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The --- Dental Probe

The Maltese Dental Journal





Are your patients' dentures truly clean?

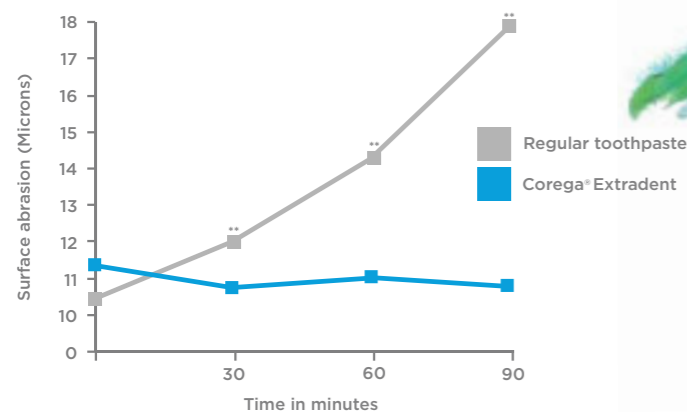
Even visibly clean dentures can have hidden dangers.

The denture surface contains pores in which microorganisms can multiply and thrive.¹ Up to **80%** of patients use toothpaste to clean their dentures.^{2,3} As dentures are approximately **10x** softer than enamel,⁴ the abrasive nature of toothpaste can create scratches, which may lead to increased microbial colonisation,⁵ resulting in gum irritation or denture malodour for your patients. These inadequate cleaning methods can cause the appearance of your specially made and well-fitting dentures to deteriorate and affect your patients' denture wearing experience and satisfaction.

Corega® Extradent denture cleanser – specially designed for dentures

- Corega® Extradent cleanser offers patients the **dual benefits** of **mechanical** and **chemical** cleansing*
- Corega® Extradent cleanser is proven to **penetrate the biofilm[†]** and **kill microorganisms** even within hard-to-reach denture surface pores⁶
- Corega® Extradent cleanser is **non-abrasive⁷**, unlike toothpaste, and does not create scratches, which can lead to increased microbial colonisation

Brushing with Corega® Extradent was associated with significant ($p < 0.005$) reduction in depth of abrasion compared with a regular toothpaste⁷



Examiner blind, randomised three-period crossover study done on 26 subjects simulating brushing for 90 minutes using toothpaste (Crest cavity protection RDA-95) and Corega® Extradent denture cleanser on an acrylic denture prototype. Surface changes observed at baseline, 30, 60 and 90 minutes. Abrasion was assessed using surface profilometer.
 ** $P < 0.005$.

* When used as directed; [†] *in vitro* single species biofilm after 5 minutes soak

References: 1. Glass RT *et al. J Prosthet Dent.* 2010;103(6):384-389; 2. Marchini L *et al. Gerodontology.* 2004;21:226-228; 3. Barbosa L *et al. Gerodontology.* 2008; 25:99-106; 4. GSK Data on File; Literature review. August 2013; 5. Charman KM *et al. Lett Appl Microbiol.* 2009;48(4):472-477; 6. GSK Data on File; Lux R. 2012; 7. GSK Data on File; L2630368. October 2006.

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Editorial

By Dr David Muscat

Dear colleagues,

2017 promises to be a very busy time for dentistry in Malta. We have seen several very good courses and lectures held by dental companies. The DAM has already organised a 3D Dental Radiography course on January 14 with Dr David Andrew, consultant radiologist from Sheffield.

This year Malta is hosting some very important events namely:

3-4 MAY AT MCC – EFP PERIO MASTER CLINIC

European Federation of Periodontology and Turkish society of Periodontology with the main theme being the diagnosis, prevention and treatment of peri implantitis.

MONDIAL CONGRESS AND EVENTS

This was very ably co-ordinated by Dr Kenneth Spiteri, Chairman of The Mediterranean conference Centre. The Congress was chaired by Professor Korkud Demirel from Dept Periodontology at Istanbul University and had many high profile speakers such as Professor Lang, Professor Salvi, Drs Zitzmann, Arora, Zucchelli, Giovannoli and others.

The Congress dealt with periimplantitis and discussed designing optimal suprastructures; antimicrobial and laser therapy; how to increase the zone

of keratinised tissue at implants; how to increase the soft tissue thickness at implants; handling of soft tissue recession at aesthetic zone. The Congress also dealt with dehiscence defects, resective surgery; surface modifications of implants; regenerative surgical treatment using membranes and different bone augmentation procedures. Hard tissue defects were discussed as well as shortcomings of some bone augmentation procedures.

26-28 APRIL – GERODONTOLOGY ANNUAL CONGRESS

'Overcoming Barriers in Oral Health in Later Life' – University of Malta Valletta Campus. Professor Nikolai Attard, Dr Alexander Schembri, Dr Marvin Formosa and The Faculty of Dental Surgery and the Department of Gerodontology Faculty of Well Being of The University of Malta are involved in the organisation.

27-28 MAY – COUNCIL OF EUROPEAN DENTISTS ANNUAL CONGRESS

This is being organised by Dr Audrey Camilleri and the DAM committee.

The new Dental Association committee has been re elected and the positions are as follows

President:

Dr David Vella

Vice President Govt Relations Officer:

Dr Adam Bartolo

Secretary, Editor Probe, PRO:

Dr David Muscat

Treasurer:

Dr Noel Manche

IT Officer:

Dr Nicholas Busuttill Dougall

CPD Officer:

Dr Ann Meli Attard

Projects Manager:

Dr Gabrielle Cordina

European Regional Officer Federation Rep:

Dr Audrey Camilleri

Federation Representative:

Dr Chris Satariano

Dr Lino Said does not form part of the committee but helps us with spiritual and social events.

I wish the new President well. I will try to emulate David's prowess as secretary. After four years, according to the statute one has to give up one's position as President. The rest of the committee have retained their previous positions as they had excelled in their work. This year we hope to embark on further CPD projects.

The picture on the front cover is an excellent photograph 'Filfla' by the talented Dr Etienne Cassar.

Best regards,

David

Dr David Muscat B.D.S. (LON)
 Editor / President, P.R.O. D.A.M.



On 4th January 2017 at the Medical Council Boardroom at St Lukes Hospital, Dr Messina Ferrante was presented with a memento in recognition of his years of service as a member of the Medical Council of Malta. From left to right at the presentation are Dr Michael Boffa, Dr Anthony Charles, Dr Bryan Flores Martin, Mr David Caruana, Dr Herbert Messina Ferrante, Dr Daniel Farrugia, Mr Philip Borg, Dr Ilona Debono (President of the Medical Council) and Dr David Muscat.

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THE DENTAL ASSOCIATION OF MALTA Administrative Report 2017 AGM

By Dr David Muscat, President – DAM

The last two years have seen an abundance of both educational and cultural events with a very organised CPD structure in place thanks to the diligence and hard work of all the members of the committee but especially by our CPD officer Dr Ann Meli Attard and CPD Project manager Dr Gabrielle Cordina.

Drs Noel Manche and Nik Dougall, also on the CPD sub committee were also heavily involved in all CPD events especially the KA2 Rome event which was their undertaking from start to finish.

We have organised 12 lectures; three full day hands on courses; three medical emergency courses in dentists practices; a ten day postgraduate course in Rome with no cost at all to the participants; two sailing events; two clay pigeon shooting events; two St Apollonia events; Lenten talks as well as other cultural events. By organising such a plethora of lectures and courses one does not have to travel abroad and incur high costs. We bring excellent lecturers to Malta.

LIST

- 18/02/15 St Apollonia ably organised by Dr Lino Said
- 18/02/15 Menarini event
- 26/02/15 Endo lecture by Dr Dan Keir
- 9/03/15, 10/03/15, 27/03/15 Long meetings with Minister Fern and with our CPDco-ordinators
- 29/04/15 Prof Victor Grech lecture
- 21/05/15 Producing long term stable outcomes in Orthodontics – Dr Stefan Abela
- 11/09/15 Prof Brian Miller Wear course
- 03/06/16 Prof Thomas Attard lecture
- 17/06/15 clay pigeon shooting event
- 29/07/16 DAM sailing event
- 02/09/15 Endo lecture VJ Salomone
- 04/02/15 Dam Christmas party
- Jan 2016 10 day Rome conference and course KA1 ably organised

by Drs Noel Manche and Nik Dougall and coordinated by Drs Gabrielle Cordina and Ann Meli Attard.

- 27/01/16 DAM AGM
- 07/02/16 St Apollonia – organised by Dr Lino Said
- 30/03/16 Law and Ethics Part 1 Dr Cassar Demajo
- 08/04/16 Bullet in the Heart Dr Alex Manche
- 27/04/16 EGM
- 06/05/16 Local Anaesthetic lecture Dr Vipul Kataria
- 07/05/16 Full day endo course Drs Kataria and Choudrey
- 15/06/16 Law and Ethics part 2
- 03/08/16 Infection control lecture Prof Borg
- 26/10/16 EGM
- 07/12/16 DAM Christmas Party
- 16/12/16, 20/12/16 Medical emergencies courses ably run by Dr Adam Barolo and Dr Meli Attard.
- 14/01/17 Dr David Andrew course on 3 d imaging ably organised by Dr David Vella and the rest of the committee.

The DAM committee has met in excess of once a month for committee meetings. We have dealt with issues such as the new dental clinic standards as well as the issue of foreign dental schools opening in Malta.

The DAM is a formidable team. In David Vella we have the best secretary one can ask for. Dr Audrey Camilleri is well seasoned in CED and FDI affairs and attends meetings abroad on our behalf.

This year we will see the first ever CED conference in Malta in April. The DAM is part sponsoring this. Our Dental Journal is published quarterly and enables those who cannot attend dental events to still obtain the information and slides of most lectures and courses that take place.

I personally try to attend all. Dr Nik Dougall has done a great job as IT officer. Dr Noel Manche has been exemplary as treasurer. Dr Chris Satariano has always been the voice of reason and together with Dr. Audrey Camilleri represent us at the Federation of Professional Associations. Dr Adam Bartolo has ably organised the hands on Medical Emergency courses and is our Govt. Affairs co-ordinator He also helped a great deal with the CPD events.

The DAM is currently working on our next project KA2 where we hope to set up a CPD portal. A great deal of work is being done voluntarily behind the scenes for the benefit of all. We are trying to procure EU funds and one can imagine all the meetings and paperwork that this entails. We spend a lot of not only our surgery time but also our precious free time away from our families to be able to achieve what we do.

It is probably one of the most thankless jobs around- and one is not paid of course. However we love what we do as otherwise we would not do it. Dr Lino Said has left our ranks but still very kindly helps us with our spiritual and cultural events.

One must not forget the great contribution Dr Lino Said has given to the Association in the past. Not so long ago Lino and I were organising an event every fortnight .. Now the work is delegated more evenly.

I salute the committee whom I have had the pleasure of working with over the past two years. It has not been easy but together we have overcome all obstacles and look towards 2017 with strength ,determination ,courage. and camaraderie. There has never been such a united and harmonious group.

I would like to pen my adage – The DAM leads. Thank you. 🇹



The Dental Association Committee – an eclectic mix



Drs David Vella newly elected President of the Dental Association of Malta, Professor Korkud Demirel from University of Istanbul- EFP Congress Chairman and Dr Kenneth Spiteri Chairman of MCC at the EFP Conference held in Malta on 3 and 4 March 2017.



