GUIDELINES FOR

PROSTHODONTICS

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Health Policies and Standards Department

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INTRODUCTION

Dubai Health Authority (DHA) is the responsible entity for regulating, licensing and monitoring health facilities and healthcare professionals in the Emirate of Dubai. The Health Regulation Sector (HRS) is an integral part of DHA and was founded to fulfil the following overarching strategic objectives and program:

Objective #1: Position Dubai as a global medical destination by introducing a value-based, comprehensive, integrated and high quality service delivery system.

Objective #2: Direct resources to ensure healthy and safe environment for Dubai population.

Strategic Program #5: Oral & Dental Care- This program focuses on improving the oral health outcomes and ensure that all individuals have access to high quality treatments and effective prevention programs for dental care.

ACKNOWLEDGMENT

This document was developed by Dental Services Department, Primary Healthcare Services Sector (PHCSS). It has further been reviewed by the Health Policy and Standards Department (HPSD).

HRS would like to acknowledge and thank all parties that participated and worked toward developing these guidelines to ensure improving the quality and safety of healthcare services.

The Health Regulation Sector

Dubai Health Authority

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EXECUTIVE SUMMARY

Clinical guidelines to enhance the standard of care in health facilities are increasingly becoming part of current practice and will become more common over the next decade. These Clinical Guidelines aim to improve the quality and the level of healthcare provided to the clients. Healthcare providers can use these guidelines to answer specific questions in day-to-day practice and as an information source for continuing professional education.

This document presents a framework for prosthodontists to:

- To standardize decision-making process when the clinicians encounter a situation requiring prosthetic restoration of endodontically treated teeth.
- To unify measures of performing endodontic treatment of abutment focusing on case selection, ways of assessment, diagnostic criteria and clinical steps of management.
- To identify various other treatment modalities and options for the replacement of missing teeth in a partially edentulous or completely edentulous dental arch.
- To assist in facilitating a successful management of porcelain veneers aesthetic rehabilitation as part of orthodontic cases and an overview of the topic of management when orthodontic treatment is required, in order to achieve successful results.
- To provide an evidence-based multidisciplinary approach protocol for cooperation between prosthodontics and periodontics specialty in order to achieve patient satisfaction and to perform a treatment that follows the standards of care.
- To identify the reasons for the referral for preprosthetic surgery to an oral and maxillofacial surgeon; taking into consideration the associated systemic and local

factors for the proper management of cases leading to increase in the prognosis of the prosthetic treatment plan.

- To standardize the approach of conservative management of TMDs based on an evidence-based decision-making process.
- To approach the standards of care and malpractice in prosthodontics specialty to protect the dentist from professional litigation and the patients as well from poor quality of dental prosthetic care.

DEFINITIONS

Abutment: is that part of a structure that directly receives thrust or pressure; an anchorage; a tooth, a portion of a tooth, or that portion of a dental implant that serves to support and/or retain a prosthesis.

Alveoplasty (osteotomy): is the surgical cutting of a bone; frequently used to also describe smoothing, levelling, or altering external contours of the bone.

Biologic Width: is the dimension of soft tissue composed of a connective tissue and epithelial attachment extending from the crest of bone to the most apical extent of the pocket or sulcus.

Distraction osteogenesis: is a procedure whereby a segment of the jaw is sectioned by osteotomy and gradually displaced by a controlled movement to increase the height of an edentulous ridge.

Epulis fissuratum: is the overgrowth of intraoral tissue resulting from chronic irritation.

Fixed dental prosthesis: is the general term for any prosthesis, that is securely fixed to a natural tooth or teeth, or to one or more dental implants/implant abutments; it cannot be removed by the patient.

Frenectomy: is the surgical excision of a frenum.

Occlusal vertical dimension (OVD): is defined as the distance between two selected anatomic or marked points (usually one on the tip of the nose and the other on the chin) when in maximal intercuspal position.

Pontic: is an artificial tooth on a fixed partial denture that replaces a missing natural tooth, restores its function, and usually restores the space previously occupied by the clinical crown.

Porcelain veneer: is an indirect layer of porcelain bonded to the tooth by resin cement used to improve the aesthetics and/or protect the tooth's surface from damage.

Preprosthetic surgery: is the surgical preparation of either a fully edentulous or a partially edentulous mouth before construction of dentures.

Provisional Restoration: is a fixed or removable dental prosthesis, or maxillofacial prosthesis, designed to enhance aesthetics, stabilization, and/or function for a limited period of time, after which it is to be replaced by a definitive dental or maxillofacial prosthesis; often such prostheses are used to assist in determination of the therapeutic effectiveness of a specific treatment plan or the form and function of the planned for definitive prosthesis.

Removable dental prosthesis: is a removable complete or partial denture, overdenture, or maxillofacial prosthesis that replaces some or all missing teeth; the dental prosthesis can be readily inserted and removed by the patient.

Resistance form: is the feature of a tooth preparation that enhances the stability of a restoration and resists dislodgement along an axis other than the path of placement.

Retention form: is the feature of a tooth preparation that resists dislodgment of a crown in a vertical direction or along the path of placement.

Silanization: is the covering of a surface which contains hydroxyl groups (metal oxides, glass, etc.) with a coating that contains silane-like molecules. Thus making the surface chemically inert.

Torus: is a smooth rounded anatomical protuberance; in dentistry, a bony prominence sometimes seen on the lingual surface of the mandible and the midline of the hard palate.

Vestibuloplasty: is a surgical procedure designed to increase the effective residual ridge height by lowering muscles attaching to the buccal, labial, and lingual aspects of the jaws.

ABBREVIATIONS

Al_2O_3	:	Aluminium Oxide
BOTOX	:	Botulinum Toxin
CBCT	:	Cone Beam Computer Tomography
DHA	:	Dubai Health Authority
DHIC	:	Dubai Health Insurance Corporation
HPSD	:	Health Policy and Standards Department
HRS	:	Health Regulation Sector
MRI	:	Magnetic resonance imaging
NSAIDS	:	Nonsteroidal anti-inflammatory drugs
OVD	:	Occlusal vertical dimension
PHCSS	:	Primary Healthcare Services Sector
TMD	:	Temporomandibular Disorders
TMJ	:	Temporomandibular Joint

A. GUIDELINES FOR PROSTHETIC RESTORATION OF ENDODONTICALLY TREATED TEETH

1. BACKGROUND

The completion of root canal treatment does not signal the end of patient management. The endodontically treated tooth needs to be restored back to form, function and aesthetics. The quality of the coronal restoration will directly influence the survival and success of the endodontically treated tooth. The provision of a restoration with a good coronal seal has been suggested to reduce the risk of failure of a root canal treated tooth by reducing bacterial micro leakage into the recently cleaned, shaped, and filled root canal system. Endodontically treated teeth are more susceptible to fracture, hence clinicians believe that a post and coronal seal should be placed to strengthen and reinforce the tooth. Factors to be considered while planning the final restoration:

1.1. Amount of remaining sound tooth structure

1.2. Occlusal function

1.3. Opposing dentition

1.4. Position of the tooth in the arch

1.5. Length, width and curvature of the roots.

2. SCOPE

2.1. Provide the dentist with evidence-based criteria to how restore endodontically treated teeth.

3. PURPOSE

3.1. To maintain coronal and apical seal of the root canal treated teeth.

3.2. To protect and preserve the remaining tooth structure.

3.3. To provide support and retention foundation for the placement of definitive restoration

3.4. To restore the function and aesthetics.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed General Dental Practitioners.

5. RECOMMENDATION ONE: DIAGNOSTIC CRITERIA

5.1. Anterior teeth:

5.1.1. Tooth with minimal loss of tooth structure can be restored conservatively with bonded restoration in the access opening.

5.1.2. Post has no benefit in structurally sound tooth, yet in case of extensive loss of tooth structure then post is indicated.

5.2. Posterior teeth:

5.2.1. No previous restorations for premolars and molars and the marginal ridges are intact, a bonded restoration is indicated.

5.2.2. Previously heavily restored premolar and molars with one or more marginal ridges lost, consider cuspal protection with onlay or crown.

5.2.3. Previously crown premolar and molar with both marginal ridges lost, replace the crown with new post/core and crown.

5.3. Guidelines should include the following:

5.3.1. Post should be two thirds of the root length.

5.3.2. Apical seal of one third of the root length must be maintained.

5.3.3. Adequate ferrule should be available.

6. **RECOMMENDATION TWO:** CLINICAL MANAGEMENT

6.1. Detailed intraoral exam, review medical history, physical evaluation when appropriate to clinically assess the endodontically treated tooth, discussion of patients' goals and expectations for long term function and aesthetics.

6.2. Assess the root length and morphology.

6.3. Evaluate the root canal filling.

6.4. Assess the periodontal ligament space.

6.5. Evaluate crown to root ratio.

6.6. Assess the presence of ferrule effect, the presence of 2 to 3 mm of sound tooth structure.

6.7. Evaluate the need for post and core before final restoration.

7. **RECOMMENDATION THREE:** SPECIAL CONSIDERATION

7.1. The endodontic treatment must be successful.

7.2. Optimum post length results in optimum retention and resistance to fracture. Adequate apical seal must be maintained without compromising the length of the post.

7.3. The purpose of using posts in restoring endodontically treated teeth is only for retention of the core and are rarely needed as long as many other retention and

resistance features are available. More than one post may be used for multi-rooted short tooth/increased coronal tooth structure loss.

7.4. The concentration of stress should be minimized during post insertion.

7.5. Passive parallel posts are advocated for adequate retention but when the apical thickness of dentin is minimal, a parallel tapered combination post design may be preferred.

7.6. For non-metallic post; the post should ensure material compatibility, bonding ability, adequate rigidity, and aesthetics compatibility with permanent restoration.

7.7. Retrievability in the event of failure should be considered.

7.8. The system should be easy to use and cost effective.

7.9. Definitive prosthodontic treatment should be performed on asymptomatic endodontically treated teeth after completing the endodontic therapy.

