# BEST PRACTICES IN IMPLANT DENTISTRY

#### SIMON WRIGHT • CEMAL UCER • RABIA KHAN





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> Simon Wright Cemal Ucer Rabia Khan



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#### Foreword

Dental implant technology has revolutionized the way we approach tooth replacement and transformed the lives of millions of people worldwide. As a result, it has become more important than ever to establish and maintain high standards of care when it comes to dental implants.

In this book, we explore the latest developments and best practices in dental implant technology, as well as the essential standards of care that are necessary to ensure successful outcomes for patients. Everything from presurgical planning to postsurgical management is covered, with a focus on providing patients with safe, effective and long-lasting solutions to their dental problems.

Whether you are a dental professional, a patient considering dental implants or simply interested in the science and technology behind this remarkable field, this book will provide you with the knowledge and insights you need to make informed decisions and achieve the best possible outcomes. So, join us on this exciting journey as we explore the fascinating world of dental implant technology and the high standards of care that underpin it.

### Preface

Dental implant technology has made significant strides in recent years, providing patients with safe, effective and long-lasting solutions to tooth loss. Dental implants are now widely accepted as the gold standard in tooth replacement, offering a range of benefits over traditional dentures and bridges.

As with any medical procedure, however, the success of dental implant treatment relies heavily on the expertise and skill of the dental professional involved. It is essential that the highest standards of care are followed to ensure the best possible outcomes for patients.

This book is intended as a guide for dental professionals, patients and anyone interested in the field of dental implant technology. We aim to provide a comprehensive overview of the latest developments in the field, as well as essential information on the standards of care that are necessary for successful outcomes.

In this book we explore the science and technology behind dental implants, from their development and design to their placement and postsurgical management. We also examine the ethical and legal considerations involved in the use of dental implants and the role of the dental professional in ensuring the safety and wellbeing of their patients.

We hope that this book will serve as a valuable resource for all those interested in dental implant technology and that it will contribute to the ongoing efforts to maintain high standards of care and excellence in the field.

Simon Wright Cemal Ucer Rabia Khan

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Jo, Alison, Roger, Michael and Dianne

# CHAPTER 1

### Standards in Implant Dentistry



#### 1.1 INTRODUCTION

Dental implant treatment has become routinely available in the UK for the management of tooth loss to restore dental function and aesthetics [1]. Currently, implant treatment is provided by dentists from different backgrounds and training, ranging from general dental practitioners to specialists in oral and maxillofacial surgery. Apart from guidance by the Faculty of General Dental Practice UK (FGDP(UK)) in *Training Standards in Implant Dentistry* (2016) [2] that set the standards for training in implant dentistry for dentists who wish to practise dental implant

Best Practices in Implant Dentistry, First Edition. Simon Wright, Cemal Ucer, and Rabia Khan. © 2025 John Wiley & Sons Ltd. Published 2025 by John Wiley & Sons Ltd. treatment, there are no specific national guidelines in this field. Nevertheless, it should be noted that *Training Standards in Implant Dentistry* has been adapted by the General Dental Council (GDC) to set the training standards for acquiring clinical competence in this field of dentistry.

Delivery of satisfactory dental implant treatment and its long-term success and maintenance require complex and invasive surgical and restorative procedures using a variety of highly specialised products, biomaterials and equipment. These interact with the host tissues both biologically and mechanically [3]. Satisfactory delivery of dental implant treatment also requires a well-trained team of dental professionals, therefore dentists who provide dental implant treatment have a legal and ethical duty to develop and maintain up-to-date evidence-based knowledge and competence in the field. The treatment provided should involve the use of evidence-based techniques and products, with the exception of a clinical trial consented to explicitly by the patient. The patient is entitled to, and expects, that the members of the dental team have the right skills, and that the products they use are safe and proven [3]. The patient is also entitled to have adequate information and advice on the alternative techniques, products, risks and outcomes, as well as the experience and scope of practise of the clinician proposing to carry it out before autonomously deciding to commence treatment [4].