Dr David Muscat editor of the Dental Probe presents an issue to Dr Adel EHLababidi at The Bart Enterprises Coltene Hyflex course at the Marina Hotel St Julians on 18th February 2017



Dr Noel Manche Treasurer of the DAM presenting a cheque to Mrs Claire Galea, fundraising manager for Inspire in the presence of Dam President Dr David Muscat. The funds were collected at the Annual Christmas Party raffle on 7/12/2016 at the Quarterdeck Bar at the Hilton. The sponsors who kindly donated prizes for the raffle were Cherubino, Bart Enterprises, Page Technology, Collis Williams, GlaxoSmithKline, Alfred Gera and sons and The Hilton



The newly elected Dam committee 2017 from left to right: Dr Chris Satariano (Federation Officer), Dr Audrey Camilleri (ERO, Federation Officer), Dr Adam Bartolo (Vice President, Govt Relations officer), Dr Nicholas Busuttill Dougall (IT Officer), Dr Noel Manche (Treasurer), Dr David Muscat (Secretary, Editor Probe, PRO), Dr Ann Meli Attard (CPD Officer), Dr David Vella (President), Dr Gabrielle Cordina (Projects Manager)



Dr David Muscat President DAM presents the Dental Probe Journal to Dr David Andrew, consultant radiologist at The Hilton 3D Radiology Course on 14/1/17. This was sponsored by Bart Enterprises-Carestream, and The DAM

On the 28th December 2016 Drs David Muscat and Adam Bartolo, President and Vice President of the Dental Association of Malta presented an inscribed silver plate to Hon. Dr Chevalier Herbert Messina Ferrante as a memento in recognition of his work and dedication towards the Dental Profession

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KinGingival Toothpaste

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Biodhesive solution
Calming and Healing Effects
INDICATIONS

- Recurrent aphthous stomatitis
- Prosthesis ■ Mucositis
- Predisposition to ulcers
- Burning mouth syndrome
- Fungal infection ■ Lichen Planus



KinCare Mouthwash 250ml

15ml twice daily
for 10-15 days

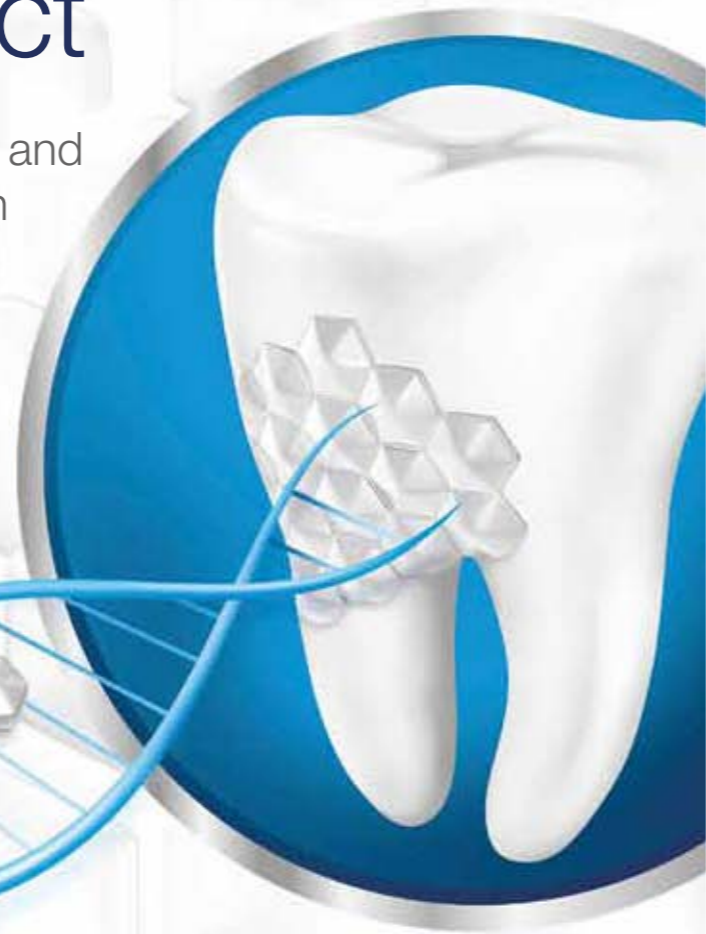


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- Create an even harder reparative† hydroxyapatite-like layer over the exposed dentine*1-7
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Recommend Sensodyne Repair & Protect to help your patients live life more free from the impacts of dentine hypersensitivity**

†Forms a protective layer over the sensitive area of the teeth. Brush twice a day for lasting sensitivity protection.*vs. Previously marketed formulation. **With twice-daily brushing.
References: 1. Greenspan DC *et al.* J Clin Dent 2010; 21: 61-65. 2. La Torre G and Greenspan DC. J Clin Dent 2010; 21(3): 72-76. 3. Earl JS *et al.* J Clin Dent 2011; 22(3): 62-67. 4. Parkinson CR *et al.* J Clin Dent 2011; 22(3): 74-81. 5. GSK Data on File, ML498. 6. GSK Data on File, ML584. 7. GSK Data on File, ML589. 8. GSK Data on File, RH01422. 9. GSK Data on File, RH01897. Prepared: September 2016 CHMLT/CHSENO/0025/16

SALIENT POINTS FROM THE EFP PERIO MASTER CLINIC MALTA FOCUSING ON PERI IMPLANTITIS MCC MARCH 3-4 2017

Summarised by Dr David Muscat

1. The priority is attachment which is critical to give resistance to mechanical load. It is the thickness and keratinisation. This can be done with autogenous grafts. Keratinised mucosa helps patient maintain oral hygiene.

evidence if steel has a real impact on the surface. Not clarified. Titanium curettes are optimal.

Are ultrasonics used during surgical procedure? –yes.
2. If a patient has periodontitis one must have a stable soft tissue cuff around implants. Soft tissue grafting can improve this. Every treatment should be tailored carefully to the individuals need.

For a study to be conducted on e needs three years. Recommendations have to be given but there are other factors involved such as economy and willingness of the patient.

A soft tissue graft will allow for more stable tissue around the implant.
3. Should one use ultrasonic on implants surfaces?-there is no

Periimplantitis therapy is not as predictable as periodontal therapy. The therapy is also surface dependant. The success rates are 35% for non surgical and 50 % for surgical. Medium roughness allows better possible attachment.
4. The indications for a surgical procedure over a regenerative procedure-

With a two walled defect –stabilise the membrane. Maintenance is of paramount importance after regenerative procedures. When it is hopeless-with little bone, age ,health, finances-pocket reduction or elimination. One may opt for open flap debridement, soft tissue grafting, bone augmentation etc..
5. Systemic antibiotics-these have added value when dealing with man made bone in regenerative and resective therapy. So with biomaterials one can use antibiotics. Otherwise the use of antibiotics should be restricted. Flap debridement can be carried out without antibiotics. There was no difference between groups that used antibiotics and those which did not in this case.

However there is a lack of data whether in regenerative therapy with or without antibiotics there is a difference in results as there are no randomised clinical trials.
6. The healing phenotype will go in a different direction if there is contamination interfering with wound healing. Chlorhexidine must be used for at least 4 weeks after the regeneration procedure.
7. Excess cement cause periodontitis especially sub mucosally..

LUMINEERS AND SNAP ON SMILE

DENMAT EVENT BY PAGE TECHNOLOGY

LECTURE BY DR MICHAEL SCHNEIDER

Summarised by Dr David Muscat

LUMINEERS are cerinate feldspathic pressable porcelain veneers which are extremely thin, highly translucent and replicate enamels natural characteristics.

Little or no tooth reduction is necessary. Impressions taken in a silicone material are sent to the lab and the veneers are made in a lab overseas. The veneers are said to remain resilient for 20 years. There is no need for temporaries

due to hardly any tooth reduction. They show a low wear arte and are available in several shades.

The SNAP ON SMILE is a tooth borne retention prosthesis made with a milled acetal resin that is durable and stain resistant.

It is used for provisional restorations, short and long term esthetic improvement or for diagnostic set ups.

THE DENTAL ASSOCIATION OF MALTA

International Relations Officer

Report 2017

By Dr Audrey Camilleri, IRO – DAM

In 2016 I attended 1 CED meeting in The Hague, Netherlands in May 2016. Unfortunately I had to miss the meeting in Brussels in November.

The next meeting is being held here in Malta in May and 90 people have registered so far. It will be a wonderful opportunity for the Dental Association of Malta to place its mark on a European level.

The conference is held over 3 days with attendance of top representatives of national dental associations from all the 30 European countries

1. AMALGAM ISSUE

Summary of main elements of the trilogue agreement on the Mercury file which as voted in December 2016:

Art. 10 – Dental amalgams

- No general ban, but a study on the feasibility for a ban by the Commission in 2020, and a ban «preferably» by 2030, in respect of subsidiarity principle
- Ban of dental amalgams for populations at risk (children, pregnant and breastfeeding women) in 01/07/2018, except for medical needs according to practitioners point of view
- National plans for the phase-out of dental amalgams in 01/07/2019
- Encapsulated form in 2019
- Amalgam separators with high level of retention only in facilities treating amalgams, in 2019 for new separators, and 2021 for separators already in use

- Report from the Commission on the need to regulate the level of mercury emissions of crematoria, with legislative proposal if appropriate
- Practitioners are responsible for the management of amalgam wastes and the collect by certified entities.

2. CED STATEMENT ON WASTE WATER DISPOSAL

CED members unanimously adopted the Statement on waste water disposal in dental clinics.

The Statement reflects the CED's commitment to raise awareness on safe management of healthcare waste to protect the environment from the negative effects of waste water discharges.

The CED affirms that dental clinics must avoid discharging water with chemical residue, biohazardous material and by-products of laboratory manufacturing.

Urban waste water from dental clinics has to be collected, treated and discharged in an environmentally safe way.

3. CED RESOLUTION ON ANNEX V.3/5.3.1 OF DIRECTIVE 2005/36/EC (PQD)

CED members adopted the Revised Resolution on ANNEX V.3/5.3.1 of Directive 2005/36/EC (PQD) related to the profession of dentist.

The CED proposes three types of changes to Annex V.3/5.3.1: changes of the names of the subjects, exclusion

of some subjects from the study programme for dental practitioners and addition of other subjects.

The CED states that it is extremely important to update the study programme for dental practitioners both in terminology and in content, and to provide dental practitioners with concrete competences and skills in order to permit them practicing their profession in the contemporary world successfully.

4. EUROPEAN DENTISTS, DOCTORS AND PHARMACISTS CONCLUDE: PROPOSED PROPORTIONALITY TESTS FOR PROFESSIONAL REGULATION IGNORE PUBLIC INTEREST AND THREATEN QUALITY AND SAFETY OF PATIENT CARE

The Council of European Dentists (CED), the Standing Committee of European Doctors (CPME) and the Pharmaceutical Group of the European Union (PGEU) have met the publication of the proposal for a Directive on a proportionality test for the adoption of a new or for amendments to the existing professional regulation with great concern.

The three health professions re-emphasise that purpose of the regulation of their professions is to assure the quality of healthcare services in public interest.

Therefore, it has to remain clear and comprehensive and ensure safe and effective care.

The regulation of the health professions along with all the rules applying to their activities must

remain in the full competence of Member States and be based on local needs and national strategies.

Such national strategies take into account demographical, geographical and cultural realities and reflect national preferences, such as the delegation of the regulatory task to the profession itself. The three organisations are concerned by the lack of specificity in addressing the overall issue of health professional regulation.

The CED, CPME and PGEU are convinced that health professions should be considered distinctly from other professions.

Therefore, the three organisations call upon the EU institutions to exclude said professions from the scope of the harmonised EU proportionality test.

5. TOOTH WHITENING

In 2007, the Scientific Committee on Consumer Products (currently replaced by the SCCS) issued an opinion on hydrogen peroxide, in its free form or when released, in oral hygiene products and tooth whitening products.