7.10. Awareness of the biological needs, long term prognosis and understanding of the limitations of the available material is important.

B. GUIDELINES FOR ENDODONTIC TREATMENT OF ABUTMENT TEETH

1. BACKGROUND

A prosthetic abutment can either support a fixed or a removable dental prosthesis. It is known as a tooth, or a portion of a tooth that bears the masticatory forces directed over it and over the pontic, then transfers that load over its long axis. Thus, a successful choice of abutment is essential for better treatment prognosis and requires a careful diagnostic ability.

A discreet assessment of abutment is crucial to be carried on prior to its preparation. The presence of periodontal disease, occlusal parafunctional activity or unfavourable crown to root ratio could lead to change in the choice of treatment and shift to another option.

The aim of use of abutment is to accept occlusal load acting on the prosthesis. In addition, it serves in supporting and retaining the prosthetic appliance.

2. SCOPE

2.1. Ensure conservative dental treatment and prevent further tooth loss.

2.2. Identify reasons for referral for endodontic treatment.

2.3. Standardize required clinical steps, special considerations and recommendations.

3. PURPOSE

3.1. To increase the awareness among general dental practitioners regarding the need of endodontic treatment for abutment teeth.

3.2. Ensure that all prosthodontic patients receive the same quality of treatment.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed General Dental Practitioners.

5. RECOMMENDATION ONE: DIAGNOSTIC INDICATIONS FOR REFERRAL OF ABUTMENTS FOR ENDODONTIC TREATMENT

5.1. Clinical Findings

5.1.1. Presence of recurrent caries.

5.1.2. Tooth suffering from irreversible pulpitis.

5.1.3. Presence of sinus tract.

5.1.4. Necrotic tooth.

5.1.5. Presence of pain and continuous sensitivity.

5.1.6. A tooth that was previously treated with pulp capping methods.

5.1.7. Presence of deflective occlusal contact.

5.2. Radiographic Findings

5.2.1. Presence of periapical radiolucency.

5.2.2. Presence of periodontics-endodontic dental pathosis.

6. RECOMMENDATION TWO: CLINICAL STEPS

6.1. Review medical history and carry on an appropriate intraoral examination.

6.2. Request the required radiographs.

6.3. Removal of the previous prosthesis (Crown/Bridge) if present.

6.4. Remove the present secondary caries and assess restorability and prognosis of the tooth.

6.5. Perform crown preparation and temporization.

6.6. Referral to endodontic treatment.

7. **RECOMMENDATION THREE:** SPECIAL CONSIDERATIONS

7.1. Age of patient.

7.2. Medical condition of patient.

7.3. Complexity of the treatment.

7.4. Prognosis of the treated tooth.

8. **RECOMMENDATION FOUR:** CONCLUSION

8.1. Endodontic consultation is required prior to referral for endodontic re-treatment of asymptomatic abutment teeth with old root canal treatment.

8.2. Endodontic treatment/re-treatment of an abutment tooth through an existing long span fixed partial denture could be done upon approval of both specialties.

8.3. If possible, try to redistribute the load on the abutment by single crown restoration or short span fixed partial denture approach.

8.4. Conservative approach should always be considered for a well-established prosthesis to avoid complications.

C. GUIDELINES FOR ALTERNATIVE TREATMENT TO REPLACE MISSING TOOTH/TEETH

1. BACKGROUND

Replacement of missing teeth is an important step toward restoring oral function, aesthetic, and phonetics of the patient. Treatment options depend on the position of the missing tooth/teeth, the number of the missing teeth, and patient's demand, expectations and the socio-economic status of the patient.

Treatment options can be classified as fixed prosthesis (fixed dental prosthesis on natural teeth or over dental implants), and removal prosthesis (partial or complete dentures or teeth or implant supported over-denture).

2. SCOPE

2.1. The scope of this document is to recommend alternative treatments for replacement of missing teeth to restore oral function, aesthetic and phonetic of the patient as well as improve the psychological status and overall health.

3. PURPOSE

3.1. To provide treatment options to restore missing teeth.

3.2. To clarify diagnostic modalities and clinical steps.

3.3. To offer recommendations and special considerations to provide alternative treatment to replace missing teeth.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed General Dental Practitioners.

5. **RECOMMENDATION ONE:** TREATMENT OPTIONS

5.1. Single tooth replacement of anterior tooth

5.1.1. Implant supported crown.

5.1.2. Resin bonded bridge (Maryland Bridge).

5.1.3. Conventional 3-units fixed partial denture.

5.1.4. Removable partial denture.

5.2. Single tooth replacement of posterior tooth

5.2.1. Implant supported crown.

5.2.2. Conventional 3-units fixed partial denture.

5.2.3. Removable partial denture.

5.2.4. No treatment.

5.3. Multiple teeth replacement of anterior and/or posterior teeth

5.3.1. Implant supported crowns or fixed partial denture replacing the missing teeth.

5.3.2. Conventional fixed partial denture using the adjacent teeth as abutments.

5.3.3. Removable partial denture.

5.4. Complete edentulism

5.4.1. Removable complete denture.

5.4.2. Implant supported/retained removable dentures.

5.4.3. Fixed implant supported prosthesis.

6. **RECOMMENDATION TWO:** DIAGNOSTIC TOOLS IN TREATMENT PLANNING OF MISSING TEETH

6.1. Radiographs which includes:

6.1.1. Orthopantomogram.

6.1.2. Periapical and bitewing radiographs.

6.1.3. Cone Beam Computer Tomography (CBCT) if needed.

6.2. Wax up and teeth setup on mounted diagnostic models.

6.3. Periodontal and endodontic assessment of adjacent teeth of the edentulous area.

6.4. Functional and occlusal assessment.

7. **RECOMMENDATION THREE:** CLINICAL STEPS

7.1. Detailed intraoral exam, review medical history, physical evaluation when appropriate, discussion of patient's goals and expectations for long term function and aesthetics.

7.2. Hard tissue evaluation: Evaluate the condition of teeth adjacent to the missing tooth/teeth (periodontal, endodontic and occlusal status), evaluate interproximal and inter-occlusal space, and evaluate height, width and general shape of alveolar ridge and underlying basal bone.

7.3. Soft tissue evaluation: Evaluate the keratinized and non-keratinized mucosa in the edentulous areas.

7.4. Request related radiographs and laboratory tests.

8. **RECOMMENDATION FOUR:** SPECIAL CONSIDERATIONS

8.1. Age of patient.

8.2. Health status of patient.

8.3. Time required to complete the treatment.

8.4. The requirement of bone graft and sinus lift procedure in implant cases with less than ideal bone height and width.

8.5. Replacement of anterior missing teeth with implant supported prosthesis may require a temporary restoration in order to achieve the ideal emergence profile and to restore the missing teeth in the time of implant healing.

9. **RECOMMENDATION FIVE:** SPECIAL ENDORSEMENT

9.1. Referral to orthodontists should be considered in cases that require treatment of supra-erupted or drifted teeth to provide the ideal dimensions before restoration of missing teeth.

9.2. Referral to oral surgeons/periodontists should be considered for cases with inadequate volume or quality of bone and soft tissues that may need modifications prior to prosthetic treatment.

9.3. Conservative approach in management of missing teeth should be attempted, when indicated. Resin bonded Bridges provide minimal invasive approach and implant supported fixed prosthesis can prevent using natural sound teeth as an abutment for fixed dental prosthesis.

9.4. Abutment teeth need to be chosen carefully especially in long span fixed dental prosthesis. Also consider crown to root ratio and the integrity and prognosis of the possible abutment teeth.

9.5. Patient's expectation, and expected duration of the treatment when provide treatment option should be discussed thoroughly.

D. GUIDELINES FOR PORCELAIN VENEER ESTHETIC REHABILITATION IN ORTHODONTIC TREATMENT

1. BACKGROUND

Porcelain veneers can provide better aesthetic results for teeth showing colour change, deformity, mild malposition, inadequate contact point, abrasion, or erosion. However; and as being a technique-sensitive with irreversible tooth intervention and preparation, it should be done cautiously to ensure long term prognosis and avoid possible complications.

2. SCOPE

2.1. To provide recommendations to use porcelain veneers for the aesthetic rehabilitation in patients receiving orthodontic treatment.

3. PURPOSE

3.1. This document provides the prosthodontists with evidence-based criteria to have significant cosmetic improvements even after orthodontic treatment.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed General Dental Practitioners.

5. **RECOMMENDATION ONE:** FACTORS TO BE CONSIDERED WHILE PLANNING THE VENEER COVERAGE

5.1. The porcelain veneer complex has been proven to be a very strong compound in vitro and in vivo.

5.2. There are several predicted parameters in clinical efficacy of porcelain veneers such as the tooth preparation for porcelain veneers, the selection and type of

the adhesive system, the quality of marginal adaptation, the resistance against micro leakage, the periodontal response and the aesthetic characteristics of the restorations.

5.3. An optimal bonded restoration could be achieved especially if the preparation is located completely in enamel, if correct adhesive treatment procedures are carried out and if a suitable composite resin luting cement is selected.

5.4. The maintenance of aesthetics of porcelain veneers in the medium to long term is excellent, patient satisfaction is high and porcelain veneers had no adverse effects on gingival health in patients with an optimal oral hygiene.

