وزارة الصحة
Ministry of Health

Ministry of Health
Kingdom of Saudi Arabia

Clinical Guideline for Dental Implant Practice

الإدارة العامة لطب الأسنان

General Directorate of Dental Services

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Contents

Purpose:

To govern dental implants placement across Health Clusters.

Definitions:

1. Dental implant: also known as endo-osseous or endosteal. A metal implant inserted into the bone of the jaw, through the alveolar bone, with part protruding into the mouth, on to which a prosthesis or orthodontic appliance may be attached
2. Implant abutment: the section of the implant which protrudes through the gingiva into the mouth, and on which a crown, a bridge, or a denture is supported.
3. Implant prosthesis: Fixed, removable, and maxillofacial prostheses can be supported and retained in part or whole by dental implants.
4. Implant surgery: the phase including the selection, planning, and placement of the implant body and abutment.
5. MRONJ: Medication-related osteonecrosis of the jaw; a commonly reported side-effect of antiresorptive drugs
6. Peri-implant health:
    a. Absence of peri implant signs of soft tissue inflammation (redness, swelling, profuse bleeding/suppuration on probing).
    b. Absence of bone loss beyond crestal bone level changes resulting from initial bone remodeling.
    c. In health, there are no visual differences between peri implant and periodontal tissues. However, the probing depths papillae at interproximal tooth sites
    d. Alveolar bone remodeling following the first year in function may be dependent on the type and position of the implant, but change (loss) of alveolar bone starting after the implant was placed in function should not exceed 2 mm. Changes ≥2 mm at any time points during or after the first year should be considered as pathologic.

7. Peri-implant mucositis:
    a. Presence of peri-implant signs of inflammation (redness, swelling, line or drop of bleeding within 30 seconds following probing)
    b. No additional bone loss following initial healing.
8. Peri-implantitis:
    a. Presence of peri-implant signs of inflammation.
    b. Radiographic evidence of bone loss following initial healing.
    c. Increasing probing depth as compared to probing depth values collected after placement of the prosthetic reconstruction.
    d. In the absence of previous examination data diagnosis of peri-implantitis can be based on the combination of: Presence of bleeding and/or suppuration on gentle probing.
    e. Probing depths of ≥6 mm
    f. Bone levels ≥3 mm apical of the most coronal portion of the intraosseous part of the implant.
9. Implant failure: the ultimate consequence of peri-implantitis where progressive bone loss occurs leading to mobility of implant or dislodgment.

Patient variables/conditions and risks

Condition	Status
Patient demographics	
Age	Patient must be at least 18 years old.
Oral hygiene and periodontium	
Oral hygiene and maintenance therapy	Patients with poor plaque control or bleeding score are at risk for implant failure. Therefore, Patients should have good oral hygiene (full-mouth plaque or bleeding score <15%).
Periodontitis and its history	Patients with ongoing chronic periodontitis or have residual deep pockets are at risk for peri-implantitis. Therefore, patients with ongoing periodontitis must be treated first before dental implant placement.

Smoking and drug/substance use	
Smoking (Cigarettes, E-cigarettes, Water/Pipe, Smokeless tobacco	Smoking significantly increases the risk of peri-implantitis, with the likelihood of complications rising in proportion to the intensity and duration of smoking. To minimize this risk, patients are advised to stop smoking at least one month before and continue abstaining for one month after dental implant placement. Special caution should be exercised when considering dental implants for heavy smokers—those consuming half a pack or more per day—as evidence shows a marked increase in the relative risk of implant failure among individuals who smoke moderately to heavily compared to non-smokers.
Drug (substance) use	No evidence showing any association with peri-implant disease.
Female specific conditions	
Pregnancy	No recent systematic reviews/meta-analysis were found on the topic. According to the American Dental Association (ADA) and American College of Obstetricians, restorative dental treatment is safe throughout pregnancy. However, elective dental surgery including dental implants is better postponed to after delivery.