This opinion provided a safety evaluation of hydrogen peroxide in oral hygiene products incorporating relevant publicly available scientific data that had become available since the previous opinion of the SCCP on "Hydrogen Peroxide in Tooth Whitening Products" (SCCP/0844/04) on 15 March 2005.

For tooth whitening products (TWPs) containing > 0.1% and

≤ 6% hydrogen peroxide, the SCCP opinion concluded that:

“In the absence of specific data on the safety of tooth whitening products in children/adolescents, the SCCP is not in a position to assess the potential health risks associated with their use in this population subgroup.”

As a precautionary measure, Directive 2011/84/EU aimed to implement the opinion of the SCCP of 2007 (later repealed by Regulation (EC) N° 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products, hereinafter Regulation), forbidden the use of TWPs containing > 0.1% and ≤ 6% hydrogen peroxide, present or released by other compounds or mixtures such as carbamide peroxide and zinc peroxide, on persons under 18 years of age.

CED REQUEST TO THE EUROPEAN COMMISSION

CED would like the European Commission to request a review of the 2007 SCCP scientific opinion in order to withdraw the current prohibition of EU legislation on the use of tooth whitening products on under 18 years of age.

It is also requested that the following changes are made to the current Regulation on Cosmetic Products concerning tooth whitening products:

In entry 12, column h) “Restrictions”, “Other” of Annex III of Regulation 1223/2009 as amended by Regulation 1197/2013, delete the statement “Not to be used on a person under 18 years of age”;

In entry 12, column i) “Wording of conditions of use and warnings” of Annex III of the Regulation, replace the statement “Not to be used on a person under 18 years of age” with the following sentences:

“The use in a person under 18 years of age to be restricted to therapeutic treatment of a discoloured tooth or of discoloured permanent teeth. For each cycle of use, the first use to be only done by dental practitioners or under their direct supervision if an equivalent level of safety is ensured. Afterwards to be provided to the parent/guardian to complete the cycle for their child under 18 years of age.”

Thank you for showing me your support in re election for the next 2 years. Please feel free to contact me on iro@dam.com.mt should you need any further information

THE HYFLEX ENDODONTIC COURSE BY BART ENTERPRISES-COLTENE

By MU Dr AdEl-Lababidi PhD. Summarised by Dr David Muscat

Hyflex files have a high fracture resistance with a built in shape memory. They prevent stress during preparation by changing their spiral shape and regain their shape after heat treatment.

Files follow the anatomy of the canal. This is crucial in curved canals.

IRRIGATION

Studies have shown that instrument techniques leave 35% of canals unchanged. A washing effect is needed to remove debris. A lubricant is necessary to reduce risk of fatigue/fracture of instrument.

The irrigant should dissolve collagen, pulp tissue and biofilm. The irrigant should dissolve infected tissue and penetrate the canals to the periphery.

The irrigant should destroy bacteria and yeasts- also in biofilm but should not weaken tooth structure and should not have cytotoxic effects.

The best irrigant solution is sodium hypochlorite 3 or 6 per cent but mainly 3%. When using over 3 % rubber dam must be used.

The NaOCl has antimicrobial properties and dissolves organic tissue. It however does not work well in retreatment where chlorhexidine has to be used.

A preheated soln of 55 degrees can be used and this doubles its efficiency. or else one may use ultrasonic irrigation.

Hydrogen Peroxide presents a risk of emphysema, which is higher in the upper jaw. It also has lower antimicrobial properties.

EDTA and Citric acid allow better passage of instruments through their lubricant effects.

The smear layer blocks the dentinal tubules so after NaOCl one should use 17% EDTA-this opens up the dentinal tubules-the next step is to the use NaOCl again to disinfect these open tubules, as otherwise you would just disinfect the smear layer but not the tubules.

Citric acid removes the smear layer but in higher concentrations can destroy part of the root canal wall.

Chlorhexidine CHx 2% has good antimicrobial properties; it is biocompatible and does not dissolve tissue. It acts against E. Faecalis and fungi which are both resistant against NaOCl and Calcium hydroxide. Chlorhexidine can work up to 60 days.

Chlorhexidine is good for re-treatments. However CAUTION- do not use immediately after sodium hypochlorite as you will get a brown muddy precipitate of parachloroaniline which is potentially carcinogenic.

Alcohol is used for dental drying. isopropyl alcohol 70% at very end. So steps are:

1. sodium hypochlorite allow soln to work for 2 mins
2. EDTA 17% conc and irrigate for 2 mins 10mls per canal
3. then again sodium hypochlorite 3% with 10 mls per canal-leave to work for 3 mins. ie you push 10mls slowly over 2 mins.

4. File in and clear canal and repeat procedure.
5. When you have widened to the diameter you want take 10mls distilled water/saline and irrigate root canal system .again 10mls per canal over 2 minutes. This is to totally neutralise the previous solution.
6. Then 10 mls of chlorhexidine 2% with 10 mls per canal over 10mins.
7. Then 10mls of 70% isopropyl alcohol and irrigate for 10 minutes. Then use paper points. If you remove 3 points and they are dry stop-this is the law of three points.

COMPLICATIONS OF ROOT CANAL IRRIGATION

Sodium Hypochlorite -burns. Contact with oral mucosa may cause itching.

Accidental injection into periapical tissue will cause immediate pain and swelling.

Care when you get blood coming from the root canal. The bleeding is due to inflammatory tissue. Bleeding is a sign of perforation.

Use a gp point inserted in hydrogen peroxide in the canal and take an x ray- if in the canal place calcium hydroxide and leave for 2 days and cover.

COLOUR CODING

Colour Coding is helpful. Red for hypochlorite; yellow EDTA; Blue chlorhexidine and white alcohol/saline.

Continues on page 16.

Interdental Brushes

TePe's wide selection of interdental brushes offers an option for every need. The brushes are available with a short or long handle, straight or angled brush head and different filament textures. Of course, they also come in a variety of sizes to fit every interdental space. Which TePe do you choose? Explore the complete range at www.tepe.com



TePe[®]

We care for healthy smiles

XP-endo® Shaper

Two technologies combined

The XP-endo Shaper is the latest addition to the XP-endo® range. It is a truly innovative broad spectrum shaping instrument which can be used to radically simplify endodontic sequences.

It results from the combination of two cutting-edge technologies:

- ▶ Made with MaxWire® alloy, like the XP-endo Finisher, it offers remarkable flexibility and fatigue resistance, and the ability to progress within the canals with ease and agility, expanding or contracting according to the canal morphology. With an initial taper of .01, the XP-endo Shaper expands once inside the canal, achieving a taper of at least .04.
- ▶ Thanks to the Booster Tip (BT), the XP-endo Shaper benefits from a unique geometry, having six cutting edges at the tip. The BT tip respects the trajectory of the canal, whilst removing more material with each pass. It enables the instrument to start shaping an ISO diameter smaller than the one of the instrument. In the case of the XP-endo Shaper, the BT enables it to start shaping after a glide path of at least ISO 15, and to gradually increase its working field to achieve an ISO 30.



THE LASER IN GENERAL DENTAL PRACTICE: WHERE WE ARE TODAY



Co-funded by the Erasmus+ Programme of the European Union

By Dr Daniel Cassar Darien DDS(ATH) MJDF,RCS(ENG)

KA1 ERASMUS+PROJECT DISSEMINATION

INTRODUCTION

Lasers in the dental practice are hardly new, FDA approval for laser use in soft tissue was granted in 1992 and hard tissue use on teeth and bone followed in 1996.

The variety of dental lasers on the market can be bewildering but they are basically classified by wavelength with correspondingly different applications.

Diode lasers wavelengths in the 810–1,100 nm range are poorly absorbed by the soft tissues^{[3][4][5][6][7]} such as the gingivae, and cannot be used for soft tissue cutting or ablation.^{[4][5][7][8]} Instead, the distal end of diode's glass fiber is charred (by burned ink or by burned corkwood, etc.) and the char is heated by the 810-1,100 nm laser beam, which in turn heats up the glass fiber' tip.^{[6][8][9][10]} The soft tissue is cut, on contact, by the hot charred glass tip and not by the laser beam.^{[6][8][9]}

Similarly Nd:YAG lasers are used for soft tissue surgeries in the oral cavity, such as gingivectomy, periodontal sulcular debridement, LANAP, frenectomy, biopsy, and coagulation of graft donor sites. The Nd:YAG laser wavelength are partially absorbed by pigment in the tissue such as hemoglobin and melanin.^[11] These lasers are often used for debridement and disinfection of periodontal pockets. Their coagulative ability to form fibrin allows them to seal treated pockets.

The CO2 laser remains the best surgical laser for the soft tissue where both cutting and hemostasis is achieved photo-thermally (radiantly).^{[3][6][7][8][9]}

Erbium lasers are both hard and soft tissue capable.^[12] They can be used for a host of dental procedures, and allow for more procedures to be done without local anesthesia.

Erbium lasers can be used for hard tissue procedures like bone cutting and create minimal thermal and mechanical trauma to adjacent tissues. These procedures show an excellent healing response.[citation needed] Soft tissue applications with erbium lasers feature less hemostasis and coagulation abilities relative to the CO2 lasers. The new CO2 laser operating at 9,300 nm features strong absorption in both soft and hard tissue and is the newest alternative to erbium lasers.^[13]

COST OF LASERS

Use of the dental laser remains limited, with cost and effectiveness being the primary barriers. The cost of a dental laser ranges from €4,000 to €130,000, where a dental drill costs between €200 and €800. The lasers are also incapable of performing some routine dental operations.^[14]

BENEFITS OF LASERS

Dental lasers are not without their benefits, though, as the use of a laser can decrease morbidity after surgery, and reduces the need for anesthetics. Because of the cauterization of tissue there will be little bleeding following soft tissue procedures, and some of the risks of alternative electrosurgery procedures are avoided. They are also ideally suited for implant recovery, as they be safely used in proximity to titanium. ■

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THE HYFLEX ENDODONTIC COURSE BY BART ENTERPRISES-COLTENE

Continues from page 12.

WORKING LENGTH

The Working Length is the distance between a coronal point (cusp tips) and an apical reference (constriction) point which has to be reproducible.

The apex locator is useful. Electrometry allows a direct localisation of the apical constriction that is easy and fast. One must not have too much liquid in the cavity. Lateral canals, gingival overgrowth, contact with metallic restorations can cause false results.

Histacryl is a tissue glue one can use when using rubber dam to stick to the mucosa.

SUCCESSFUL ROOT FILLINGS

At least 20 year span with a 3D hermetic seal that is leak proof.

ROOT FILLING PROPERTIES (ADA)

Easily dispensed; homogenous; good flow; insoluble; dimensionally stable; allows re treatment; allows post prep; see on x ray and biocompatible.

GUTTAFLOW

A cold fluid gutta percha-there is no free sealer. It is fast mixing and allows a 10-15 minute working time with a setting time of 25-30 minutes so is not suitable for post/core on same visit.

Guttaflow2 Gp With A Sealer. eg use in oval canals

GUTTAFLOW BIOSEAL

Based on bioglass; a 3 in 1 gp bioseal. This is also used for bone defects-it has a high ph which affects microorganisms as well as silica/calcium oxide. This has only got a working time of 5 minutes. It can also be used to treat cracks and small perforations. 📌

THE COMPONEER COURSE BY BART ENTERPRISES-COLTENE

By MU Dr AdEl-Lababidi PhD

Summarised by Dr David Muscat

Componeers are polymerised, prefabricated nano-hybrid composite shells. They contain a novel micro-retentive structure for a permanent bond. There are universal, white opalescent and opaque varieties.

