Wilkins' Clinical Practice of the Dental Hygienist

LINDA D. BOYD, RDH, RD, EdD

Professor and Associate Dean
Forsyth School of Dental Hygiene
MCPHS University
Boston, Massachusetts

LISA F. MALLONEE, RDH, RD, LD, MPH

Professor and Graduate Program Director Caruth School of Dental Hygiene Texas A&M College of Dentistry Dallas, Texas

CHARLOTTE J. WYCHE, BSDH, MS

Retired

Department of Periodontics and Oral Medicine University of Michigan School of Dentistry Ann Arbor, Michigan





World Headquarters
Jones & Bartlett Learning
5 Wall Street
Burlington, MA 01803
978-443-5000
info@jblearning.com
www.jblearning.com

Jones & Bartlett Learning books and products are available through most bookstores and online booksellers. To contact Jones & Bartlett Learning directly, call 800-832-0034, fax 978-443-8000, or visit our website, www.jblearning.com.

Substantial discounts on bulk quantities of Jones & Bartlett Learning publications are available to corporations, professional associations, and other qualified organizations. For details and specific discount information, contact the special sales department at Jones & Bartlett Learning via the above contact information or send an email to specialsales@jblearning.com.

Copyright © 2021 by Jones & Bartlett Learning, LLC, an Ascend Learning Company

All rights reserved. No part of the material protected by this copyright may be reproduced or utilized in any form, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written permission from the copyright owner.

The content, statements, views, and opinions herein are the sole expression of the respective authors and not that of Jones & Bartlett Learning, LLC. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not constitute or imply its endorsement or recommendation by Jones & Bartlett Learning, LLC and such reference shall not be used for advertising or product endorsement purposes. All trademarks displayed are the trademarks of the parties noted herein. Wilkins' Clinical Practice of the Dental Hygienist, Thirteenth Edition is an independent publication and has not been authorized, sponsored, or otherwise approved by the owners of the trademarks or service marks referenced in this product.

There may be images in this book that feature models; these models do not necessarily endorse, represent, or participate in the activities represented in the images. Any screenshots in this product are for educational and instructive purposes only. Any individuals and scenarios featured in the case studies throughout this product may be real or fictitious, but are used for instructional purposes only.

The authors, editor, and publisher have made every effort to provide accurate information. However, they are not responsible for errors, omissions, or for any outcomes related to the use of the contents of this book and take no responsibility for the use of the products and procedures described. Treatments and side effects described in this book may not be applicable to all people; likewise, some people may require a dose or experience a side effect that is not described herein. Drugs and medical devices are discussed that may have limited availability controlled by the Food and Drug Administration (FDA) for use only in a research study or clinical trial. Research, clinical practice, and government regulations often change the accepted standard in this field. When consideration is being given to use of any drug in the clinical setting, the health care provider or reader is responsible for determining FDA status of the drug, reading the package insert, and reviewing prescribing information for the most up-to-date recommendations on dose, precautions, and contraindications, and determining the appropriate usage for the product. This is especially important in the case of drugs that are new or seldom used.

20691-3

Production Credits

VP, Product Management: Amanda Martin
Director of Product Management: Cathy L. Esperti
Product Manager: Sean Fabery
Product Coordinator: Elena Sorrentino
Senior Project Specialist: Vanessa Richards
Digital Project Specialist: Angela Dooley
Director of Marketing: Andrea DeFronzo
VP, Manufacturing and Inventory Control: Therese Connell

Composition & Project Management: S4Carlisle Publishing Services
Cover Design: Kristin E. Parker
Senior Media Development Editor: Troy Liston
Rights Specialist: Rebecca Damon
Cover Image (Title Page, Part Opener, Chapter Opener):
© phyZick/Shutterstock
Printing and Binding: LSC Communications
Cover Printing: LSC Communications

Library of Congress Cataloging-in-Publication Data

Library of Congress Cataloging-in-Publication Data unavailable at time of printing.

LCCN: 2019917179

6048

TRIBUTE TO DR. ESTHER M. WILKINS



The first edition of Dr. Esther Wilkin's Clinical Practice of the Dental Hygienist was published in 1959. Before that, the "book" was provided for Esther's students at the University of Washington as a series of individually copied, topic-related handouts, organized as the book is today, using an easy-to-read outline format. Over the next 60

or so years, Esther wrote and supervised the revision through 12 editions (an average of one new edition every 5 years!).

Anyone who worked with Esther on any of those editions understands the effort and energy she put into making the book as up—to-date and evidence-based as possible. Even in that very first edition, every chapter contained

a list of references to support the information in that chapter. A look through any of those previous editions reveals how current Esther's thinking was as she updated each edition. Anyone fortunate enough to be invited to visit Esther in her condo overlooking Boston Common will tell you that her home office was bursting with textbooks and copies of thousands of journal articles, stacked on every available surface and poking out of overfilled file cabinets. Such was her commitment to understanding the current science related to dental hygiene practice. Those of us who worked with her over the years can tell you about her attention to detail and insistence that everything be perfect as we submitted chapter manuscripts for publication.

The editorial and contributor teams who have revised this first new edition since Esther is no longer here to guide us are proud to say that we have done our best to carry forward the integrity, attention to detail, and dedication to the science and art of dental hygiene practice that was Esther's vision for this book.

DEDICATION

The 13th edition of *Clinical Practice of the Dental Hygienist* is dedicated to all past and present students who have studied from the preceding editions. Gratitude is expressed to their teachers in the many different dental hygiene programs around the world, for their leadership in, and devotion to, dental hygiene education.

A very special recognition goes to the students of the first 10 classes in dental hygiene at the University of Washington in Seattle for whom the original "mimeographed" syllabus was created by Dr. Esther Wilkins. They are remembered with much appreciation because their need for text study material made this book possible in the first place.

