

Best Practices in Implant Dentistry

Simon Wright
Cemal Ucer
Rabia Khan

WILEY

This edition first published 2025
© 2025 John Wiley & Sons Ltd

All rights reserved, including rights for text and data mining and training of artificial intelligence technologies or similar technologies. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, except as permitted by law. Advice on how to obtain permission to reuse material from this title is available at <http://www.wiley.com/go/permissions>.

The right of Simon Wright, Cemal Ucer, and Rabia Khan to be identified as the authors of this work has been asserted in accordance with law.

Registered Offices

John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, USA

John Wiley & Sons Ltd, New Era House, 8 Oldlands Way, Bognor Regis, West Sussex, PO22 9NQ, UK

For details of our global editorial offices, customer services, and more information about Wiley products visit us at www.wiley.com.

The manufacturer's authorized representative according to the EU General Product Safety Regulation is Wiley-VCH GmbH, Boschstr. 12, 69469 Weinheim, Germany, e-mail: Product_Safety@wiley.com.

Wiley also publishes its books in a variety of electronic formats and by print-on-demand. Some content that appears in standard print versions of this book may not be available in other formats.

Trademarks: Wiley and the Wiley logo are trademarks or registered trademarks of John Wiley & Sons, Inc. and/or its affiliates in the United States and other countries and may not be used without written permission. All other trademarks are the property of their respective owners. John Wiley & Sons, Inc. is not associated with any product or vendor mentioned in this book.

Limit of Liability/Disclaimer of Warranty

While the publisher and authors have used their best efforts in preparing this work, they make no representations or warranties with respect to the accuracy or completeness of the contents of this work and specifically disclaim all warranties, including without limitation any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives, written sales materials or promotional statements for this work. This work is sold with the understanding that the publisher is not engaged in rendering professional services. The advice and strategies contained herein may not be suitable for your situation. You should consult with a specialist where appropriate. The fact that an organization, website, or product is referred to in this work as a citation and/or potential source of further information does not mean that the publisher and authors endorse the information or services the organization, website, or product may provide or recommendations it may make. Further, readers should be aware that websites listed in this work may have changed or disappeared between when this work was written and when it is read. Neither the publisher nor authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

Library of Congress Cataloging-in-Publication Data Applied for:
Paperback ISBN: 9781394199648

Cover Design: Wiley

Cover Image: © [peterschreiber.media/Getty Images](https://www.gettyimages.com)

Set in 10.5/13pt STIXTwoText by Straive, Pondicherry, India

Contents

Foreword	xi
Preface	xiii
Acknowledgements	xv
CHAPTER 1 Standards in Implant Dentistry	1
1.1 Introduction	1
1.2 Aims for Standards in Implant Dentistry	4
1.3 Key Features and Objectives of the Standards in Implant Dentistry	5
1.4 The Legal Standard of Care	7
1.5 The Clinical Standard of Care	7
1.6 Training Standards in Implant Dentistry Domains of Competence and Clinical Application	7
1.6.1 Level of Evidence	9
1.6.2 Grading System	9
1.7 Other Sources of Guidance in Implant Dentistry	11
References	12
CHAPTER 2 Assessment	13
2.1 Introduction	13
2.2 Dental History	14
2.3 Medical History	15
2.4 Intraoral and Extraoral Examination	16
2.5 Provisional Diagnosis	18
2.6 Investigations and Diagnostic Imaging	18
2.7 Definitive Diagnosis	20
2.8 Treatment Planning	20
2.9 Definitive Treatment Plan	24
2.10 Complexity	26
2.11 Preparation for Surgery	26
References	28
CHAPTER 3 Patient Management	29
3.1 Introduction	29
3.2 Medically Compromised Patient	31
3.3 Patient Information	35
3.4 Patient Education	40
3.5 Managing Expectations	41
3.6 Patient on Referral	43
3.7 Patient Records	44
3.7.1 Implant Pro	44
References	46

