and if so why?
Learning point: If the stool falls down you need to put something between the teeth to ‘prop-it-up’ when the natural teeth are together in ICP.
May I suggest a good paper on the subject:

**Warren K. and Capp N.**

*A review of Principles and Techniques for Making Interocclusal Records for Mounting Working Casts*

*Int J Prosthodont 1990; 3:341-348*
Restorations using existing intercuspal relationships

- **Strohaver 1972**

  When enough tooth contacts and working conformatively, the most accurate record is with **no intervening Record** (i.e. Hand-Help Articulation)

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Principles of Working Static Jaw Registrations

- Always taken at the vertical dimension you plan to place your restoration(s)
You would all agree that I have changed a great deal since I started at dental school in Oct 1979 – so has the NHS & the Dental Profession – not necessarily for the better.
How do patients interviewed in the 2009 adult dental survey think that we are looking after them?

Figure 8.1 Relationship with dentist at last visit

- Was NOT treated with respect and dignity
- DID NOT get answers to questions that could be understood
- DID NOT have confidence and trust in dentist
- Dentist DID NOT explain reasons for dental care or treatment in a way that could be understood
- Dentist DID NOT listen carefully to what had to say about oral health
- Was NOT given enough time to discuss oral health with dentist
- Was NOT involved as much as wanted in decisions about dental care or treatment
- At least one issue reported

Percentage

www.hodsollhousedental.co.uk
The 2009 Adult Dental Survey confirmed that 20% of patients reported that we, their dentists:

- Did not treat them with **respect**
- Did not **listen to them**
- Did not generate **Trust** and **Confidence** with patient
- Did not provide **Answers to Questions** that could be easily understood by them
- Did not **involve them** as much as should in **Decisions** about **Treatment Options and Plans**
- Did not **give enough Time** to discuss their oral health

**Patient’s view of relationship with dentist at last visit**
Respect, Dignity, Trust & Erosion of Professional Standards

- Will erode our profession and professional status rapidly
- Many patients think that we are putting our own interests before theirs
- The older patients can particularly smell this problem
- How have we all allowed this to happen? – if it continues we are in deep, deep trouble
Refurbish, Remove, Repair or Replace?
‘Middle’ to ‘Old Age’
Roy Briggs (53) with his bothers in 1978

Figure 1.1 Trends in percentage edentate by age: England, 1978 to 2009
The older ‘middle age’ are coming – they are more heavily restored – with bigger challenges when well and even bigger when not

- By contrast, 97 per cent of dentate adults aged 45 to 54 had a filled tooth and they had 9.1 teeth affected on average.
- Adults aged under 45 years were less likely to have any fillings, and those who did had relatively low numbers of filled teeth.
There will be more restorative replacement and repair in my generation compared to the last – but people can start to lose teeth and dentitions in the last few years of their life.
Dismantle – over 70% of all dentistry is re-do
Repair, Re-treat, Restore or Replace?
We all should be confident with removal of crowns / bridges

- For those with crowns, on average there were three per person, amounting to an estimated 47.6 million crowns across England, Wales and Northern Ireland.
- Crowns have a likely survival of 8-10 years – therefore they will be failing – need redo / dismantling / operative / extraction skills.
How do we avoid this then?
‘Surely you should use as many teeth as possible to support my bridge?’....

Mrs. Litiginous (an engineer) from Camberley, Surrey

**Top ten claims**
1. Crown and bridgework
2. Endodontics
3. Nerve damage
4. Oral surgery (other than 3, 7, 10)
5. Restorative (excluding those listed separately; mostly “perio” and claims relating to various “fillings”)
6. Orthodontics
7. Implants
8. Dentures
9. Veneers
10. Failure to diagnose or incorrect diagnosis (mostly undiagnosed caries and undiagnosed pathology)
Foster (1991) found bridges of 5, 6 & 7 units to last 5.0, 3.7 & 4.1 years respectively.
A long span bridge, in front of and behind the canine, has the poorest prognosis of all

Anterior / Posterior combination bridge - bad news
Implants are the best fixed method in 2014 of replacing a missing canine.
‘Do single crowns have a better chance of surviving compared to bridges? .......

Mr. William Hill, Aintree

What do you think?
‘Do single crowns have a better chance of surviving compared to bridges? – Yes ask Cheung’s team in Hong Kong....

What do you think?

Cheung et al. (1990)

70% of endodontic complications beneath bridges found in the anterior region (Cheung et al 1990)
Avoiding failure

Dental Demolition Experts

Demolition Experts: Management of the Parafunctional Patient: 2. Restorative Management Strategies

Abstract: The second part of this paper discusses strategies for providing restorative dental care for the parafunctional patient. These include direct composite resin restorations, cast metal resin-retained restorations and dentine-bonded crowns, design features for porcelain fused to metal crowns and denture design. Specific features can help enhance predictability in the hostile environment of increased occlusal loading and parafunction.

Clinical Relevance: Appropriate planning, design and execution of restorative procedures can reduce the chance of failure. Patients may have to accept a compromise between appearance and restoration survival/maintenance.

Dent Update 2007; 34: 262-268
Parafunction – a different level of risk to your restorations – cast-metal has many advantages – as do screw retention for implant restoration – ceramic / composite stand no chance
Interesting problems will develop – we must do all we can to avoid them

My suggestions:
Endodontic revision can we predict what will work?

• The poorer the quality of the primary root filling in situ the easier and more predictable will be your re-treatment. You can then expect a 80% positive outcome (NG et al 2011) if you can achieve your objectives

• Ideally you want to revise a short poorly obturated root fillings!

• High risk: perforations, resorption, ledges, blockages, iatrogenic error – anything that stops you reaching your objective

The ‘Toronto’ study
Retreatment or radiographic monitoring in endodontics

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Retreatment usually means removing a GP - do not be scared of the stuff it will not bite! – You need to get to the end of the canal very early and achieve patency.
Ng et al (2008):
Existing Apical Area
Good Coronal Seal
Obturation within 2mm from radiographic apex
Voidless and well condensed obturation

Pre-operative factors that made a difference to outcome:
- Presence of periapical lesion (49% lower)
- Size of periapical lesion (14% lower for every 1mm)
- Presence of sinus (48% lower)
- Presence of root perforation (56% lower)

Is our Endodontics going to work?

Intra-operative:
- Achieving patency (Two-fold increase)
- Canal prepared short of terminus (12% lower for every 1mm short)
- Long root filling (62% lower odds of success)
- Using Chlorhexidine as Irrigant (53% lower)
- Using EDTA (Re-RCTx) (Two-fold increase)
- Inter-appointment swelling/pain (47% lower)

Ng, Mann & Gulabivala; International Endodontic Journal, 2011
A single RCT reported similar healing rates for Surg and Non Surg intervention (if done well). Therefore we have non-robust evidence for decision-making.

Apical Surgery – Strategically important teeth (Eliyas et al 2014)

- A tooth may be considered of strategic importance when it is an anterior tooth in a patient with a high lip line and thin soft tissues where implant success may be difficult to predict and achieve.
- When the tooth is a terminal abutment where extraction would leave the patient with an unbounded saddle particularly if complicating factors for OI e.g. lack of access, bone or poor anatomy.
- Financial and time limitations – e.g. NHS funding.

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