-Esther M. Wilkins

Gratitude to my husband, who has supported me tirelessly on my academic journey, and to my grandmother, Fay Nelson, who instilled a love of learning. Special thanks to my professional mentors who recognized my potential even when I did not: Dr. John Chirgwin, Dr. Carole Palmer, and last, but never least, Dr. Esther Wilkins. Dr. Wilkins is the wind beneath our wings as educators and dental hygienists! Never forget all she has done for our profession!

-Linda D. Boyd

To my husband Scott and our children, Harper and Layney, who provide me with daily inspiration, love, and support in all that I do. To Dr. Esther Wilkins—it is an honor to play an integral role in moving your legacy for the profession of dental hygiene forward. A special thanks goes to all who have mentored me throughout my career, to my Caruth School of Dental Hygiene family that provide a constant source of encouragement, and to my students—past, present, and future—who motivate me to keep evolving as an educator.

—Lisa F. Mallonee

To Esther, of course.

-Charlotte J. Wyche

Contents

ne Care in Alternative Settings tice Settings d Patients Care or Unconscious Patient	47 48 48 49
d Patients Care or Unconscious Patient	48 49
Care or Unconscious Patient	49
or Unconscious Patient	
	_
II Dationt	54
II Patient	56
	56
	5
II	
ION FOR DENTAL	
PRACTICE	59
trol: Transmissible Diseases	6
itions	62
of the Oral Cavity	62
rocess	63
missible from the Oral Cavity	65
,	67
	68
irus Diseases	70
	7!
	75
	79
tant stap.,, see ceas aareas	79
	80
	83
	84
ion for the Dental Team	84
	84
k: Respiratory Protection	8!
	86
•	8
rinciples	89
	89
ing	9
	9:
· · · · · ·	94
	9
	trol: Transmissible Diseases tions of the Oral Cavity rocess missible from the Oral Cavity irus Diseases navirus on tant Staphylococcus aureus htrol: Barriers for linician ion for the Dental Team c: Respiratory Protection e Eyewear rinciples d Hygiene

CHAPTER 7		Documenting the Extra- and Intraoral Examination	152
Infection Control: Clinical Procedures	97	Tooth Numbering Systems	152
Infection Control	98	Charting of Hard and Soft Tissues	154
Treatment Room Features	98	Periodontal Records	155
Instrument Processing Center	100	Dental Records	157
Precleaning Procedures	100	Care Plan Records	157
Instrument Packing and Management System	102	Informed Consent	157
Sterilization	102	Documentation of Patient Visits	157
Moist Heat: Steam under Pressure	104	References	159
Dry Heat	104	Veletelices	133
Chemical Vapor Sterilizer	105	CECTION IV	
Intermediate-Use Steam Sterilization	105	SECTION IV	
Chemical Liquid Sterilization	105	ASSESSMENT	161
Care of Sterile Instruments	105		
Chemical Disinfectants	106	CHAPTER 11	
Barriers and Surface Covers	107	Medical, Dental, and Psychosocial	
Preparation of the Treatment Room	107	Histories	163
Patient Preparation	110	Introduction	164
Summary of Standard Procedures	110	History Preparation	164
Disposal of Waste	111	The Questionnaire	165
Supplemental Recommendations		The Interview	167
• •	111	Items Included in the History	168
Occupational Postexposure Management	112	Application of Patient Histories	176
Documentation	112	Pretreatment Antibiotic Prophylaxis	178
References	113	American Society of Anesthesiologists Determination	179
CHAPTER 8		Review and Update of History	180
Patient Reception and Ergonomic Practice	115	Documentation	180
Preparation for the Patient	116	References	182
Patient Reception	116		
Position of the Patient	116	CHAPTER 12	
Position of the Clinician	118	Vital Signs	183
Neutral Working Position	118	Introduction	183
The Treatment Area	120	Body Temperature	184
		Pulse	185
Ergonomic Practice	121	Respiration	186
Self-Care for the Dental Hygienist	123	Blood Pressure	187
Documentation	124	Documentation	191
References	125	References	192
CHAPTER 9		CHARTER 17	
Emergency Care	127	CHAPTER 13	105
Emergency Preparedness	128	Extraoral and Intraoral Examination	195
Prevention of Emergencies	128	Rationale for the Extraoral and Intraoral Examination	196
Patient Assessment	128	Components of Examination	196
Stress Minimization	130	Anatomic Landmarks of the Oral Cavity	198
Emergency Materials and Preparation	130	Sequence of Examination	198
BLS Certification	136	Morphologic Categories	204
Oxygen Administration	136	Oral Cancer	206
Specific Emergencies	137	Clinical Recommendations for Evaluation of Oral Lesions	207
Documentation Documentation	137	Documentation	207
References	145	References	209
References	113	CHARTER 14	
SECTION III		CHAPTER 14 Family Violence	211
DOCUMENTATION	147	Family Violence	212
DOGGILITATION	17/	Child Abuse and Neglect	212
CHARTER 10		Munchausen Syndrome by Proxy	212
CHAPTER 10	140		210
Documentation for Dental Hygiene Care	149 150	Human Trafficking	
The Patient Record	150	Elder Abuse and Neglect	217
The Health Insurance Portability and Accountability Act	151	Intimate Partner Violence	218

