

The College of Dental Surgeons of Hong Kong

Guidelines for the Provision of Dental Implants

1. Introduction

Restorations supported by dental implants have become an accepted method for tooth replacement and may be presented by dentists to patients as an option to replace missing teeth. Patients receiving dental implants should be informed about the potential benefits, long-term survival statistics, risks, and potential complications. In addition, they should be informed about the importance of maintenance and long-term follow-up, including their specific responsibilities regarding the same. Dental practitioners may find answers to critical questions regarding implant therapy in this Guideline developed by the College of Dental Surgeons of Hong Kong (CDSHK) with reference to various relevant international guidelines. This Guideline is produced in an attempt to encourage best practices in Implant Dentistry.

2. Definition

The definition of a dental implant (adapted from *The Glossary of Prosthodontics Terms*) is: A prosthetic device made of alloplastic material(s) implanted beneath the oral mucosa and within bone to provide retention and support for a fixed or removable dental prosthesis.

3. Therapeutic Goal

The therapeutic goal of dental implants is to support restorations that replace a missing tooth or several teeth so as to provide patient comfort, function, aesthetics and improved oral health related quality of life; and to assist in the ongoing maintenance of the remaining intra-oral and peri-oral structures.

4. Levels of Treatment

Considering the technical or biological difficulties about dental implant as a treatment option at an individual level, the scenarios can be segregated as follows:

(a) **Simple cases**: implant-supported restorations that do not involve the esthetic region and with low level of complexity, where optimal outcome is expected. The low complexity entails few steps, small efforts, minimal risks and few complications. Examples are placement of implants of appropriate length and diameter in well shaped, short span, posterior edentulous ridges without any form of ridge modification.

(b) Advanced cases: implant-supported restorations that involve the esthetic region or with moderate level of complexity, where treatment outcome can be predicted with some clarity. The increased complexity may relate to patients' condition or the need for additional adjunctive procedures, multiple areas of knowledge, multiple treatment objectives or extended treatment time. Examples are any form of hard or soft tissue augmentation, sinus floor elevation, placement of implants in an extraction socket, immediate loading of implants.

(c) Complex cases: implant-supported restorations that involve the esthetic region or with high level of complexity, where treatment outcome also depends on the success of other intermediate procedures. The high level of complexity may relate to patients' condition, the need for complex adjunctive procedures, knowledge and skills beyond the dental alveolar region or risks of complications that may result in significant morbidity to patients. Examples are patients with complicated medical history, utilization of block grafts, or nerve transposition.

5. Training Requirements of Dental Implant Providers

The dental practitioner should not practice implant dentistry beyond the limits of their competence. As implant dentistry is generally not covered in the undergraduate curriculum, further training is essential to ensure competency and to safeguard our patients. CDSHK does not endorse the provision of dental implant by practitioners without the requisite competency.

(a) Simple Implant Dentistry: Practitioners should have received course(s) of training in basic principles in implant dentistry. These courses could be organized by academic institutions or professional organizations. Practitioners who provide the dental implants should keep an updated record of their training and other relevant supporting documents.

(b) Advanced Implant Dentistry: Practitioners should have received course(s) of training from academic institutions or professional organizations at a higher level and sufficient experience should have been gathered in doing simple dental implants before embarking on advanced implant cases. Records of previous completed implant cases must be kept as evidence of experience.

(c) Complex Implant Dentistry: Practitioners must have received advanced training from academic institutions and obtained the relevant post-graduate qualification(s); or have a specialist status in the relevant discipline of dentistry.

6. Pre-treatment Considerations

Patients must be evaluated by dental practitioners prior to initiation of treatment to ensure the appropriateness of care. When dental implants are considered, it is often advantageous to involve one or more dental specialists in the evaluation process. A systematic and coordinated plan delineating the responsibilities of each member of the team should be developed and followed. An evaluation of patients receiving implants should include the following:

- (i) Elicit and record a comprehensive medical and dental history and understand the relevance of that information to the individual case.
- (ii) Complete a thorough extra-oral and intra-oral examination, including detailed assessment of the teeth, existing restorations, periodontal tissues, oral mucosa, residual alveolar ridges, inter-arch distance, the occlusion, and esthetic requirements.
- (iii) Identify the need for appropriate further investigations, be able to request and interpret them and arrive at the correct diagnosis as well as at a prognosis for the remaining dentition.
- (iv) Communicate clearly to the patient the findings of the examination, the diagnosis, and treatment options.
- (v) Produce a treatment plan considering options for tooth replacement and the patient's preventive, functional, esthetic, psychological, and financial requirements.
- (vi) Consider and recommend the timing of implant placement and restoration.
- (vii) Obtain the patient's informed consent for the proposed treatment.
- (viii) Recognize complex cases, and if indicated, refer patient to the appropriate specialists.

The prudent use of serial or cone beam CT scan imaging technique is recommended when there is concern regarding the quality and quantity of available bone at the potential implant site and/or close proximity to vital structures, including but not limited to, the maxillary sinus, inferior alveolar nerve, and adjacent teeth. Dental practitioners should be vigilant about the need for modification of the jaw bone and any other related procedures which may be required prior to the insertion of dental implants. In addition, they should have the knowledge and judgment to distinguish between a simple case from an advanced case or a complex case.