CHAPTER 4	Risk Management	49
4.1	Introduction	49
4.2	Human Factors	53
4.3	Definition of Success	55
4.4	Evidence-Based Treatment Planning Methodology	55
4.5	Treatment Objectives and Endpoints In Implantology	56
4.6	Patient-Related Systemic Factors	57
4.7	Patient-Related Local Risk Factors	58
4.8	Clinical-Related Risk Factors	61
4.9	Surgical Risk Factors	63
4.10	Strategies for Management of Risk Factors	
	Relating to Human Factors	66
	References	67
CHAPTER 5	Consent	69
5.1	Introduction	69
5.2	Valid Informed Consent	70
5.3	Patient Centred	70
5.4	Patient Information and Education	71
	References	71
CHAPTER 6	Imaging	73
6.1	Introduction	73
6.2	Imaging in Treatment Planning	74
6.2.1	Conventional Techniques	75
6.2.2	Sectional or Three-dimensional Imaging Techniques	75
6.3	Imaging During Surgery	76
6.4	Imaging Post Treatment and Review	78
	References	78
CHAPTER 7	Pain Control	81
7.1	Introduction	81
7.2	Acute Dental Pain	82
7.3	Preoperative Prophylaxis	82
7.4	Surgical Anaesthesia	83
7.5	Postoperative Pain	84
	References	85
CHAPTER 8	Anxiety	87
8.1	Introduction	87
8.2	Patient Management	88
8.3	Preoperative Care, Administration and Postoperative Care in Anxiety Management	88
8.4	Communication and Professionalism	89
	References	90
CHAPTER 9	Surgical Management	91
9.1	Introduction	91
9.2	Surgical Preparation	92
9.3	Bone and Soft Tissue Management	95
9.4	Implant Placement	98

9.5	Exposure and Temporisation	101
9.6	Organisation	101
	References	102
CHAPTER 10 Restorative Approach		105
10.1	Introduction	105
10.2	Soft Tissue Management	106
10.3	Implant Abutment and Super Structure	108
10.4	Provisional Restoration	109
10.5	Restorative Design and Materials	110
10.6	Clinical Procedures	112
10.7	Aesthetics	112
10.8	Occlusion	114
10.9	Patient Notes	116
	References	116
CHAPTER 11 Postoperative		119
11.1	Introduction	119
11.2	Pain Control	119
11.3	Infection	120
11.4	Suture Removal	121
11.5	Review and Follow-Up	121
	References	122
CHAPTER 12 Maintenance		123
12.1	Introduction	123
12.2	Recall Interval	123
12.3	Radiographic Review	124
12.4	Clinical Examination	125
12.5	Oral Hygiene and Patient Education	127
	12.5.1 Host Susceptibility	127
	12.5.2 Prosthetic Design	128
	12.5.3 Patient Factors	128
	References	128
CHAPTER 13 The Digital Workflow in Implant Dentistry		129
13.1	Introduction	129
13.2	Components and Steps of the Digital Implant Workflow	130
	13.2.1 Digital Diagnostic Impression	130
	13.2.2 Cone Beam Computed Tomography	131
	13.2.3 Digital Implant Treatment Planning	131
	13.2.4 The Digital Surgical Guide	132
	13.2.5 Fabricated Temporary Prosthesis	133
	13.2.6 Guided Implant Surgery	133
	13.2.7 Digital Implant Impressions	135
	13.2.8 Customised Prosthesis Fabrication	135
	Reference	136
CHAPTER 14 Complications		137
14.1	Introduction	137
14.2	Patient Management	137

14.3	Documentation	139
14.4	Diagnosis	139
14.5	Surgical Complications	140
14.6	Restorative Complications	141
14.7	Peri-Implant Disease	143
14.7.1	Supplemental Treatment	145
14.7.2	Systemic Antibiotics	145
14.7.3	Non-surgical	146
14.7.4	Surgical	146
14.7.5	Modifying Factors	147
14.7.6	Summary of Peri-implant Disease	147
	References	148
CHAPTER 15 Regulation and Legislation		151
15.1	Overview of Regulation and Legislation	151
	References	153
CHAPTER 16 Team Management		155
16.1	Introduction	155
	References	158
CHAPTER 17 Clinical Audit		159
17.1	Introduction	159
17.2	Decontamination	160
17.3	Treatment	160
17.4	Continuing Professional Development and Skill Assessment	161
17.5	Equipment and Devices	161
	References	162
CHAPTER 18 Communication		163
18.1	Overview of Communication	163
18.2	Patient Education	165
18.3	Communication Barriers	165
18.4	Informed Consent	165
18.5	Interprofessional Communication	166
18.6	Conclusion	166
	References	166
CHAPTER 19 Human Factors		167
19.1	Introduction	167
19.2	Threat and Error Management	168
19.3	Team Resource Management	168
19.4	Checklists	169
19.5	Reporting	170
19.6	Standard Operating Protocol	171
19.7	Additional Information	171
	References	171
CHAPTER 20 Technical Procedures		175
20.1	Introduction	175
20.2	Communication	175

20.3	Restorative Design	176
20.4	Materials	176
20.5	Disinfection	177
	References	178
CHAPTER 21	Education and Training	179
21.1	Introduction	179
21.2	Personal Development Plan	180
21.3	Mentoring	180
21.4	Qualifications, Competence and Courses	181
	References	182
	Appendix A	183
	Appendix B: Standard Operating Procedures	187
	Index	219

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

Acknowledgements

We would like to thank everyone who has contributed to both the first and this second edition of *The New Prescriber*. The breadth of clinical and academic expertise that we have been able to call on across both editions has been tremendous and means we have been able to ensure a contemporary output.