Reporting Abuse and/or Neglect	219	Dental Biofilm	281
Forensic Dentistry	220	Supragingival and Subgingival Dental Biofilm	284
Documentation	221	Composition of Dental Biofilm	284
References	223	Clinical Aspects of Dental Biofilm	285
OULD TED 45		Significance of Dental Biofilm	286
CHAPTER 15	005	Materia Alba	286
Dental Radiographic Imaging	225	Food Debris	287
Introduction	226	Calculus	287
How X-Rays are Produced	226	Calculus Composition	289
Digital Radiography	229	Calculus Formation	290
Characteristics of an Acceptable Radiographic Image	231	Attachment of Calculus	291
Factors That Influence the Finished Radiograph	231	Significance of Dental Calculus	291
Exposure to Radiation	235	Clinical Characteristics	291
Risk of Injury from Radiation	237	Prevention of Calculus	293
Procedures for Image Receptor Placement and		Dental Stains and Discolorations	293
Angulation of Central Ray	241	Significance of Dental Stains	293
Image Receptor Selection for Intraoral Surveys	242	Extrinsic Stains	294
Periapical Survey: Paralleling Technique	243	Endogenous Intrinsic Stains	297
Bitewing Survey	244	Exogenous Intrinsic Stains	299
Periapical Survey: Bisecting-Angle Technique	245	Documentation	300
Occlusal Survey	245	References	301
Panoramic Radiographic Images	246		
Infection Control	247	CHAPTER 18	
Traditional Film Processing	248	The Periodontium	303
Handheld X-Ray Devices	249	The Normal Periodontium	303
Analysis of Completed Radiographs	249	The Gingival Description	309
0wnership	250	The Gingiva of Young Children	314
Documentation	252	The Gingiva after Periodontal Surgery	314
References	253	Documentation	315
		References	316
CHAPTER 16			
Hard Tissue Examination of the Dentition	255	CHAPTER 19	
The Dentitions	256	Periodontal Disease Development	317
Hard Tissue Examination Procedure	257	Periodontal-Systemic Disease Connection	318
Developmental Enamel Lesions	260	Risk Assessment	318
Developmental Defects of Dentin	261	Etiology of Periodontal Disease	318
Noncarious Dental Lesions	261	Risk Factors for Periodontal Diseases	319
Noncarious Cervical Lesions	261	Pathogenesis of Periodontal Diseases	323
Fractures of the Teeth	263	Gingival and Periodontal Pockets	324
Dental Caries	263	Complications Resulting from Periodontal Disease Progression	325
Enamel Caries	266	The Recognition of Gingival and Periodontal Infections	327
Early Childhood Caries	267	Classification of Periodontal Health	328
Root Caries	267	Classification of Gingivitis	328
Testing for Pulp Vitality	268	Classification of Periodontitis	329
Occlusion	269	Acute Periodontal Lesions	332
Occlusion of the Primary Teeth	273	Documentation	333
Dynamic or Functional Occlusion	274	References	334
Trauma from Occlusion	274		
Study Models	275	CHAPTER 20	
The Interocclusal Record	275	Periodontal Examination	337
Documentation	275	Basic Instruments for Examination	338
References	277	The Mouth Mirror	338
		Air–Water Syringe	338
CHAPTER 17		Explorers	339
Dental Soft Deposits, Biofilm, Calculus,		Basic Procedures for Use of Explorers	339
and Stains	279	Explorers: Supragingival Procedures	340
Dental Biofilm and Other Soft Deposits	280	Explorers: Subgingival Procedures	340
Acquired Pellicle	281	Periodontal Probe	340

Guide to Periodontal Probing	343	MI Implementation	410
Preliminary Assessment Prior to Periodontal Examination	344	Exploring Ambivalence	413
Parameters of Care for the Periodontal Examination	345	Eliciting and Recognizing Change Talk	414
Radiographic Changes in Periodontal Disease	353	Strengthening Commitment (The Plan)	416
Other Radiographic Findings	355	MI with Pediatric Patients and Caregivers	417
Documentation	355	Motivational Training and Coaching	418
References	356	Documentation	418
		References	419
CHAPTER 21			
Indices and Scoring Methods	357	CHAPTER 25	
Types of Scoring Methods	357	Protocols for Prevention and Control	
Indices	358	of Dental Caries	421
Oral Hygiene Status (Biofilm, Debris, and Calculus)	359	History of Dental Caries Management	422
Gingival and Periodontal Health	365	The Dental Caries Process	422
Dental Caries Experience	371	Dental Caries Classifications	423
Dental Fluorosis	375	Caries Risk Assessment Systems	424
Community-Based Oral Health Surveillance	376	Implementation of CRA in the Process of Care	427
Documentation	377	Caries Risk Management Systems	427
References	379	Planning Care for the Patient's Caries Risk Level	427
		Continuing Care	429
CECTION V		Documentation	429
SECTION V		References	430
DENTAL HYGIENE DIAGNOSIS			.50
AND CARE PLANNING	381	CHAPTER 26	
		Oral Infection Control: Toothbrushes	
CHAPTER 22		and Toothbrushing	433
Dental Hygiene Diagnosis	383	Development of Toothbrushes	434
Introduction	384	Manual Toothbrushes	434
Assessment Findings	384	Power Toothbrushes	436
The Periodontal Diagnosis and Risk Level	386	Toothbrush Selection for the Patient	439
Dental Caries Risk Level	388	Methods for Manual Toothbrushing	439
The Dental Hygiene Diagnosis	388	The Bass and Modified Bass Methods	440
The Dental Hygiene Prognosis	388	The Stillman and Modified Stillman Methods	441
Putting It All Together	389	The Roll or Rolling Stroke Method	442
Documentation	391	Charters Method	442
References	391	The Horizontal (or Scrub) Method	443
CHAPTER 23		The Fones (or Circular) Method	443
The Dental Hygiene Care Plan	393	Leonard's (or Vertical) Method	443
Preparation of a Dental Hygiene Care Plan	393 394	Method for Power Toothbrushing	444
Components of a Written Care Plan	395	Supplemental Brushing Methods	444
Additional Considerations	398	Guidelines for Toothbrushing Instructions	446
Sequencing and Prioritizing Patient Care	398	Toothbrushing for Special Conditions	448
Presenting the Dental Hygiene Care Plan	399	Adverse Effects of Toothbrushing	449
Informed Consent	400	Care of Toothbrushes	450
Documentation	400	Documentation	451
References	401	References	452
veielelices	402		
		CHAPTER 27	
SECTION VI		Oral Infection Control: Interdental Care	455
IMPLEMENTATION: PREVENTION	403	The Interdental Area	456
		Planning Interdental Care	456
CHAPTER 24		Selective Interdental Biofilm Removal	457
Preventive Counseling and Behavior Change	405	Interdental Brushes	457
Steps in a Preventive Program	406	Dental Floss and Tape	459
Patient Counseling	406	Aids for Flossing	461
Patient Motivation and Behavior Change	407	Power Flossers	463
Motivational Interviewing	408	Single-Tuft Brush (End-Tuft Brush)	464