8. Implant Placement

The surgical technique is based on the pre-treatment evaluation and the decision on the number, type and location of implant to be utilized. The following should be considered:

- (i) Use appropriate pain control
- (ii) Employ aseptic technique
- (iii) Appropriate use of surgical guides
- (iv) Follow the recommended protocol of the implant system
- (v) Appropriate post-operative care

9. Post-placement Considerations

Decisions regarding the time to restore a dental implant are based upon a variety of factors. Clinicians must understand the effects of bone quality on healing; the effects of micro-movement on potential osseointegration; differences in force application relative to location within the dental arch; risks and benefits associated with grafting; general healing times; and other factors that influence short and long-term prognosis.

Once implants are deemed ready for restoration, the clinician must consider the appropriate method for implant uncovering; time to loading; method of loading; magnitude of force application; material choices; occlusal scheme; prosthesis retention; and the need for protective occlusal guards. Philosophical decisions may influence the type of retentive mechanism utilized. Whether prostheses are retained by trans-occlusal screws or cement, provisional or definitive, there is always a risk that the connection between implant and restoration could loosen over time.

10. Implant Maintenance

Periodic evaluation of implants, surrounding tissues, and oral hygiene is vital to the long-term success of the dental implant. Considerations in the evaluation of the implant are:

- (i) Oral hygiene status
- (ii) Probing depths and alveolar bone level in remaining dentition
- (iii) Presence of exudate or bleeding on probing in remaining dentition
- (iv) Appropriate maintenance intervals
- (v) Clinical and radiographic appearance of peri-implant tissues
- (vi) Occlusal status, stability of prostheses and implants
- (vii) Patient comfort and function

11. Outcome Assessment

The desired outcome of successful implant therapy is presence of a stable, functional, esthetically acceptable tooth replacement for the patient. Variations from the desired outcome of implant placement include:

- (i) Implant mobility or implant loss
- (ii) Persistent pain and/or loss of function
- (iii) Progressive bone loss
- (iv) Persistent peri-implant radiolucency
- (v) Neuropathy/hypoaesthesia
- (vi) Persistent uncontrolled inflammation/infection

- (vii) Increased probing depths
- (viii) Fractured or loosened prosthetic components
- (ix) Prosthesis instability

The etiology of implant complications can be multi-factorial, involving both structural and tissue components. Routine evaluation may reveal the need for procedures to prevent and treat complications. Clinicians must be familiar with interventions and approaches to manage the complications listed above.

12. Documentation

The patient record should include:

- (i) The recommendations of the dental practitioner or that of the specialist team.
- (ii) Advantages and risks of different treatment options.
- (iii) Decision of the patient.
- (iv) Treatment schedule and costs.
- (v) Record of informed consent.
- (vi) Dental models.
- (vii) Pre- and post-treatment imaging records.
- (viii) Implant system and components used.
- (ix) The location, number and size of implants.
- (x) Quality of the bone encountered.
- (xi) Treatment events including all operation records.
- (xii) Complications and management.
- (xiii) Obligations of the patient.
- (xiv) Lot number of the implant fixture as well as that of any graft material used.

13. Maintenance of Standard and Quality Assurance

As implant dentistry is a rapidly advancing field, the relevant continuing professional education and training is essential. The purpose is to encourage dental practitioners to keep themselves up-to-date about current development in the knowledge and skills in their professional practices. Therefore dental practitioners providing dental implants should have a Continuing Professional Development (CPD) program to ensure the maintenance of the highest possible standards of practice. They should keep a record of their CPD program or Certificate of CPD issued by an authoritative body for inspection by their peers if and when necessary. They should also keep a detailed portfolio of their training, the courses they have attended, any mentoring that they have received, and the number of implants they have placed. The outcome of their implant placement may be audited.

14. Indemnity Insurance

Dental protection or insurance organizations tend to stratify the ‘level’ of insurance required according to the scope of practice and risk of the involved procedures. Advanced and Complex Implant Dentistry frequently involve complicated oral and maxillofacial surgical procedures like bone graft harvesting or sinus lift etc. These procedures are often specifically labeled as ‘high risk’ by such companies and a higher premium is required. Litigations involving implant procedures are expected to be on the rise because of financial implications involved and the inherent surgical risks of such procedures. Although subscription to an insurance company is not mandatory for registration by the Dental Council of Hong Kong, it would be unwise for the implant practitioner not to be covered by professional indemnity.

DISCLAIMER

This Guideline provides information for consideration regarding the provision of dental implants. This Guideline is not intended to be all-inclusive or otherwise limit the considerations applicable to the provision of dental implants. This Guideline neither endorses nor makes any representation regarding the qualifications, capabilities, skill or competence of any individual dentist. This Guideline presents general information for educational purposes only and is not intended nor should be used as a substitute for research and/or professional advice. CDSHK expressly disclaims all responsibility and liability arising from the use of or reliance on this Guideline, and assumes no responsibility or liability for any claims that may result directly or indirectly from the use of the information.