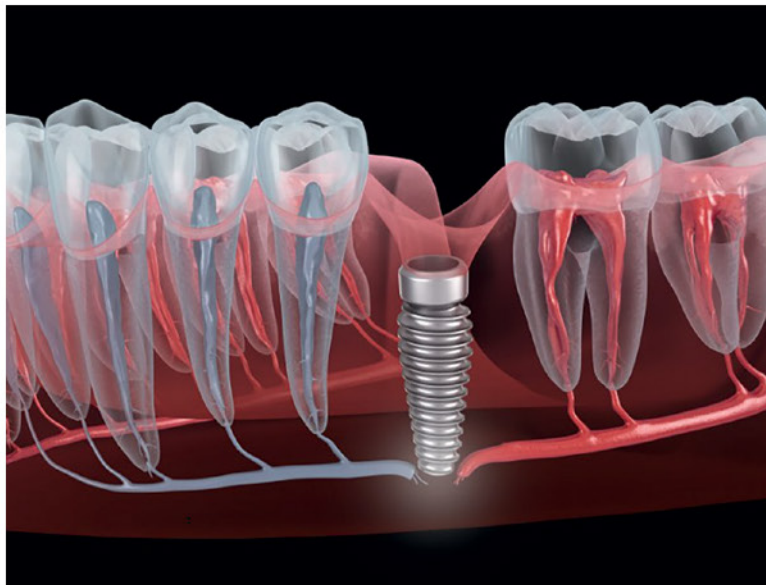
In addition to these contributors, we would like to thank Lianne Nachmias for her support with the initial development of this edition.

Perhaps most importantly we would like to thank Sue Evans, who has been our key administrative support, managing the production of this edition for us. She has kept us all on track, helped with editing, formatting and proof-reading, and liaising with the publishers. This edition has been possible only because of Sue's ongoing support. Thank you, Sue.

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

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 life-long 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].

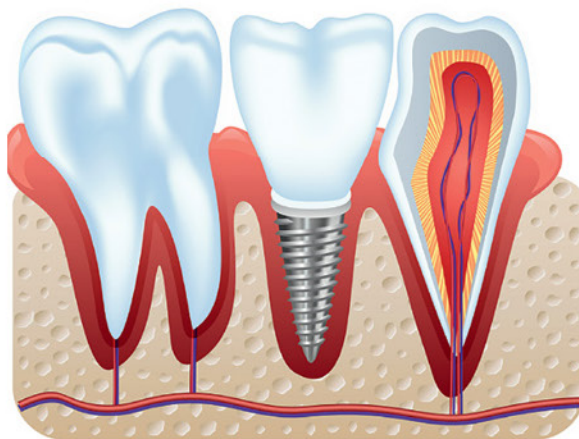


FIGURE 1.1 Diagrammatic representation of dental implants in jaw.

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 evidence-based 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.

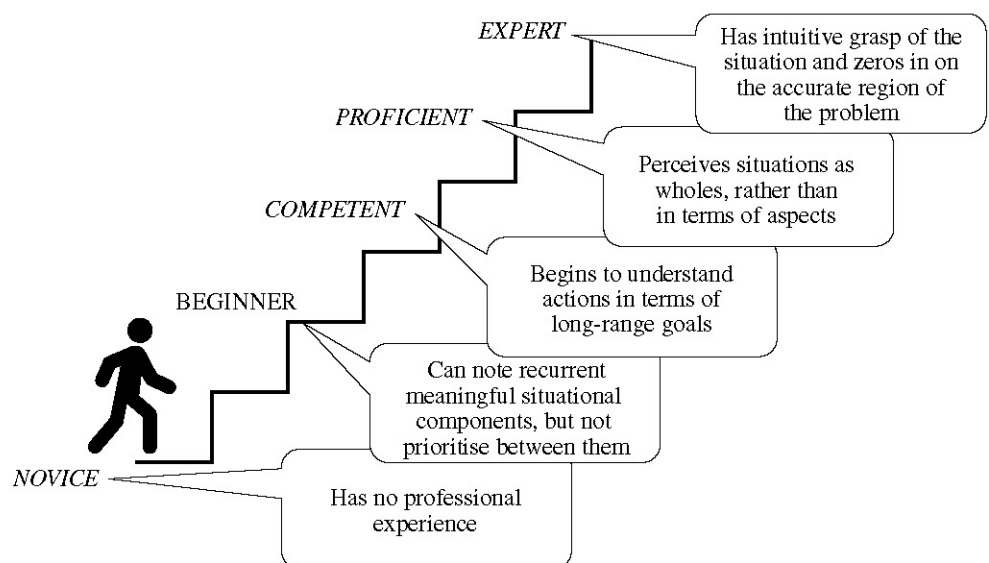


FIGURE 1.2 Educational requirements and constraints.