465	The Deticut with Deutel Insulante	
703	The Patient with Dental Implants	517
465		518
466		518
	·	518
468		519
		521
<i>4</i> 71		521
		521
	·	522
		523
		524
		525
	References	526
	CHAPTER 32	
	The Patient with Nicotine Use Disorders	529
	Health Hazards and Current Trends	530
	Components of Tobacco Products and Tobacco Smoke	530
	Metabolism of Nicotine	530
	Alternative Tobacco Products	531
	Systemic Effects	534
	Environmental Tobacco Smoke	534
	Prenatal and Children	535
	Oral Manifestations of Tobacco and Nicotine Use	535
402	Tobacco and Periodontal Infections	536
	Nicotine Addiction	536
	Treatment	538
	Pharmacotherapies Used for Treatment of Nicotine Addiction	539
	Nicotine-Free Therapy	541
	Dental Hygiene Care for the Patient Who Uses Tobacco	541
	Assessment	542
	Clinical Treatment Procedures	542
	Tobacco Cessation Program	543
	g .	543
		543
495	The Team Approach	546
	Advocacy	546
497		547
498	References	548
498		
499		
499		553
500		554
501	•	555
502		562
503	•	562
503		566 567
505		569
505		569
506		509 571
s 507	עבובובוונה?	5/1
509	CHAPTER 34	
510	Fluorides	573
511	Fluoride Metabolism	574
513	Fluoride and Tooth Development	574
514	Tooth Surface Fluoride	576
	465 466 467 468 471 472 472 472 472 473 474 474 475 475 475 477 478 479 479 480 482 485 486 487 488 490 492 493 493 493 493 495 497 498 498 499 500 501 502 503 503 505 505 505 505 505 507 509 510 511 513	465 Bone Physiology 466 Osseointegration 467 Implant Interfaces 17pes of Dental Implants Patient Selection Evaluation for Implant Placement Post-restorative Evaluation 471 Peri-Implant Preventive Care 472 Continuing Care 473 Courmentation References 474 References 475 CHAPTER 32 476 The Patient with Nicotine Use Disorders 477 Health Hazards and Current Trends 478 Alternative Tobacco Products and Tobacco Smoke Metabolism of Nicotine 479 Alternative Tobacco Products 479 Environmental Tobacco Smoke 480 Oral Manifestations of Tobacco and Nicotine Use Tobacco and Periodontal Infections Nicotine Addiction Treatment 486 Pharmacotherapies Used for Treatment of Nicotine Addiction 1887 Nicotine-Free Therapy 488 Dental Hygiene Care for the Patient Who Uses Tobacco 489 Assessment 490 Clinical Treatment Procedures 491 Tobacco Cessation Program 492 Motivational Interviewing 493 The "5 A's" 494 The Team Approach Advocacy 497 Documentation References 498 499 CHAPTER 33 506 Counseling for Dental Caries Control 507 The Dietary Assessment 508 Preparation for Additional Counseling 509 Counseling Forcedures 500 Counseling for Dental Caries Control 501 The Dietary Assessment 502 Preparation for Progress 503 Documentation 6 References 504 Fluorides 516 Fluoride Metabolism 517 Fluoride Metabolism 518 Fluoride Metabolism 519 Fluoride Metabolism 510 Fluoride Metabolism 510 Fluoride Metabolism 510 Fluoride Metabolism 511 Fluoride Metabolism 512 Fluoride Metabolism 513 Fluoride and Tooth Development

Demineralization-Remineralization	576	Noninjectable Anesthesia	635
Fluoridation	577	Topical Anesthesia	636
Effects and Benefits of Fluoridation	578	Application of Topical Anesthetic	637
Partial Defluoridation	579	New Developments in Pain Control	638
School Fluoridation	579	Documentation	639
Discontinued Fluoridation	579	References	640
Fluorides in Foods	579	1.0.0.0.0.00	0.0
Dietary Fluoride Supplements	580	CHARTER 77	
Professional Topical Fluoride Applications	581	CHAPTER 37	
Clinical Procedures: Professional Topical Fluoride	583	Instruments and Principles for Instrumentation	6 4 7
Self-Applied Fluorides	587	Overview of Periodontal Instruments	643
Tray Technique: Home Application	587		
Fluoride Mouthrinses	588	Instrument Design	645
		Grasps and Fulcrum	646
Brush-On Gel	589	Instrumentation Basics	649
Fluoride Dentifrices	590	Scalers	65
Combined Fluoride Program	591	Curets	652
Fluoride Safety	591	Periodontal Files	654
Documentation	593	Powered Instruments	655
References	595	Sonic Scalers	657
		Magnetostrictive Ultrasonic Scalers	657
CHAPTER 35		Piezoelectric Ultrasonic Scalers	658
Sealants	599	Powered Instrumentation Technique	659
Introduction	600	Dexterity Development	660
Sealant Materials	600	Cumulative Trauma	662
Indications for Sealant Placement	601	Documentation	663
Penetration of Sealant	601	References	664
Clinical Procedures	603	1.0.0.0.0.00	
Maintenance	607	CHARTER 70	
School-Based Dental Sealant Programs	608	CHAPTER 38	667
Documentation	608	Instrument Care and Sharpening	667
References	609	Instrument Sharpening	
References	003	Basic Sharpening Principles	669
		Sharpening Curets and Scalers	67
SECTION VIII		Moving Flat Stone: Stationary Instrument	67
SECTION VII		Stationary Flat Stone: Moving Instrument	674
MPLEMENTATION: TREATMENT	611	Sharpening the File Scaler	675
		Care of Sharpening Equipment	675
CHAPTER 36		Documentation	676
Anxiety and Pain Control	613	References	677
Components of Pain	614		
Pain Control Mechanisms	614	CHAPTER 39	
Nonopioid Analgesics	615	Nonsurgical Periodontal Therapy and	
Nitrous Oxide–Oxygen Sedation	615	Adjunctive Therapy	679
Characteristics of Nitrous Oxide	615	Nonsurgical Periodontal Therapy	680
Equipment for Nitrous Oxide—Oxygen	616	Aims and Expected Outcomes	680
Patient Selection	617	Nonsurgical Periodontal Therapy Treatment Goals	68
Clinical Procedures for Nitrous Oxide–Oxygen Administration	618	Components of Nonsurgical Periodontal Therapy	682
Potential Hazards of Occupational Exposure	620	Dental Hygiene Treatment Care Plan for Periodontal	001
Advantages and Disadvantages of Nitrous	020	Debridement	682
•	(20	Appointment Planning	682
Oxide/Oxygen Sedation Anesthesia	620		
Local Anesthesia	620	Preparation for Periodontal Therapy	684
Pharmacology of Local Anesthetics	621	Advanced Instrumentation	686
Indications for Local Anesthesia	624	Specialized Debridement Instruments	689
Patient Assessment	625	Post-Op Instruction for Periodontal Debridement Appointments	692
Armamentarium for Local Anesthesia	627	Re-Evaluation of Nonsurgical Periodontal Therapy	693
Clinical Procedures for Local Anesthetic Administration	630	Adjunctive Therapy	694
Potential Adverse Reactions to Local Anesthesia	633	Antimicrobial Treatment	694
Advantages and Disadvantages of Local Anesthesia	635	Indications for Use of Local Delivery Agents	695