6. RECOMMENDATION TWO: OBJECTIVES FOR THE PORCELIAN VENEER PLACEMENT

6.1. The introduction of contemporary aesthetic materials and preparation techniques empowered the clinicians to deliver a promising result with minimal biologic cost. Depends on the problem, the objective are to correct/adjust:

6.1.1. Tooth shape

6.1.2. Tooth colour

6.1.3. Tooth size

6.1.4. Teeth arrangement

6.1.5. Level of teeth display

6.1.6. Gum symmetry

6.1.7. Facial balance.

7. **RECOMMENDATION THREE:** DIAGNOSTIC CRITERIA FOR VENEER PLACEMENT

7.1. Cases need only aesthetic rehabilitation are as follows:

7.1.1. Existing restorations and amount of intact enamel.

7.1.2. Presence of genetic condition that affect teeth development (Amelogenesis Imperfecta).

7.1.3. Presence of sever tooth surface loss (occlusal attrition).

7.1.4. Degree of malocclusion/crowding.

7.1.5. Patient oral hygiene.

7.2. Cases need aesthetic rehabilitation as part of orthodontic treatment are as follows:

7.2.1. In addition to the above mentioned indicators, tooth size discrepancy should be consider.

8. **RECOMMENDATION FOUR:** CLINICAL STEPS IN PLACEMENT OF PORCELAIN VENEERS

8.1. Detailed intraoral exam, review medical history, physical evaluation when appropriate to clinically assess clinical crown, discussion of patient's goals and expectations for long term function and aesthetics.

8.2. Soft tissue evaluation: Attached mucosa, flabby tissue, frenum attachments.

8.3. Assess the periodontal ligament space.

8.4. Request related radiographs.

8.5. Evaluate the need for labial/buccal OR full clinical crown coverage.

8.6. Discuss wax-up and transfer it to patient's mouth as mock-up.

8.7. Avoid if possible 2nd premolars that have higher rate of veneer de-bonding.

8.8. All the incisors and canines were prepared with a chamfered finishing line with rounded internal line angles.

8.9. The cervical preparation ended at the cemento-enamel junction. Smooth margins were created to prevent stress concentration zones.

8.10. The inner surface of porcelain veneers were treated with air particle abrasion using 50 micrometre Aluminium oxide (Al_2O_3) with a chairside air-abrasion device from a distance of 10 mm at a pressure of 250 kilo Pascal bar for 10 seconds.

8.11. Surface treatment was followed by acid etching with 6% hydrofluoric acid prior to silanization.

8.12. A silane coupling agent was applied to the internal veneer surface for 60 seconds and air-dried.

8.13. During the cementation process each abutment tooth was etched for 15 seconds using a 37% phosphoric acid etch-gel.

8.14. Tooth surface was rinsed thoroughly and air-dried gently. Dentin primer and adhesive were applied according to the manufacturers' instructions. Following the bonding application a thin layer of light polymerizing composite resin luting cement was applied.

9. **RECOMMENDATION FIVE:** PATIENT INFORMATION/EDUCATION

9.1. Before the veneers are placed the following has to be considered:

9.1.1. Discuss all the treatment options and expectations with the patient as the process is irreversible. Ensure that the patient/guardian signs an informed consent, a sample of which is in the **Appendix 1.**

9.1.2. Dental caries and periodontal diseases must be treated before placing the veneers.

9.1.3. Bruxism and clenching are contra-indications for patients seeking veneers treatment; however, a night guard is a must to use to protect the teeth and restorations in such cases.

9.2. After bonding the veneers, the patient should consider the following:

9.2.1. Some patients may need a period of adjustment in relation to function and aesthetics following bonding of the veneers.

9.2.2. Post-operative hypersensitivity are expected for the first few days.

9.2.3. Biting hard objects may sometimes chip/debond the veneers.

9.2.4. Proper oral hygiene measures should be maintained.

9.2.5. Routine dental visits for check-up should be followed for better prognosis.

E. GUIDELINES FOR RESTORATION OF LOST OCCLUSAL VERTICAL DIMENSION

1. BACKGROUND

The occlusal vertical dimension (OVD) is defined as the distance between two selected anatomic or marked points (usually one on the tip of the nose and the other on the chin) when in maximal intercuspal position. Loss of OVD in dentate or edentulous patients can significantly impair masticatory functions, phonetics, dental aesthetics and facial appearance.

2. SCOPE

2.1. To help prosthodontists and restorative dental practitioners in the diagnosis and management of lost occlusal vertical dimension.

2.2. Standardized management of lost occlusal vertical dimension.

3. PURPOSE

3.1. The aim of restoration of physiologic OVD by rehabilitative treatment is to replace missing teeth and associated tissues, achieve balance and harmony of the lower third of the face in addition to ensuring most ideal function.

3.2. The objectives of restoring or increasing lost OVD is to:

3.2.1. Harmonize dentofacial aesthetics.

3.2.2. Provide space for planned restorations.

3.2.3. Improve occlusal relationships.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed General Dental Practitioners.

5. **RECOMMENDATION ONE:** INDICATIONS OF RESTORING LOST OVD

5.1. Treatment of generalized tooth wear in dentate/partially dentate patients.

5.2. Treatment of significant occlusal disharmony in dentate/partially dentate patients.

5.3. Treatment of edentulous patients.

6. **RECOMMENDATION TWO:** CONSIDERATIONS WHEN RESTORING LOST OVD

6.1. Extra oral factors:

6.1.1. Magnitude of OVD loss.

6.1.2. Facial aesthetics.

6.1.3. Temporo-mandibular joint (TMJ) status.

6.1.4. Functional status of muscles of mastication.

6.2. Intra oral factors:

6.2.1. Remaining tooth structure.

6.2.2. Occlusion.

7. **RECOMMENDATION THREE:** DIAGNOSTIC MODALITIES TO ASSESS LOST OVD

7.1. Pre-treatment records (old diagnostic models, previous photographs).

7.2. Assessment of facial appearance.

7.3. Phonetic evaluation.

7.4. Physiologic rest position to measure the inter-occlusal rest space (normally 2-4 mm).

7.5. Incisors height measurement (a distance between the gingival margins of maxillary and mandibular anterior teeth that is less than 18mm indicates loss of OVD).

7.6. Aesthetic Assessment: smile line, teeth display at rest and during smiling in addition to gingival display.

7.7. Radiographic evaluation (cephalometric assessment of maxilla-mandibular relationship).

8. **RECOMMENDATION FOUR:** CLINICAL STEPS IN MANAGEMENT OF LOST OVD

8.1. Accurate history and detailed clinical examination of the patient.

8.2. Radiographic examination and sensibility tests to check for any loss of teeth vitality.

8.3. Functional analysis of occlusion and muscles of mastication.

8.4. Study casts mounted in centric relation on a semi-adjustable articulator with the use of a face bow.

8.5. Diagnostic wax-up fabricated with the desired final occlusal scheme and aesthetic requirements as prescribed by the operator.

8.6. Clinical mock-up to test and adjust the wax-up if needed.

8.7. Test the new OVD with reversible means (such as full-coverage splints or composite build up materials) to determine the patient's tolerance and acceptance to the proposed changes.

8.8. After confirming the patient's tolerance to the new OVD, teeth are prepared and restored with fixed provisional prostheses for a period of few weeks before the provision of the final definitive restorations.

9. **RECOMMENDATION FIVE:** CONCLUSION

9.1. Restoration of lost OVD should be attempted based on dental restorative needs and aesthetic demands.

9.2. A gradual regain of lost OVD should be applied. OVD restored up to 5mm (inter-incisal) is a safe procedure and the associated signs and symptoms are self-limiting with a tendency to resolve within two weeks.

9.3. Better prognosis can be achieved when the lost OVD is restored with fixed restorations rather than a removable appliance except for patients with temporomandibular joint disorders (TMD) where removable appliances are used to control TMD-associated symptoms before attempting any irreversible procedures.

F. GUIDELINES FOR INTERDISCIPLINARY INTERFACE BETWEEN FIXED PROSTHODONTICS AND PERIODONTICS

1. BACKGROUND

The goal of prosthodontic treatment is to improve form, function and aesthetics. Prior to initiating prosthodontic treatment it is important that the surrounding periodontal tissues are healthy and can provide a firm foundation for an aesthetic and functional prosthesis. Furthermore, during the course of prosthodontic treatment additional periodontal treatment may be indicated to provide predictable prosthesis longevity, promote gingival health and further improve the outcome of the prosthodontic treatment.

Although the mechanical features of prostheses are important, a significant proportion of clinical complications in fixed prosthodontics are biological in nature. Hence, contemporary literature relating to fixed prosthodontics promotes the concept of a biologically driven prosthodontic practice and highlights the interdisciplinary interface between fixed prosthodontics and periodontics.

2. SCOPE

2.1. To establish an interdisciplinary interface between fixed prosthodontics and periodontics that includes multiple aspects, comprising restorative margin location, prosthesis design, prosthesis morphology, magnitude of periodontal support, abutment tooth preparation and prosthesis material.

2.2. Ensure a multidisciplinary care which includes coordinated prosthodontic and periodontal care that aims to provide predictable prosthesis longevity, promote

gingival health, improve the outcome of the prosthodontic treatment and provide the best quality of care for the patient.

3. PURPOSE

3.1. Familiarise Prosthodontists and Periodontists with most effective and safe techniques in providing interdisciplinary interface between fixed Prosthodontics and Periodontics.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed Periodontists.

4.3. DHA licensed General Dental Practitioners.

5. RECOMMENDATION ONE: GINGIVAL LEVEL AND CONTOUR/RESTORATIVE MARGIN LOCATION

5.1. Various gingival morphological variables can influence different phases of prosthodontic treatment–attached gingiva, gingival display, colour and surface texture, interdental papilla and contour.

5.2. The restorative margin is essential in prosthodontics because it determines the outlines and extensions of the dental prosthesis. Ideally the restorative margin should follow the gingival contour and preserve the biologic width. Periodontal procedures can modify the gingival contour; these procedures can be categorized as subtractive and additive:

5.2.1. Subtractive methods

a. Involve removing soft tissues, with or without osseous modifications and aim to re-establish biologic width, enhance retention and resistance form by lengthening a short clinical crown, reduction of periodontal pockets, increase tooth display and address uneven gingival contour.

b. In less aesthetically demanding situations where there is minimal biologic width violation, the tooth can be prepared and restored with a provisional restoration and then referred to the periodontist for clinical crown lengthening. Thereby the crown-lengthening procedure is driven by the tooth preparation.

c. In situations where crown lengthening of multiple teeth is required such as before restoring a worn dentition, it is recommended that crown lengthening be completed before tooth preparation. Following soft-tissue maturation and re-establishment of biologic width the teeth can then be prepared. The extent of crown lengthening should be planned before surgery with the aid of a diagnostic wax-up, bone sounding or a combination of both.