These veneers have a 0.3mm thickness which allows for minimally invasive preparation. The inner surface increases wettability, and one does not need to carry out special veneer conditioning. This course dealt with diagnosis, shade taking, adhesive techniques.

The veneers have a high surface and edge quality. With this system one preserves a high level of tooth substance. It is more economical than indirect solutions. There was a workshop with fitting of componeers on models. A one coat universal adhesive was used plus different enamel and dentine composites.

This is a good kit to add to ones armamentarium especially if one wishes to eliminate lab costs and provide an instant result. 📌

THE K VENEERS CHERUBINO COURSE

By Dr Andy Gabra BDS MSC PHD

Summarised by Dr David Muscat

This course covered indirect veneers, ceramic veneer materials, wax ups and make ups, preparations; restorations and designs; impression techniques and tissue management, temporization, veneer fabrication techniques; checking and verification; cementation and case documentations.

Salient points from the course:

1. You do not need to cut space between the anterior teeth
2. Always use thinnest cellulose strip
3. Following burs best for veneer preparation-tapered with round end stone with a red tap or a whit tag-white stone
4. Use two retraction cords-a thin one first followed by a thick one.

The impression can be taken with the thin one in situ.

5. Use plumbers tape to separate a veneer from an adjacent tooth during fitting.
6. When you place your bonding agent on the tooth do not cure. The light will go through the veneer and the resin used for luting the veneer.
7. Use hydrofluoric acid to etch the fitted surface of the veneer.
8. The best way to remove excess resin during cementation is by using a small brush.
9. Cementation of six veneers – allow at least two hours for this procedure. 📌

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Open tubules

AFTER
Closed tubules in **60 SECONDS** with Colgate® Sensitive Pro-Relief™ Toothpaste*

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Finally, a way to quickly improve your patients' satisfaction and comfort.

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*When toothpaste is directly applied to each sensitive tooth for 60 seconds. Ayad F, Ayad N, Delgado E, et al. J Clin Dent. 2009;20(4):115-122.

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DENTAL ANXIETY

ITS IMPACT AND THE RELEVANCE OF BEHAVIOURAL THERAPY

By Anne-Marie Agius BchD, MDPH

Dental Anxiety

Its Impact and the Relevance of Behavioural Therapy

Anne-Marie Agius BchD, MDPH

Dental Anxiety



-Fear of dental care is still highly prevalent

-Sometimes interchangeably called dental fear, dental anxiety and dental phobia.

1. **'fear'** (of what is already known and about to happen),
2. **anxiety** or unease/ agitation (usually of the unknown)
3. **phobia**, at the far end of the spectrum (which is an "excessive and unreasonable fear" causing complete avoidance of the unpleasant situation)

Dental Anxiety and Measurement

Dental anxiety is a psychological problem that needs to be addressed at that level to try and solve rather than by-pass the problem.

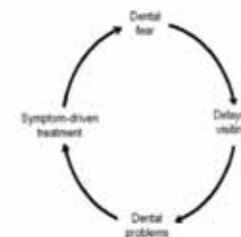
Dental anxiety can co-exist with other mental disorders such as "general distress", mood conditions and personality disorders.

Measurement is usually by self-report (questionnaires) – such as the Dental Anxiety Scale, the Modified Dental Anxiety Scale and the Dental Fear Survey.

Response type	Signs and symptoms	Measurement
Physiological	<ul style="list-style-type: none"> • Taper • Swallowing • Dry mouth • Increased salivary • Excessive mouth movement • Sweating • Hyperventilation due to increased activity in the sympathetic nervous system 	<ul style="list-style-type: none"> • Increased heart rate • Pulse oximetry • Difficult to insert in patient • Cardiotachometer • Observations in time scale
Behavioural/ Cues	<ul style="list-style-type: none"> • Tight • Difficulty in opening mouth • Refusing to open mouth • Being silent or silent • Disruptive behaviour • Paradoxical 	<ul style="list-style-type: none"> • Behaviour being "stuck" • Self-observation • Refuse to sit in chair and sit in back of chair
Adults	<ul style="list-style-type: none"> • Neck pain • Excessive salivary or a dry mouth • Coughing/sneezing/tearing • Anxiety • Making appointments difficult to schedule this time 	
Children	<ul style="list-style-type: none"> • Fearful of dent • Aggressive • Hyperactivity • Shaking or even use violence during procedures 	

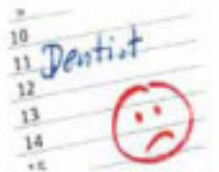
How to detect the various signs and symptoms of an anxious patient. Taken from: Management of the Petrified Dental Patient (28)

The vicious cycle of dental phobia



What causes dental anxiety?

- Worst anxiety provoking stimuli: injections, extractions and drilling (restorations)
- Dental team attitude towards patients
- Pain and discomfort
- Sight, smells and sounds
- Changing the dentist who provides the treatment
- Embarrassment of oral health status at that point in time
- Long waiting times
- Claustrophobia due to encroachment of personal space
- Helplessness and vulnerability due to lack of control
- Fear of choking
- Fear of the unknown
- Dental chair positioning "too far back"



Continues on page 20.

DENTAL ANXIETY

ITS IMPACT AND THE RELEVANCE OF BEHAVIOURAL THERAPY

Continues from page 19.

Impact of dental anxiety on the patient

1. Delayed/ symptomatic treatment – enhances anxiety
2. Avoidance of treatment – poor oral health
3. Poor oral health impacts: function, digestion, aesthetics, speech, TMJ dysfunction, pain, infections, self-esteem, missed school/work days, sleep disturbances, distress
4. Poor oral health has an impact on general health: diabetes, malnutrition, CVD etc
5. Poor oral health = poor quality of life



Impact reported by dentists

1. Stressful
2. 'Irritation, anger and frustration' at the patient's lack of compliance with treatment and appointment attendance
3. Time-consuming
4. Opportunity costs – no reimbursement for treating anxious patients especially with salaried remuneration
5. 'Lack of confidence' in treating anxious patients – insufficient training
6. Feeling of helplessness / failure

Most dentists still do their best to treat these patients: altruistically, to be fair healthcare providers or as an investment in the future (patient loyalty.)

Behavioural Therapy

- Dentist controlled factors
- Distraction
- Modelling
- Attention focusing
- Behaviour shaping
- Breathing
- Progressive muscular relaxation
- Systematic Desensitization
- Hypnosis



Cognitive Behaviour Therapy as the gold standard

CT psychotherapy attempting to change an individual's thinking process and understanding, identifying and replacing negative / dysfunctional cognitions with positive ones.

CBT is CT combined with behavioural therapy: psychotherapy sessions to change the thought process, systematic desensitisation and muscular relaxation tailored to the patient's needs usually with a collaboration between dentists and psychologists.

Public Health impact

- Dental anxiety and phobia are highly prevalent
- Deterioration of oral health and quality of life of individuals
- Increased economic burden on healthcare funding/resources
- Increased focus on prevention
- Management of anxiety
- Healthcare funding management should consider sparing some money for research, training and opening of a dental anxiety clinic

Maltese perspective

- Mild anxiolytics before treatment.
- Inhalation and IV sedation can be administered in equipped clinics
- General Anaesthesia
- No literature about dental phobia in Malta to date
- Malta could benefit from country-based economic evaluations

Possible future considerations

- 'Prevention is better than cure'
- Improvements in tools and methods for 'pain-free' dentistry
- Introduction of behavioural methods of treating dental anxiety in Malta in particular CBT, and achieving a change of attitude of clinicians, patients and decision-makers towards them.
- Improve media portrayal of dentistry and dental treatment
- Under and postgraduate awareness and training about the behavioural interventions for dental anxiety

Considerations contd.

- Opening of dental anxiety clinics/centres: collaboration of dentists and psychologists
- Introduction of national medical and dental insurance
- Improve dentist remuneration and incentives when treating anxious patients
- Improvement of the quality of literature available especially in Malta

Voids in literature

- Those who are complete avoiders of treatment are never studied
- No economic evaluations of behavioural treatments for dental phobia
- Heterogeneity in study methodology and presentation of results makes it virtually impossible to perform a meta-analysis of the data and come up with reliable pooling of the data and conclusions
- No dental anxiety studies based in Malta are available to date

Pharmacological Therapy

- Oral Sedation
- Inhalation sedation
- Trans mucosal sedation
- Intravenous sedation
- General Anaesthesia

Recommendations for the dental team

- Improve environment, smells, sights and sounds
- Reduce patient waiting time before treatment
- Dental team attitude
- Allocate enough time
- 'Pain-free' – eg. use topical anaesthesia, injecting slowly, allowing enough time for anaesthesia
- Give the patients the opportunity to feel 'in-control' – signalling systems
- Behaviour therapy or referrals to specialists for the severely anxious patient

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TEETHING PROBLEMS: KNOW THY PATIENT

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Reg. Clinical Psychologist/Psychotherapist

Managing Psychologist MHS / RHKG: Coordinator

Dental anxiety

- Vicarious learning may be positive or negative.**
- Avoidance of oral health care**
 - Justification
 - Rationalisation
- Negative oral experiences**
 - Pain
 - Numbness
 - Long term treatment
- Poor oral health**
 - Shame, social isolation
 - Guilt

KEEP CALM Don't Like The Dentist

The pleasure principle and the meaning of pain

NO PAIN NO GAIN

- Pain is a complex experience embracing physical, mental, social and behavioural processes, compromising the quality of life of many individuals.
- Pain is a subjective experience, wherein everyone learns the meaning of pain through experiences usually related to injuries in early life.
- Tolerance to physical/social discomfort were related to the:
 - Pain threshold – genetic or perceptible;
 - Positive expectations;
 - The extent to which the client wanted to look good
 - Client's internal locus of control, self-efficacy and perseverance
 - Client's level of commitment to change.
- Social dysfunction is the greatest predictors of compliance.**
- The greater the perception of pain, the lower the acceptance of treatment despite oral dysfunction. (Sergie et al, 2000)**

Schizoid, schizotypal and paranoid types

- The schizoid** avoids all forms of pain, is a loner with no intimate friends, indifferent to praise/criticism his/her decisions are influenced by their wish to remain alone – low self-support.
 - Communication issues:** monotone voice, short replies give impression of low intellectual abilities – patience if gets better as they relax.
- The paranoid** is rigid, guarded, denies negative feelings by projecting them onto others, neurotically fears malevolent behaviour. May have high pain tolerance due to narrow-band physical sensations.
 - Communication issues:** is uncomfortable in situations wherein he/she do not have absolute control – focus on relaxation, get the truth from significant others.
- The schizotypal** tends to be generally cut off from people and from professional help due to their withdrawal. May be recognised by their predilection for 'paranormal experiences' and focus on different levels of spirituality. They tend to avoid all forms of pain; are loners with no intimate friends. Indifferent to praise/criticism his/her decisions are influenced by their wish to remain alone – low self-support.
 - Communication issues:** monotone voice and short replies give the impression of low intellectual abilities – patience if gets better as they relax. Keep an open mind, do not contradict.

The Narcissistic type

- Having the brightest smile, looking like a million euro, is a narcissistically geared ad. Narcissists frequent the dentist to look 'gorgeous' – scaling and whitening of teeth more frequently than less narcissistic type patients who tend to seek cure due to pain. Due to their high self-awareness, constant need to boost their fragile over-high self-esteem conjoint by lack of empathy narcissists tend to feel anger, hostility, contempt, shame and depression more frequently. This is reflected in their constant need to be centre stage.
 - Communication issues** – yes-and-games imply that the patient knows as much or more than the dentist. For the dentist being on the constant brink of causing narcissistic injury and rage if one does not exhibit admiration is frustrating. This is reflected in research wherein narcissists tend to report better oral hygiene than the average person despite having an equal amount of caries and gingivitis. (Dimitrescu et al, 2013). May challenge the dentist's feeling of adequacy.