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).

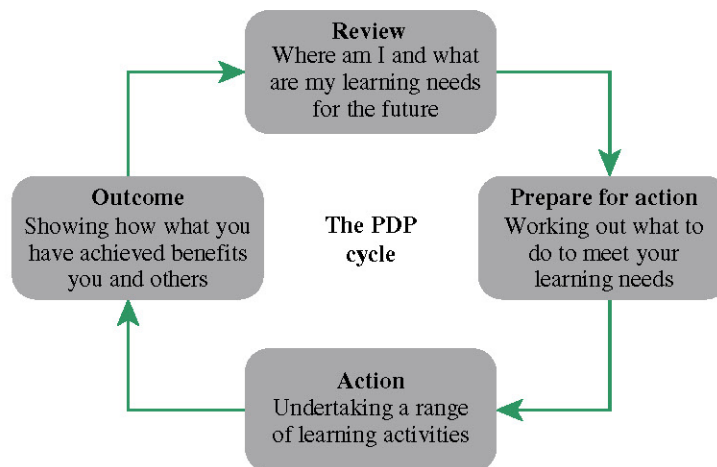


FIGURE 1.3 Creating an individualised professional growth strategy for every member of the dental team. PDP, personal development plan.

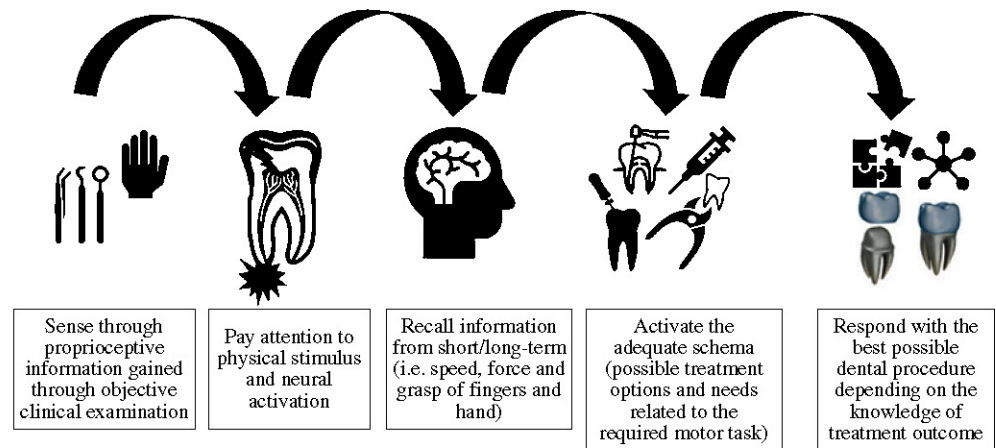


FIGURE 1.4 The applicability of schema theory in the context of dentistry.

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 patient-centred, 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.

- Provide itemised and transparent financial information, fees and charges, and provide structured policy information on how to deal with any failures or future remedial treatment if needed.

1.4 THE LEGAL STANDARD OF CARE

Whilst clinicians are generally required to exercise the degree of skill and competence ordinarily possessed by their fellow practitioners ('peers') under similar circumstances, any practitioner (generalist or specialist) undertaking any surgical and/or prosthodontic procedure that is particularly deemed to be of an advanced or complex nature should do so to the same standard of care (SOC) expected of a specialist or, in the case of a specialist, to a standard equal to a reasonable body of his/her peers [10]. A clinician could be legally held responsible for failing to refer to a specialist or more experienced colleague.

1.5 THE CLINICAL STANDARD OF CARE

The doctrine of the clinical SOC is a highly relevant concept to risk management, and therefore setting standards in healthcare is an essential prerequisite for achieving a high quality of patient care. Standards or 'good practice guidelines' help clinicians to achieve better outcomes by benchmarking their clinical activities and how they practise. This reduces variations in quality of healthcare and establishes national norms by helping to increase the ability of practitioners to predict, recognise and treat complications arising from any treatment they provide. The standard of care is a dynamic concept that evolves continually with the introduction of new techniques, products and case law.