Types of Local Delivery Agents	696	SECTION VIII	
Documentation	699	EVALUATION	763
References	700	-	
		CHAPTER 44	
CHAPTER 40		Principles of Evaluation	765
Sutures and Dressings	703	Principles of Evaluation	765
Sutures	704	Evaluation Based on Goals and Outcomes	766
Needles	705	Evaluation of Clinical (Treatment) Outcomes	767
Knots	706	Evaluation of Health Behavior Outcomes	767
Suturing Procedures	706	Comparison of Assessment Findings	767
Procedure for Suture Removal	706	Standard of Care	767
Periodontal Dressings	709	Self-Assessment and Reflective Practice	768
Types of Dressings	709	Documentation	769
Clinical Application	710	References	771
Dressing Removal and Replacement	710		
Documentation	713	CHAPTER 45	
References	714	Continuing Care	773
References	714	Goals of the Continuing Care Program	773
		Continuing Care Appointment Procedures	774
CHAPTER 41		Appointment Intervals (Frequency)	776
Dentinal Hypersensitivity	715	Methods for Continuing Care Systems	776
Hypersensitivity Defined	716	Documentation	777
Etiology of Dentinal Hypersensitivity	716	References	778
Natural Desensitization	718		
The Pain of Dentin Hypersensitivity	719	SECTION IX	
Differential Diagnosis	720	PATIENTS WITH SPECIAL NEEDS	779
Hypersensitivity Management	721	TATIENTS WITH SI EGIAL NELDS	
Oral Hygiene Care and Treatment Interventions	722	CHAPTER 46	
Documentation	726	The Pregnant Patient and Infant	781
References	727	Introduction	782
		Fetal Development	782 782
CHAPTER 42		Oral Findings during Pregnancy	784
Extrinsic Stain Removal	729	Aspects of Patient Care	785
Introduction	730	Patient Instruction	788
Purposes for Stain Removal	730	Special Problems Requiring Referral	789
Science of Polishing	730	Transitioning from Pregnancy to Infancy	790
Effects of Cleaning and Polishing	730	Infant Oral Health	790
Indications for Stain Removal		Documentation	790
	731 772	References	794 795
Clinical Application of Stain Removal	732	References	195
Cleaning and Polishing Agents	733	CHARTER 47	
Procedures For Stain Removal (Coronal Polishing)	735	CHAPTER 47 The Pediatric Patient	799
The Power-Driven Instruments	736	Pediatric Patient Pediatric Dentistry	800
Use of the Prophylaxis Angle	738	The Child as a Patient	800
Air-Powder Polishing	739		801
Polishing Proximal Surfaces	741	Patient Management Considerations	805
Historical Perspective: The Porte Polisher	743	Components of the Dental Hygiene Visit	809
Documentation	743	Periodontal Risk Assessment	809
References	744	Caries Risk Assessment	
		Anticipatory Guidance	814
CHAPTER 43		Treatment Planning and Consent	819
Tooth Bleaching	747	Documentation	819
Overview of Tooth Bleaching	747	References	820
Vital Tooth Bleaching	748	CHAPTER 48	
Nonvital Tooth Bleaching	756	The Older Adult Patient	823
Dental Hygiene Process of Care	757	Aging	824
Documentation	759	Normal Physiologic Aging	824
References	760	Pathology and Disease	826
	700	. 20.0.037 0.0000	020

xii

Preface

Dental hygienists are oral healthcare specialists with professional goals centered on the prevention and/or control of oral disease and the maintenance of oral and general health. As primary healthcare professionals, dental hygienists can apply their knowledge and skills in a wide variety of areas related to clinical practice, education, research, public health, and advocacy for health promotion and disease prevention. Dental hygienists collaborate with dentists and members of other health professions to provide oral healthcare that links with total body healthcare. New emphasis on the effect of oral health on systemic health challenges dental hygienists to widen their scope of practice.

OBJECTIVES

Objectives of the 13th edition include:

- To help prepare the beginning dental hygiene student to recognize the requirements of evidence-based dental hygiene practice.
- To develop skills and knowledge for entry into the profession.
- To help when studying for licensure board examinations; the condensed outline form aids in making review easier.
- To update professional hygienists already in practice to recognize changes in practice and the responsibility to apply evidence-based scientific approaches to patient care.

THE TEXTBOOK PLAN

Highlights

Highlights of Wilkins' Clinical Practice of the Dental Hygienist, 13th edition include the following:

- All chapters have been extensively updated with the best available evidence, edited, and reorganized to minimize redundancy.
- Key words are highlighted in each chapter and available in a comprehensive glossary at the end of the textbook.
- Chapter 4 Dental Hygiene Care in Alternative Settings has been updated from the 12th edition Homebound Patient and moved to Section I Orientation to Clinical Dental Hygiene Practice to better prepare students for patient care in alternative settings.