5.2.2. Additive methods

a. Involve augmenting the gingival tissues and aim to improve gingival level and contour, enhance dentogingival aesthetics by increasing the width of attached gingiva and reduce dentine sensitivity.

6. **RECOMMENDATION TWO:** PROSTHESIS DESIGN- EDENTULOUS AREA AND PONTIC DESIGN

6.1. The location, height, width and contour of the residual ridge and span of the edentulous area where a fixed prosthesis is to be placed are important to evaluate. The selected pontic design should minimize inflammation and permit effective oral hygiene.

7. **RECOMMENDATION THREE:** PROSTHESIS MORPHOLOGY–CONTOUR, INTERPROXIMAL CONTACT AND MARGINAL FIT

7.1. The contour of the prosthesis will determine if the prosthesis will blend harmoniously with the surrounding dentition. The emergence profile should maintain a straight profile in the gingival third for effective oral hygiene. Over contoured prostheses can result in food impaction and gingival inflammation. Proper contour of the prosthesis can have a positive impact on the clinical longevity of a fixed prosthesis.

7.2. The interproximal contact should be an area and not just a point of contact. Also the interproximal contact should not impinge on the gingival embrasure.

7.3. Optimal marginal fit is important since open margins can lead to accumulation of bacterial pathogens that can lead to inflammation of the periodontal tissues.

8. **RECOMMENDATION FOUR:** MAGNITUDE OF PERIODONTAL SUPPORT

8.1. When planning a fixed prosthesis evaluation of periodontal support involves assessment of the crown to root ratio of the abutment tooth and consideration of the number of abutment teeth supporting a fixed prosthesis.

8.2. Abutment teeth are selected based on prosthodontic and periodontal factors which include bone support, attached gingiva width, tooth mobility, root anatomy, and position of the tooth.

9. **RECOMMENDATION FIVE:** ABUTMENT TOOTH PREPARATION

9.1. Ideal tooth preparation involves controlled tooth reduction, maintaining occlusal morphology, minimal preparation taper and maintaining preparation height.

9.2. Supra gingival margins are the most accessible for effective oral hygiene. Margin width usually dictates mechanical durability, contour and aesthetics.

10. **RECOMMENDATION SIX:** PROSTHETIC AND RESTORATIVE MATERIALS

10.1. A wide range of prosthetic materials are available today and all materials used in the oral cavity must be biocompatible.

11. **RECOMMENDATION SEVEN:** PROVISIONAL RESTORATIONS

11.1. Provisional restorations that have well adapted margins, a good emergence profile and have a smooth polished surface provide an environment that is favourable for maintenance of periodontal health.

12. RECOMMENDATION EIGHT: CLINICAL STEPS

12.1. Comprehensive intra-oral and extra-oral examination, review of medical history and review of dental history.

12.2. Understanding patient's chief concern, discussion of patient goals and treatment expectations.

12.3. Radiographic examination.

12.4. Review of articulated diagnostic casts, diagnostic wax up and intra-oral photographs.

12.5. Comprehensive periodontal evaluation.

12.6. Problem list and diagnosis.

12.7. Treatment options and treatment plan. The treatment plan should be based on a proper diagnosis, evaluation of prognosis, and coordinated treatment planning and treatment sequencing between prosthodontics and periodontics.

13. RECOMMENDATION NINE: CONCLUSION

13.1. In conclusion, the interdisciplinary interface between fixed prosthodontics and periodontics highlights the importance of coordinated prosthodontic and periodontal care in order to provide predictable prosthesis longevity, promote gingival health, improve the outcome of the prosthodontic treatment, achieve patient satisfaction and provide the best quality of care for the patient.

14. RECOMMENDATION TEN: SPECIAL CONSIDERATIONS

14.1. A healthy periodontium is essential prior to initiating prosthodontic treatment. To ensure the long-term success of fixed prostheses maintenance of a healthy periodontium is important. Also the prostheses design should promote favourable tissue response and be in harmony with the surrounding periodontal tissues.

14.2. When planning fixed prosthodontic treatment, consideration should be given to factors such as restorative margin location, prosthesis design, prosthesis morphology, periodontal support, abutment tooth preparation and prosthesis material.

14.3. An interdisciplinary approach between prosthodontics and periodontics aims to provide predictable prosthesis longevity, promote gingival health and further improve the outcome of the prosthodontic treatment.

14.4. Regular follow up and maintenance are essential to the long-term success of fixed prostheses.

G. GUIDELINES FOR REFERRAL FOR PREPROSTHETIC SURGERY

1. BACKGROUND

Preprosthetic surgery is essentially the surgical preparation of either a fully edentulous or partially edentulous mouth before construction of dentures. Types of preprosthetic surgery can be classified in a number of different ways. One method is to categorize the surgery as resective, recontouring or augmentation of bony or soft tissue. Consideration of preprosthetic surgery is one of numerous methods by which a patient's clinical presentation may be advantageously altered.

Providing proper supporting structures for subsequent replacement of prosthetic appliance will help for:

1.1. Restoration of the best masticatory function possible combined with restoration or improvement of dental and facial aesthetics.

1.2. Elimination of disease and conservation of oral structures wherever possible.

1.3. Provision of a comfortable tissue foundation to support the denture.

1.4. Enlargement of the denture bearing area in attempt for better denture stability.

2. SCOPE

2.1. Management of poor denture foundation area to help prosthodontists and general dental practitioners to ensure better prognosis of prosthetic appliances.

2.2. Standardized management of patient requiring preprosthetic surgery.

3. PURPOSE

3.1. To increase the awareness among general dental practitioners and prosthodontists regarding the types, diagnosis and reasons of referral for preprosthetic surgery.

3.2. To provide the clinical steps, special considerations and recommendations to manage cases requiring preprosthetic surgery

3.3. To ensure that all prosthodontic patients receive the same quality of management in cases requiring preprosthetic surgery.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed Oral and Maxillofacial Surgeons.

4.3. DHA licensed General Dental Practitioners.

5. RECOMMENDATION ONE: DIAGNOSTIC INDICATIONS FOR REFERRAL FOR SOFT TISSUE SURGERY

5.1. Resective surgeries:

5.1.1. Hypermobile tissue

5.1.2. Papillary hyperplasia

5.1.3. Inflammatory fibrous hyperplasia (Epulis Fissuratum)

5.1.4. Frenectomy.

5.2. Ridge extension surgeries:

5.2.1. Vestibuloplasty

5.2.2. Transpositional flap vestibuloplasty

5.2.3. Lowering the floor of the mouth.

6. **RECOMMENDATION TWO:** DIAGNOSTIC INDICATIONS FOR BONE-RELATED SURGERY

6.1. Resective surgeries:

6.1.1. Alveoloplasty

6.1.2. Tori removal

6.1.3. Maxillary tuberosity reduction

6.1.4. Ridge undercuts, irregularities, exostoses

6.1.5. Genial tubercle reduction

6.1.6. Mylohyoid ridge reduction.

6.2. Augmentation surgeries:

6.2.1. Augmentation with synthetic graft materials.

6.2.2. Onlay bone grafting:

a. Maxillary autologous onlay bone graft.

b. Mandibular superior border augmentation.

c. Mandibular inferior border augmentation.

6.2.3. Interpositional bone graft.

6.2.4. Osteotomies:

a. Mandibular osteotomy.

b. Segmental osteotomy.

c. Maxillary osteotomy with advancement.

6.2.5. Alveolar distraction osteogenesis.

7. RECOMMENDATION THREE: CLINICAL STEPS

7.1. Detailed intraoral exam, review medical history, physical evaluation when appropriate, discussion of patient's goals and expectations for long term function and aesthetics.

7.2. Bony Evaluation: Evaluate height, width and general shape of alveolar ridge and underlying basal bone, locate undercuts, neurovascular bundle and concavities.

7.3. Soft tissue evaluation: Lesions to biopsy, attached mucosa, flabby tissue, frenum attachments.

7.4. Request related radiographs and laboratory tests.

8. RECOMMENDATION FOUR: SPECIAL CONSIDERATIONS

8.1. Age of patient.

8.2. Risks of sedation.

8.3. Patient willingness to undergo preprosthetic procedures.

8.4. Health status of patient.

9. RECOMMENDATION FIVE: CONCULUSION

9.1. Conservative management should be attempted, when indicated, prior to surgical intervention.

9.2. Referral letter should clearly describe the reason of referral.

9.3. For soft tissue surgeries; proper healing period of minimum of 4 weeks is indicated prior to impression making.

9.4. Whenever indicated, e.g. vestibuloplasty and mylohyoid ridge reduction, the denture should be delivered immediately following surgery, to help facilitated a more inferior relocation of the muscular attachment.

9.5. For bone surgeries; decision to start prosthetic treatment should be based on the clinical judgment and recommendations of the surgeon.

H. GUIDELINES FOR NON-SURGICAL MANAGEMENT OF TEMPOROMANDIBULAR JOINT DISORDERS

1. BACKGROUND

Temporomandibular disorder (TMD) is a condition producing abnormal, incomplete, or impaired function of the temporomandibular joint(s) and/or the muscles of mastication.

Symptoms may include anxiety, depression, frustration, anger, and behaviours like; bruxism, poor posture, lack of exercise, poor dietary habits, sleep habits, drug dependencies, and other tension-related habits.

The success of treatment will very much depend on how well the patients accept and follow a new daily routine. They will need the help of their dentist to understand what needs to be done.