On the other hand, the SOC does not mean a clinician should possess a minimum standard of extraordinary knowledge or skills or provide treatment that never fails. The SOC is the manner in which a clinician must practise bringing about a good result.

It must be noted that as long as the clinician can show that he/she has applied reasonable care, knowledge and skills correctly in a prudent way, treatment that ends in a bad result will not be a successful cause of action because of the doctrine of 'error in judgement'.

Training Standards in Implant Dentistry provides a framework of good practice guidelines in implant dentistry to ensure that an intervention can be skilfully planned, executed and delivered to bring about a good result that has been predicted using reasonable care and caution. Tables 1.1 and 1.2 summarise the key features of the clinical doctrine of SOC.

1.6 TRAINING STANDARDS IN IMPLANT DENTISTRY DOMAINS OF COMPETENCE AND CLINICAL APPLICATION

The *Training Standards in Implant Dentistry* are presented in a framework consisting of two distinct categories of *clinical* and *non-clinical domains* (Figure 1.5). These are in turn mapped against the four main domains of dentists' competence (Figures 1.6 and 1.7).

TABLE 1.1 Upholding competence, care, and patient autonomy as the foundation of clinical standards.

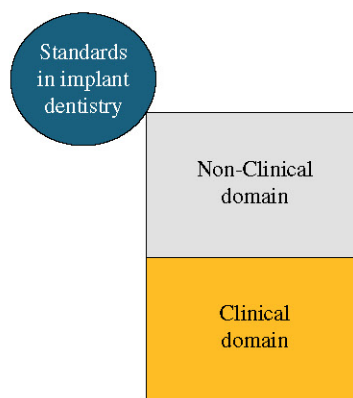
The standard of care means that a clinician should:

1. Have a reasonable degree of knowledge and skills that is ordinarily possessed by a skilled and prudent clinician acting in the locality.
2. Use reasonable care, prudence and best judgement in correctly applying knowledge and skills that a reasonably prudent practitioner would apply under similar circumstances to bring about a good result that has been planned or predicted.
3. Keep up to date with evidence-based knowledge and skills development.
4. Use approved or evidence-based methods in general use. When adopting new products and techniques must use prudence and be competent in their use.
5. Give proper advice and instructions to patients regarding how they need to care for themselves after treatment.
6. Respect patients' autonomy about making decisions concerning their healthcare.

TABLE 1.2 Ensuring informed, evidence-based, and safe adoption of new dental materials and devices.

When employing new materials, devices or products a dentist should:

- Consider the strength of the evidence when comparing the availability, effectiveness and safety of the new method or products with the established ones.
- Be properly trained in the use of the new method or product.
- Obtain informed consent with full disclosure of adequate information and any material risks to allow for autonomy.
- Ensure that safety and efficiency of the medical devices have been documented and conform to the guidelines of the Medicines and Healthcare Products Regulatory Agency and/or the European Union's Medical Devices Directive.
- Follow the recommendations of the manufacturers for the use of products.

**FIGURE 1.5** The *Training Standards in Implant Dentistry* framework consists of clinical and non-clinical domains.

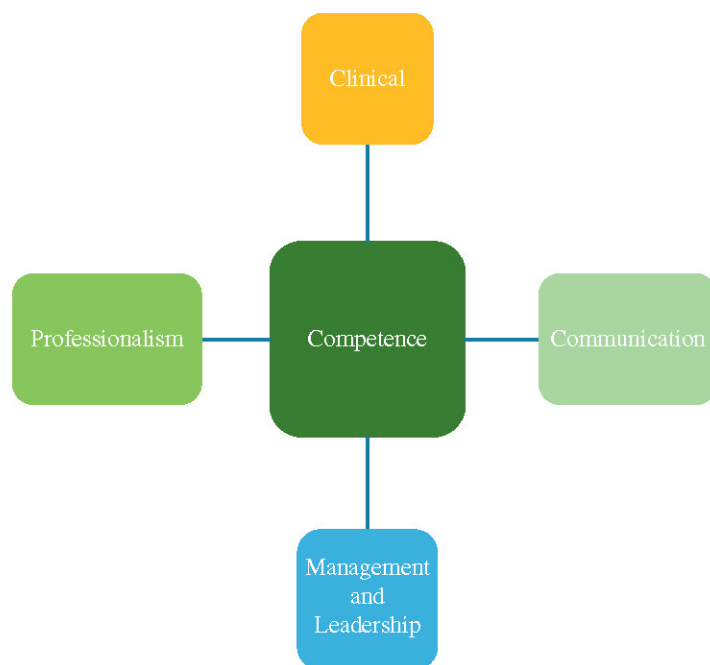


FIGURE 1.6 Standards in implant dentistry have been mapped with the competencies expected of practicing dentists.