- Chapter 14 Family Violence was extensively updated based on consultation with a PANDA (Prevent Abuse and Neglect Through Dental Awareness) expert.
- Chapter 16 Hard Tissue Examination of the Dentition is a combination of the 12th edition Teeth, Occlusion, and Study Model chapters to be more concise and inclusive of information students require for the hard tissue examination.
- Chapter 17 Dental Soft Deposits, Biofilm, Calculus, and Stains is a combination of the 12th edition chapters on biofilm, calculus, and stains to offer information on deposits in one comprehensive chapter for students.
- Chapter 19 Periodontal Disease Development has been updated to include the new 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions. It also includes content from the 12th edition chapter on acute periodontal conditions.
- Chapter 25 Protocols for Prevention and Control of Caries has been updated to include the International Caries Classification and Management System as part of caries classification systems.
- Chapter 30 Care of Dental Prosthesis is a combination of the 12th edition chapters for the edentulous patient and care of the dental prosthesis.
- Chapter 31 The Patient with Dental Implants has been updated to include the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions.
- Chapter 37 Instruments and Principles for Instrumentation and Chapter 39 Nonsurgical Periodontal Therapy and Adjunctive Therapy were reorganized to streamline content.
- Chapters in Section IX were reorganized by life cycle and then by conditions associated with body systems.
- Chapter 51 The Patient with a Disability now contains important content from the 12th edition chapter on the patient with sensory impairment, which has been eliminated.
- Chapter 63 The Patient with an Autoimmune Disease is new and addresses a rapidly emerging area in the medically complex patient. Some content from the 12th edition chapter on neurological disorders and stroke were relocated to Chapter 63.
- Additional color images have been added throughout.

Organization of the Textbook

As in past editions, sections of Clinical Practice of the Dental Hygienist are sequenced to conform to the Dental Hygiene Process of Care. There are nine sections in the 13th edition, six of which are specifically identified by name with the recognized components of the Process of Care. They are assessment, dental hygiene diagnosis, care planning, implementation, evaluation, and documentation.

The textbook opens with chapters devoted to an introduction to the profession of dental hygiene and chapters related to preparation for practice. They include infection control and ergonomic health for the clinical practitioner and patient. The final large section, Section IX, applies the process of care to patients with special needs.

The nine major sections are:

- I. Orientation to Clinical Dental Hygiene Practice
- II. Preparation for Dental Hygiene Practice
- III. Documentation
- IV. Assessment
- V. Dental Hygiene Diagnosis and Care Planning
- VI. Implementation: Prevention
- VII. Implementation: Treatment
- VIII. Evaluation
- IX. Patients with Special Needs

Supplementary information is available online:

- I. American Dental Hygienists' Association Code of Ethics for Dental Hygienists
- II. National Dental Hygienists' Association Code of Ethics
- III. Canadian Dental Hygienists Association Dental Hygienists' Code of Ethics
- IV. International Federation of Dental Hygienists' Code of Ethics
- V. Guidelines for Infection Control in Dental Health Care Settings
- VI. Average Measurements of Human Teeth
- VII. Prefixes, Suffixes, and Combining Forms
- VIII. Charting Symbols and Standardized Abbreviations Useful for Documenting Dental Hygiene Care

FEATURES OF THIS EDITION

All chapters have been updated and many have been extensively revised. Each chapter includes the following features:

 Detailed outline format for the text makes it easier to study and locate information quickly. In this era of

- information, the condensation of printed material into outline form can provide busy, overloaded students with a new efficiency for learning.
- Chapter Outlines at the opening of each chapter provide a preliminary review for readers before they start
 to concentrate on the meat of the chapter; the outline
 can help readers locate material within the chapter at
 any time.
- ◆ **Learning Objectives** at the beginning of each chapter guide the student in studying the chapter.
- Key Words are bolded throughout the chapter to indicate these words are included in an alphabetized listing in the glossary.
- Everyday Ethics boxes ("EEs") provide students with the opportunity to become aware of and discuss clinical problems from real-life practice. Principles of ethical dental hygiene practice need to be brought into the curriculum at an early stage if students are to develop into ethical practitioners. This feature has been continued from previous editions because of the expressed appreciation of teachers and students.
- Factors to Teach the Patient boxes help students to select topics from the chapter that need special emphasis
 while teaching patients self-care and responsibility for
 oral health for their own lifetime, as well as that of their
 family and community.
- Documentation brings the clinical care of a patient full cycle. Example documentation for a variety of patients, written using the SOAP notes format outlined in Chapter 10, can increase students' awareness of the necessary components and significance of such notes in the permanent record of each patient.

STUDENT WORKBOOK

A unique study guide, Active Learning Workbook for Wilkins' Clinical Practice of the Dental Hygienist, prepared by Jane F. Halaris and Charlotte J. Wyche for previous editions, has been recognized as a major contribution to student learning. The 13th edition workbook, revised to highlight new chapters and updated information from the textbook, also contains revised crossword and word search puzzles.

Everyday Ethics boxes in the workbook include individual learning, cooperative learning, or discovery activities designed to help the student reflect on or apply ethical theory—related "Questions for Consideration" found in the textbook. Activities and questions related to patient case scenarios, patient assessment summaries, and documentation of patient care provide an emphasis on case-based application of knowledge. Boxes in each chapter contain Medical Subject Heading (MeSH) terms to help students develop effective and efficient PubMed literature searches.

Digital Connections

Wilkins' Clinical Practice of the Dental Hygienist, 13th edition includes additional resources for both instructors and students that are available online.