2. SCOPE

2.1. To improve the quality of life of the patients through following an evidence-based structured guideline, which enable the treating dentist to decide the proper treatment in relation to the etiology of each clinical scenario.

3. PURPOSE

3.1. To differentiate between the various etiological contributing factors.

3.2. To elaborate possible conservative treatment options.

3.3. To highlight the required diagnostic modalities and clinical steps.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed General Dental Practitioners.

5. **RECOMMENDATION ONE:** PATIENT ASSESSMENT AND DIAGNOSTIC CRITERIA

5.1. Medical history

5.1.1. Past medical and dental history.

5.1.2. Present and ongoing medical/dental diagnoses and therapy.

5.1.3. Past and current medications.

5.2. Pain history

5.2.1. Localized facial/jaw pain

a. Nature and site of pain

b. Precipitating or aggravating factors.

c. Relieving factors, conditions, and treatment.

5.2.2. Limitation of mandibular movement

a. Constant or episodic.

b. Precipitating and aggravating factors.

c. Relieving factors, conditions, and treatment.

d. Relationship to other symptoms.

5.2.3. Related cognitive, emotional or mood changes

a. Examples: Loss of energy, appetite, memory, concentration, feelings or appearance of depression/sadness.

5.2.4. Sleep disturbance

a. Examples: Difficulty falling asleep, staying asleep, nightmares.

5.2.5. Relationship of onset to specific events

a. Examples: Trauma, other injuries, stress, treatment, general anesthesia

5.2.6. Parafunctional habits

a. Night-time bruxism (sleep bruxism).

b. Clenching, nail-biting, chewing gum (daytime, nocturnal, frequency).

c. Onset of the habit.

5.2.7. Previous treatment for the patient's complaints and its effectiveness.

6. **RECOMMENDATION TWO:** CLINICAL CLASSIFICATION

6.1. Acute or chronic TMDs can be caused/classified according to the following:

6.1.1. Masticatory muscle disorders

a. Myospasm, myofascial pain, pain as a component of systemic disorders such as fibromyalgia, chronic fatigue syndrome.

6.1.2. Disc displacement

a. With or without reduction, intermittent/continuous limited opening.

6.1.3. Joint hypermobility

a. Subluxation, luxation

6.1.4. Arthritis

a. Osteoarthritis, rheumatoid arthritis, psoriatic arthritis, septic arthritis, gout, pseudo gout, lupus erythematosus, capsular inflammation.

6.1.5. Congenital/developmental abnormalities

a. Condylar hyperplasia, condylar hypoplasia/aplasia, coronoid hyperplasia.

7. **RECOMMENDATION THREE:** DIFFERENTIAL DIAGNOSIS

7.1. The differential diagnosis, must also include the following:

7.1.1. Direct traumatic injuries.

7.1.2. Joint dislocation, subluxation or ligamentous/capsular disorders.

7.1.3. Post-traumatic stress disorders and centrally mediated complex pain syndromes.

7.1.4. Complex regional pain syndrome.

7.1.5. Centrally mediated neuropathic pain.

7.1.6. Neoplasms of the components of the temporomandibular joints or related structures or metastatic.

7.1.7. Idiopathic pain and dysfunctions.

8. **RECOMMENDATION FOUR:** CLINICAL MANAGEMENT

8.1. Diagnostic Investigations

8.1.1. Extra and intra oral clinical examination including TMJ and related muscles.

8.1.2. Mounted diagnostic casts.

8.1.3. Radiographs, which include:

a. Orthopantomogram.

b. CBCT

c. Magnetic Resonance Imaging (MRI).

8.1.4. Occlusal analysis.

8.2. Stabilizing Phase

8.2.1. Occlusal stent therapy (intermediate occlusal stent).

8.2.2. Patient awareness and behaviour therapy.

8.2.3. Physiotherapy and home care instructions.

8.2.4. Pharmacotherapy

a. Analgesics

b. Muscle relaxants

c. Anti-inflammatory drugs (NSAIDs).

8.2.5. Application of Local anesthetic or Botulinum Toxin (BOTOX) to the muscles of mastication.

8.3. Definitive Therapy

8.3.1. Following the subsiding of the acute phase and equilibration of the muscles; definitive treatment may be started which is varied from:

a. Selective grinding.

b. Occlusal adjustment.

c. Prosthodontic reconstruction (occlusal equilibration).

9. **RECOMMENDATION FIVE:** SPECIAL CONSIDERATIONS

9.1. Age and nature of the complaints of the patient.

9.2. Patient willingness to undergo procedures.

9.3. Health status of patient.

9.4. Conservative management should be attempted, when indicated, prior to surgical intervention.

9.5. Care should be taken prior to attempts of any irreversible treatment.

9.6. Patient awareness of the problem ensures sustainability of the performed treatment.

I. GUIDELINES FOR ASPECTS OF MALPRACTICE IN PROSTHODONTICS

1. BACKGROUND

Prosthetic restoration of missing/damaged teeth and/or maxillofacial tissues constitutes a bulk of the dental services provided by dentists worldwide. Crowns, Fixed Partial Dentures (FPDs), and removable dentures are the popular prosthetic dental restorations in current dental practice.

Although there are specific indications and contraindications for each type of these restorations, there is in general a greater prevalence and preference among dentists and patients for the use of fixed prosthetic dental restorations. This is due to better treatment outcomes in terms of the patient's overall satisfaction, oral health-related quality of life, and chewing function.

2. SCOPE

2.1. To have a thorough understanding of quality prosthodontic care and the factors that disrupt this care, which could be a useful guard against professional litigation and may protect patients from poor quality of dental prosthetic care.

3. PURPOSE

3.1. To understand the levels where malpractice could occur.

3.2. To ensure provision of high quality, safe treatment to patients.

4. APPLICABILITY

4.1. DHA licensed Prosthodontists.

4.2. DHA licensed General Dental Practitioners.

5. **RECOMMENDATION ONE:** LEVELS OF MALPRACTICE

5.1. Malpractice in prosthodontics that can occur at any of the following three levels:

5.1.1. Pre-intervention level

5.1.2. Intervention level

5.1.3. Post-intervention level.

5.2. **Pre-Intervention Level** is the first phase in prosthodontic treatment**,** where diagnosis is made, a treatment plan is formulated, and the patient's informed consent is obtained. Malpractice in prosthodontics that occur at this level could be due to the following:

5.2.1. Faulty diagnosis

a. Any deviation from principles of clinical diagnosis in dentistry may lead to poor or faulty diagnosis and could be viewed as malpractice. Examples are failure of a dentist to:

I. Note the chief complaint of the partially or completely edentulous patient.

II. Take the patient's medical and/or dental history.

III. Carefully examine the remaining teeth and surrounding oral structures.

IV. Conduct any necessary radiological examination.

V. Make diagnostic casts when required.

VI. Carefully examine any old removable dentures or failed FPD.

5.2.2. Failure to consult/refer

a. Seeking professional consultation or referral of a patient to a specialist become compulsory in cases out of the scope of the dentist's clinical competencies. Failure to do so can be classified as malpractice and may lead to negative consequences.

5.2.3. Poor communication with patient

a. It is the dentist's duty to listen carefully to the patient's words, show compassion and sympathy, discuss treatment alternatives, and talk about likely outcome and prognosis of treatment. In addition, the dentist should address any possible complications or adverse effects for the proposed treatment. Moreover, the dentist should carefully evaluate the patient's expectations and attitude towards the planned treatment.

b. Ethically, it is the patient's right to be involved in the treatment decision-making process through effective communication. This has been shown to result in better outcomes and improvements in patient satisfaction.

5.2.4. Faulty treatment plan

a. Inadequate planning for the course of treatment may be the outcome of faulty diagnosis, miscommunication with the patient, and/or failure in seeking professional consultation. Additionally,

every breach of the scientific principles of planning dental/prosthodontic care can result in a faulty treatment plan. A faulty treatment plan can be a cause of many complications, and adverse effects are highly expected.

5.2.5. Failure to obtain informed consent

a. Once a treatment plan has been made and all associated information discussed, the patient should be invited to sign an informed consent. A written rather than verbal consent with clearly presented information is a legal document that certifies a patient is fully aware of the nature and benefits of treatment and its potential consequences, along with any risk of failure and the estimated treatment cost.

b. A well-written signed consent may protect the dentist against future claims or complaints. It is also mandatory to obtain an informed consent from an ethical and professional point of view.

5.3. Intervention Level is the second phase of prosthodontic treatment, when the mouth is prepared, and a dental prosthesis is provided to the patient. At this stage clinical and technical procedures are undertaken. Malpractice in prosthodontics that occur in this level can be due to:

5.3.1. Faulty preparation of the foundation area

a. The foundation area is the supporting structure of a dental prosthesis. This is usually the natural teeth and/or the alveolar ridge depending on the type and design of the dental prosthesis. The supporting structure should be prepared carefully according to concepts of good prosthodontic care (for fixed and removable prosthesis) so as to be able to receive the dental prosthesis and bear the functional load.

5.3.2. Faulty impressions

a. Accurate and well-performed impressions are essential for producing high quality prosthetic dental restorations. Faulty impressions may result in faulty restorations that could become a source of malpractice claims. Integrity assurance of the performed impressions is chiefly the dentist's responsibility. Although the dental technician has to check the quality of received impressions, the dental technician cannot be solely blamed for faulty prosthetic dental restorations built up on casts made from faulty impressions.

5.3.3. Faulty temporization

a. Temporization is an important step in the context of providing fixed prosthetic dental restorations. It refers to provision of temporary restorations that cover the prepared abutment tooth/teeth over

the course of treatment until a definitive dental prosthesis is provided.

b. Indifferent and hastily made temporization may generate patient complaints, as this could stimulate pain and negatively affect the health of the abutment tooth/teeth and surrounding periodontium. In extreme cases of malpractice, some dentists fail to provide any form of temporary restorations between clinical sessions. Legal condemnation of the dentist in such cases is more than certain.