Dental implant treatment is mainly an elective dental treatment option that requires complex and invasive procedures, followed by a need for meticulous lifelong maintenance. Patients' understanding of the nature and the mechanics of treatment, as well as their expectations regarding a realistic result, can often be lacking Figure 1.1. Thus, as in all elective surgery, dental implant treatment requires a higher standard of patient education and documentation, as well as meticulous attention to detail throughout every stage of treatment, from assessment and planning to delivery of treatment and maintenance phases.

These dynamic standards are intended to be good practice guidelines that could be applied to any clinical practice to promote safety and quality of care, rather than didactic or prescriptive rules that dictate how treatment should be delivered. *Training Standards in Implant Dentistry* is intended for the whole dental implant team. It covers all stages of treatment from assessment and surgery to maintenance phases. In this context, greater responsibility rests with the most experienced member of the team, particularly within the domains of professionalism, communication, leadership and management [2].



FIGURE 1.1 Diagrammatic representation of dental implants in jaw.

The standard of implant dentistry refers to the expectations and requirements that dental professionals must meet when providing implant treatment to patients. This standard is established to ensure that dental implants are placed safely, effectively and with the best possible outcomes for the patient. The standard of implant dentistry is constantly evolving with new research and developments in implant technology and techniques [5].

The standard of implant dentistry encompasses several areas, including the application of knowledge, skills and competence, professionalism, teamwork, safety and the quality of treatment equipment and products, and the provision of adequate information, communication and consent to patients. Dental professionals must gain adequate training and experience appropriate to each level of complexity of implant treatment offered, and recognise and work within the limits of their competence. They must update their knowledge and skills regularly through structured continuing professional development (CPD) in implant dentistry and take care and prudence in applying their knowledge and skills to deliver the treatment satisfactorily as planned [6].

Dental professionals must also seek and act on feedback from patients, colleagues and their team using specific outcome measures, audit results and treatment outcomes regularly, and use these to improve any shortcomings in their dental implant practice. They must follow best practice guidelines and keep up to date with evidencebased developments in materials and procedures to ensure safe, predictable and effective treatment outcomes. The techniques, treatment and products used must be safe and predictable, and unproven products or techniques should be avoided unless carrying out clinical trials with explicit patient information and consent.

When providing implant treatment, dental professionals must work closely with patients and other colleagues in formulating patient-centred, evidence-based treatment plans to ensure that the desired expectations of the outcome can be achieved effectively for each patient. They must carry out a full risk assessment and consider the anatomical, functional, psychological and financial needs of the patient when formulating a treatment plan for each individual patient. They must also discuss the relative indications, advantages and disadvantages of the alternatives and provide adequate information, communication and consent to patients [7]. This includes informing patients of the expected prognosis of the proposed treatment with specific reference to the possible impact of each patient's individual systemic and local risk factors on the intended outcome, discussing the likely impact of the patient's dental and medical history, systemic condition and vulnerabilities on the prognosis of the proposed treatment, and providing itemised and transparent financial information.

Implant dentistry is a well-established and rapidly growing field in the United Kingdom, and there are a number of standard practices and guidelines that are followed to ensure the safety and success of implant treatments. Here are some of the key training standards in implant dentistry in the United Kingdom:

- *Qualifications and training*: To practise implant dentistry in the United Kingdom, dentists must have completed specific training and qualifications in implantology. The GDC has established standards for implant dentistry training, and dentists must be registered with the GDC to practise in the United Kingdom.
- *Consent and patient selection*: Prior to any implant treatment, the dentist must obtain informed consent from the patient. This includes discussing the risks, benefits and alternatives to implant treatment, as well as ensuring that the patient is a suitable candidate for implants.

- *Sterilisation and infection control*: Implant treatment requires a sterile environment to minimise the risk of infection. Dental practices must follow strict protocols for sterilising instruments and equipment, as well as maintaining a clean and hygienic environment.
- *Implant placement*: The placement of dental implants must be carried out in accordance with established guidelines and protocols. This includes careful planning and assessment of the patient's oral health, as well as the use of appropriate techniques and materials.
- *Follow-up and maintenance*: After implant treatment, patients require ongoing care and maintenance to ensure the longevity of the implant. This may include regular check-ups, cleaning and adjustments, as well as appropriate hygiene and home-care instructions [2–4, 8].