Instructors

Approved adopting instructors will be given access to the following additional resources:

- ♦ Test bank
- Slides in PowerPoint format
- Lesson plans
- Image bank of images and tables from the book
- Answers to the exercises found in Active Learning Workbook for Wilkins' Clinical Practice of the Dental Hygienist, by Jane F. Halaris and Charlotte J. Wyche (book available for separate purchase)

Students

The following additional student resources are available online:

- Audio pronunciation glossary for select clinical terms
- Appendices
- Videos
- Flashcards

See the inside front cover of this text for more details.

INDIVIDUALIZED REVIEW

Customized practice quizzing with Navigate 2 TestPrep for Wilkins' Clinical Practice of the Dental Hygienist remediates to the book. This powerful tool offers students practice tests, detailed rationales, and powerful data dashboards.

ACKNOWLEDGMENTS

A textbook of the size and scope of Wilkins' Clinical Practice of the Dental Hygienist shows the work of many contributors. Comments and suggestions come from teachers, students, and practitioners from around the world, as the book has been translated into a variety of languages. Any suggestion, whether for one word or whole chapters, is welcomed and considered. It is hoped that this new edition will bring comments and requests as in the past.

Recognition for Our Contributors

We start with expressed recognition and appreciation to our listed contributors for their new or revised chapters. Each has spent much time for selective revision and to survey the literature for new material and references.

Other Appreciation

Appreciation is expressed to the following:

Marcia Williams of Santa Fe, New Mexico. Many illustrations for this and previous editions have been the work of our talented artist. Her personal interest and patience in preparing new drawings, revising previous ones, and adding color to enhance the line drawings are acknowledged with sincere gratitude.

Our Readers. And, finally, an expression of appreciation goes to our readers over the years: students, teachers, and practicing dental hygienists. Send us your comments and suggestions. As stated in the first edition, it is hoped that through greater understanding of each patient's oral and general health needs, more complete and effective dental hygiene services can be rendered.

-Linda Boyd, Lisa Mallonee, and Charlotte Wyche

Contributors

Jessica August, RDH, MS

Assistant Professor Department of Dental Hygiene Idaho State University Pocatello, Idaho

Lisa B. Johnson, RDH, MSDH

Adjunct Faculty, Master's Public Health Program MCPHS University
Clinical Research Coordinator
Division of Oral Medicine & Dentistry
Brigham and Women's Hospital
Boston, Massachusetts

Sara L. Beres, RDH, BA, MS

Instructor and Dental Hygiene Program Manager Department of Dental Hygiene Sheridan College Sheridan, Wyoming

Linda D. Boyd, RDH, RD, EdD

Professor and Associate Dean Forsyth School of Dental Hygiene MCPHS University Boston, Massachusetts

Lisa M. Byrne, RDH, BS, MHSc

Instructor
Forsyth School of Dental Hygiene
MCPHS University
Boston, Massachusetts

Jennifer Cullen, RDH, MPH

Director, Dental Hygiene Degree Completion Program Department of Periodontics and Oral Medicine University of Michigan School of Dentistry Ann Arbor, Michigan

Ernestine R. Daniels, RDH, BS

Adjunct Instructor, Dental Programs Department of Dental Hygiene Florida State College at Jacksonville Jacksonville, Florida

Heather Doucette, DipDH, BSc, Med

Assistant Professor School of Dental Hygiene Dalhousie University Halifax, Nova Scotia

Christine A. Fambely, DH, BA, MEd

Instructor
Dental Hygiene Department
John Abbott College
Sainte-Anne-de-Bellevue, Quebec, Canada

Lori J. Giblin-Scanlon, RDH, MS, DHSc

Associate Professor and Associate Dean, Clinical Programs Forsyth School of Dental Hygiene MCPHS University Boston, Massachusetts

Sharon M. Grisanti, RDH, BA, MCOH

Assistant Professor Dental Hygiene Program St. Petersburg College St. Petersburg, Florida

Janet M. Gruber, RDH, MS, MPA

Professor Department of Dental Hygiene Farmingdale State College of New York Farmingdale, New York

S. Kim Haslam, DipDH, BA, MEd

Assistant Professor School of Dental Hygiene Dalhousie University Halifax, Nova Scotia, Canada

Valerie G. Herring RDH, BsM, MEd

Educational Coordinator/Didactic & Clinical Educator Vancouver, British Columbia, Canada

Heather Hessheimer, RDH, MSDH

Assistant Professor Department Dental Hygiene University of Nebraska Medical Center-College of Dentistry Lincoln, Nebraska

Michelle Hurlbutt, RDH, MSDH, DHSc

Associate Professor and Dean Dental Hygiene PROGRAM West Coast University Anaheim, California

Susan J. Jenkins, RDH, PhD

Associate Professor Forsyth School of Dental Hygiene MCPHS University Boston, Massachusetts