N=S/h

Scientists have announced a new way to accurately measure narcissism: the selfie per hour.

HOT MY TEETH CLEANED TODAY

MY HYGIENE WAS FLIPPIN' AWESOME

It's a pain

Dentistry is, was, and absolutely should remain the leader in anesthesia and pain control. Not medicine.

- Factors that predict compliance to dental treatment include **personality characteristics** and general attitude to dentistry.
- Levels of initial pain and discomfort may predict compliance to the subsequent treatment - **aversion**
- Patient's self-confidence** may be impacted by the presenting problem but also by the pain treatment may be cause e.g. speech impairment drawing attention to the patient's mouth during social interactions.
- In general orthodontic treatments are attributed a level of discomfort due to unpleasant and **painful tactile sensations**.
- People in general especially **adolescents** feel the centre of unwanted attention.
- Dentist's attitude to pain and discomfort with which he/she is continuously exposed - **desensitisation**

Patient's personality characteristics that predict compliance

Dentist: So are you doing anything fun for the holiday?
You: I wish I was a dentist and I would love to be a dentist.
Dentist: Oh, sounds fun!

- High self-confidence;
- High self-esteem – associated with high frequency of tooth-brushing;
- Obedience / patience;
- Expectations of self-efficacy;
- Internal locus of control – resilience and high pain tolerance;
- Sense of coherence;
- Satisfaction and positive social response - outcomes during the treatment;

The Borderline type

- This personality type tends to be emotionally unstable, impulsive, exhibiting mood-swings, moving from high motivation to apathy, lacking compliance tending to exhibit incoherent termination. They may commence by idealising the dentist who could run the risk of becoming entangled, only to then reject him/her as implied by 'dentist shopping'. If the borderline feels uncomfortable he/she will interpret that it is the other wanting to humiliate him/her.
 - Communication issues:** their emotional instability may make the therapeutic relationship difficult/tense, be on guard, compliance may be short lived.

Anti-social and histrionic types

- Antisocial types** see themselves as autonomous, free from social constraints and unencumbered by conveniences. They tend to feel neither remorse nor loyalty. Manipulative, impetuous and lacking reflection they tend to think they can get whatever they want and may turn up appointment-less demanding interventions. Being charmers, professionals may be taken in.
 - Communication issues:** if challenged they tend to retreat into angry silence with their 'I' appearing overblown conveying a disregard for others.
- Histrionic types** tend to perceive themselves, ego-syntonic as being fun, seeking social approval at most times especially if they think that this will render them attractive – they attempt to fulfil the dentist's expectations. Focused on their appearance they make excellent patients. They tend to appear over-energetic exaggerating emotions, becoming the centre of attention. Research has associated this personality with somatisation disorders.
 - Communication issues:** tends to talk in polarities, all-or-nothing, may attempt to get close to the dentist – show gratitude, keep a distance.

Eliciting desired behaviour

Compliance

- Precontemplation**
 - Patient is still asking oneself if it worthwhile.
 - Empathy, active listening and motivation.
 - Yes-but/yes-and games
- Contemplation**
 - Patient questions outcome expectations – explain.
 - Phase leads to cognitive and affective changes shifting meaning making
- Action Phase**
 - Assuming personal responsibility – internal locus of control - I want.
 - Self-doubt, inner contradictions and crises
 - Lack of support – pt. returns to previous stage.
- Maintenance**

A GOOD Dentist NEVER GETS ON YOUR Nerves.

Personality types and communication issues.

- When eliciting motivation each client's personality type needs to be borne in mind.
 - The schizoid, paranoid, schizotypal
 - The narcissistic, borderline, anti-social, histrionic
 - The obsessive-compulsive, avoidant

In this presentation personalities are viewed as types, having the tendency towards particular behaviours and emotions rather than disorders.

The Obsessive-compulsive type

- This personality type tends to hold rigid beliefs, needs to feel in control of the situation and behaves in pre-set ways. They are obedient to recognised and acknowledged authority otherwise they exhibit passive-aggression as implied through the yes - but game. Clients with this personality type tend to procrastinate if change is in the air. Research has associated this personality type with somatisation disorders.
 - Communication issues:** the games played, their fear of change and set ways may lead to the dentist feeling frustrated, not good enough or getting involved in an argument about the benefits of changing habit/lifestyle. If the dentist is too authoritative, does not pace the patient interventions will not go past the induction phase, if unassertive the patient will become discouraged leading to premature termination. Clients with this personality type tend to talk in polarities, all-or-nothing.

The avoidant

- This personality type tends to be shy, to mutter, look away as they are concerned with ridicule and/or rejection. They are highly motivated to avoid pain, relating only with those who they perceive as benevolent/protective, may even appear a bit paranoid.
 - Communication issues:** initially very nervous they tend to perceive the dentist as rejecting if he/she tries to 'get them out of their shell'. Things have to be explained carefully as such persons may be cognitively distracted. One of the personalities most likely to suffer from a high degree of dentist anxiety.

TEETHING PROBLEMS: KNOW THY PATIENT

Continues from page 19.

Dentist's characteristics' impact on client

- **Schizoid:** keeps one's distance, tolerates silence, tends to be analytical, functions well without being emotional. Client may experience irritation at one's emotions going unreciprocated, feeling unacknowledged.
- **Paranoid:** has difficulty dealing with uncertainty and likes to believe that he/she can predict the client's actions. His/her tendency to question his/her client's actions/motivators may induce the client to question the dentist's own motives.
- **Schizotypal:** keeps one's distance, tolerates silence, tends to be analytical, functions well without being emotional. Client may experience irritation at one's emotions going unreciprocated/unacknowledged. Tends to remain out of touch with client's suffering and possibly not understanding the client's needs.
- **Narcissistic:** offers consistent support in pursuit of excellence; may unconsciously transfer his/her taste for expansion to the client; is better equipped than others to perceive the pain behind the mask and the secret workings of vulnerability. Disliking half measures he/she provides the client with an image of health based on the determination to do one's best. This type of dentist needs to be careful not to turn client into a model image.
- **Anti-social/borderline:** accept instability in the client, encourage freedom of decisions by accepting inconsistencies and non-compliance more readily than the others.
- **Histrionic:** can encourage the client to be more attractive and radiant, helps the client become more self-confident.

Dentist's characteristics' impact on client

- **Obsessive-compulsive:** keeps client's objectives in mind. Endowed with a critical mind, he/she will be up-to-date on the latest developments in clinical practice, will do extensive research whenever he/she encounter a problem with a client. If he/she manages to have a long relationship with the client, the latter will become sufficiently knowledgeable to make informed and well-thought out choices.
- Dentists tend to have more Introverts, Judges, and Thinkers compared to the general population.*
- **Avoidant:** knows how paralyzing fear can be and realizes that this experience is often not understood by people close to the client. He/she know that neither reasoning nor interpersonal pressure will help to get rid of this fear and is able to express empathy and support when the client feels overwhelmed – listens actively.

The relational dentist : PAINS

POSITIVE ATTITUDE IN NEGATIVE SITUATIONS

- Comfortable with close personal interaction which renders them easy to talk to – preferring the I – Thou approach
- Trustworthy – patients share their problems, not only dental.
- A detail-oriented person, artistic, having envisioning skills.
- A leader: excited about the profession of dentistry – having purpose and clarity of vision, hungry to learn, learn best by doing.
- Passionate about providing care to those in need.
- Having critical friends off whom they can bounce ideas and share experiences.
- Practices critical self-reflection and reflective practice

Skills to develop to practice critical reflection: Off the job learning

- Developing middle mode action entails a passive-active stance in which we try as much as possible to:
 - Listen, observe, understand - in a child-like manner, each patient is different from the one before. We become curious about this difference.
 - Free our minds from our assumptions e.g. that is how we have always done it, that is what is expected of us, that's how you deal with that case
 - Observe ourselves as we act e.g. I don't really like this patient, I feel overwhelmed by this accident, my had the same condition and I felt....
 - Develop a detached fluctuating attention to what is happening to you during the interaction. How do I feel? What thoughts arise? Who do I feel I am becoming? Does this belong to me or my client?

Reflection leads to reframing.

One reflects on an event brought about by a disconcerting dilemma, ponders on which personal assumptions/pre-conceptions influenced the actions carried out and if these were appropriate.



- 4 types of critical reflective questions
- How would introducing this practice impact on me? (Narrative)
 - Would introducing this practice be of ethical benefit to the system? (Systemic)
 - What is my reaction to the introduction of this practice, am I being resistant? (Therapeutic)
 - Would the service lose out if I were to be unable to introduce this practice? (Epistemic)

Why critical self-reflection and reflective practice?

- It is a team, peer supported practice thus preventing burnout;
- It requires trust, creativity and openness thus supporting learning;
- In return one receives mutual support and leading to shared knowledge and self-growth;
- It enhances loyalty and group cohesion thus we can feel stronger in the face of adversity.
- We are our best tool, we are the only ones who know how sharp we are.
- Anything is a source of learning so we need not switch off.
- What we learn is applicable anywhere, anytime, anyhow.
- Learning is one of the best intrinsic motivators.
- Because learning keeps us mentally active!!!



HOW TO: USE AN INNOVATIVE, PREFABRICATED COMPOSITE VENEER

USING COMPONEE R TO MIRROR ARTISTIC FREEHAND COMPOSITE PLACEMENT

By Frank Milnar, DDS, AAA CD. Information provided by COLTENE

dentistry's renewed emphasis on minimally invasive treatments affords patients the opportunity to receive highly esthetic and natural-looking restorations that preserve as much of their natural tooth structure as possible.¹

Yet, the artistic and clinical skills required to plan, create and deliver such treatments can challenge dentists in terms of material/ restoration selection, preparation design, chair time, appointment requirements and realization of natural-looking effects and characteristics.

Although the ongoing evolution of direct and indirect restorative materials and techniques has returned dentistry to a conservative focus, a more straightforward approach to achieving ideal esthetics, form and long-term function has been needed. Materials available for conservative and esthetic treatments have included indirect composite veneers, direct composites and indirect porcelain or ceramic veneers.²⁻⁵

The prefabricated composite veneers developed in the 1930s introduced dentistry to the veneer restoration concept. Quickly abandoned due to technological limitations,² veneering resurfaced in the 1970s with the availability of chemically cured first-generation direct composites, which also demonstrated significant shortcomings (e.g. difficult handling, high wear, low fracture resistance and limited shades).³

Continued composite development yielded materials with smaller filler particles for greater color stability and improved durability, but only the

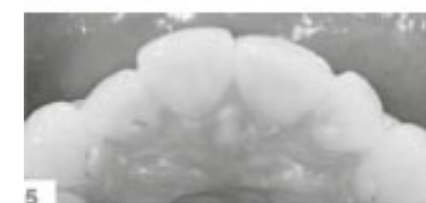
most skilled clinicians performed the time-consuming layering, sculpting and artistic coloration techniques.⁴ As an alternative to full-coverage crowns, the indirect porcelain or ceramic veneers of the 1980s were additive and required little to no tooth reduction (i.e., 0.5 mm) for placement of these thin-layered restorations (i.e., 0.5 mm thickness).⁵⁻⁶

However, minimal preparations that left insufficient room to accommodate esthetic porcelain layering and characterization resulted in overcontoured restorations and periodontal complications.^{7,8}

Further, these materials demonstrated less-than-desirable strength. As a result, more aggressive tooth preparations (e.g., up to 1.5 mm) were undertaken to avoid overcontouring, as well as satisfy fabrication and cutback/ layering requirements for more esthetic and durable pressed veneers (e.g., leucite-reinforced glass ceramic).^{9,10}

Although today's metal-free materials enable a return to more conservative indirect veneer preparation designs, direct composite placement, whether guided or freehand, is still considered the most minimally invasive and least aggressive approach for restoring function, form and esthetics.¹¹⁻¹³ However, despite dramatic advances in direct composite material handling characteristics and optical and physical properties, placement presents techniquesensitive challenges ranging from sculpting and contouring to line angle creation.