1.6.1 Level of Evidence

The level of evidence supporting each competency is graded as (i), (ii) or (iii).

- *Level (i)*: The body of literature is of high quality and consistency in supporting the recommendation and standards.
- *Level (ii)*: The body of evidence is of a good quality. Consensus statements developed through systematic review and good practice guidelines developed by national organisations support the recommendations and standards.
- *Level (iii)*: The body of evidence is based on expert opinion.

These levels are indicated in the grading system tables in the rest of the book.

1.6.2 Grading System

The applicability of recommendations and guidelines to clinical practise is paramount.

In this document, the clinical application of the standards is graded as Aspirational, Basic or Conditional.

- *Aspirational*: A standard of excellence has been achieved.
- *Basic*: Minimum or a good SOC is achieved.
- *Conditional*: This SOC is only acceptable in very specific and defined circumstances.

These grades are indicated by (A), (B) and (C) at the appropriate places in the text in subsequent chapters.

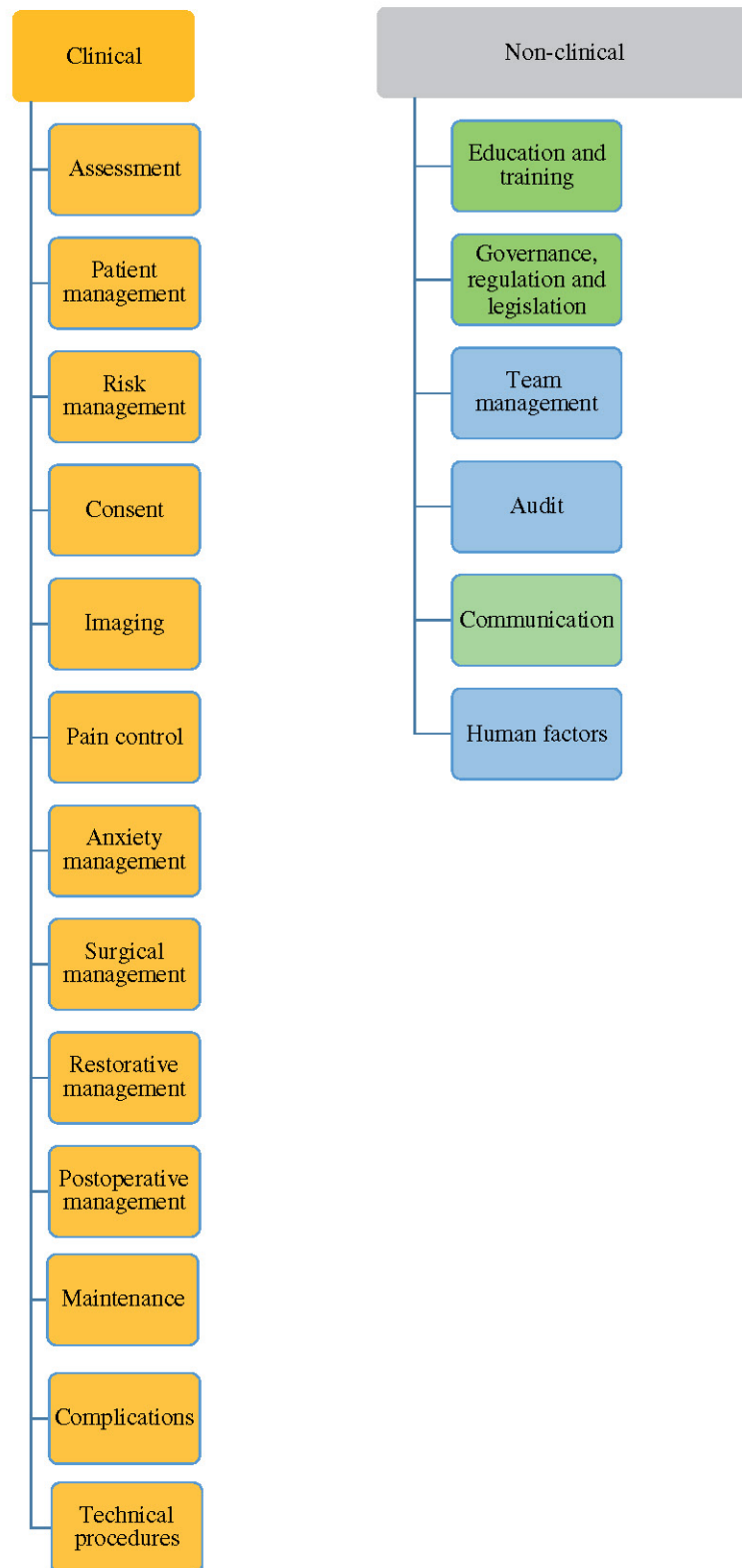


FIGURE 1.7 Clinical and non-clinical domains of competence in implant dentistry.