xvii

Evie F. Jesin, RDH, BSc

Professor

School of Dental Health

George Brown College

Toronto, Ontario, Canada

Faizan Kabani, BSDH, MHA, MBA, PhD

Assistant Professor

Caruth School of Dental Hygiene

Texas A&M College of Dentistry

Dallas, Texas

Robin L. Kerkstra, RDH, MSDH

Assistant Professor

Dental Hygiene Program

University of New Haven

New Haven, Connecticut

Lisa M. LaSpina, RDH, MS, DHSc

Associate Professor

Forsyth School of Dental Hygiene

MCPHS University

Boston, Massachusetts

Lory A. Libby, RDH, MSDH

Assistant Professor

Forsyth School of Dental Hygiene

MCPHS University

Boston, Massachusetts

Christine R. Macarelli, RDH, MS

Assistant Professor

Dental Hygiene Program

New York City College of Technology

Brooklyn, New York

Wendy Male, MBA, BDSc, RDH

Clinical Assistant Professor

Dental Hygiene Program

University of Alberta

Edmonton, Alberta

Lisa F. Mallonee, RDH, RD, LD, MPH

Professor and Graduate Program Director

Caruth School of Dental Hygiene

Texas A&M College of Dentistry

Dallas, Texas

Deborah S. Manne, RDH, RN, MSN, OCN

Adjunct Instructor

Department of Otolaryngology—Head and Neck Surgery

St. Louis University School of Medicine

St. Louis, Missouri

Catherine A. McConnell, RDH, BDSc, MEd

Clinic Coordinator

Dental Hygiene Department

John Abbott College

Sainte-Anne-de-Bellevue, Quebec, Canada

Jill C. Moore, RDH, BSDH, MHA, EdD

Adjunct Faculty

Dental Hygiene Program

University of New Haven

New Haven, Connecticut

Lisa J. Moravec, RDH, MSDH

Assistant Professor, West Division Site Coordinator

Department Dental Hygiene

University of Nebraska Medical Center-College

of Dentistry

Gering, Nebraska

Janice L. Murray, DipDH, BDSc(DH), MSDH, RDH

Former Program Leader

Charles Sturt University

School of Dentistry & Health Sciences

Wagga Wagga, Australia

Debra November-Rider, RDH, MSDH

Adjunct Assistant Professor

Forsyth School of Dental Hygiene

MCPHS University

Boston, Massachusetts

Uhlee (Yuri) Oh, RDH, BS, MSDH

Assistant Professor

Forsyth School of Dental Hygiene

MCPHS University

Boston, Massachusetts

Kristeen Perry, RDH, MSDH

Assistant Professor

Forsyth School of Dental Hygiene

MCPHS University

Boston, Massachusetts

Karen M. Portillo, RDH, MSDH

Adjunct Faculty

Dental Hygiene Program

Columbia Basin College

Pasco, Washington

Betty Ann Pryzdial, BSc, RDH, PID

Instructor

Vancouver College of Dental Hygiene

Vancouver, British Columbia, Canada

Lori Rainchuso, RDH, MS, DHSc

Associate Professor, Doctor of Health Sciences Program

School of Healthcare Business

MCPHS University

Worcester, Massachusetts

Catherine G. Ranson, RDH BHA, MET

School of Dental Health

George Brown College

Toronto, Ontario

Erin E. Relich, RDH, BSDH, MSA

Associate Professor Division of Dental Hygiene University of Detroit Mercy School of Dentistry Detroit, Michigan

Dianne Smallidge, RDH, BS, MDH, EdD

Associate Professor and Interim Dean

Forsyth School of Dental Hygiene MCPHS University Boston, Massachusetts

Irina Smilyanski, RDH, MS, MSDH

Assistant Professor Forsyth School of Dental Hygiene MCPH University Worcester, Massachusetts

Amy N. Smith, RDH, MS, MPH

Assistant Professor Department of Dental Hygiene Northern Arizona University Flagstaff, Arizona

Katherine Soal, RDH, MSDH

Assistant Professor Department of Dental Hygiene Quinsigamond Community College Worcester, Massachusetts

Lorie Speer, RDH, MSDH

Assistant Professor Department of Dental Hygiene Eastern Washington State University Spokane, Washington

Tammy K. Swecker, BSDH, MEd

Associate Professor Division of Dental Hygiene Virginia Commonwealth University Richmond, Virginia

Salima Thawer, MPH, BSc, RDH

Assistant Clinical Professor, Dental Hygiene School of Dentistry University of Alberta Edmonton, Alberta

Carol Tran, PhD, BOH

Oral Health Therapist, Private Practice Queensland, Australia School of Dentistry, University of Queensland Brisbane, Australia

Marsha A. Voelker, CDA, RDH, MS

Associate Professor, Junior Clinic Coordinator Division of Dental Hygiene University of Missouri—Kansas City School of Dentistry Kansas City, Missouri

Shannon K. Waldron, RDH, BSc(DH), MSc

Part-time Faculty Vancouver College of Dental Hygiene Vancouver, British Columbia

Dianna S. Weikel, RDH, MS

Clinical Associate Professor Department of Oncology and Diagnostic Sciences University of Maryland School of Dentistry Baltimore, Maryland

Lisa Welch, RDH, BS, MSDH

Associate Professor Department of Dental Hygiene Dixie State College St. George, Utah

Esther M. Wilkins, BS, RDH, DMD

Charlotte J. Wyche, BSDH, MS

Retired

Department of Periodontics and Oral Medicine University of Michigan School of Dentistry Ann Arbor, Michigan

Katherine A. Yee, RDH, BSDH, MPH

Carolynn A. Zeitz, RDH, BS, RDA, MA

Clinical Associate Professor Pediatric Dentistry University of Detroit Mercy School of Dentistry Detroit, Michigan

Denise Zwicker, BDH, MEd

Faculty of Dentistry School of Dental Hygiene Dalhousie University Halifax, Nova Scotia, Canada

Reviewers

Meg D. Atwood, RDH, MPS

Professor Department of Dental Hygiene Orange County Community College

Judy Danielson, BSDH, MDH

Middletown, New York

Clinical Professor Division of Periodontology University of Minnesota School of Dentistry Minneapolis, Minnesota

Barbara R. Ellis, RDH, EdD

Dental Studies Monroe Community College Rochester, New York

Terry Larson, MA, RDH

Dental Hygiene Sciences Sinclair Community College Dayton, Ohio

Leah MacPherson RDH, BS, MHP

Professor Department of Dental Hygiene Middlesex Community College Bedford, Massachusetts

Lynn Douglas Mouden, DDS, MPH

Vice President, Quality and Performance Avēsis Incorporated | A Guardian Company Key Biscayne, Florida

Lynn Noonan, CDA, RDH, MBA

Adjunct Faculty Allied Dental Education New Hampshire Technical Institute Concord, New Hampshire

Margaret Six, RDH, MSDH

Professor Sarah Whitaker Glass School of Dental Hygiene West Liberty University West Liberty, West Virginia

Becky Smith, CRDH, EdD

Professor Dental Hygiene Program Miami Dade College Miami, Florida

Maureen Strauss, CDA, RDH, MS

Professor Dental Hygiene Middlesex Community College Lowell, Massachusetts

Sherie L. Tynes, CDA, RDH, PHDHP, BS

Assistant Professor-Dental Hygiene Dental Hygiene CE Coordinator Harrisburg Area Community College Harrisburg, Pennsylvania