Continues on page 29.



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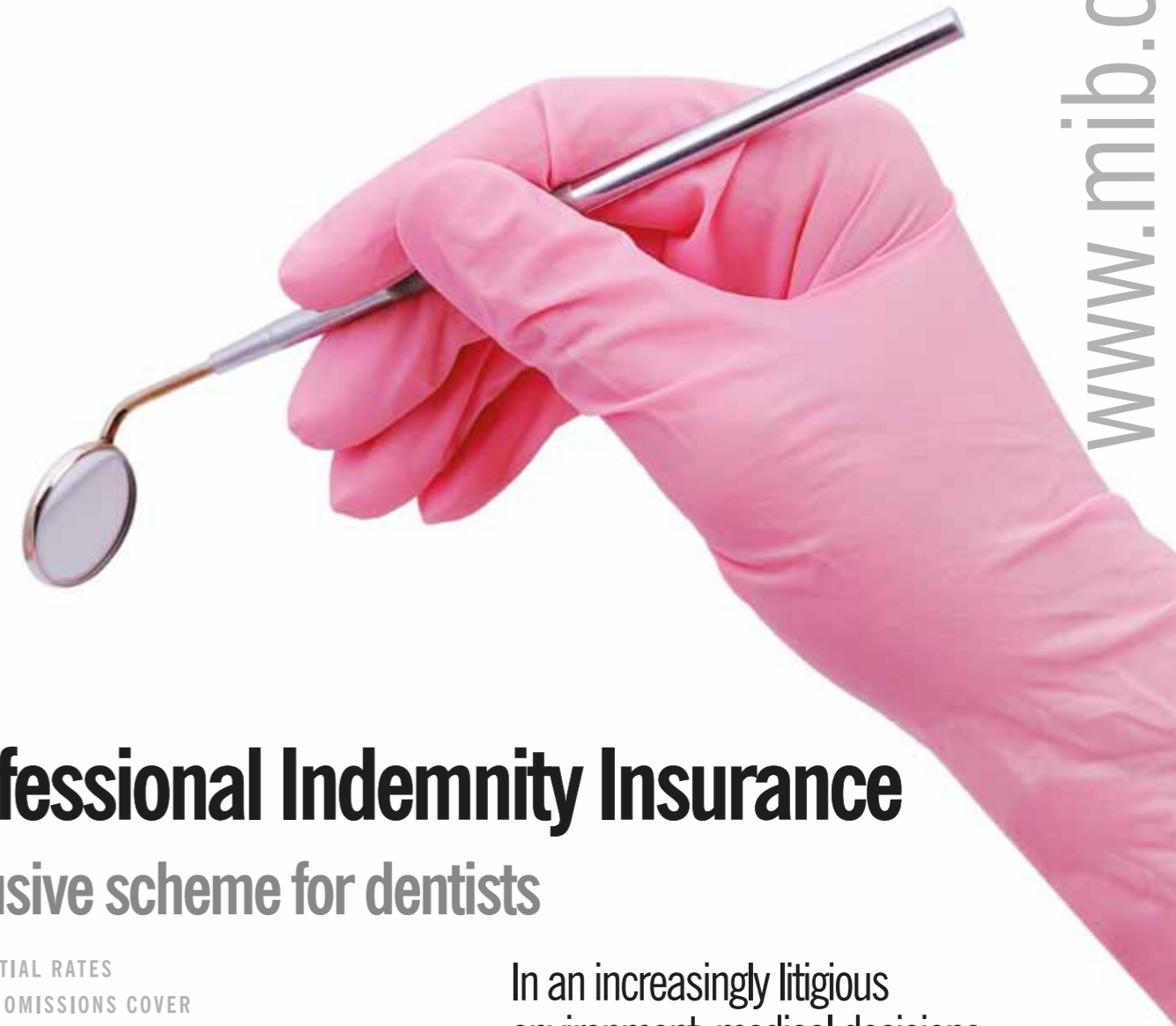
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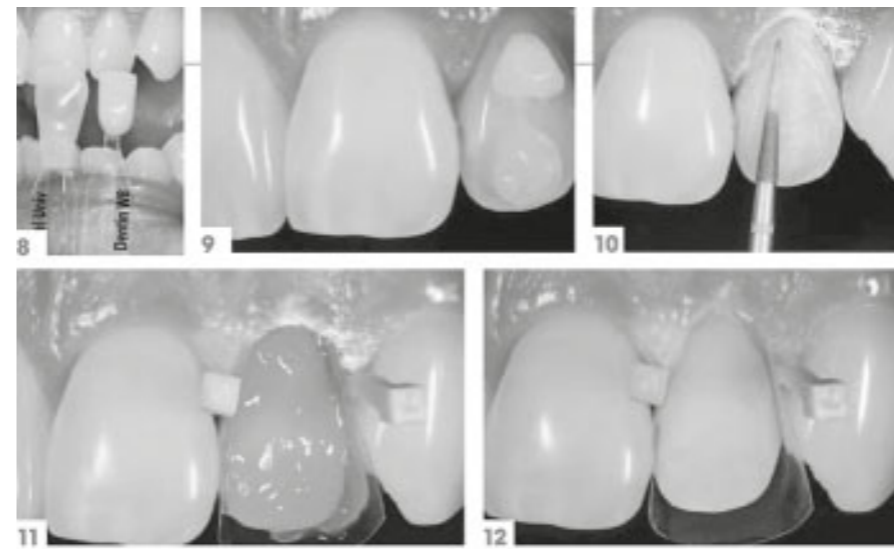
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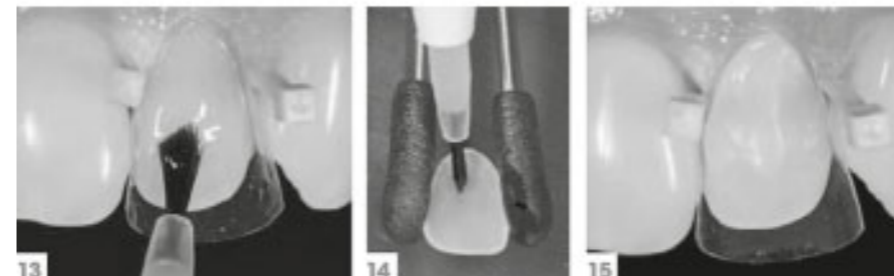
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AT A GLANCE

1. Pre-operative full-facial view of the patient.
2. The patient's chief complaint was his unesthetic smile.
3. Negative space displayed at tooth Nos. 7 and 10, and there was acute canting of the mesial aspects of tooth Nos. 6 and 11.
4. The patient demonstrated ideal occlusion and end-to-end bite.
5. The occlusal view of the maxillary arch confirmed the under-contoured tooth No. 10 needed no preparation, while the over-contoured shape of tooth No. 7 required minimal preparation.
6. The appropriate restoration shape and size (e.g. large) for tooth No. 10 were determined using the Componeer Contour Guides.
7. A study model was used to ensure proper restoration size and occlusion and plan the ideal treatment to mirror the esthetics of freehand direct composite placement.
8. Componeer Synergy D6 shade guides were utilized to determine the appropriate enamel and dentin shades and the colors compared to the existing tooth structure, as well as the surrounding dentition.
9. Two Synergy D6 composite shades (e.g., White Bleach and White Opalescent) were previewed.
10. In lieu of preparation, rotary abrasion on all labial tooth anatomy removed the aprismatic enamel to promote adhesion.
11. Mylar strips and wedges were placed for isolation.
12. The acid etch was rinsed off and the preparation dried to establish a frosty-white, dry canvas.
13. One Coat Bond was "painted" onto the tooth, moving from the cervical to incisal areas, and then light cured for 30 seconds.
14. One Coat Bond was then applied to the prefabricated veneer but not light cured.
15. Synergy D6 WB composite was placed on the cervical half of tooth No. 10.
16. Synergy D6 WO was then placed on the incisal half.
17. Composite shades WB and WO were similarly placed on the COMPONEER and sculpted and blended together based on an established volume estimate.
18. The COMPONEER was gently seated using the Placement Tool to prevent hydraulic force and axial drifting.
19. After seating, uniform excess composite was observed from all aspects.
20. Excess material was removed using a bladed instrument while keeping overhead light focused on the patient's chin to avoid polymerization.
21. The cervical margin was gently defined using a fine diamond and water spray to avoid gingival tissue trauma.



HOW TO: USE AN INNOVATIVE, PREFABRICATED COMPOSITE VENEER

Continues from page 25.

Additionally, the process can be time-consuming and less than predictable. Therefore, an ideal veneer restoration would demonstrate a balanced combination of the minimal preparation requirements and ability to achieve enhanced esthetics of direct composites, along with the convenience and predictability of indirect restorations.

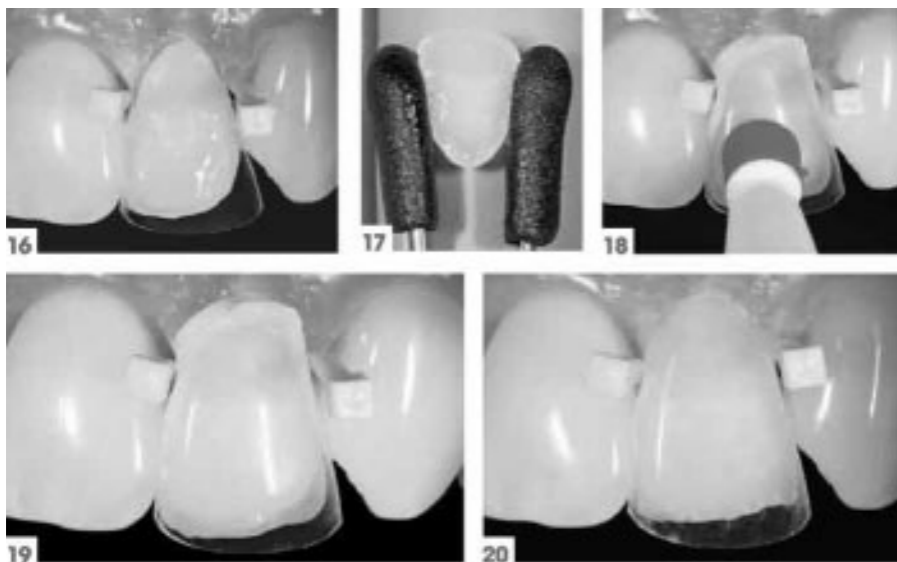
Fortunately, prefabricated direct composite veneers can minimize the difficulties associated with guided and freehand composite placement. Already prepared to demonstrate an anatomical design and proper line angles/contours, they are ideal for clinicians without freehand composite design expertise and actually enable them to enhance their morphology, preparation, adhesion and smile-design skills. Indicated for lengthening teeth, correcting crooked teeth, masking discolorations, closing diastemas and restoring lesions and tooth fractures,¹⁴ prefabricated composite veneers require minimal tooth preparation and can be modified for esthetic characterization. However, clinicians must carefully determine the ideal shade and size to ensure a successfully intimate fit and harmonious integration with surrounding teeth.