5.3.4. Poor communication with dental technician

a. From an ethical and legal point of view, designing a dental prosthesis is the responsibility of the dentist, because the dentist is, supposedly, aware of the biological and functional findings that will affect the design of the prescribed treatment. The design features of a dental prosthesis should be clearly written and explained to the dental technician.

b. A technician who constructs a dental prosthesis without clear guide from the dentist may produce a harmful dental prosthesis that could destruct the supporting structure and incite patient complaints. A good prosthesis design is clearly related to good communication between the dentist and dental technician.

5.3.5. Faulty prosthetic dental restorations

a. Faulty prosthetic dental restorations may be the outcome of negligence on the side of the dental technician. Examples of that are:

   I. Choice of poor quality or biologically incompatible dental materials in construction of a dental prosthesis.

   II. Failure to follow a dentist's instructions about the design of a dental prosthesis.

   III. Failure to adhere to technical standards or professional protocols for construction of prosthetic dental restorations.

b. Standard prosthodontic care requires the dentist meticulously ensure integrity of the dental prosthesis and its functional performance before the final delivery. A breach of this concept may render the dentist accused in the event of any complications or negative consequences that may develop as a result of poorly made dental prosthesis.

5.4. Post-Intervention Level constitutes the last phase of prosthodontic treatment following delivery of a dental prosthesis, patient follow-up. A quality clinical practice at the stage of dental prosthesis delivery requires dentists to provide patients with comprehensive and clear verbal and written instructions about care and maintenance of the mouth and prosthesis. This should be followed by regular check-up visits to arrest any possible complications at an early stage of

the treatment. Moreover, performance of the dental prosthesis and patient's satisfaction should be regularly monitored. Such procedures at a post-intervention level may improve long-term prognosis and success rate of the dental prosthesis, and of course, this is a sign of quality care. Malpractice in prosthodontics that occur at this level could be due to:

5.4.1. Failure to give appropriate instructions about care of mouth and dental prosthesis.

5.4.2. Failure to schedule follow-up appointments.

5.4.3. Failure to keep a proper dental record.

5.4.4. Disclosure of patient's treatment record.

6. **RECOMMENDATION TWO:** SPECIAL CONSIDERATIONS

6.1. Age and nature of the complaints of the patient.

6.2. The new generation of prosthodontic patients is expected to have different demands and aspirations.

6.3. Patients requiring aesthetic rehabilitation should be approached in a multi-specialty approach.

6.4. It must be stressed that prosthodontics is an integral part of dental treatment and oral rehabilitation.

6.5. Traditional concepts of prosthodontic planning should be followed regardless of the treatment option.

6.6. Functional approach does not require replacement of each missing tooth if the patient's functional needs and demands could be met with less than 28 teeth.

6.7. At each phase of prosthodontic treatment, dentists should adhere to standard measures. Failure to do so, whether intentionally or due to indifference or carelessness, may put the dentist under legal accusation or even litigation.

KEY PERFORMANCE INDICATORS (KPIs)

1. Patient Happiness: Overall Assessment	
DHA Pillar	Patient Happiness
Indicator Name	Overall Assessment
Measure Type	Outcome
Data Source	Survey data
Measure Description	People who had a very favorable overall assessment of the facility during measurement period
Measure Denominator	All survey respondents who meet inclusion criteria
Measure Numerator	Survey respondent whose overall assessment of the facility was very high - patients with the highest possible score (scale has 2-7 options) or the two highest options (scale has 8+ options)
Measure Inclusion Criteria	Total number of valid responses to surveys that ask a patient to give their overall assessment of a facility
Measure Exclusion Criteria	None
Source	DHA
International Benchmark	None: Dubai facility surveys are not sufficiently uniform to allow benchmarking
Higher is Better	Yes
Risk Adjust This Measure	No

2. Patient Happiness: Recommendation to Others	
DHA Pillar	Patient Happiness
Indicator Name	Recommendation to Others
Measure Type	Outcome
Data Source	Survey data
Measure Description	Percentage of patients who were very likely to recommend the facility to other people during measurement period
Measure Denominator	All survey respondents who meet inclusion criteria
Measure Numerator	Survey respondent whose recommendation was very high - patients with the highest possible score (scale has 2-7 options) or the two highest options (scale has 8+ options)
Measure Inclusion Criteria	Total number of valid responses to surveys that ask whether the patient would recommend the facility to others
Measure Exclusion Criteria	None
Source	DHA
International Benchmark	None: Dubai facility surveys are not sufficiently uniform to allow benchmarking
Higher is Better	Yes
Risk Adjust This Measure	No

3. Patient Happiness: Doctors Made Sure Patient Understood All Information	
DHA Pillar	Patient Happiness
Indicator Name	Doctors Made Sure Patient Understood All Information
Measure Type	Outcome
Data Source	Survey data
Measure Description	Percentage of patients who answered favorably ('yes') that doctors made sure he/she understood all information
Measure Denominator	All survey respondents who met inclusion criteria
Measure Numerator	Survey respondent indicated 'yes,' doctors made sure that the patient understood all information
Measure Inclusion Criteria	Valid response to the survey question ('yes' or 'no')
Measure Exclusion Criteria	None
Source	DHA
International Benchmark	None: Dubai facility surveys are not sufficiently uniform to allow benchmarking
Higher is Better	Yes
Risk Adjust This Measure	No

4. Patient Safety: Rate of Medication Error	
DHA Pillar	Patient Safety
Indicator Name	Rate of Medication Error
Measure Type	Outcome
Data Source	Internal facility records, reports, or survey data
Measure Description	Rate of prescriptions per 100,000 with a dispensing error during measurement period
Measure Denominator	Number of medication prescriptions during measurement period
Measure Numerator	Number of prescriptions in which a medication error occurs (e.g. dispensing error, prescribing error, administering and preparing error, patient compliance error, vaccine error, administering a medicine for a known allergy patient, dose-related adverse drug reaction)
Measure Inclusion Criteria	All filled prescriptions
Measure Exclusion Criteria	Unsafe condition and near miss incident, adverse drug reactions
Source	TEC required measures http://apps.who.int/iris/bitstream/10665/252274/1/9789241511643-eng.pdf
International Benchmark	2.28 Per 100,000 (in the U.S.) Source: https://www.nationwidechildrens.org/newsroom/news-releases/2017/07/study-finds-rate-of-medication-errors-resulting-in-serious-medical-outcomes-rising . One medication error occurs for every five doses given in US hospitals and 1-2% of patients admitted to US hospitals are harmed by medication errors. Source: http://stateclaims.ie/wp-content/uploads/2017/11/Medication-Incidents-Report-2016.pdf
Higher is Better	No

Risk Adjust This Measure	No

5. Patient Safety: Rate of Medical Error	
DHA Pillar	Patient Safety
Indicator Name	Rate of Medical Error
Measure Type	Outcome
Data Source	Internal facility records, reports, or survey data
Measure Description	Rate of medical errors (errors in diagnosis, medication, surgery, equipment use, lab findings interpretation) per 100,000 patients in measurement period
Measure Denominator	All qualifying patients in measurement period
Measure Numerator	Medical errors as defined through proven reports (e-medical systems) during measurement period
Measure Inclusion Criteria	All patients with at least one medical encounter in measurement year
Measure Exclusion Criteria	None
Source	TEC required measures http://apps.who.int/iris/bitstream/10665/252274/1/9789241511643-eng.pdf
International Benchmark	To be discussed with DHA
Higher is Better	No
Risk Adjust This Measure	No

REFERENCES

1. Abdou J, Lyons KM. (2017). Interdisciplinary interface between fixed prosthodontics and periodontics. Periodontol 2000; 74: 40-62. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/prd.12189 (accessed on: 08/06/20).
2. Abduo J. (2012). Clinical considerations for increasing occlusal vertical dimension: a review. Australian Dental Journal; 57(1): 2-10. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1834-7819.2011.01640.x (accessed on: 08/06/20).
3. Alhajj M. A. (2017). Determination of occlusal vertical dimension for complete dentures patients: an updated review. Journal of Oral Rehabilitation; 44 (11): 896-907. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/joor.12522 (accessed on: 08/06/20).
4. American Academy of Periodontology. Glossary of Periodontal Terms. [online] Available at: https://members.perio.org/libraries/glossary?ssopc=1 (accessed on: 08/06/20).
5. Baraban DJ. (1988). The restoration of endodontically treated teeth: an update. J Prosthet Dent; 59:553-8. Available at: https://www.sciencedirect.com/science/article/pii/0022391388900686?via%3Dihub (accessed on: 08/06/20).

6. Barak, M., Bahouth, H. (2015). Airway Management of the Patient with Maxillofacial Trauma: Review of the Literature and Suggested Clinical Approach. BioMed research international; 724032 Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4486512/ (accessed on: 08/06/20).
7. Bowley J. (2002). Minimal intervention prosthodontics: current knowledge and societal implications. Med Princ Pract; 11(Suppl 1): 22-31. Available at: https://www.karger.com/Article/Abstract/57775 (accessed on: 08/06/20).
8. Cakan U, Yuzugullu B. (2009). Prosthodontıc and Periodontal Reconstruction of Severely Damaged Endodontıcally Treated Teeth: A Clinical Report. The Internet Journal of Dental Science; 8(1): 1-6. Available at: http://ispub.com/IJDS/8/1/4267 (accessed on: 08/06/20).
9. Calamita M. (2019). Occlusal vertical dimension: treatment planning decisions and management considerations. International Journal of Esthetic Dentistry; 14(2): 166-181. Available at: https://jorglabdental.com/assets/docs/Occlusal_vertical_dimension_treatment_planning_decisions_and_management_considerations.pdf (accessed on: 08/06/20).
10. Carlsson GE, Omar R. (2006). Trends in prosthodontics. Med Princ Pract; 15: 167-179. Available at: https://www.karger.com/Article/Abstract/92177 (accessed on: 08/06/20).