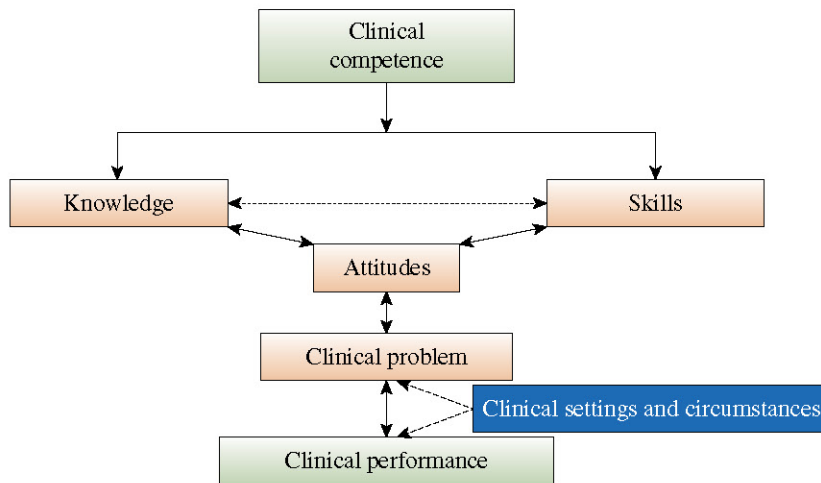


FIGURE 1.8 The constituents of clinical proficiency and execution, adapted from Newble's work [11].

Newble's work [11] proposed that clinical proficiency and execution can be broken down into eight key components, as illustrated in Figure 1.8. These components include:

- *Knowledge base*: the breadth and depth of knowledge relevant to the clinical task.
- *Cognitive strategies*: the ability to apply knowledge and problem-solving strategies to clinical situations.
- *Technical skills*: the physical ability to perform clinical procedures accurately and efficiently.
- *Interpersonal skills*: the ability to communicate effectively and build rapport with patients, colleagues and other healthcare professionals.
- *Clinical reasoning*: the ability to gather and interpret clinical data, make diagnoses and formulate treatment plans.
- *Professionalism*: the demonstration of ethical and professional behaviour in clinical practice.
- *Clinical management*: the ability to manage patient care effectively and efficiently, including time management and resource utilisation.
- *Lifelong learning*: the commitment to ongoing learning and professional development to maintain and improve clinical proficiency over time.

These eight components are interdependent and collectively contribute to the development of clinical proficiency and execution in healthcare professionals. By recognising and prioritising these components in clinical training and practice, healthcare professionals can improve patient outcomes and enhance the quality of care provided [12].

1.7 OTHER SOURCES OF GUIDANCE IN IMPLANT DENTISTRY

- FGDP(UK) guidelines
- International Team for Implantology guidelines and protocols
- International Congress of Oral Implantologists

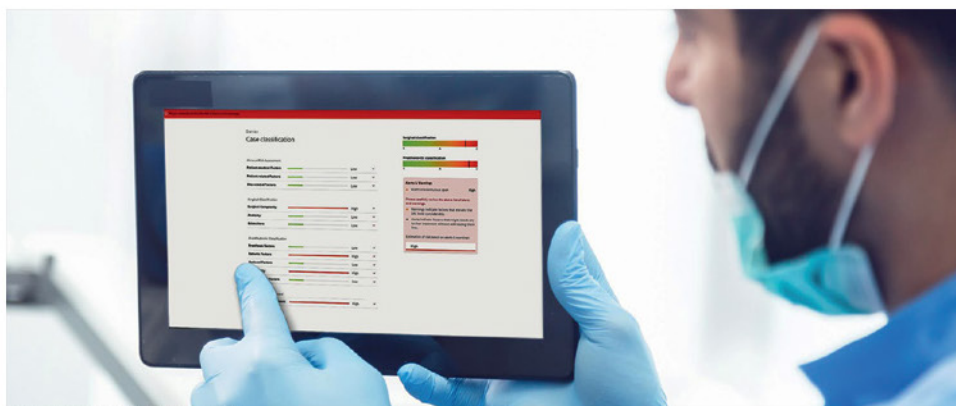
- European Association for Osseointegration
- Academy of Osseointegration
- Association of Dental Implantology
- GDC.