COMPONEER™

Introduced as an alternative to traditional direct and indirect restorations, COMPONEER™ (Coltène/Whaledent AG, Altstätten, Switzerland) is a direct composite veneering system comprised of prefabricated, preshaped and prepolymerized highly filled nano-hybrid composite veneers.

With a variety of sizes (i.e., 30 different shapes; 6 shapes per size), tooth enamel shades and thin dimensions (i.e. from 0.3 mm), the system combines the advantages of direct composite restorations with those of laboratory-fabricated veneers.

Continues on page 30.



AT A GLANCE

22. The incisal and proximal margins were adjusted using Cross Flex Discs.

23. A polishing cup was used to finalize the composite surfaces and ensure no voids were present.

24. A polishing point was used to polish the interproximal margins.

25. All margins were hand polished using a polishing brush to achieve a "bone-dry" shine for improved longevity.

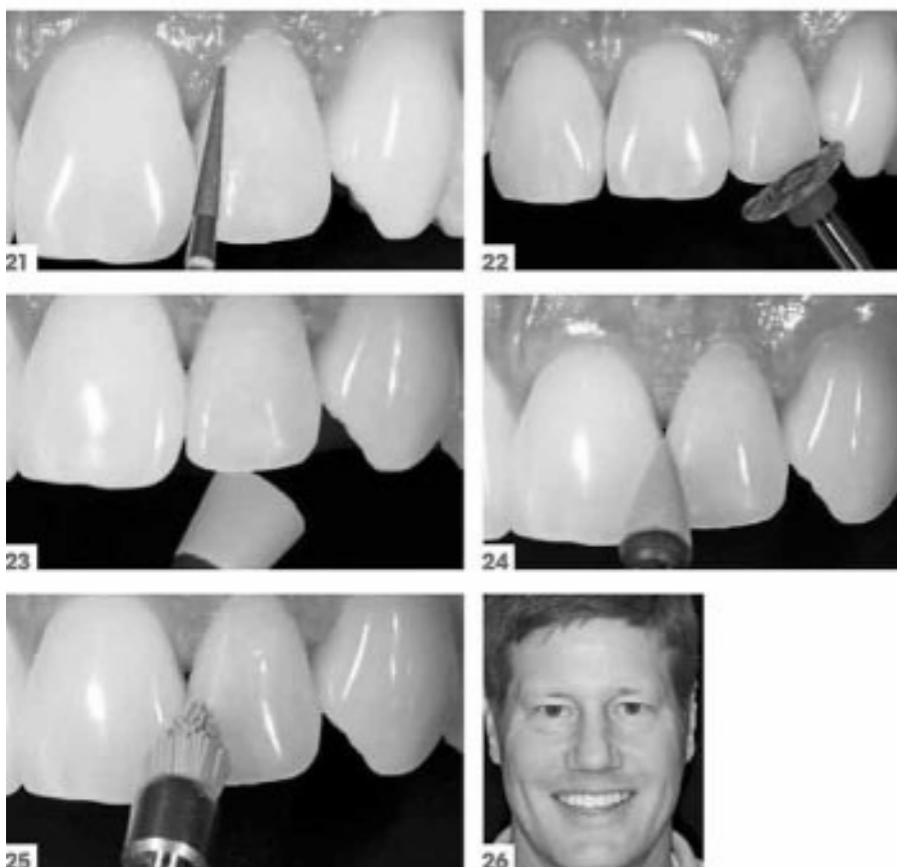
26. Post-operative full-facial view of the patient's smile after completion of the COMPONEER and freehand composite veneers.

27. Close-up view of the patient's restored smile.

28. Post-operative retracted view of the patient's smile.

29. Post-operative maxillary anterior view of the patient revealing symmetrical line angles on tooth Nos. 7 (freehand composite) and 10 (COMPONEER).

30. Final occlusal view of the maxillary arch demonstrating ideal curvature from tooth Nos. 7 to 11.



HOW TO: USE AN INNOVATIVE, PREFABRICATED COMPOSITE VENEER

Continues from page 25.

Overall, COMPONEER simplifies the direct composite veneer process by enabling clinicians of all artistic skill levels to create highly esthetic restorations in their day-to-day practice.¹⁴

COMPONEER also represents a minimally invasive and cost-effective treatment option. Ideal for a variety of indications, only minor tooth reduction and shape finishing are required. The labial surface can be fully characterized for esthetic integration into the smile, and clinicians can customize restorations as desired and modify and repair them over time. The system can also be used as the anatomical base for reconstruction of a single tooth or multiple restorations.

COMPONEER treatment requires only one visit for completion, improves convenience and saves chair time by eliminating the need for multiple appointments associated with typical indirect veneers. The entire treatment averages a total of 210 minutes (i.e. 30 minutes for preparation and conditioning, 60 minutes for dentin buildup, 50 minutes for enamel layering and 70 minutes for contouring, finishing and polishing).

Because COMPONEER restorations are cemented using the same composite material (i.e. Synergy D6), a completely solid and uniform restoration is created. The novel microretentive inner surface increases wettability and ensures a durable bond while the composite material demonstrates strength and functionality. An *in vitro* study recently determined COMPONEER demonstrated greater bond strengths than those of another prefabricated veneer system.¹⁵

The following case demonstrates the simplicity with which the COMPONEER

system can be used. It also illustrates the extent to which the prefabricated veneers blend harmoniously with natural teeth and those restored with freehand direct composite restorations.

CASE PRESENTATION

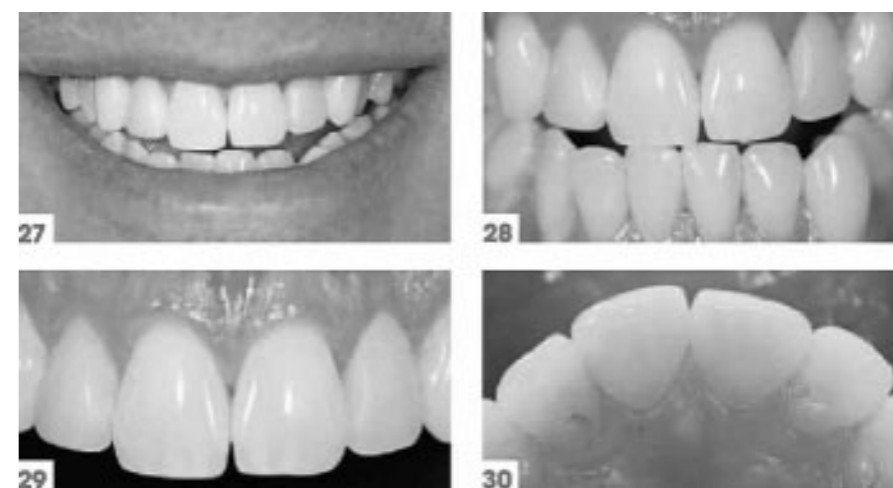
A 37-year-old male presented with a chief complaint about the overall esthetics of his smile (Figs. 1 and 2).

STEP 01 Although he requested treatment, he insisted upon minimal tooth preparation. A comprehensive examination was performed, and pre-operative photographs were taken. The patient exhibited negative space at tooth Nos. 7 and 10, acute canting of the mesial aspects of tooth Nos. 6 and 11 (Fig. 3) and an ideal occlusion and end-to-end bite (Fig. 4).

STEP 02 To conserve the greatest amount of healthy tooth structure possible, the treatment plan included a combination of directly placed freehand composite veneers on tooth Nos. 6, 7 and 11 and a prefabricated direct composite veneer on tooth No. 10. Tooth No. 10 required no preparation and was ideal for a prefabricated veneer, although the overcontoured tooth No. 7 required some preparation (Fig. 5). The patient accepted this treatment plan.

STEP 03 The patient's teeth were cleaned with a brush and toothpaste, and abrasive strips were used to roughen and clean interproximally. The COMPONEER Contour Guide was used to determine the appropriate shape and size for the prefabricated composite veneer. After the applicable shapes were placed over tooth No. 10, the blue transparent shade was used to enable optimum contrast on the tooth (Fig. 6). A study model was also utilized to ensure the proper size veneer (e.g. large) was selected for optimal fit and integration (Fig. 7).

STEP 04 Shades were selected using daylight lamps and the COMPONEER



Synergy D6 shade guides. The enamel shells were compared first, then the dentin core shades. The dentin substrate was then placed under the shell of the enamel core to determine appropriate shading. Enamel Universal and Dentin White Bleach were selected to match the natural tooth structure and blend with the surrounding dentition (Fig. 8). However, rather than using a single shade of Synergy D6 composite, the author used two (e.g., Dentin White Bleach [WB] and White Opalescent [WO]) to mirror the chroma in the cervical third of the adjacent teeth (Fig. 9). These shades were placed on the tooth and blended. The prefabricated veneer was seated to preview the restoration and ensure ideal shading after which it was removed along with the composite. The teeth were then cleaned, rinsed and dried.

STEP 05 Because tooth No. 10 required no reduction, only aprismatic enamel was removed to enhance bonding. Rotary abrasion was used on all labial aspects of tooth No. 10 (Fig. 10).¹⁶ Mylar strips and wedges (Garrison Dental Solutions) were then placed to isolate the gingival aspect and prevent the teeth from sticking together.

STEP 06 Etchant gel was applied to condition the preparation then spread evenly with a brush to the cervical limit. The gel set for 30 to 60 seconds

COMPONEER Veneer System

- Polymerized, prefabricated nano-hybrid-composite enamel shells
- Combines advantages of direct composite restoration with those of prefabricated veneers
- Extremely thin veneer coatings allow a high level of conservation of hard tooth substance during preparation

(Fig. 11) and was then rinsed with water for 20 seconds. No trace was visible on the enamel, and an air blower removed any excess water to create a frosty-white appearance and dry canvas (Fig. 12). One Coat Bond adhesive was dispensed onto a brush and evenly applied to tooth No. 10 by "painting" onto the tooth from the cervical to incisal areas (Fig. 13). The adhesive was blow dried gently with oil-free air in the same direction then light cured for 30 seconds.

STEP 07 The adhesive was then applied directly onto the internal aspect of the prefabricated veneer (Fig. 14), which was held using the COMPONEER Holder. The veneer was then briefly blow dried with oil-free air but not light cured.

STEP 08 Shade WB of the Synergy D6 composite was placed on the cervical half of the tooth (Fig. 15), after which Shade WO was applied to the incisal half. The composites were blended seamlessly together to reproduce the natural chroma observed in the cervical third of the adjacent teeth (Fig. 16). This artistic technique enabled the author to develop a chromatic interpretation of the surrounding teeth similar to the esthetics produced by freehand direct composite placement.

Continues on page 38.

CLINICAL PHOTOGRAPHY

PART 1: THE HARDWARE AND A BRIEF HISTORICAL NOTE

By Dr Dennis Cutajar BChD MSc (Restorative and Aesthetic Dentistry)

ABSTRACT

Historically speaking, photography and dentistry appear to be quite closely related. It may be argued that both officially began at around 1840, when the first dental school was opened, and the world's first photographic gallery was inaugurated and operated by a dentist turned photographer.

Ever since, photography has become an essential tool in our every day record keeping, treatment planning, treatment presentation, self-learning and communication tool. (Galante, 2009)

CLINICAL RELEVANCE

The first part of this short article aims to outline the hardware typically recommended for intra and extra oral digital dental photography. The value of intra oral photography, and the basic techniques involved will be discussed in greater detail in the second part of the text.

A HISTORICAL NOTE

The first practical and commercially viable process of photography, the daguerreotype process, was invented at around 1835 and was commercially introduced in 1839, by Louis Jacques M. Niepce, (Casha, 2016) coinciding with the first publication of the American Journal of Dental Science, the first dental journal ever printed.