11. Carr AB, Brown DT. (2015). Preparation of Abutment Teeth. In: McCracken's Removable Partial Prosthodontics. Mosby; 13th edition. Available at: https://www.elsevier.com/books/mccrackens-removable-partial-prosthodontics/carr/978-0-323-33990-2 (accessed on: 08/06/20).
12. Cheung W. (2005). A review of the management of endodontically treated teeth. Post, core and the final restoration. J Am Dent Assoc; 136:611-9. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0002817714609442?via%3Dihub (accessed on: 08/06/20).
13. Collier A. (2014). The management of risk. Part 2: Good consent and communication. Dent Update; 41: 236-241. Available at: https://www.magonlinelibrary.com/doi/abs/10.12968/denu.2014.41.3.236 (accessed on: 08/06/20).
14. Costa, L., Nascimento, C. D. (2017). Microbiological and clinical assessment of the abutment and non-abutment teeth of partial removable denture wearers. Archives of Oral Biology; 75: 74-80. Available at: https://www.clinicalkey.com/#!/content/journal/1-s2.0-S0003996916303259 (accessed on: 08/06/20).
15. Dietschi D, Duc O, Krejci I. (2008). Biomechanical considerations for the restoration of endodontically treated teeth: a systematic review of the literature, part II (evaluation of fatigue behavior, interfaces, and in vivo studies). Quintessence Int; 39:117-29. Available at:

http://www.quintpub.com/journals/qi/abstract.php?article_id=3197#.Xt3YusIUmUk (accessed on: 08/06/20).

16. Djemal S, Setchell D. (1999). Long-term survival characteristics of 832 resin-retained bridges and splints provided in a post-graduate teaching hospital between 1978 and 1993. Journal of Oral Rehabilitation; 26:302–320. Available at: https://onlinelibrary.wiley.com/doi/full/10.1046/j.1365-2842.1999.00374.x (accessed on: 08/06/20).
17. Durham J, Aggarwal V. (2013). Temporomandibular Disorders (TMDS): an update and management guidance for primary care from the UK specialist interest Group in Orofacial Pain and TMDS (USOT). Available at: https://www.rcseng.ac.uk/dental-faculties/fds/publications-guidelines/clinical-guidelines/ (accessed on: 08/06/20).
18. E. Spinas, M. Aresu, F. (2013). Prosthetic rehabilitation interventions in adolescents with fixed bridges: a 5-year observational study. Eur. J. Paediatr. Dent; 14:59–62. Available at: https://www.ejpd.eu/bibliografia_dettaglio.asp?id=519 (accessed on: 08/06/20).
19. Fennis WM, Kuijs RH. (2002). A survey of cusp fractures in a population of general dental practices. Int J Prosthodont; 15:559-63. Available at: http://www.quintpub.com/journals/ijp/abstract.php?article_id=870#.Xt3b3cIUmUk (accessed on: 08/06/20).
20. Goodacre CJ, Spolnik KJ. (1994). The prosthodontic management of endodontically treated teeth: a literature review. Part I. Success and failure data, treatment concepts.

J Prosthodont; 3:243-50. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1532-849X.1994.tb00162.x (accessed on: 08/06/20).

21. Gopi Chander. (2011). An Appraisal on Increasing the Occlusal Vertical Dimension in Full Occlusal Rehabilitation and its Outcome. The Journal of the Indian Prosthodontic Society; 11 (2): 77-81. Available at: https://link.springer.com/article/10.1007/s13191-011-0066-9 (accessed on: 08/06/20).
22. Gutmann JL. (1992). The dentin-root complex: anatomic and biologic considerations in restoring endodontically treated teeth. J Prosthet Dent; 67:458-67. Available at: https://www.sciencedirect.com/science/article/pii/002239139290073J?via%3Dihub (accessed on: 08/06/20).
23. H. Terheyden, F. Wüsthoff, (2015). Occlusal rehabilitation in patients with congenitally missing teeth-dental implants, conventional prosthetics, tooth autotransplants, and preservation of deciduous teeth-a systematic review, Int. J. Implant Dent; 1(1):30. Available at: https://journalimplantdent.springeropen.com/articles/10.1186/s40729-015-0025-z (accessed on: 08/06/20).
24. Hemmings K, Harrington Z. (2004). Replacement of missing teeth with fixed prostheses. Dental Update; 31(3):137-41. Available at:

https://www.magonlinelibrary.com/doi/abs/10.12968/denu.2004.31.3.137 (accessed on: 08/06/20).

25. Henry P. Tooth loss and implant replacement. (2000). Australian Dental Journal; 45:(3):150-172. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1834-7819.2000.tb00552.x (accessed on: 08/06/20).
26. Heydecke G, Butz F. (2001). Fracture strength and survival rate of endodontically treated maxillary incisors with approximal cavities after restoration with different post and core systems: an in-vitro study. J Dent; 29:427-33. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0300571201000380?via%3Dihub (accessed on: 08/06/20).
27. Howdle MD, Fox K, Youngson CC. (2002). An in vitro study of coronal microleakage around bonded amalgam coronal-radicular cores in endodontically treated molar teeth. Quintessence Int; 33: 22-9. Available at: http://www.quintpub.com/journals/qi/abstract.php?article_id=4958#.Xt3luMIUmUk (accessed on: 08/06/20).
28. Ibbetson, R. (2018). A contemporary approach to the provision of tooth-supported fixed prostheses part 2: Fixed bridges where the abutment teeth require minimal or no preparation. Dental Update.; 45(2): 90-100. Available at: https://www.magonlinelibrary.com/doi/abs/10.12968/denu.2018.45.2.90?journalCode=denu(accessed on: 08/06/20).

29. Iqbal MK, Johansson AA. (2003). A retrospective analysis of factors associated with the periapical status of restored, endodontically treated teeth. Int J Prosthodont; 16:31-8. Available at: http://www.quintpub.com/journals/ijp/abstract.php?article_id=965#.Xt3mIcIUmUk (accessed on: 08/06/20).

30. Jepson N, Allen F. (2003). Patient satisfaction following restoration of shortened mandibular dental arches in a randomized controlled trial. Int J Prosthodont; 16: 409-414. Available at: http://www.quintpub.com/journals/ijp/abstract.php?article_id=1095#.Xt3mRMIUmUk (accessed on: 08/06/20).

31. John P, Ambooken M. (2015). The perio-restorative interrelationship-expanding the horizons in esthetic dentistry. J Interdiscip Dent; 5: 46-53. Available at: http://www.jidonline.com/article.asp?issn=2229-5194;year=2015;volume=5;issue=1;spage=46;epage=53;aulast=John (accessed on: 08/06/20).

32. Kanno T, Carlsson GE. (2006). A review of the shortened dental arch concept focusing on the work by the Kayser/Nijmegen group. J Oral Rehabil; 33: 850-862. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2842.2006.01625.x (accessed on: 08/06/20).

33. Kayahan MB, Malkondu O. (2008). Periapical health related to the type of coronal restorations and quality of root canal fillings in a Turkish subpopulation. Oral Surg

Oral Med Oral Pathol Oral Radiol Endod; 105:e58-62. Available at: https://www.clinicalkey.com/#!/content/journal/1-s2.0-S1079210407006245 (accessed on: 08/06/20).

34. Keith J. Ferro, Steven M. (2017). The glossary of prosthodontic terms. Journal of Prosthetic Dentistry; 117(5S): e1-e105. Available at: https://www.clinicalkey.com/#!/content/journal/1-s2.0-S0022391316306837 (accessed on: 08/06/20).
35. Kim J, Chu S. Restorative space management: treatment planning and clinical considerations for insufficient space. Pract Proced Aesthet Dent 2005, 17:19-25. Available at: https://www.semanticscholar.org/paper/Restorative-space-management%3A-treatment-planning-Kim-Chu/4d57cbaca54a88b0676805dadd1dc058bfc2d0f5(accessed on: 08/06/20).
36. Kim K, Ha I, Lee Y. (2018). A clinical practice guideline for temporomandibular disorders in traditional Korean medicine: An evidence-based approach. European Journal of Integrative Medicine; 23, 123-133. Available at: https://www.sciencedirect.com/science/article/pii/S1876382018306619 (accessed on: 08/06/20).
37. Lee D, Saponaro P. (2019). Management of Edentulous Patients. Dental Clinics of North America; 63(2):249-261. Available at: https://www.clinicalkey.com/#!/content/journal/1-s2.0-S0011853218300958 (accessed on: 08/06/20).

38. M. Sasse, M. Kern. (2014). All-ceramic resin-bonded fixed dental prostheses: treatment planning, clinical procedures, and outcome, Quintessence Int; 45: 291–297. Available at: http://www.quintpub.com/journals/qi/abstract.php?article_id=13970#.Xt3oN8IUmUk (accessed on: 08/06/20).

39. Magne P, Belser UC. (2004). Novel porcelain laminate preparation approach driven by a diagnostic mock-up. J Esthet Restor Dent; 16: 7-18. Available at: https://doi.org/10.1111/j.1708-8240.2004.tb00444.x (accessed on: 08/06/20).

40. Malament KA, Nevins ML. (2011). Interdisciplinary Solutions for Esthetic Periodontal Prosthodontic Rehabilitation. Compend contin educ dent; 32(5): 33-40. Available at: https://www.aegisdentalnetwork.com/cced/special-issues/2011/12/interdisciplinary-solutions-for-esthetic-periodontal-prosthetic-rehabilitation (accessed on: 08/06/20).

41. Mehta SB. (2012). Current concepts on the management of tooth wear: part 1. Assessment, treatment planning and strategies for the prevention and the passive management of tooth wear. British Dental Journal; 212 (1): 17-27. Available at: https://www.nature.com/articles/sj.bdj.2011.1099 (accessed on: 08/06/20).