Systemic diseases or conditions	
Diabetes and glycemic control	Uncontrolled diabetes/poor glycemic control (HbA1c > 7% conservatively) has been shown to be at higher risk for peri-implantitis/implant failure. Therefore, patients should have HbA1c <7% to have a dental implant placed for them.
Cardiovascular disease	There is inconclusive evidence that shows that patients with cardiovascular disease or taking hypertensive drugs are at risk for peri-implant disease. Therefore, implants may be placed in such patients given that it is not an absolute contraindication below.
Osteoporosis and osteopenia	There is evidence showing that patients with osteoporosis or osteopenia who take antiresorptive drugs may be at higher risk for decreased implant osseointegration and/or survival. Patients with these conditions take small doses of antiresorptive drugs have been shown to have acceptable implant survival in other evidence. If patients take high doses of antiresorptive drugs (especially through IV route) are at risk for MRONJ and peri-implantitis/failure.
Chronic renal disease	No evidence showing any association with peri-implant disease.
Thyroid disease	No evidence showing any association with peri-implant disease.
Hepatitis	No evidence showing any association with peri-implant disease.
Autoimmune diseases	Limited number of studies have shown that patients with autoimmune disease (lupus, scleroderma, lichen planus, etc.) have acceptable implant survival.

Cancer	Patients with cancer often take chemotherapy in the form of large doses of antiresorptive drugs or radiotherapy. Patients taking high doses of antiresorptive drugs (especially through IV route) are at risk for MRONJ and peri-implantitis/failure. Patients who undergo radiotherapy may also be at risk for implant failure.
Vitamin D deficiency	Maybe associated with poorer osseointegration and lower implant survival.
Respiratory diseases (COPD and lower respiratory infection)	No evidence showing any association with peri-implant disease.
Mental health conditions (including neurocognitive impairment)	No evidence showing any association with peri-implant disease. However, some patients may have an issue with dexterity or motivation to carry out oral hygiene. Oral hygiene should be maintained for these patients before an implant is placed for them.
Neurological disorders	It is hypothesized that patients with epilepsy might have more complications due to high occlusal load/forces (despite the limited evidence under bruxism/parafunctional habits below). Therefore, patients should be well-controlled to avoid implant failure.
Medications	
Steroid therapy	Limited number of studies that showed an association with osseointegration failure.

Chemotherapy and antiresorptive drugs (including Bisphosphonates)	Patients with cancer often take chemotherapy in the form of large doses of antiresorptive drugs or radiotherapy. Patients taking high doses of antiresorptive drugs (especially through IV route) are at risk for MRONJ and peri-implantitis/failure.
Hormone replacement therapy	Limited number of studies showing an association with decreased osseointegration and implant survival.
Hypertensive drugs	There is inconclusive evidence that shows that patients taking hypertensive drugs are at risk for peri-implant disease.
Antibiotic use	Inconclusive evidence of the effect of routine prophylactic antibiotic use to prevent dental implant complications or failure.
Radiation therapy	Patients who undergo radiotherapy may also be at risk for implant failure. Careful consideration shall be given to dose, duration, and location of radiation field.
Selective serotonin reuptake inhibitors	May be associated with implant failure.
Proton pump inhibitors	May be associated with implant failure.
Patient related factors that affect occlusal force	
Bruxism/parafunctional habits	Limited number of studies showing a possible association with higher implant failure.
Implant-related conditions	
Immediate vs. delayed loading	Immediate and delayed loading have been shown to have similar implant survival.
Implant material	Titanium and zirconia have been shown to have similar implant survival.

Absolute contraindications:

These cases include patients who are medically unfit to undergo an implant surgical procedure as it can threaten the patient's life. Clearance from their physician needs to be taken in this case.

These cases may include:

- Recent guidelines in 2024 by the American Heart Association gives different periods based on the stability of the patient from one month up to 6 months.
- Patients on anticoagulants that effect their International Normalized Ratio.
- Patients' physical ability that is classified based on the American Society of Anesthesiology as other than ASA I or ASA II.
- Patients taking high doses and duration of antiresorptive drugs (especially through IV route) are at risk for MRONJ and peri-implantitis/failure.
- Any condition not listed above (need to have their case discussed by a committee).

Who can place dental implants:

Dental implant placement can be performed by a qualified specialist who has received appropriate training during a postgraduate residency program and has been granted the necessary clinical privileges—such as periodontists and oral and maxillofacial surgeons.

The prosthetic phase can be managed by specialist who are adequately trained and hold relevant clinical privileges, including restorative dentists, prosthodontists, AEGD graduates, and specialists in family dentistry.

Any dentist who has completed formal implantology training through a recognized and accredited program—either locally or internationally—approved by the Saudi Commission for Health Specialties, and who holds a valid professional license and clinical privileges, is authorized to perform dental implant placement and prosthetic placement in accordance with the Ministry of Health guidelines.