At around the same time, on the 8th of May 1840, Alexander Wolcott, a dentist and inventor was the first person to patent a camera, the Daguerreotype

mirror camera and opened the first ever portrait studio, the Daguerrean Parlor in New York. (Galante, 2009) The first dental school, the Baltimore College of Dental Surgery was established by Horace Hayden and Chapin Harris in the same year.

In 1848, Drs. R. Thompson and W.E. Ide removed a tumor from a maxilla, and repaired the defect with an oral prosthesis made of gutta-percha. They photographed the patient before and after the procedure and published them, together with an article on the abovementioned American Journal of Dental Science in 1850.

These are thought to be the first ever set of before and after photographs to be taken of a dental procedure. (R.A. Glenner, 1991)

More recently, but also in New York City, Lester Dine, the founder of Lester A. Dine Inc, was allegedly approached by a dentist who expressed an interest in evenly illuminating the inside of his patients' mouth, and hence facilitate intra-oral photography.

This led Dine to invent the ring flash in 1952. It was a simple, circular flash that attached to the end of the lens, having the ability to direct light into the patient's mouth providing full, even illumination. (Glassgold) This was the first official ring flash.

The latter are now commonly manufactured by numerous

brands and used mainly for macro photography in general.

THE CAMERA BODY

Most modern dental chairs come equipped with intra oral cameras, which are excellent tools for patient education. They can easily be used intra-operatively and don't require much training.

However the image quality and resolution are typically quite poor when compared to that of the average, modern digital camera. It is certainly not good enough for academic publications and they will certainly not give a good first impression if used for marketing purposes at this day and age.

WHY DIGITAL?

Essentially all of us are now using digital cameras, which allow us to instantly view our images and immediately correct any technical imperfections. We can then show these same images to our patients and send them to our laboratories or specialists within minutes. (R. Shorey, 2009) There are three main categories of digital cameras. The compact pocket cameras, the compact interchangeable lens cameras, and the digital single lens reflex (DSLR) camera systems.

Compact cameras offer no possibility of using interchangeable lenses, and the lens they come with is typically not designed for macro, or close up photography.

Continues on page 34.

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CLINICAL PHOTOGRAPHY

PART 1: THE HARDWARE AND A BRIEF HISTORICAL NOTE

Continues from page 32.

Most have an inbuilt flash, which is weak and on the side, rather than in line with the lens. Hence, most of them cannot be used to obtain consistent magnification ratios and optimal intra-oral illumination. If used, they will tend to offer an incredibly distorted image, with the anterior teeth appearing to be wider, and the posterior teeth would be obscured in shadow due to the uneven, weak light. (Sharland, 2008)

Mirrorless interchangeable lens cameras offer more versatility and better image quality over a compact camera, and some dental-specific systems have been developed and improved over the past few years.

However, they are still relatively new and cannot yet match the gold standard DSLR, in terms of both image quality and ergonomics.

DSLRs are currently the most ergonomic and versatile cameras for dental photography and they usually have better, longer lasting, rechargeable batteries. They have three main parts, the camera body, the lens and the flash.

In dental photography, the lens and flash are the most important components that allow us to obtain optimal image quality in the mouth.

An understanding of magnification ratios enables the clinician to consistently frame his or her images, ensuring that the subject is consistently photographed at the same distance.

This is especially important when monitoring lesion size over time. For example, a central incisor with a length of 10mm in the mouth, and 10mm long on the 35mm

negative is being reproduced at a magnification ratio of 1:1. It is life size.

Most consumer grade digital cameras have a sensor, which is only about 2/3rds the size of 35mm film. This essentially means that the digital image will be cropped.

Hence we need to zoom out of the frame in order to get the same amount in the same frame, as we would get with a full frame camera, the 35mm film digital equivalent. When these smaller sensor cameras are used, the desired magnification ratio needs to be multiplied by 1.5.

THE LENS

The nature of dental photography necessitates the recording of subjects that vary in size from a full face, to a single tooth at its actual size. Simply because a lens has 'macro' written somewhere along its barrel does not mean it is capable of fulfilling these requirements. The only true macro lenses, capable of recording an image at a magnification ratio of 1:1 are specific, fixed focal length (prime) macro lenses.

Choosing a lens with the correct focal length is important as this affects perspective, distortion, and the distance between the camera and the subject.



Image 1: The single lens reflex camera, coupled with a 100mm macro lens and a ring flash is still considered to be the gold standard for intra oral photography



Image 2: Magnification ratios are depicted on lens barrels of macro lenses, in orange in this case. They are explained in reference to 35mm film. It is basically the ratio of the subject being photographed to the image being produced on a 35mm film, or equivalent digital sensor

Magnification ratio required on a full frame camera / 35mm film equivalent	Setting used on cropped sensor cameras
1:1	1:1.5
1:2	1:3
1:3	1:5

Table 1: converting Magnification ratios to cropped sensor cameras

Short focal lengths should be avoided as they tend to enlarge near objects, cause distortion, and do not allow for even intra-oral illumination. (Sharland, 2004)

Longer focal lengths allow more distance between the camera and the subject, which in turn results in less distortion and more even illumination of the mouth. For dental photography, most institutions consider lenses with a focal length of around 100mm as the lenses of choice.

THE RING FLASH

Nowadays, in macro, or close up, photography in general, photographers tend to use; either the ring flash, a dual-point flash, or an off-camera flash, with or without a diffuser. These last two options might offer more versatility and creativity, however, what we need in dental photography is consistent, even illumination of the mouth, rather than freedom of artistic expression, hence many consider the ring flash to be the more sensible option. (Sharland, 2013)



Image 3: The top image was taken with the inbuilt camera flash. Notice the distinctive shadow caused by the lens barrel, because the flash is above the lens itself, as opposed to the far more evenly lit mouth in the bottom image, where a ring flash, which sits in front of the lens itself was used.

ACCESSORIES

Accessories typically used in dental photography are retractors, mirrors and contrastors

MIRRORS

Occlusal Mirrors:

Clean unscratched front surface mirrors are essential to obtain maxillary and mandibular occlusal views. Typically, mirrors with handles are easier to use and position, then those lacking one.

It is essential to warm mirrors prior to using them, usually in warm water, to avoid fogging. If an assistant is available, blowing dry air directly on the mirror surface during use would also help delay fogging up.

They tend to scratch easily and it is better if they are sterilized separately, ideally protected in microfiber pouches.



Image 4: It is virtually impossible to document the posterior dentition in occlusion using joined retractors, unless buccal mirrors are used. It is far easier to simply retract with individual retractors.



Image 5: Use of contrastor as a background in esthetic zone.

Side mirrors:

Buccal and lingual side mirrors are available. They are typically not required for standard views, however, they can be very useful in cases where it is difficult to view the posterior dentition using retractors alone.

They also eliminate errors with depth of field, as the focal point is the same for the entire mirror. I.e. it is easier to get all the dentition in focus, when using a larger aperture.

RETRACTORS

There are both metal and plastic retractors. Their main use is to hold soft tissue out of the way. Plastic retractors are typically less intimidating, especially for pediatric patients, however they may be more challenging to use with mirrors.

Continues on page 36.

CLINICAL PHOTOGRAPHY

PART 1: THE HARDWARE AND A BRIEF HISTORICAL NOTE

Continues from page 32.

It is very important to avoid cold sterilization of plastic retractors, as this will render them unsightly and opaque.

There are joined and individual retractors, in various sizes. Adult sized individual retractors offer the greatest versatility and visibility.

CONTRASTORS

Contrastors isolate an area, to give clean, perhaps more professional looking backgrounds to our images. They are especially useful in the aesthetic zone.

They are normally used in conjunction with retractors or mirrors and placed as far back into the mouth as possible. If placed directly behind the front teeth, they may appear to be grey, rather than black.

Avoid cold sterilization. They should be wrapped separately and autoclaved.

CONCLUSION

Clinical photography should be viewed as a convenient adjunct to our clinical records. Digital images are easily transferable and stored and may be readily utilized as a patient communication tool. ■

The next part of this article will delve briefly into the value of clinic photography, and the basic technique involved in obtaining the more common views.

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HOW TO: USE AN INNOVATIVE, PREFABRICATED COMPOSITE VENEER

Continues from page 31.

STEP 09 Synergy D6 WB composite was then similarly applied to the cervical and Synergy D6 WO to the incisal of the prefabricated veneer (Fig. 17). The two shades were sculpted and blended seamlessly together. A volume estimate was established to avoid complications with over and underfilling. Overfilled restorations create overcontoured teeth and lead to poor occlusion and predictability, while underfilled restorations are susceptible to voids and decreased longevity.

STEP 10 The COMPONEER was seated to the tooth using the Placement Tool and carefully moved to the final position with gentle and constant pressure, being mindful of hydraulic forces and axial drifting (Fig. 18). Excess composite extruded from all aspects, as expected, indicating a likely void-free restoration (Fig. 19). While the COMPONEER was held in position, excess was removed using a bladed instrument (Fig. 20) with the overhead light focused on the patient's chin to avoid light polymerization. The restoration was then light cured for 60 seconds and the wedges and Mylar matrix removed. Placement was verified with the patient relaxed and facing straight ahead.

STEP 11 The cervical margin was gently defined using a fine diamond and water spray to avoid gingival tissue trauma (Fig. 21). The incisal and proximal margins were then adjusted using Cross Flex Discs (Fig. 22), and a polishing cup was used on the composite surface to ensure no voids were present (Fig. 23). A polishing point was then used to polish the interproximal margins (Fig. 24) after which all margins were hand polished with a polishing brush to achieve a "bonedry" shine for enhanced longevity and predictability (Fig. 25).

STEP 12 Freehand direct composite veneering was performed on tooth Nos. 6, 7 and 11 using Synergy D6 composite in shades A1/B1 and WO. The tooth No. 7 restoration was designed to mirror

the COMPONEER restoration on tooth No. 10. Tooth Nos. 6 and 11 required no preparation, and composite was placed to correct the acute mesial aspect canting. Once all of the restorations were completed, the patient was very satisfied with the highly esthetic results achieved with minimal tooth preparation (Fig. 26). The freehand direct composite restoration on tooth No. 7 was compared with the prefabricated direct composite veneer on tooth No. 10 (Figs. 27 and 28) for esthetics, and both demonstrated symmetrical line angles, ideal polish and esthetic properties (Fig. 29). Additionally, the mandibular occlusal view confirmed ideal contouring and curvature from tooth Nos. 7 to 11 (Fig. 30).

CONCLUSION

As more clinicians and patients pursue minimally invasive treatments, prefabricated direct composite veneers (e.g. COMPONEER) represent a predictable and cost-effective option for achieving a highly esthetic and durable restoration in an efficient manner. Overall, the case presented in this article demonstrates that prefabricated veneers mirror the artistic esthetics of expertly created freehand direct composite restorations. By combining the advantages of direct and indirect restorations, COMPONEER prefabricated composite shells reduce restorative chairtime without compromising optical and strength characteristics. Suitable for everyday practice procedures, COMPONEER is a conservative restorative solution for clinicians still developing their direct freehand composite placement skills and expertise. ■

ABOUT THE AUTHOR

A graduate of the University of Minnesota School of Dentistry, Frank J. Milnar, DDS, AACD, maintains a full-time practice in St. Paul, Minn., emphasizing the applied art of smile design. An accredited member of the American Academy of Cosmetic Dentistry (AACD) and a Board examiner for accreditation, Dr. Milnar is currently the Professional Education Committee co-chair for the AACD.

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