Implant dentistry in the United Kingdom is subject to strict regulations and standards to ensure the safety and success of treatment. Dentists who practise implantology must have the necessary qualifications and training, and must adhere to established guidelines for patient selection, treatment and follow-up care.

#### 1.2 AIMS FOR STANDARDS IN IMPLANT DENTISTRY

The key aim of *Training Standards in Implant Dentistry* is to provide good practice guidelines on the knowledge, clinical competence and skills required of dentists who provide dental implant treatment to enhance the national standards of quality and safety of care (Figure 1.2).

*Training Standards in Implant Dentistry* incorporates general principles from the GDC guidance to dentists, FGDP good practice guidelines as well as Committee of Postgraduate Dental Deans and Directors (COPDEND) curriculum for Dental Foundation Training.



FIGURE 1.2 Educational requirements and constraints.

#### 1.3 KEY FEATURES AND OBJECTIVES OF THE STANDARDS IN IMPLANT DENTISTRY

- a. Application of knowledge, skills and competence:
  - Gain adequate training and experience appropriate to each level of complexity of implant treatment offered.
  - Recognise and work within the limits of your competence, seeking advice or referral to another colleague when the complexity of the case falls out of your scope of practise.
  - Update knowledge and skills regularly by undertaking structured CPD in implant dentistry using your personal development plan (Figure 1.3).
  - Take care and prudence in applying your knowledge and skills correctly to deliver the treatment satisfactorily as planned.
- b. Professionalism, teamwork, safety and quality of treatment equipment and products:
  - Seek and act on feedback from patients, colleagues and your team using specific outcome measures.
  - Audit results and treatment outcomes regularly, and use these to improve any shortcomings in your dental implant practice.
  - Follow best practice guidelines and keep up to date with evidence-based developments in materials and procedures to ensure safe, predictable and effective treatment outcomes.
  - Ensure that techniques, treatment and products used are safe and predictable.
  - Avoid using unproven products or techniques unless carrying out clinical trials with explicit patient information and consent.
  - Maintain a log book or register of techniques and products used.

Schema theory proposes that our knowledge and experiences are organised into mental frameworks or 'schemas' that guide our perception, interpretation and memory of new information. In the context of implant dentistry, schema theory can be applied to understand how a patient's pre-existing schemas about tooth loss, dental treatments and dental professionals can influence their perception and response to dental implant procedures (Figure 1.4).



**FIGURE 1.3** Creating an individualised professional growth strategy for every member of the dental team. PDP, personal development plan.



FIGURE 1.4 The applicability of schema theory in the context of dentistry.

For example, a patient who has negative schemas about dental procedures may have increased anxiety or fear about undergoing a dental implant surgery. Alternatively, a patient who has positive schemas about dental professionals may be more receptive to treatment recommendations and more likely to follow postoperative care instructions [9].

By understanding a patient's pre-existing schemas, dental professionals can tailor their communication and patient management strategies to address any misconceptions or concerns and improve patient outcomes. Additionally, incorporating schema-based cognitive and behavioural interventions, such as cognitive restructuring or exposure therapy, may also help alleviate negative schemas and improve treatment acceptance and adherence.

- c. Provision of adequate information, communication and consent:
  - Work closely with patients and other colleagues in formulating patientcentred, evidence-based treatment plans to ensure that the desired expectations of the outcome can be achieved effectively for each patient.
  - Carry out a full risk assessment and consider the anatomical, functional, psychological and financial needs of the patient when formulating a treatment plan for each individual patient.
  - Discuss the relative indications, advantages and disadvantages of the alternatives.
  - Inform patients of the expected prognosis of the proposed treatment with specific reference to the possible impact of each patient's individual systemic and local risk factors on the intended outcome.
  - Make sure patients are given enough information to make an autonomous decision and have time to reflect before deciding whether or not to have dental implant treatment.
  - Discuss the likely impact of the patient's dental and medical history, systemic condition and vulnerabilities on the prognosis of the proposed treatment, and how these may impact any additional remedial treatment that may become necessary in case of failures or complications.
  - Discuss the strength of the need to treat, including risks complication, side effects if treatment fails, possible remedial treatment that may become necessary as well as the consequences of failure to treat if any.