Board residents who are required to be trained to place implants may perform implant placement procedures under supervision as part of the training and academic requirements.

Duration between the surgical and prosthetic parts per implant:

Given that bone loss occurs over time, the duration between implant placement and prosthetic restoration should be within 3–4 months for the mandible and 5–6 months for the maxilla. If bone grafting (with or without a sinus lift) is performed, the duration should not exceed 5–6 months for an implant with grafting, or an additional 3 months if the implant is being replaced after grafting. Proper follow-up with patients should be conducted throughout this period to ensure optimal healing and implant stability.

Important Considerations:

- There should be no limit to the number of dental implants a patient can have in case there is no clinical contraindication and according to medical necessity.
- If the patient previously had a failed dental implant due to a high-risk condition the patient had (implant was properly placed by a dentist), the condition should be monitored for improvement. Once improved, the patient can have another dental implant placed. In case no improvement happens, the patient should not have another dental implant until the underlying condition contributing to implant failure is controlled. Cases with history of dental implant treatment failures need to be discussed by a designated committee, if applicable.

Requirement for patients with Dental Implants Performed Outside the Health Care Facility:

- For a health cluster to provide the service for an implant case that was already placed in another health care facility, certain baseline documentation had to be applied to the Dental Center Chairman including the following:
    - Implant System.
    - Size of the implant.
    - Timing of implant procedures.
    - If any bone grafting was done and when.

- A panoramic x-ray and a cone beam computed tomographical scan (can be done at the health cluster if not done previously at private sector).
- A medical report must be prepared before the next doctor accepts the case, which illustrates the cause of the transfer (especially if any malpractice needs correction).
- All the needed surgical, prosthetic kits, surgical and prosthetics parts that match the patient system with the medical report had to be available by the patient or the treating center before accepting the patient at a specific health facility. Otherwise, the health care facility can reject the case through the implant board committee of the center.

Workflow for the dental implant:

For an implant to be provided, the patient should have completed the oral disease control phase, which includes reinforcing oral hygiene practices, managing caries, and eliminating periodontal disease. The patient will then be referred to the specialized clinics (prosthodontic/restorative/implantology), where the treatment plan should be completed. If absolute contraindications exist for medical reasons, a medical clearance must be obtained from the physician, documenting the risk of poor dental implant survival. An informed consent explaining the patient's condition and associated risks should also be signed.

Before placing the implant, the patient should be informed about the comprehensive treatment plan, including the surgical and the prosthetic procedures. The treating dentist should complete the dental implant checklist; the preoperative checklist, the surgical procedures checklist and the postoperative checklist, along with maintaining records of implant placement and crown delivery (Appendix 1).

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Implant Placement Consent Form:

Content	Explanation
Health facility code	ID of health facility
Title of informed consent	In both Arabic and English languages
Details about facility /department/ dentist	Including: • Date • Department • Ward • Name of dentist • Employment ID • Dentist's contact information
Information about implant surgery and complications including conditions that could increase peri-implantitis and/or implant failure	The following conditions may pose a risk for unfavorable or unsuccessful implant treatment: • Having poor oral hygiene or maintenance. • On going inflammation of the gums. • Smoking within a month before and after implant procedure (especially with higher number of cigarettes per day). • Smoking after a month of placing a dental implant (especially with higher number of cigarettes per day for a longer period). • Poor management of my diabetes (especially if the glycated hemoglobin within the past 3 months of implant procedure is ≥8) %. • Taking small doses of antiresorptive drugs for treating my osteoporosis/osteopenia.

	• Vitamin D deficiency. • Mental conditions that would affect the ability to carry out oral hygiene. • Poorly controlled epilepsy. • Steroid therapy. • Hormone replacement therapy. • Having radiotherapy prior to implant placement or after implant placement. • Taking medications that treat my depression such as selective serotonin reuptake inhibitor. • Taking medications that treat gastric acid such as proton pump inhibitors." • Severe malocclusion and unfavorable inter-arch relationships that affect the success of dental implant treatment surgical and prosthetic phases.
Implant surgery complications	The following complications may occur during or after an implant procedure: • Bleeding • Infection • Nasal discharge • Numbness or neurosensory complication • Implant mobility or wound dehiscence • Swelling and hematoma
Bone grafting	"Some cases of implants require a bone graft to have enough bone, but others do not.