42. Mehta SB. (2012). Current concepts on the management of tooth wear: part 3. Active restorative care 2: the management of generalised tooth wear. British Dental Journal; 212 (3): 121-127. Available at: https://www.nature.com/articles/sj.bdj.2012.97 (accessed on: 08/06/20).

43. N.U. Zitzmann, M. Özcan. (2015). Resin bonded restorations: a strategy for managing anterior tooth loss in adolescence. J. Prosthet. Dent; 113: 270–276. Available at: https://www.clinicalkey.com/#!/content/journal/1-s2.0-S0022391314005319 (accessed on: 08/06/20).

44. Nassani MZ. (2017). Aspects of Malpractice in Prosthodontics. Journal of Prosthodontics; 26: 672–681. Available at: https://www.clinicalkey.com/#!/content/medline/2-s2.0-28598526 (accessed on: 08/06/20).

45. Patel P, Lynch C. (2010). Treatment planning for replacing missing teeth in UK general dental practice: current trends. Journal of Oral Rehabilitation; 37; 509–517. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2842.2010.02077.x (accessed on: 08/06/20).

46. Prasad D, Prasad D. (2013). Questionable abutments: General considerations, changing trends in treatment planning and available options. Journal of Interdisciplinary Dentistry; 3(1), 12-17. Available at: http://www.jidonline.com/article.asp?issn=2229-5194;year=2013;volume=3;issue=1;spage=12;epage=17;aulast=Prasad (accessed on: 08/06/20).

47. Puri N, Pradhan KL. (2007). Biometric study of tooth size in normal, crowded, and spaced permanent dentitions. Am J Orthod Dentofacial Orthop; 132:7-14. Available

at: https://www.clinicalkey.com/#!/content/journal/1-s2.0-S0889540607005070 (accessed on: 08/06/20).

48. Rahn A, Ivanhoe J. (2009). Textbook of Complete Dentures. PMPH USA; 6th Ed. Chapter 5: Pre-prosthetic surgical considerations; 65-84. Available at: https://pmphusa.com/book/textbook-of-complete-dentures-6e/ (accessed on: 08/06/20).
49. Randow K, Glantz PO. (1986). On cantilever loading of vital and non-vital teeth. An experimental clinical study. Acta Odontol Scand; 44:271-7. Available at: https://www.tandfonline.com/doi/abs/10.3109/00016358609004733 (accessed on: 08/06/20).
50. Ray HA, Trope M. (1995). Periapical status of endodontically treated teeth in relation to the technical quality of the root filling and the coronal restoration. Int Endod J; 28:12-8. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2591.1995.tb00150.x (accessed on: 08/06/20).
51. Reeh ES, Messer HH. (1989). Reduction in tooth stiffness as a result of endodontic and restorative procedures. J Endod; 15:512-6. Available at: https://www.sciencedirect.com/science/article/pii/S0099239989801918?via%3Dihub (accessed on: 08/06/20).
52. Royal College of Dental Surgeons of Ontario. (2018) Guidelines of Diagnosis and Management of Temporomandibular Disorders. Available at:

https://az184419.vo.msecnd.net/rcdso/pdf/guidelines/RCDSO_Guidelines_Diagnosis_and_Management_of_TMD.pdf (accessed on: 08/06/20).

53. S. Nalbandian and B. J. Millar, (2009). The effect of veneers on cosmetic improvement, BDJ; 207(2): 72-3. Available at: https://www.nature.com/articles/sj.bdj.2009.609 (accessed on: 08/06/20).
54. Sadowski SJ. (2006). An overview of treatment considerations for esthetic restorations: A review of the literature. J Prosthet Dent; 96:433-442. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0022391306004756?via%3Dihub (accessed on: 08/06/20).
55. Saunders WP, Saunders EM. (1994). Coronal leakage as a cause of failure in root-canal therapy: a review. Endod Dent Traumatol; 10:105-8. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1600-9657.1994.tb00533.x (accessed on: 08/06/20).
56. Spear FM. (2004). The esthetic correction of anterior dental malalignment conventional vs. instant (restorative) orthodontics. J Calif Dent Assoc; 32:133-141. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1708-8240.2004.tb00026.x (accessed on: 08/06/20).
57. Süha Türkaslan and Kivanç Utku Ulusoy. (2009). Esthetic rehabilitation of crowded maxillary anterior teeth utilizing ceramic veneers: a case report. Department of Prosthodontics, Cases Journal; 2:8329. Available at:

https://casesjournal.biomedcentral.com/articles/10.4076/1757-1626-2-8329 (accessed on: 08/06/20).

58. Swelem AA, Gurevich KG. (2014). Oral health-related quality of life in partially edentulous patients treated with removable, fixed, fixed-removable, and implant-supported prostheses. Int J Prosthodont; 27: 338-347. Available at: https://www.clinicalkey.com/#!/content/medline/2-s2.0-25010877 (accessed on: 08/06/20).
59. W.Y. Lam, C.P. McGrath. (2014). Impact of complications of single tooth restorations on oral health-related quality of life. Clin. Oral Implants Res; 25: 67–73. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/clr.12166 (accessed on: 08/06/20).
60. Walmsley A. (2003). Acrylic partial dentures. Dental Update; 30(8):424-9. Available at: https://www.magonlinelibrary.com/doi/abs/10.12968/denu.2003.30.8.424 (accessed on: 08/06/20).
61. Youasa H, kino k. (2013). Primary treatment of temporomandibular disorders: The Japanese Society for the temporomandibular joint evidence-based clinical practice guidelines, 2nd edition. Japanese Dental Science Review; 49, 89—98. Available at: https://www.sciencedirect.com/science/article/pii/S1882761613000458 (accessed on: 08/06/20).
62. Zarb G, Hobkirk J. (2012). Prosthodontic Treatment for Edentulous Patients: Complete Dentures and Implant-Supported Prostheses. Mosby; 13th Ed. Chapter 5:

History Taking, Treatment Planning, and Improving Denture-Bearing Areas for Edentulous Patients; 53-92. Available at: https://www.elsevier.com/books/prosthodontic-treatment-for-edentulous-patients-complete-dentures-and-implant-supported-prostheses/verma/978-81-312-4876-8 (accessed on: 08/06/20).

63. Zitzmann NU, Hagmann E. (2007). What is the prevalence of various types of prosthetic dental restorations in Europe? Clin Oral Implants Res. 2007; 18: 20-33. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1600-0501.2007.01435.x (accessed on: 08/06/20).

APPENDIX 1: SAMPLE INFORMED CONSENT FORM FOR VENEERS IN ENGLISH AND ARABIC

CONSENT FORM FOR VENEERS SERVICES (COSMETIC VENEER TREATMENT)

Treatment plan, possible risks and complications

Treatment plan:

_____

_____

I agree, that I have approved the suggested treatment plan, read, discussed with my dentist and understood the risks, complications, benefits, consequences and alternatives of dental veneers and have had the opportunity to ask questions and I agree to undergo the proposed treatment.

Patient Name_____ Signature _____Date_____

Dentist Name_____ Signature _____Date_____

Type of risk:

- I understand that, preparing a tooth for a veneer may consist of removing the enamel from the surface of the teeth
- I understand that, preparing a tooth may irritate the nerve tissue (called the pulp) in the center of the tooth, leaving my teeth feeling sensitive to heat, cold or pressure.
- I understand that, preparing a tooth may cause sensitivity of teeth, which may require additional treatment including endodontic (root canal) treatment and/or crowning of the involved teeth.
- I understand that the veneers may crack, fracture or de bond /dislodge from the teeth.

Patient Name_____ Signature _____Date_____

Treatment Mock up

I agree, that I have approved the suggested mock up, read, discussed with my dentist

Patient Name_____ Signature _____Date_____

Veneer final trial before bonding

I agree, that I have approved the final veneers trial (shape, size, colour) and discussed with my dentist

Patient Name_____ Signature _____Date_____

نموذج الموافقة الكتابية على تركيب الفنيير (عدسات الاسنان التجميلية)

خطة العلاج والمخاطر والمضاعفات المحتملة

خطة العلاج:

_____

_____

أقر، انا الموقع أدناه، أنه قد تم اطلاعي على خطة العلاج المقترحة ومناقشتها مع طبيب الاسنان المعالج، كما أتفهم النتائج / المضاعفات المتوقعة، والمخاطر وكذلك المقترحات البديلة للعلاج. كما أُتيحت لي الفرصة لطرح الاسئلة والإجابة عليها من قبل الطبيب المختص، وعليه أوافق على الخضوع للإجراء /العلاج المقترح.

اسم المريض: _____ التوقيع: _____ التاريخ: _____

اسم الطبيب: _____ التوقيع: _____ التاريخ: _____

كما أقر بإدراك المخاطر التالية المترتبة على الإجراء /العلاج:

- قد يتضمن تحضير السن للفنيير إزالة طبقة رقيقة من ميناء الأسنان
- إحتمالية حدوث تهيج للنسيج العصبي (اللب) في وسط السن، مما يجعل الأسنان حساسة للحرارة أو البرودة أو الضغط.
- قد يسبب الأجراء حساسية الأسنان، الأمر الذي قد يتطلب علاجًا إضافيًا بما في ذلك علاج الجذور و / أو تثبيت تيجان للأسنان المصابة.
- إمكانية حدوث تشقق او كسر او انفصال لطبقة الفنيير عن الأسنان.

اسم المريض: _____ التوقيع: _____ التاريخ: _____

نموذج العلاج

أوافق على التوقيع على النموذج المقترح، وذلك بعد الاطلاع عليه ومناقشة الاجراء مع طبيب الاسنان المختص:

اسم المريض: _____ التوقيع: _____ التاريخ: _____

التجربة النهائية للفنيير قبل الالتصاق

أقر بالموافقة على التجربة النهائية للفنيير (الشكل والحجم واللون) ومناقشتها بشكل وافي مع طبيب الأسنان

اسم المريض: _____ التوقيع: _____ التاريخ: _____