REFERENCES

1. Exley, C.E., Rousseau, N.S., Steele, J. et al. (2009). Paying for treatments? Influences on negotiating clinical need and decision-making for dental implant treatment. *BMC Health Serv. Res.* 9: 7. <https://doi.org/10.1186/1472-6963-9-7>.
2. College of General Dentistry. (2016). *Training Standards in Implant Dentistry*. <https://cgdent.uk/training-standards-in-implant-dentistry/>.
3. Saini, M., Singh, Y., Arora, P. et al. (2015). Implant biomaterials: a comprehensive review. *World J. Clin. Cases* 3 (1): 52–57. <https://doi.org/10.12998/wjcc.v3.i1.52>. PMID: 25610850; PMCID: PMC4295219.
4. Setzer, F.C. and Kim, S. (2014). Comparison of long-term survival of implants and endodontically treated teeth. *J. Dent. Res.* 93 (1): 19–26. <https://doi.org/10.1177/0022034513504782>. Epub 2013 Sep 24. PMID: 24065635; PMCID: PMC3872851.
5. Ihde, S. and Sipic, O. (2019). Functional and esthetic indication for dental implant treatment and immediate loading (2) case report and considerations: typical attitudes of dentists (and their unions) toward tooth extractions and the prevention of early, effective, and helpful dental implant treatment in the European Union. *Ann. Maxillofac. Surg.* 9 (2): 470–474. https://doi.org/10.4103/ams.ams_152_19. PMID: 31909038; PMCID: PMC6933996.
6. Mumghamba, E.G. (2014). Integrating a primary oral health care approach in the dental curriculum: a Tanzanian experience. *Med. Princ. Pract.* 23 (Suppl 1): 69–77. <https://doi.org/10.1159/000355520>. Epub 2013 Nov 13. PMID: 24246734; PMCID: PMC5586945.
7. Baâdoudi, F., van Exel, J.N.A., Ali, F.M. et al. (2019). Perspectives of general dental practitioners on preventive, patient-centred, and evidence-based oral healthcare—a Q-methodology study. *PLoS One* 14 (8): e0219931. <https://doi.org/10.1371/journal.pone.0219931>. Erratum in: *PLoS One*. 2019 Oct 1;14(10):e0223458. PMID: 31430291; PMCID: PMC6701752.
8. Coggon, J. and Miola, J. (2011). Autonomy, liberty and medical decision-making. *Camb Law J.* 70 (3): 523–547. <https://doi.org/10.1017/S0008197311000845>. PMID: 23293377; PMCID: PMC3535760.
9. Chella, A., Pipitone, A., Morin, A., and Racy, F. (2020). Developing self-awareness in robots via inner speech. *Front. Robot. AI* 19 (7): 16. <https://doi.org/10.3389/frobt.2020.00016>. PMID: 33501185; PMCID: PMC7805855.
10. Academy of Osseointegration (2010). Guidelines of the Academy of Osseointegration for the provision of dental implants and associated patient care. *Int. J. Oral Maxillofac. Implants* 25 (3): 620–627. PMID: 20653117.
11. Newble, D.I. (1992). Eight key components of clinical proficiency. *Med. Ed.* 26 (1): 10–16.
12. Martin, M.V. (2006). Training standards in implant dentistry for general dental practitioners. A report. *Prim. Dent. Care* 13 (3): 117–118. <https://doi.org/10.1308/13557610677795617>.

CHAPTER 2

Assessment



proimagecontent/Adobe stock

2.1 INTRODUCTION

Successful outcomes in dental implantology necessitate the realistic management of the usually high expectations of patients for dental implant treatment. These expectations are fundamentally related to an improvement in function, aesthetics and longevity. The objective of the dental implant treatment is to replace the missing/failing teeth with prostheses that restore function as well as dental aesthetics. To provide consistently predictable and satisfactory treatment outcomes of the highest standard, the dental team is required to perform a highly skilled assessment and examination process, including diagnostic imaging and other investigations, before formulating the most suitable treatment plan to meet the needs and expectations of each individual patient [1]. The treatment plan should consider the systemic and local condition of the patient, the clinician- and patient-related risk factors, the patient's wishes and desires, as well as the prosthodontics, occlusal, aesthetic and long-term maintenance requirements of the case (Figure 2.1) [2] (B).