	In some cases, the treatment plan (including whether to place dental implants or other prosthesis) is not known and a dentist may need first to place a bone graft and reassess the bone level to determine the final treatment plan option (dental implant or other prosthesis)
Success of dental implant treatment	The success of a dental treatment (including placing a bone graft) in absence of any dentist negligence, dentist malpractice, patient conditions listed above is not guaranteed (like any other treatment)". Strict rules and regulations imposed by dental implant treatment committee should aid in maintaining the desired high success rates.
In cases of emergency	I hereby allow the dentist to provide any necessary intervention in case of a life-threatening situation during the implant procedure. Signature of the patient
Dentist's signature	Includes: • Name of dentist • Employment ID • Signature • Date and time
Patient's declaration in his/her words that he/she understood the implant procedures along with the potential risks given his/her conditions	I hereby declare that I understood the dentist explained to me the procedure and potential complications as well as highlighted some conditions I have that may raise my risk for getting implant complications that would result in unfavorable or unsuccessful implant (in absence of any dentist negligence or malpractice). I also declare that I read the

	contents of the consent and understood them.
Patient's signature or legal representative	Includes: • Name of patient and signature (or name of legal representative and signature) • Date and time
Translator's details and signature	Including: • Name of translator • Employment ID • Signature • Date and time
Patient's signature of receiving a copy of the consent	Signature of patient
Validity duration of the consent	Doesn't exceed 30 days from signing this informed consent

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Appendix1:

Dental Implant Checklist:

To ensure the delivery of a comprehensive dental implant service, it is essential to follow the checklist throughout all stages – before, during, and after surgery – in addition to maintaining proper documentation of the prosthetic crown placement following the implant procedure.

Pre surgical checklist

- Review Medical history (Conditions, medications, allergies)
- Request lab tests if needed (bleeding, glucose level, Vitamin D)
- Review Dental History and Oral hygiene practices
- Clinical Examination (Evaluate adjacent teeth and gums)
- Confirm Periodontal health status (absence of active periodontal disease)
- Evaluate Inter-dental spacing for implant sit
- Asses case suitability for immediate vs. delayed implantation
- Evaluate presence of harmful habits (e.g., smoking, bruxism)
- Confirm horizontal and vertical distances from anatomical structures (e.g., sinus, nasal cavity)
- Radiographic evaluation (panoramic, periapical, CBCT)
- Bone Density and site analysis
- Prepare Implant treatment plan (Digital or manual)
- Discuss Options and define implant type and placement
- Prosthodontist treatment plan reviewed and signed by prosthodontist
- Take Clinical photos (Intra-Oral)
- Obtain Informed consent

Notes: ----------

Surgical Procedures checklist:

- Record Implant type. Site, and orientation
- Anesthesia Administration: Performa surgery, prepare bone and insert implant
- Implant Placement: Perform surgery, prepare bone and insert implant
- Document bone loss and grafting needs if applicable
- Suture and assess for bleeding
- Document intra-operative modifications to the treatment plan
- Assess and document primary implant stability
- Take clinical photos (Intra -oral)
- Record procedure details and patients\ responses

Notes: ----------

Implant Records

- Implant type
- Size and length
- Implant site
- LOT number
- Country of manufacture
- Radiographic documentation pre/post-op
- Dentist signature
- Patient signature

Notes: ----------

Post-operative phase checklist

- Provide written post operative instruction
- Prescribe medication if needed (analgesics, antibiotics)
- Document and discuss sign of complications
- Schedule follow-up visits after 2 weeks (assess wound healing)
- Assess osseointegration after 3-6 months
- Plan for abutment and crown placement
- Update patient records with post/op radiographs
- Take clinical photos (intra-oral)

Notes: ----------

Crown Delivery Record

- Date of crown Delivery:
- Crown Type:
  - PFM (Porcelain Fused to metal)
  - Full Zirconia
  - E-Max (Lithium Disilicate)
  - Metal Crown
  - Temporary Crown
  - Other
- Material Brand:
- Cementation type:
  - Screw-retained
  - Cement-retained
  - Temporary
  - Permanent
- Cement Brand:

- Occlusion and Contacts:
  - Verified
  - Adjusted
  - No Adjustment needed
- Esthetic Evaluation:
  - Patient satisfied
  - Adjustment made
  - Shade match confirmed
  - Radiographic evaluation
  - Document radiographs after final crown placement
- Dentist signature:

- Patient signature: