Fonseca

<section-header>ORAL AND NAXILOFACIAL SURGERY TH

FROST • POWERS • LE

Profession and Practice of Oral and Maxillofacial Surgery Anesthesia and Pain Control Dentoalveolar Surgery Implant Surgery

About the pagination of this eBook

This eBook contains a multi-volume set.

To navigate this eBook by page number, you will need to use the volume number and the page number, separated by a hyphen.

For example, to go to page 5 of volume 1, type "1-5" in the Go box at the bottom of the screen and click "Go."

To go to page 5 of volume 2, type "2-5"... and so forth.

ORAL AND NAXILOFACIAL SURGERY TAT



This page intentionally left blank

ORAL AND MAXILLOFACIAL SURGERY TA

Profession and Practice of Oral and Maxillofacial Surgery Anesthesia and Pain Control Dentoalveolar Surgery Implant Surgery

VOLUME EDITOR

VOLUME

Raymond J. Fonseca, DMD

Private Practice Oral and Maxillofacial Surgery Asheville, North Carolina; Clinical Professor, Department of Oral and Maxillofacial Surgery University of North Carolina Chapel Hill, North Carolina

SECTION EDITORS

Michael P. Powers, DDS, MS David E. Frost, DDS, MS Bach Le, DDS, MD, FICD, FACD

ELSEVIER

3251 Riverport Lane St. Louis, Missouri 63043

ORAL AND MAXILLOFACIAL SURGERY, VOLUME 1, THIRD EDITION Set ISBN: 978-0-323-41499-9 Volume 1 ISBN: 978-0-323-41497-5 Volume 2 ISBN: 978-0-323-41496-8 Volume 3 ISBN: 978-0-323-41495-1

Copyright © 2018 by Elsevier, Inc. All rights reserved.

Craig M. Misch retains copyright for the original images appearing in Chapter 30: Autogenous Bone Grafting for Dental Implants.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher. Details on how to seek permission, further information about the Publisher's permissions policies and our arrangements with organizations such as the Copyright Clearance Center and the Copyright Licensing Agency, can be found at our website: www.elsevier.com/permissions.

This book and the individual contributions contained in it are protected under copyright by the Publisher (other than as may be noted herein).

Notices

Knowledge and best practice in this field are constantly changing. As new research and experience broaden our understanding, changes in research methods, professional practices, or medical treatment may become necessary.

Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds, or experiments described herein. In using such information or methods they should be mindful of their own safety and the safety of others, including parties for whom they have a professional responsibility.

With respect to any drug or pharmaceutical products identified, readers are advised to check the most current information provided (i) on procedures featured or (ii) by the manufacturer of each product to be administered, to verify the recommended dose or formula, the method and duration of administration, and contraindications. It is the responsibility of practitioners, relying on their own experience and knowledge of their patients, to make diagnoses, to determine dosages and the best treatment for each individual patient, and to take all appropriate safety precautions.

To the fullest extent of the law, neither the Publisher nor the authors, contributors, or editors, assume any liability for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions, or ideas contained in the material herein.

Previous editions copyrighted 2009 and 2000.

Library of Congress Cataloging-in-Publication Data

Names: Fonseca, Raymond J., editor.
Title: Oral and maxillofacial surgery.
Other titles: Oral and maxillofacial surgery (Fonseca)
Description: Third edition. | St. Louis, Missouri : Elsevier, [2018] | Includes bibliographical references and indexes.
Identifiers: LCCN 2017002982| ISBN 9780323414999 (set : hardcover : alk. paper) | ISBN 9780323414975 (v. 1 : hardcover : alk. paper) | ISBN 9780323414968 (v. 2 : hardcover : alk. paper) | ISBN 9780323414968 (v. 2 : hardcover : alk. paper) | ISBN 9780323414951 (v. 3 : hardcover : alk. paper)
Subjects: | MESH: Oral Surgical Procedures | Face--surgery | Facial Bones--surgery | Maxilla--surgery
Classification: LCC RD523 | NLM WU 600 | DDC 617.5/2059--dc23 LC record available at https://lccn.loc.gov/2017002982

Senior Content Strategist: Jennifer Flynn-Briggs Professional Content Development Manager: Jolynn Gower Publishing Services Manager: Jeffrey Patterson Senior Project Manager: Mary Pohlman Design Direction: Ashley Miner

Printed in China.



Working together to grow libraries in developing countries

www.elsevier.com • www.bookaid.org

To Chester, Lady, Cheerio, Moxie, Domino, Sasha, Tuxedo, Chairman Meow, Zoey, Apollo, Ayla, Annabelle, and Atticus for enriching our lives.

Raymond J. Fonseca

To Aubrey, Cam, and Katharine—it is wonderful to be your Dad. To Dr. Raymond J. Fonseca, a tremendous mentor, educator, surgeon, and friend. To Dr. Hans Bosker, an exceptional intellect, surgeon, gardener, and friend. To Dr. David Frost, a superb humanitarian, surgeon, and friend. And to Jennifer, with love.

Michael P. Powers

I dedicate my portion of this work to Travis A. "Bz" Witherington who saw something in me, encouraged me, and made everything else possible. He is one of the best teachers anywhere. To my mentors: Ray Fonseca, Bob Bays, John Gregg, Tim Turvey, and Khursheed Moos—they are teachers, researchers, mentors, confidants, and friends. Thank you all.

David E. Frost

To my wife Nancie for her unconditional support and my children Andrew, Dharma, Dana, and Bodhi, who inspire me and make me so proud.

Bach Le

In Memoriam



William H. Bell, DDS

We respectfully dedicate this edition of *Oral and Maxillofacial Surgery* to the memory of Dr. William "Bill" Harrison Bell. Matchless among his peers, Dr. Bell was an inimitable leader in surgery and medicine throughout his career.

In the early 1970s, Dr. Bell revolutionized oral and maxillofacial surgery through his landmark research on the

biologic basis and clinical rationale for the Le Fort I osteotomy. In subsequent decades, he guided the hands of generations of surgeons, whether in academic medical centers across the world or through his meticulously detailed textbooks. It is a testament to Dr. Bell's always-passionate and always-persistent pursuit of excellence that his textbooks still remain contemporary decades after their publication.

While Dr. Bell was a revolutionary in our field, it is not simply in this spirit that we dedicate this book. Dr. Bell also served as an inspiration and mentor to us throughout our careers and lives, showing us always a readiness to inspire and a passion to change lives however he could. We are, quite simply, not alone in this feeling. It was this passion that compelled him to devote his life to improving patient care. It was this passion that affected so many others in our field. And it was this passion that also characterized so many areas of his vibrant and rich life—a life very well-lived.

It was an honor to learn from and know Bill. He was unwavering and uncompromising, and his love was unconditional. We know that the passion that burned in him to help others will continue to ignite the spirits of generations of surgeons to come. It will guide our hands and our actions as well.

Section Editors

David E. Frost, DDS, MS

Private Practice OMSA Chapel Hill, North Carolina

Bach Le, DDS, MD, FICD, FACD

Private Practice Oral and Maxillofacial Surgery Whittier, California; Clinical Associate Professor Department of Oral and Maxillofacial Surgery The Herman Ostrow School of Dentistry of USC Los Angeles County/USC Medical Center Los Angeles, California

Michael P. Powers, DDS, MS

Private Practice Oral and Maxillofacial Surgery Kent, Ohio; Clinical Assistant Professor of Oral and Maxillofacial Surgery Department of Specialty Medicine Heritage College of Osteopathic Medicine Ohio University Athens, Ohio; Chair Division of Oral and Maxillofacial Surgery Department of Surgery University Hospitals Portage Medical Center Ravenna, Ohio

Contributors

Shelly Abramowicz, DMD, MPH

Assistant Professor Oral and Maxillofacial Surgery Emory University School of Medicine Atlanta, Georgia *Chapter 13: Preoperative Evaluation*

Payam Afzali, DDS, MD

Fellow, Oral/Head and Neck Oncology and Microvascular Reconstructive Surgery
Department of Oral and Maxillofacial Surgery
University of Michigan
Ann Arbor, Michigan
Chapter 28: Bone Grafting Techniques and Materials

Tara L. Aghaloo, DDS, MD, PhD

Associate Professor Oral and Maxillofacial Surgery UCLA School of Dentistry Los Angeles, California *Chapter 28: Bone Grafting Techniques and Materials Chapter 43: Peri-implant Disease*

Diane Anthony-Costandi, DDS, MS

Private Practice Periodontics Los Angeles, California *Chapter 34: Peri-implant Soft Tissue Augmentation*

Edmond Bedrossian, DDS, FACD, FACOMS, FAO

Diplomate, American Board of Oral and Maxillofacial Surgeons Professor, Department of Oral and Maxillofacial Surgery University of the Pacific Director, Surgical Implant Training University of the Pacific and Alameda Medical Center San Francisco, California *Chapter 35: Zygomatic Implant: A Graftless Approach for Treatment of the Edentulous Maxilla*

Edmond Armand Bedrossian Jr., DDS

PGY-2 University of Washington Department of Prosthodontics Seattle, Washington *Chapter 35: Zygomatic Implant: A Graftless Approach for Treatment of the Edentulous Maxilla*

Gregory S. Bell, DDS

Private Practice Conestoga Oral and Maxillofacial Surgery Ltd. Lancaster, Pennsylvania *Chapter 19: Pediatric Pharmacosedation and General Anesthesia*

Jeffrey D. Bennett, DMD

Chief, Oral and Maxillofacial Surgery Roudebush VA Medical Center Indianapolis, Indiana *Chapter 17: Anesthetic Concepts and Techniques*

David A. Bitonti, BA Chemistry, DMD

Senior Military Advisor to the Commander Walter Reed National Military Medical Center Bethesda, Maryland *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

Terri Bradley, BA

Owner Terri Bradley Consulting Amesbury, Massachusetts *Chapter 8: Coding, Insurance, and Third-Party Payers*

[†]Per-Ingvar Brånemark

President Brånemark Clinic P-I Brånemark Institute Bauru Bauru S.P. Brazil Chapter 35: Zygomatic Implant: A Graftless Approach for Treatment of the Edentulous Maxilla

Andrea B. Burke, DMD, MD

Clinical Research Fellow
Diplomate, American Board of Oral and Maxillofacial Surgery
National Institutes of Dental and Craniofacial Research (NIDCR)
National Institutes of Health (NIH)
Bethesda, Maryland
Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice

[†] Deceased.

Kevin Butterfield, MD, DDS, FRCD(C), Dip.ABOMS

Division Chief, Dentistry The Ottawa Hospital Assistant Professor Otolaryngology University of Ottawa Ottawa, Ontario, Canada *Chapter 17: Anesthetic Concepts and Techniques*

John H. Campbell, DDS, MS

Associate Professor and Residency Director Oral and Maxillofacial Surgery University at Buffalo Buffalo, New York *Chapter 20: Pediatric Dentoalveolar Surgery*

Joshua Campbell, DDS

Assistant Professor Department of Oral and Maxillofacial Surgery University of Tennessee Graduate School of Medicine Knoxville, Tennessee *Chapter 22: Complications of Dentoalveolar Surgery*

Andrew Cheung, DDS

Clinical Assistant Professor (Gratis) Oral and Maxillofacial Surgery Vanderbilt University Medical Center Nashville, Tennessee *Chapter 22: Complications of Dentoalveolar Surgery*

Daniel R. Cullum, BSc, DDS

Private Practice OMS President Implants Northwest Live Learning Center Coeur d'Alene, Idaho; Guest Lecturer OMS UCLA Los Angeles, California; Guest Lecturer OMS Loma Linda University Loma Linda, California *Chapter 27: Immediate Implants*

Tony Daher, DDS, MSEd, FACP, FICD

Former, Clinical Associate Professor Restorative Dentistry Loma Linda University Loma Linda, California; Former, Lecturer UCLA Los Angeles, California; Private Practice LaVerne, California *Chapter 37: Mandibular Immediate Implant Loading with the Complete Arch Provisional Prostheses Chapter 39: Implant Overdentures*

Jeffrey Dembo, DDS, MD

Professor, Division of Oral and Maxillofacial Surgery University of Kentucky College of Dentistry Lexington, Kentucky *Chapter 16: Pharmacology of Drugs in Ambulatory Anesthesia*

Martin E. Eichner, DDS

Private Practice Oral and Maxillofacial Surgery Adjunct Clinical Instructor Department of Oral and Maxillofacial Surgery University of Pittsburgh Medical Center Pittsburgh, Pennsylvania *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

Joseph J. Fantuzzo, DDS, MD

Chairman and Residency Program Director Oral & Maxillofacial Surgery University of Rochester Medical Center Rochester, New York *Chapter 18: Concepts in the Management of Acute Postoperative Pain*

Scott D. Ganz, DMD

Private Practice Ganz Sabrina-Fort Lee Dental Association Fort Lee, New Jersey Chapter 41: Three-Dimensional Imaging and Digital Workflow Protocols for Dental Implants and Bone Grafting

Jeremy R. Gies, DMD

Staff Surgeon Department of Oral and Maxillofacial Surgery Naval Hospital Beaufort Beaufort, South Carolina *Chapter 15: Local Anesthetics*

James A. Giglio, DDS, M.Ed.

Affiliate Professor, Department of Oral and Maxillofacial Surgery School of Dentistry Virginia Commonwealth University Professor, Department of Surgery School of Medicine Virginia Commonwealth University Richmond, Virginia *Chapter 25: Trigeminal Nerve Injuries*

Charles J. Goodacre, DDS, MSD

Dean and Professor Department of Restorative Dentistry Loma Linda University School of Dentistry Loma Linda, California *Chapter 39: Implant Overdentures*

Scott E. Graham, MA, FACMPE, FAADOM

Executive Director Oral Facial Surgery Institute St. Louis, Missouri *Chapter 6: Business Management of the Oral and Maxillofacial Surgery Practice*

John M. Gregg, DDS, MS, PhD

Adjunct Professor, Department of Oral and Maxillofacial Surgery Virginia Commonwealth University, School of Dentistry Adjunct Professor, Department of Biomedical Science Virginia Tech Carilion School of Medicine Blacksburg, Virginia *Chapter 25: Trigeminal Nerve Injuries*

Alan S. Herford, DDS, MD

Chair, Oral and Maxillofacial Surgery School of Dentistry Loma Linda University Loma Linda, California *Chapter 40: Implants in Acquired and Congenital Defects*

Katsuhiro Horiuchi, DDS

Oral and Maxillofacial Surgery Nara Medical University Kashihara, Japan *Chapter 33: Osteoperiosteal Flaps and Distraction Osteogenesis*

John W. Hultquist, DMD, MD

United States Air Force Consultant to the Air Force Surgeon General for OMS Department Chairman Oral and Maxillofacial Surgery Joint Base San Antonio Lackland, Texas *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

N. Whitney James, DDS

Area/Regional Clinical Specialist The Northern Navajo Medical Center/Shiprock Hospital Shiprock, New Mexico *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

Ole T. Jensen, DDS, MS

Private Practice Oral and Maxillofacial Surgeon Clear Choice Dental Implant Center Denver, Colorado *Chapter 33: Osteoperiosteal Flaps and Distraction Osteogenesis*

Saj Jivraj, BDS, MS Ed

Clinical Associate Professor Advanced Prosthodontics Herman Ostrow USC School of Dentistry Los Angeles, California *Chapter 26: Esthetic Implant Dentistry: Diagnosis and Treatment Planning Chapter 36: Fixed Restoration of the Edentulous Maxilla*

Samantha Jones, DDS, MD

Private Practice Santa Barbara Center for Oral and Maxillofacial Surgery Santa Barbara, California *Chapter 28: Bone Grafting Techniques and Materials*

Nora Kahenasa, DMD

Private Practice Oral and Maxillofacial Surgery Lecturer Department of Oral and Maxillofacial Surgery UCLA School of Dentistry Los Angeles, California *Chapter 28: Bone Grafting Techniques and Materials*

Nicholas J. Kain, DDS

Private Practice Oral and Maxillofacial Surgery Greensboro, North Carolina *Chapter 24: Lasers in Oral Surgery*

Karen M. Keith, DDS, MD

COL, DC, USA OMS Consultant to The US Army Surgeon General Chief, Oral and Maxillofacial Surgery Vicenza Dental Clinic Command Vicenza, Italy *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

Danny Ketola, BS Accounting

Administrator Carolinas Center for Oral & Facial Surgery Charlotte, North Carolina *Chapter 6: Business Management of the Oral and Maxillofacial Surgery Practice*

Brian Kinard, DMD, MD

Resident Department of Surgery, Division of Oral and Maxillofacial Surgery Emory University School of Medicine Atlanta, Georgia *Chapter 13: Preoperative Evaluation*

Michael Kurtz, MS, MBA

Practice Administrator University Oral and Maxillofacial Surgeons St. Louis, Missouri *Chapter 6: Business Management of the Oral and Maxillofacial Surgery Practice*

George M. Kushner, DMD, MD

Professor of OMFS University of Louisville School of Dentistry Louisville, Kentucky *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

Paul M. Lambert, DDS

Clinical Associate Professor Advanced Education in General Dentistry Residency Program Oral and Maxillofacial Surgery Idaho State University-Meridian Boise, Idaho; Clinical Associate Professor Department of Oral and Maxillofacial Surgery Case Western Reserve University School of Medicine Cleveland, Ohio; Clinical Assistant Professor Department of Surgery, Division of Oral and Maxillofacial Surgery University of Cincinnati College of Medicine Cincinnati, Ohio Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice

Robert M. Laughlin, DMD

Oral & Maxillofacial Surgery Naval Medical Center San Diego San Diego, California *Chapter 15: Local Anesthetics*

Bach Le, DDS, MD, FICD, FACD

Private Practice Oral and Maxillofacial Surgery Whittier, California; Clinical Associate Professor Department of Oral and Maxillofacial Surgery The Herman Ostrow School of Dentistry of USC Los Angeles County/USC Medical Center Los Angeles, California Chapter 31: Guided Tissue Regeneration in Implant Dentistry Chapter 32: Contemporary Sinus-Lift Subantral Surgery and Graft Chapter 37: Mandibular Immediate Implant Loading with the Complete Arch Provisional Prostheses Chapter 42: Peri-implant Disease and Restorative Aspects of Dental Implants

Janice S. Lee, DDS, MD, FACS Clinical Director NIDCR/NIH Chief, Craniofacial Anomalies and Regeneration Section Bethesda, Maryland *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

Jesse W. Lee, DDS

Private Practice Oral and Maxillofacial Surgery Virginia Beach, Virginia *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

Luke L'Heureux, DMD, MD

Chief Resident Department of Craniofacial Sciences Division of Oral and Maxillofacial Surgery University of Connecticut School of Dental Medicine Farmington, Connecticut *Chapter 14: Monitoring for the Oral and Maxillofacial Surgery Patient*

Stuart Lieblich, DMD

Clinical Professor Oral and Maxillofacial Surgery University of Connecticut Farmington, Connecticut; Private Practice Avon Oral and Maxillofacial Surgery Avon, Connecticut *Chapter 14: Monitoring for the Oral and Maxillofacial Surgery Patient*

Trent W. Listello, DDS

Department of Oral and Maxillofacial Surgery 10th Medical Group USAF Academy, Colorado *Chapter 19: Pediatric Pharmacosedation and General Anesthesia*

Baldwin W. Marchack, DDS, MBA

Adjunct Professor Continuing Education Ostrow School of Dentistry of USC Los Angeles, California *Chapter 38: Contemporary Restorative Options for the Single Implant*

Vahik Paul Meserkhani, DDS, MSD

Private Practice Prosthodontist/Implantology Glendale, California *Chapter 37: Mandibular Immediate Implant Loading with the Complete Arch Provisional Prostheses* **Craig M. Misch, DDS, MDS** Private Practice Oral & Maxillofacial Surgery and Prosthodontics Sarasota, Florida; Associate Professor Prosthodontics and Periodontics University of Florida School of Dentistry Gainesville, Florida *Chapter 30: Autogenous Bone Grafting for Dental Implants*

Ololade I. Mitchell, MSN, MPH, RN

Risk Manager OMS National Insurance Company, RRG Tinley Park, Illinois *Chapter 7: Risk Management in Oral and Maxillofacial Surgery*

Michael T. Mooney, DDS

Residency Program Director Department of Oral and Maxillofacial Surgery Naval Medical Center San Diego San Diego, California *Chapter 15: Local Anesthetics*

Michael Y. Nagai, DDS, MD

Academic Practice Clinical Associate Professor Department of Oral and Maxillofacial Surgery University at Buffalo Buffalo, New York *Chapter 20: Pediatric Dentoalveolar Surgery*

Lindsey Nagy, DDS

Oral and Maxillofacial Surgeon Oral and Maxillofacial Surgery Methodist Medical Center Oak Ridge, Tennessee *Chapter 22: Complications of Dentoalveolar Surgery*

Gregory M. Ness, DDS

Professor—Clinical Oral and Maxillofacial Surgery and Anesthesiology The Ohio State University College of Dentistry Columbus, Ohio *Chapter 21: Basic and Complex Exodontia and Surgical Management of Impacted Teeth*

Joseph Niamtu III, DMD

Cosmetic Facial Surgery Richmond, Virginia Chapter 10: Marketing the Oral and Maxillofacial Surgery Practice

Brady Nielsen, DDS

Private Practice Oral and Maxillofacial Surgery Lakeshore Oral and Maxillofacial Surgery Murrieta, California *Chapter 31: Guided Tissue Regeneration In Implant Dentistry*

Katina Nguyen, DDS

Resident Oral and Maxillofacial Surgery Loma Linda University Loma Linda, California *Chapter 40: Implants in Acquired and Congenital Defects*

Howard H. Park, DMD, MD

Guest Lecturer Oral and Maxillofacial Surgery UCLA School of Dentistry Los Angeles, California *Chapter 27: Immediate Implants*

Larry P. Parworth, DDS, MS

Clinical Adjunct Faculty Oral and Maxillofacial Surgery University of North Carolina Chapel Hill, North Carolina *Chapter 19: Pediatric Pharmacosedation and General Anesthesia*

Joan Pi-Anfruns, DMD

Assistant Clinical Professor Oral and Maxillofacial Surgery/Restorative Dentistry UCLA School of Dentistry Los Angeles, California *Chapter 28: Bone Grafting Techniques and Materials Chapter 43: Peri-implant Disease*

Crystal Piras, BA

Candidate for Doctor of Osteopathy 2018 Ohio University Heritage College of Osteopathic Medicine Athens, Ohio *Chapter 16: Pharmacology of Drugs in Ambulatory Anesthesia*

Pier Paolo Poli, DDS, MSc

Oral and Maxillofacial Surgery, Dentistry, Dental Surgery Department of Biomedical, Surgical and Dental Science University of Milan, Milano Milano, Italy *Chapter 40: Implants in Acquired and Congenital Defects*

Lee D. Pollan, DMD, MS

Professor Clinical Dentistry Oral and Maxillofacial Surgery Eastman Institute for Oral Health Rochester, New York *Chapter 1: Professionalism and Ethics*

Katharine C. Powers, DMD

Department of Orthodontics Case Western Reserve University School of Dental Medicine Cleveland, Ohio *Chapter 21: Basic and Complex Exodontia and Surgical Management of Impacted Teeth*

Michael P. Powers, DDS, MS

Private Practice Oral and Maxillofacial Surgery Kent, Ohio; Clinical Assistant Professor of Oral and Maxillofacial Surgery Department of Specialty Medicine Heritage College of Osteopathic Medicine Ohio University Athens, Ohio; Chair Division of Oral and Maxillofacial Surgery Department of Surgery University Hospitals Portage Medical Center Ravenna, Ohio *Chapter 16: Pharmacology of Drugs in Ambulatory Anesthesia*

Hari S. Prasad, BS, MDT, FICOI, MICOI

Assistant Director, Hard Tissue Research Laboratory School of Dentistry University of Minnesota Minneapolis, Minnesota; Adjunct Assistant Professor College of Dentistry University of Oklahoma Oklahoma City, Oklahoma; Adjunct Assistant Professor Dental College of Georgia Augusta University Augusta, Georgia *Chapter 29: Bone Graft Biology and Histology*

Mamaly Reshad, BDS, MSc

Honorary Clinical Teacher Prosthodontics Eastman Dental Institute London, Great Britain *Chapter 26: Esthetic Implant Dentistry: Diagnosis and Treatment Planning Chapter 36: Fixed Restoration of the Edentulous Maxilla*

Sarah Ringdahl, Captain, USAF, DC

Periodontics Resident US Air Force Postgraduate Dental School Joint Base San Antonio Lackland AFB, Texas *Chapter 16: Pharmacology of Drugs in Ambulatory Anesthesia*

Michael D. Rohrer, DDS, MS

Director, Hard Tissue Research Laboratory School of Dentistry University of Minnesota Professor, Division of Oral and Maxillofacial Pathology University of Minnesota Minneapolis, Minnesota *Chapter 29: Bone Graft Biology and Histology*

James M. Rogér, DDS, MS

Resident Oral and Maxillofacial Surgery University of Rochester Rochester, New York *Chapter 18: Concepts in the Management of Acute Postoperative Pain*

Steven J. Sadowsky, DDS

Professor and Director of Implant Education University of the Pacific Arthur A. Dugoni School of Dentistry San Francisco, California *Chapter 39: Implant Overdentures*

Navid Sharifzadeh, DDS, MS

Private Practice limited to Periodontics
Tehran, Iran;
Department of Periodontology and Oral and Craniofacial Biology
University of Southern California
Herman Ostrow School of Dentistry
Los Angeles, California
Chapter 34: Peri-implant Soft Tissue Augmentation

Keith H. Sherwood, DDS

Associate Professor Orthodontics Boston University Goldman School of Dental Medicine Boston, Massachusetts *Chapter 23: Skeletally Based Implant Assisted Orthodontics*

Stanley W. Smith, DDS, FACD

Chief of Oral and Maxillofacial Surgery James J. Peters VA Medical Center Bronx, New York; Adjunct Assistant Clinical Professor of Dentistry Icahn School of Medicine at Mount Sinai Assistant Clinical Professor of Oral and Maxillofacial Surgery Columbia University College of Dental Medicine New York, New York *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

Martha J. Somerman, DDS, PhD

Director, National Institute of Dental and Craniofacial Research National Institute of Health Chief, Laboratory for Oral Connective Tissue Biology

National Institute of Arthritis and Musculoskeletal and Skin Diseases

National Institute of Health Bethesda, Maryland

Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice

Robert A. Strauss, DDS, MD

Professor and Director Residency Training Program VA Commonwealth University Medical Center Richmond, Virginia *Chapter 24: Lasers in Oral Surgery*

James Q. Swift, DDS

Professor Division of Oral and Maxillofacial Surgery University of Minnesota Minneapolis, Minnesota *Chapter 7: Risk Management in Oral and Maxillofacial Surgery*

Raquel M. Ulma, DDS, MD

Fellow, Plastic and Reconstructive Surgery UCLA Medical Center Los Angeles, California *Chapter 28: Bone Grafting Techniques and Materials*

Chandur Prem Karl Wadhwani, BDS, MSD

Private Practice Limited to Prosthodontics Bellevue, Washington; Adjunct Assistant Professor Restorative Dentistry Loma Linda University Loma Linda, California; Affiliate Faculty Restorative Dentistry University of Washington Seattle, Washington *Chapter 42: Peri-implant Disease and Restorative Aspects of Dental Implants*

Timothy O. Ward, MA, DDS

Staff Oral and Maxillofacial Surgeon VA Medical Center Richmond, Virginia *Chapter 3: Oral and Maxillofacial Surgery Career Alternatives to Private Practice*

R. Dean White, DDS, MS

Private Practice—Retired
Oral and Maxillofacial Surgery
Past President, American Board of Oral and Maxillofacial Surgery
Granbury, Texas
Chapter 11: Challenges of Retirement
Chapter 12: Boundary Violations and Physical and
Mental Impairments

R. Lynn White, DDS, FACD, FICD

Past President, American Association of Oral and Maxillofacial Surgeons
OMS Consultant, Phase II Associates
Austin, Texas
Chapter 4: OMS Practice Transition: Decisions for the New Surgeon and the Established Surgeon

Travis A. Witherington, DDS

Oral & Maxillofacial Surgeon Oral Surgery Specialists of Tennessee Oak Ridge, Tennessee *Chapter 2: The Philosophical Basis of a Successful Surgical Practice Chapter 5: Performing Oral Surgery from the Sitting Position*

Felix Kyle Yip, MS, DDS, MD

Chief Resident Oral & Maxillofacial Surgery University of Southern California Los Angeles, California *Chapter 32: Contemporary Sinus-Lift Subantral Surgery and Graft*

Homayoun H. Zadeh, DDS, PhD

Associate Professor Director, Post-Doctoral Periodontology Program Laboratory for Immunoregulation and Tissue Engineering Division of Periodontology, Diagnostic Sciences and Dental Hygiene University of Southern California Ostrow School of Dentistry Los Angeles, California *Chapter 34: Peri-implant Soft Tissue Augmentation*

Mark David Zajkowski, DDS, MD

Private Practice Oral & Maxillofacial Surgeon Oral & Maxillofacial Surgery Associates South Portland, Maine *Chapter 9: Accreditation of Outpatient Surgery Facilities*

Preface

We are excited to present the third edition of *Oral and Maxillofacial Surgery*. This three-volume text is the result of the collaboration of multiple contributors. The first edition, published in 2000, and the second edition, published in 2009, were very well-received. However, with all the advances in our profession, we felt it was time for a new edition. The section editors have done an excellent job recruiting the most knowledgeable individuals in their specific areas of expertise. The authors have submitted chapters that reflect the state of the art in their areas of responsibility.

This text is a comprehensive resource on oral and maxillofacial surgery. Every area in our specialty has been addressed. It defines the scope of the specialty. Every surgical procedure performed by an oral surgeon is covered in this text. This multi-volume text provides coverage of a wide range of issues related to surgical care, such as anesthesia, diagnostic imaging treatment planning, rehabilitation, physical therapy, and psychological considerations.

After an analysis of the changing field of oral and maxillofacial surgery, we strove to present a comprehensive, current book that covers the complete scope of our specialty. We hope that the reader appreciates and agrees with our efforts. We stated in the preface of the first edition that we hoped that our future attempts will present an even broader scope of oral and maxillofacial surgery. The fact that this edition has succeeded in that regard is a testament to the individuals who are constantly expanding the envelope.

Acknowledgments

The third edition of *Oral and Maxillofacial Surgery* is a team approach. The section editors—Michael P. Powers, David E. Frost, and Bach Le—were invaluable contributors to the success of this effort. They diligently pestered authors so that deadlines were almost met. This edition, like the last two, attempts to define the scope of oral and maxillofacial surgery and could not have come to fruition without these contributors.

Residents are the lifeblood of our specialty. Many have helped to contribute portions of chapters in this book. They have also provided us with friendship, dedication, intellectual stimulation, and humility, without which this book would not have been written.

Last, I would like to thank all the staff who helped to prepare these manuscripts and the editorial staff at Elsevier, who were so patient with our procrastination and meticulous in their development and editing of this book. Additionally, I would like to thank my staff—Laynee Adams, Sally Brown, Heather Early, Patty Martin, Sarah Merrill, Josie Ray, and Ashley Wood—who collectively and individually make my life so enjoyable.

Raymond J. Fonseca, DMD

Contents

VOLUME 1 CONTENTS

Profession and Practice of Oral and Maxillofacial Surgery, Anesthesia and Pain Control, Dentoalveolar Surgery, Implant Surgery

Volume Editor: Raymond J. Fonseca

Section 1: Profession and Practice of Oral and Maxillofacial Surgery

- 1 Professionalism and Ethics 1 Lee D. Pollan
- 2 The Philosophical Basis of a Successful Surgical Practice 14 Travis A. Witherington
- 3 Oral and Maxillofacial Surgery Career Alternatives to Private Practice 23 David A. Bitonti, Karen M. Keith, Jesse W. Lee, John W. Hultquist, N. Whitney James, Paul M. Lambert, Stanley W. Smith, Timothy O. Ward, George M. Kushner, Janice S. Lee, Martha J. Somerman, Andrea B. Burke, Martin E. Eichner
- 4 OMS Practice Transition: Decisions for the New Surgeon and the Established Surgeon 39 R. Lynn White
- 5 Performing Oral Surgery from the Sitting Position 46 Travis A. Witherington
- 6 Business Management of the Oral and Maxillofacial Surgery Practice 58 Danny Ketola, Scott E. Graham, Michael Kurtz
- 7 Risk Management in Oral and Maxillofacial Surgery 73 James Q. Swift, Ololade I. Mitchell
- 8 Coding, Insurance, and Third-Party Payers 87 Terri Bradley
- 9 Accreditation of Outpatient Surgery Facilities 96 Mark David Zaikowski
- 10 Marketing the Oral and Maxillofacial Surgery Practice 102 Joseph Niamtu, III
- **11 Challenges of Retirement 138** *R. Dean White*

12 Boundary Violations and Physical and Mental Impairments 143 R. Dean White

Section 2: Anesthesia and Pain Control

- **13 Preoperative Evaluation 148** Brian Kinard, Shelly Abramowicz
- 14 Monitoring for the Oral and Maxillofacial Surgery Patient 164 Stuart Lieblich, Luke L'Heureux
- **15 Local Anesthetics 176** Jeremy R. Gies, Michael T. Mooney, Robert M. Laughlin
- 16 Pharmacology of Drugs in Ambulatory Anesthesia 191 Crystal Piras, Sarah Ringdahl, Jeffrey Dembo, Michael Powers
- **17** Anesthetic Concepts and Techniques **211** Jeffrey D. Bennett, Kevin Butterfield
- **18** Concepts in the Management of Acute Postoperative Pain **225** James M. Rogér, Joseph J. Fantuzzo
- 19 Pediatric Pharmacosedation and General Anesthesia 238 Larry P. Parworth, Trent W. Listello, Gregory S. Bell

Section 3: Dentoalveolar Surgery

- 20 Pediatric Dentoalveolar Surgery 257 John H. Campbell, Michael Y. Nagai
- 21 Basic and Complex Exodontia and Surgical Management of Impacted Teeth 275 Gregory M. Ness, Katharine C. Powers
- 22 Complications of Dentoalveolar Surgery 298 Joshua Campbell, Andrew Cheung, Lindsey Nagy
- 23 Skeletally Based Implant Assisted Orthodontics 311 Keith H. Sherwood

- 24 Lasers in Oral Surgery 327 Robert A. Strauss, Nicholas J. Kain
- 25 Trigeminal Nerve Injuries 354 John M. Gregg, James A. Giglio

Section 4: Implant Surgery

- 26 Esthetic Implant Dentistry: Diagnosis and Treatment Planning 391 Saj Jivraj, Mamaly Reshad
- 27 Immediate Implants 410 Howard H. Park, Daniel R. Cullum
- 28 Bone Grafting Techniques and Materials 426 Tara L. Aghaloo, Joan Pi-Anfruns, Samantha Jones, Raquel M. Ulma, Payam Afzali, Nora Kahenasa
- **29 Bone Graft Biology and Histology 437** Michael D. Rohrer, Hari S. Prasad
- **30 Autogenous Bone Grafting for Dental** Implants 446 Craig M. Misch
- **31 Guided Tissue Regeneration in Implant Dentistry 475** *Bach Le, Brady Nielsen*
- **32 Contemporary Sinus-Lift Subantral Surgery** and Graft 509 Bach Le, Felix Kyle Yip
- **33 Osteoperiosteal Flaps and Distraction Osteogenesis 526** Ole T. Jensen, Katsuhiro Horiuchi
- **34 Peri-implant Soft Tissue Augmentation 555** Homayoun H. Zadeh, Diane Anthony-Costandi, Navid Sharifzadeh

- **35 Zygomatic Implant: A Graftless Approach for Treatment of the Edentulous Maxilla 569** *Edmond Bedrossian, Edmond Armand Bedrossian Jr, Per-Ingvar Brånemark*
- 36 Fixed Restoration of the Edentulous Maxilla 584 Mamaly Reshad, Saj Jivraj
- **37** Mandibular Immediate Implant Loading with the Complete Arch Provisional Prostheses 605 Tony Daher, Vahik Paul Meserkhani, Bach Le
- **38 Contemporary Restorative Options for the Single Implant** 624 *Baldwin W. Marchack*
- **39 Implant Overdentures 641** Tony Daher, Charles J. Goodacre, Steven J. Sadowsky
- 40 Implants in Acquired and Congenital Defects 665 Alan S. Herford, Katina Nguyen, Pier Paolo Poli
- 41 Three-Dimensional Imaging and Digital Workflow Protocols for Dental Implants and Bone Grafting 688 Scott D. Ganz
- 42 Peri-implant Disease and Restorative Aspects of Dental Implants 711 Chandur Prem Karl Wadhwani, Bach Le
- **43 Peri-implant Disease 723** Tara L. Aghaloo, Joan Pi-Anfruns

Professionalism and Ethics

LEE D. POLLAN

ral and maxillofacial surgery (OMS) training is an intense educational process that requires 4 to 6 years of residency beyond the traditional 4-year predoctoral dental educational curriculum. The OMS residency includes exposure and training to competency in the following disciplines: dento-alveolar surgery and implants, medicine, general surgery, anesthesiology, critical and intensive care, pathology, trauma management and reconstruction, cleft and craniofacial surgery, temporomandibular dysfunction, orthognathics, and cosmetic surgery. The Commission on Dental Accreditation also requires each resident to participate in scholarly activity and to be educated in coding and practice management.

The oral and maxillofacial surgeon enjoys a unique position among the dental specialties in that the educational process is longer and more intense, and it straddles the fence between medicine and dentistry. The OMS is often seen as the "go-to" person in dentistry and is often called on to assist in the diagnosis and treatment of patients who present with unique and perplexing problems in dental practice. Physicians will also refer patients who present with unusual problems of the head and neck. It is implied that as a health care provider, the OMS is given the privilege to provide care for patients, but also must demonstrate the responsibility to patients who place their trust in the OMS to care for them and their families. It is for these reasons that the OMS must function in a highly professional and ethical manner. It is this author's belief that the OMS curriculum is deficient in teaching and mentoring in the areas of professionalism and ethics.

What is the Definition of "Professionalism"?

The American Board of Medical Specialties (ABMS) states that *professionalism* is a belief system in which group members (professionals) declare to each other and to the public the shared competency standards and ethical values they promise to uphold in their work and what the public and individual patients can and should expect

from medical (dental) professionals. At the heart of this concept is a three-part promise to acquire, maintain, and advance:

- An ethical value system grounded in the conviction that the professions exist to serve the patients' and the public's best interests.
- The knowledge and technical skills required for good practice.
- The interpersonal skills necessary to work together with patients.

There is a shared view that the members of a profession should work together, are committed to maintaining the standards and values that govern their practice, and monitor each others' adherence to their standards on behalf of the public. These standards are vetted through a process of internal debate and then are declared to the public to encourage open dialogue and ensure that the standards meet social needs and at the same time uphold core professional values. These standards are distributed to all stakeholders to ensure they are understood as part of the professional's contract with society, and then they must be enforced by the profession.¹

Alan Norton, in a blog post published in 2010 at www.techrepublic.com, discusses 10 things that define a true professional. These are:

- 1. *Put the customer (patient) first.* Understanding and satisfying your patient's needs is the cornerstone of being a successful professional. Do what is necessary to meet those needs. Consider putting first the satisfaction of your co-workers.
- 2. *Make expertise your specialty.* The very word professional implies that you are an expert. Technical competence is essential.
 - Become an expert in the skills and tools necessary to do your job
 - Always perform to the best of your abilities
 - Keep your knowledge up to date
- 3. *Do more than expected.* Professionals aren't bound by a clock and have the ability to self manage their time. Professionals are expected to efficiently manage

their workload and frequently must work well beyond the standard 40 hour workweek. The professional is expected to produce results and meet or exceed expectations.

- Do what you say and say what you can do. Professionals must walk the walk to back up talking the talk. To do less erodes the trust that patients have in their doctor.
- 5. *Communicate effectively.* A patient will go out of their way to seek out a doctor who has excellent communication skills. The professional takes time to explain treatment options, make recommendations, clearly state financial arrangements, and predict expected completion of treatment. This in turn empowers the patient to accept treatment plans and make appropriate treatment decisions.
- 6. *Follow exceptional guiding principles.* Professionals demonstrate appreciation of their employees, practice proper etiquette, and have high ethical and moral standards. Professionals are honest and fair in their dealings with others.
- 7. *Praise your peers not yourself.* Demonstrate respect for your peers. While you may not always agree with another provider's treatment, a professional should not denigrate the care provided by others.
- 8. *Share your knowledge.* If you believe in hoarding information and have the opinion that your knowledge is greater than that of others and will ensure your success, think again—no one is irreplaceable. Professionals should help their peers and are respected for doing so.
- 9. Say thank you (and don't be afraid to say I'm sorry). A simple "thank you" to a co-worker, employee, assistant, patient or referral source goes a long way to state your gratitude. Saying "I'm sorry" doesn't make you appear weak or imply a sense of guilt. It merely expresses your admission that you (and perhaps an outcome) are less than perfect. It expresses your humanity and a willingness to admit that a professional isn't always perfect.
- 10. *Keep a smile on your face and the right attitude in your heart.* Being pleasant and cheerful can be difficult when you are feeling unpleasant at times. Sharing the misery is not the mark of a professional.²

A Little History

Dental (and medical) education historically upheld the notion of professionalism. Numerous institutions hold "white coat ceremonies" inducting the student into the professional arena. Students in the early stages of clinical exposure to patients were called "doctor." Students were mandated to wear professional attire, act in a certain manner, and act respectfully toward peers and patients. But it wasn't until the mid-1990s that the concept of teaching professionalism began to emerge into health care and medical and dental education. The health care professions and the commitment to the patient were being challenged by external forces of change in society (e.g., managed care, health care financing challenges, governmental pressures). Numerous print and broadcast news segments have raised concerns about unprofessional and unethical behavior. It is the public's perception of dishonesty and a lack of professional integrity by physicians and dentists, and the resulting erosion of public trust, that forced health care into a renewed sense of professionalism.

The Physicians' Charter, published in *Lancet* in 2002, was a product of the American College of Physicians, the American Society of Internal Medicine, the American Board of Internal Medicine Foundation, and the European Federation of Internal Medicine. The Charter outlines three fundamental principles underlying professionalism:

- Primacy of patients' welfare
- Patients' autonomy
- Social justice

The Charter goes on to establish a set of 10 professional commitments to:

- 1. Professional competence
- 2. Honesty with patients
- 3. Patient confidentiality
- 4. Maintaining appropriate relationships with patients
- 5. Improving quality of care
- 6. Improving access to care
- 7. Just distribution of finite resources
- 8. Scientific knowledge
- 9. Maintaining trust by managing conflicts of interest
- 10. Professional responsibilities

The expanded definition of the Physician Charter commitments are a set of professional responsibilities that inform the public and the profession of the fundamental principles that help to ensure patient welfare and autonomy.

- 1. **Commitment to professional excellence.** Physicians must be committed to lifelong learning and be responsible for maintaining the medical knowledge and clinical and team skills necessary for the provision of quality health care. More broadly, the profession as a whole must strive to see that all of its members are competent and must ensure that appropriate mechanisms are available for physicians to accomplish this goal.
- 2. Commitment to honesty with patients. Physicians must ensure that patients are completely and honestly informed before the patient has consented to treatment and after treatment has occurred. This expectation does not mean that patients should be involved in every minute decision about medical care; rather, they must be empowered to decide on the course of therapy. Physicians should also acknowledge that in health care, medical errors that injure patients do sometimes occur. Whenever patients are injured as a consequence of medical care, patients should be informed promptly because failure to do so seriously compromises patient and societal trust. Reporting and analyzing medical mistakes provide the basis for appropriate prevention and improvement strategies and for appropriate compensation to injured parties.

- 3. **Commitment to patient confidentiality.** Earning the trust and confidence of patients requires that appropriate confidentiality safeguards be applied to disclosure of patient information. This commitment extends to discussions with persons acting on a patient's behalf when obtaining the patient's own consent is not feasible. Fulfilling the commitment to confidentiality is more pressing now than ever before, given the widespread use of electronic information systems for compiling patient data such as electronic medical records (EMRs) and an increasing availability of genetic information. Physicians recognize, however, that their commitment to doctor-patient confidentiality must occasionally yield to overriding considerations in the public interest (for example, when patients endanger others).
- 4. Commitment to maintaining appropriate relations with patients. Given the inherent vulnerability and dependency of patients, certain relationships between physicians and patients must be avoided. In particular, physicians should never exploit patients for any sexual advantage, personal financial gain, or other private purpose.
- 5. Commitment to improving quality of care. Physicians must be dedicated to continuous improvement in quality health care. This commitment entails not only maintaining clinical competence but also working collaboratively with other professionals to reduce medical error, increase patient safety, minimize overuse of health care resources, and optimize the outcomes of care. Physicians must actively participate in the development of better measures of quality of care and the application of quality measures to assess routinely the performance of all health care professionals, institutions, and systems. Physicians, both individually and through their professional associations, must take responsibility for assisting in the creation and implementation of mechanisms designed to encourage continuous improvement in the quality of care.
- 6. **Commitment to improving access to care.** Medical professionalism demands that the objective of all health care systems be the availability of a uniform and adequate standard of care. Physicians must individually and collectively strive to reduce barriers to equitable health care. Within each system, the physician should work to eliminate barriers to access based on education, laws, finances, geography, and social discrimination. A commitment to equity entails the promotion of public health and preventive medicine, as well as public advocacy on the part of each physician, without concern for the self-interest of the physician or the profession.
- 7. Commitment to a just distribution of finite resources. While meeting the needs of individual patients, physicians are required to provide health care that is based on the wise and cost-effective management of limited clinical resources. They should be committed to working with other physicians, hospitals, and payers to develop guidelines for cost effective care.

The physician's professional responsibility for appropriate allocation of resources requires scrupulous avoidance of superfluous tests and procedures. The provision of unnecessary services not only exposes one's patients to avoidable harm and expense but also diminishes the resources available for others.

- 8. **Commitment to scientific knowledge.** Much of medicine's contract with society is based on the integrity and appropriate use of scientific knowledge and technology. Physicians have a duty to uphold scientific standards, to promote research, and to create new knowledge and ensure its appropriate use. The profession is responsible for the integrity of this knowledge, which is based on scientific evidence and physician experience.
- 9. Commitment to maintaining trust by managing conflicts of interest. Medical professionals and their organizations have many opportunities to compromise their professional responsibilities by pursuing private gain or personal advantage. Such compromises are especially threatening in the pursuit of personal or organizational interactions with for-profit industries, including medical equipment manufacturers, insurance companies, and pharmaceutical firms. Physicians have an obligation to recognize, disclose to the general public, and deal with conflicts of interest that arise in the course of their professional duties and activities. Relationships between industry and opinion leaders should be disclosed, especially when the latter determine the criteria for conducting and reporting clinical trials, writing editorials or therapeutic guidelines, or serving as an editor of a scientific journal.
- 10. **Commitment to professional responsibilities.** As members of a profession, physicians are expected to work collaboratively to maximize patient care, be respectful of one another, and participate in the processes of self-regulation, including the remediation and discipline of members who have failed to meet professional standards. The profession should also define and organize the educational and standard-setting process for current and future members. Physicians have both individual and collective obligations to participate in these processes. These obligations include engaging in internal assessment and accepting external scrutiny of all aspects of their professional performance.³

It is difficult to define professionalism in the style of a dictionary. Many individuals have made the tongue-incheek comment that pornography and professionalism have two similarities—they may be hard to define, but people know it when they see it. Defining professionalism becomes a little easier when one recognizes that there are common characteristics that define all professions. Autonomy is granted to the profession only if the profession meets the responsibilities placed on it by patients, third-party payers, state regulatory bodies, peers, and the institutions that grant privileges to the health care provider. In particular, the health care professions serve as guardians of social values and the professionals are expected to articulate and hold these values publically. Professionalism is grounded within a series of behavioral patterns, moral values, honesty, integrity, and judgment. The profession then becomes a way of life with a moral value.⁴

In his article on defining medical professionalism, Swick states that medical professionalism comprises a series of behaviors. He says that health care providers:

- Subordinate their own interests to the interests of others.
- Adhere to high ethical and moral standards.
- Respond to societal needs, and their behaviors reflect a social contract with the community served.
- Project core humanistic values, including honesty and integrity, caring and compassion, altruism and empathy, respect for others, and trustworthiness.
- Exercise accountability for themselves and for their colleagues.
- Demonstrate a continuing commitment to excellence.
- Exhibit a commitment to scholarship and to advancing their field.
- Deal with high levels of complexity and uncertainty.
- Reflect upon their actions and decisions.⁴

This chapter has discussed many attributes of professional behavior, teaching of professionalism, the responsibilities of being a professional, and the expectations placed on the health care professional by society and regulatory bodies. Patrick Duff, MD, has enumerated several examples of unprofessional behavior in students. These include:

- Intellectual or personal dishonesty: a fabrication of research results or lab data, failure to follow through on assignments and cheating on examinations
- Arrogance and disrespectfulness: a student's inappropriate sense of entitlement
- Prejudice on the basis of gender, ethnicity, age, or sexual orientation
- Abrasive interactions with patients and co-workers: a student's exaggerated sense of self importance
- Lack of accountability for medical errors and administrative over sights; lack of student investment in a patient's outcome
- Fiscal irresponsibility: ordering expensive and unnecessary lab tests; receiving kick-backs for referrals or use of materials
- Lack of commitment to lifelong learning: failing to explore new technologies or seeking continuing education
- Lack of due diligence: carelessness, laziness, inattention to detail, and failure to follow through
- Personal excesses: substance abuse, high-stakes gambling, and high-risk behaviors
- Sexual misconduct: inappropriate advances or relationships with patients, co-workers, and students⁵

The trigger for professionalism in medical education initiatives was the Physicians' Charter. Professionalism has been identified as a core competency that needs to be evaluated in students and residents. The Group on Educational Affairs (GEA), the Association of American Medical Colleges (AAMC), and the Accreditation Council for Graduate Medical Education (ACGME) as well as many specialty boards have identified professionalism education as a priority.

Can Professionalism be Taught?

The oral and maxillofacial surgeon who is involved in predoctoral or residency education must decide: can professionalism be taught using the traditional Socratic method, or should it be taught by role modeling?

If professionalism is taught by role modeling, the mentor should answer the following:

- Am I modeling teamwork?
- Am I a role model for lifelong learning?
- Can the student see that I am honest and compassionate?
- Do I make the student aware of my advocacy efforts? If professionalism is taught by conventional didactic means, the mentor might ask:
- Can I teach the student to be compassionate or respectful?
- Can I teach the student to self-monitor honesty and goals for excellence?
- Can I teach teamwork?⁶

Even though the concept of professionalism can be nebulous and very difficult to define, several organizations have elucidated constructs to assist with this definition. The ACGME has stated that professionalism is a core competency for all residents. The competencies expected are that "residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

- Compassion, integrity, and respect for others
- Responsiveness to patient needs that supersedes selfinterest
- Respect for patient privacy and autonomy
- Accountability to patients, society, and the profession
- Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation

The Gold Humanism Foundation promotes the concept of a humanistic doctor as one who demonstrates integrity, excellence, compassion, altruism, respect, and service.

The University of Texas Medical Branch Professionalism Charter outlines a set of commitments that is expected of *every* employee: commitment to responsibility, service, diversity, competence, confidentiality, honesty, responsible use of resources, improving access to education and health care, quality, maintaining appropriate relations, managing conflicts of interest, and knowledge. It is incomprehensible that UTMB is the only institution that states these expectations.⁷

Evaluation of the Student (Resident) and Adherence to Professional Behavior

Since the ACCME and other accrediting bodies state that teaching of professionalism is a core competency as part

of residency education, what is the appropriate method of evaluating the resident and providing feedback to the resident?

All faculty at the predoctoral and postgraduate levels in dentistry must adhere to the standards of the Commission on Dental Accreditation (CODA). These standards include regular evaluation of the performance of the resident. The standards also allow for evaluation of the faculty by the resident.

If one subscribes to the foregoing discussion, it is clear that one of the major tenets of professionalism is *honesty*. It is not unusual for the mentor to question whether or not a specific resident evaluation is warranted. (Maybe I was ineffective as a teacher—maybe my evaluation was too harsh. Perhaps the student who receives a poor evaluation will recognize that I was the one who gave that bad evaluation and I will in turn receive a poor evaluation myself.) The simple answer is that honesty is one of the most important characteristics in solving this problem. If we are dishonest in our evaluations, are we, in turn, being truly unprofessional?

To demonstrate true professionalism, we must be able to be critical when reflecting on our own behaviors, regardless if we are the resident or the mentor. As the resident, it is appropriate to ask:

- How did I behave in that critical situation?
- If I had it to do over, would I do anything differently?
- What aspect of professionalism was challenging for me today?

As the mentor, it is appropriate to pose the following questions to the resident:

- How did you think you did in that difficult situation?
- If you had it to do over, would you do anything differently?
- What aspect of professionalism was challenging for you today?

As a professional, it is expected that one demonstrate CHARACTER:

- C ompassion
- H onesty
- **A** ltruism
- **R** esponsibility
- A iming for excellence
- **C** onfidentiality
- T eamwork
- **E** thical approach
- R espect⁸

Paul S. Mueller, in his paper presented to the Keio Medical Society in Tokyo in 2008, lists eight reasons for teaching and assessing professionalism.⁹

- 1. Teaching and assessing professionalism does not occur by chance alone. The elements of the framework of professionalism should intentionally be taught (Figure 1-1).
- 2. Patients expect doctors to be professional. Patients expect the doctor to be confident, empathetic, personal, forthright, respectful, and thorough.



• Figure 1-1 A framework for defining medical professionalism.

- 3. Medical and dental professional societies expect professionalism to be taught and assessed. Accrediting organizations such as the ACGME and the Joint Commission recommend that professionalism be included as a core competency in graduate medical education and accreditation of institutions. CODA has standards that require education in practice management and professionalism.
- Professionalism is associated with improved medical outcomes. These are related to increased patient trust, better compliance, fewer patient complaints, and less patient litigation.
- Unprofessional behavior is associated with adverse medical outcomes. These are related to reduced employee morale and productivity, reduced communication, burnout and depression.
- 6. Accrediting bodies require that professionalism be taught and assessed.
- Professionalism can be taught and learned. Formal and informal curricula can influence values and beliefs about moral and ethical reasoning and behavior.
- 8. Informal educational processes (the hidden curriculum) that include conversations during rounds, hallways, call rooms, etc. can be powerful influences on trainees provided by role models and mentors.

There are several concepts for teaching professionalism that must be considered. According to Epstein and Hundert, these concepts include identifying the challenges of teaching professionalism, transitioning from measuring values to predicting behaviors, methodologies for teaching professionalism, and the importance of imparting the concept of professional behavior to the student.¹⁰

Today's students face pressures that seem daunting to them. Merely trying to understand the expectations of what professionalism encompasses is difficult for the student. Numerous students have negative role models based on their exposure to the print and broadcast media. Newspaper articles about health care professionals who have committed egregious acts are prominent. Many television shows portray health care professionals in a very unprofessional light.

A student's values can be very difficult to observe and measure. Providing feedback to a student about values can be threatening and imply character defects. Discussing deviations from expected behavior is less threatening and usually, more readily accepted. While educators generally have an easier time assessing cognitive skills, there often is greater difficulty in discussing non-cognitive skills such as communication, integrity, and honesty.

Several steps are involved in teaching professionalism: setting expectations, performing assessments, remediating inappropriate behaviors, preventing inappropriate behaviors, and implementing cultural change.

Initially, expected behaviors must be defined. These expectations can be variable based on the culture of a particular institution. In addition, institutional processes such as reporting channels, due process, remediation processes, and lack of retaliation against those who report behavior issues may vary.

Educators, especially those who are involved in predoctoral education, must have the tools to provide uniform, consistent, and unbiased evaluation of students. The institution must provide this information to the faculty in order to make the evaluation process effective.

Last, the institution must provide the educators with the tools to remediate the student who does not comply with accepted defined patterns of professional behavior. The student must have information about the consequences of noncompliance with regard to faculty and institutional expectations for professional behavior.¹¹

Causes of Unprofessional Behavior

Types of unprofessional behavior were previously discussed. It is important to note that unprofessional behavior does not necessarily indicate a character flaw or lack of a moral compass. It is generally believed that all medical and/or dental students enter professional school intending to become respected, successful, and contributory members of their respective professional communities. What happens that leads to an alteration in behavior within the individual who is deemed to be unprofessional?

According to Liselotte N. Dyrbye and her colleagues, there is a direct relationship between self-reported unprofessional conduct and burnout among medical students.¹² Of students who responded to a survey, 52.8% were experiencing burnout. Students with burnout were significantly more likely to have engaged in cheating and dishonest clinical behaviors. These students were less likely to hold altruistic values regarding a physician's responsibility to society, including serving underserved patient populations.

A study by Shalini T. Reddy published in the *Journal* of *Hospital Medicine* identified causes of unprofessional behavior among hospitalists.¹³ Four key factors or patterns of unprofessional behavior included making fun of others, conduct in the learning environment (texting during conferences), workload management (celebrating transfer of a patient), and time pressures (signing out early). The most common unprofessional behaviors were having nonmedical, personal conversations in patient corridors, ordering a routine test as urgent to expedite patient care, signing out a patient by phone when it could have been done in person, and ridiculing physicians to colleagues.

According to a blog post published by Kaiser Health News on June 14, 2012, two thirds of doctors surveyed at three Chicago hospitals admit to having personal conversations within earshot of patients. Sixty-two percent have characterized a lab test as urgent in order to obtain the result faster. Forty percent mocked another physician. The same number made disparaging remarks about emergency room doctors for missing part of a patient's medical problems. Thirty percent made disparaging remarks about patients on rounds. Twenty-nine percent of respondents stated they had attended a dinner or social event sponsored by a drug or medical device manufacturer that stood to gain from a doctor's decision. The good news is that egregious behaviors such as falsifying patient records (6.4%) and performing procedures beyond the provider's skill level (2.6%) were much less common.¹⁴

The Link between Disciplinary Actions and Prior Behavior in Professional School

Maxine Papadakis and co-workers published a paper in the New England Journal of Medicine in 2005 that looked at the correlation between disciplinary action by state medical boards and prior behavior in medical school.¹⁵ This casecontrolled study investigated disciplinary actions against medical school graduates and the types of behavior that might be predictive of disciplinary action by state boards. The methodology evaluated physicians who were graduates of three respected, high-profile medical schools since 1990. The actions ranged from public reprimand to revocation of the medical license. The control group consisted of graduates who graduated within 1 year of the disciplined graduates and had no disciplinary actions on their record. The measurements used were admission applications, course grades, evaluation narratives, and scores from licensing examinations, administrative correspondence, and a dean's letter of recommendation to residency programs. Other predictor variables included undergraduate GPA, MCAT scores, and scores on the National Board of Medical Examiners or the USMLE Step 1. (See Table 1-1 for the results.)

TABLE
1-1Comparison between Disciplined and
Non-disciplined Physicians Based on
Prior Academic Performance

Variable	Non-disciplined Physicians	Disciplined Physicians
Undergraduate GPA	Somewhat higher	Somewhat lower
MCAT scores	Slightly higher	Slightly lower
NBME/USMLE Step 1	Slightly higher	Slightly lower
Repeated course in medical school	Most likely did not fail a course	Twice as likely to have failed a course

What were the Types of Unprofessional Behavior?

- Irresponsibility
- Diminished capacity for self-improvement
- Poor initiative
- Impaired relationships with fellow students, residents, and faculty
- Impaired relationships with nurses and other non-physician health care workers
- Behaviors associated with being anxious, insecure, or nervous
- Unreliable attendance in clinic and poor follow-up related to patient care
- Failure to accept constructive criticism
- Argumentativeness
- Poor attitude with lack of motivation and enthusiasm, or passive affect

The two types of unprofessional behavior most likely to predict disciplinary actions were irresponsibility and diminished capacity for self-improvement.

What can be Done about this Problem?

- Standards for professional school admission and outcome objectives for graduation should be reviewed so that they contain specific language about professional behavior.
- Professionalism can be taught and modeled.
- Students should be provided with feedback that can motivate them and assist in remediating unprofessional patterns of behavior.

Without question, identifying students who exhibit a tendency toward unprofessional behavior early in their career can help them to minimize the likelihood of unprofessional behavior and possibly future disciplinary actions by administrators and state boards.

Based on the material discussed in this chapter, it is relatively easy to identify and enumerate the behavioral patterns that are unprofessional: putting one's self-interest above the interests of the patient, lack of honesty and integrity, and ignoring the consequences of actions that are not socially acceptable. In this author's opinion, a significant contributory influence in unprofessional activities is greed-maximizing income for the least amount of work. Being the consummate professional does not mean having the best clothes, driving the nicest car, giving the most lavish parties, or belonging to the most exclusive country club. A true professional is a caring, compassionate, and honest person. It is the true professional who gives back to the patients who seek care, contributes to the good of the local community, and earns the admiration of peers.

The financial gains from greed often result in penalties imposed by state boards, loss of reputation, erosion of the referral base, and generally being perceived as unprofessional and unethical. The news media is laden with reports of fines, suspension or revocation of license, expulsion from professional societies or associations, or even incarceration. For example:

- An orthodontist was forced to repay \$800,000 in a Medicaid fraud case for improper billing of claims. He was forced to resign as a Medicaid provider and not see any new patients.
- A New York dentist was found guilty of larceny charges for fraudulent billing and up-coding services for Medicaid-covered patients. A criminal and civil settlement was reached in excess of \$480,000. He was sentenced to full restitution and community service for his felony conviction.
- A New York dentist was sentenced to 1 to 3 years in jail and will have to repay \$700,000 in restitution for fraudulent Medicaid practices.
- The Board for Professional Medical Misconduct of the New York State Health Department recently barred a physician from practicing in New York after he was found guilty of harassing, abusing, or intimidating a patient, moral unfitness, and fraudulent practice.
- FORBA Holdings LLC, the management of FORBA, and several dentists who operated and owned numerous dental facilities in many states have been the target of legal and regulatory actions. The clinical facilities were operated as "Small Smiles Dental Centers." The dentists who owned, were employed by, and treated patients in these centers were charged with performing unnecessary procedures, failing to obtain proper informed consent, performing substandard care, and fraudulent billing practices. Some of the dentists were incarcerated. Some paid hundreds of thousands or, in some cases, millions of dollars to settle civil claims and repay financial gains from fraudulent billing practices. Some were required to inactivate and/or surrender their state dental licenses.
- A New Jersey oral and maxillofacial surgeon was found guilty of illegally selling human body parts obtained from funeral homes without the consent of the deceased person's family. The tissues harvested were used for tendon replacement, bone grafts, and other reconstructive surgical procedures. He was sentenced to 18 to 54 years' imprisonment and died in prison in July 2013.

How does this Information Relate to Oral and Maxillofacial Surgery?

In 2006, The American Association of Oral and Maxillofacial Surgeons published a DVD about professionalism and ethics. The intent was to distribute the DVD to first-year residents so that the door to teaching of professionalism could be opened. As previously stated, the teaching of professionalism has been identified as part of the core curriculum in predoctoral professional education in medicine, and should be a portion of the core curriculum in dental education. This concept is endorsed and mandated by ACGME and CODA. The producers of the DVD identified four major aspects of professionalism that are germane to the OMS resident as well as the practitioner, regardless of experience or length of time in practice. These are:

- Ethics
- Giving back to the specialty
- Contributing to the community
- · Contributing to education and research efforts

The late Dr. Robert V. Walker made several statements that speak volumes concerning the type of behavior, dedication, and personality of the consummate professional. Those who knew Dr. Walker understand that he was speaking to every person who has the title "Doctor." He stated,

Professionalism requires that you provide excellence in every conceivable way in the care of your patients. We should have a sense of excellence in giving back to our specialty that can be in many ways: monetarily, to contributing to research of the highest quality, commitment to your community, your church, the schools that you attended (both undergraduate and professional). You have to support them. . . . They provided the ticket for what I am. We are not an island unto ourselves. We all have had help to get where we are and if we don't give back to the institutions that have helped us, well then, we are being selfish to the institutions. Professionalism is a feeling that one has a debt to those who have gone before us.

Dr. Rocco R. Addante, former chair of the AAOMS Commission on Professional Conduct, has stated that "ethics and professional behavior speaks volumes to your colleagues and patients. This includes the way one manages his practice to how one conducts himself in everyday life." Dr. Addante says, "We must take the high road and be honest while maintaining integrity. Patients are very perceptive of how the doctor treats the staff and what type of rapport the staff has with the doctor and how they support the doctor." Is the atmosphere in the office professionally respectful of the staff and patients? Does the staff look and speak to each other and to the patient in a respectful, caring manner? Referring doctors are also able to perceive that the office has a professional atmosphere that spawns a close, confident working relationship while caring for patients. This type of atmosphere goes a long way to positively promote the practice and generate referrals from other doctors as well as other patients. This type of perception and behavior is far more influential than print or Internet advertising.

How does a young professional new to practice get started? According to Dr. Robert M. Brandjord, Past President of the American Dental Association, involvement occurs early in one's career, and it begins on the local level. Early involvement in county and district dental associations is an important step in promoting your practice. More importantly, you develop a sense of community involvement, not only within dentistry, but also in the local community. It is not uncommon for a health care provider to be looked on as a "go-to" person or leader in the community. Demonstrating professional behavior enhances one's perceived standing in the community.

Dr. Brandjord says, "Involvement in local dental community activities gives one insight into the political process in achieving goals related to the needs of your specialty. Local involvement helps to build coalitions." He further believes that "the dental specialties should be involved in American Dental Association activities to share ideas, discuss common concerns, and gain better understanding of common concerns and issues."

Dr. Michael A. Menis, former chair of the Oral and Maxillofacial Surgery Political Action Committee, discusses the importance of professional association involvement and the establishment of relationships with local, state, and federal representatives. Fostering such relationships can allow the OMS to be proactive in discussing issues that may have an effect on the care of patients and the ability to practice the scope of our profession. Association involvement provides the knowledge base to enable the OMS to advocate for patients who may be affected by legislative measures adopted by local, state, and federal representative bodies.

Dr. David E. Frost, former chair of the Oral and Maxillofacial Surgery Foundation, believes that involvement in activities of the OMS Foundation makes the oral and maxillofacial surgeon aware of the mechanisms of fund raising and funding of the many research activities that lead to improved instrumentation and procedures that enhance the care of patients. Doctors Frost, J. Thomas Soliday, and Steven R. Nelson all have stated that volunteerism, locally and internationally, reinforces the sense of social responsibility and giving back to the communities that support the practice of the local OMS. We all have the ability to make a difference in the lives of those in the community who are economically, developmentally, and physically challenged. Caring for the disadvantaged has the capability to enhance the visibility of the OMS in the community and foster the professional outlook of the allied staff in the practitioner's office.

While CODA mandates specific criteria and minimal standards for accreditation of residency programs in oral and maxillofacial surgery, it is understood that many OMS program graduates do not practice the full scope of their education and training. Dr. Mark W. Ochs, Chair of Oral and Maxillofacial Surgery at the University of Pittsburgh Medical Center, believes that OMSs who have completed an accredited residency program have the skills to provide care in significant aspects of the core of oral and maxillofacial surgery. He has stated that "trauma management is a core of OMS training and when orthognathic surgery and trauma management is abandoned, you really narrow your scope and that at that point, you are not a strong player." Dr. Steven Feinberg, a highly visible and respected research and academic oral and maxillofacial surgeon, states, "The true professional has the obligation to thank those who have served as our mentors by mentoring the young OMS."¹⁶

How are Ethics and Professionalism Linked?

Ethics is defined as a branch of philosophy and theology that is the systematic study of what is right and good with respect to character and conduct. Ethics seeks to answer two fundamental questions:

- What should we do?
- Why should we do it?

Ethics are the moral principles or virtues that govern the character and conduct of an individual group. The object of ethics is to emphasize the spirit (or intent) rather than law. Dental ethics applies the moral principles and virtues to the practice of dentistry. Ethics deal with moral conduct, duty, and judgment. Ethics are concerned with standards for determining whether actions are right or wrong. These are voluntary controls, not laws, and serve as a method of self-policing within the profession. Ethics deal with moral conduct, right and wrong, good and evil. The difference between ethics and the law is that legal issues are settled with the use of laws and court decisions. Ethical issues are subject to individual interpretation with regard to the right and wrong of a particular situation. Laws are very specific and written by people with the authority to write them. Laws are "black or white," whereas ethics are less specific and have more gray areas. Laws set the minimum standard of behavior; ethics set the highest standards of behavior.¹⁷

As a general rule, most professional associations, academies, colleges, and boards have written and adopted principles of ethics or codes of professional conduct. Members and fellows of such organizations are expected and mandated to adhere to the stipulations set forth is these types of documents. Fellows and members of the American Association of Oral and Maxillofacial Surgeons are responsible to adhere to the Code of Professional Conduct as written and overseen by the Commission on Professional Conduct (CPC). In addition, individuals who are also members of the American Dental Association (ADA) or the American Medical Association (AMA) must follow the mandates as put forth in the documents pertaining to principles of ethics and the code of professional conduct for those respective organizations. These documents have many similarities, but for the purposes of this chapter, the focus will be on the AAOMS CPC document and the Principles of Ethics as published by the ADA. In the case where the practitioner is not a fellow or member of any professional organization, complaints about unprofessional or unethical behavior are referred to state dental or medical boards.

The ADA Principles of Ethics and Code of Professional Conduct state that there are five basic principles that form the aspirational goals of the profession:

9

- The principle of patient autonomy (self-governance)
- The principle of non-malfeasance (do no harm)
- The principle of beneficence (do good)
- The principle of justice (fairness)
- The principle of veracity (truthfulness)

The Principle of Autonomy

The dentist has the obligation to respect the patient's rights to self-determination and confidentiality. The dentist is obligated to inform the patient of the proposed treatment plan as well as reasonable alternatives, which allows the patient to become involved in the treatment. The dentist is also obligated to safeguard the confidentiality of the patient records. The dentist has the ethical obligation upon request of the patient or the patient's new dentist to provide a copy of the record health history information, treatment performed, and copies of all pertinent imaging regardless of the patient's financial standing within the practice.

The Principle of Non-malfeasance

The dentist has the duty and responsibility to protect the patient from harm. This principle includes the responsibility to keep one's skills and education current. Especially important is the responsibility to know one's limitations and to seek consultation as well as referral of the patient to a specialist when appropriate. The specialist has the responsibility to send the patient back to the referring dentist for care that is not within the realm of the specialist. The dentist must protect the patient by delegating care by auxiliary personnel only to the extent of those duties that can be legally delegated. It is unethical for the dentist to practice while impaired by substance abuse. The dentist has the responsibility to inform any patient who may have been exposed to a blood-borne pathogen or other infectious materials. The dentist also must not discontinue treatment of a patient without adequate notice so as to give the patient the opportunity to seek care from another provider (abandonment of the patient).

The Principle of Beneficence

The dentist has the responsibility and duty to promote the welfare of the patient by using his or her skills, knowledge, and experience for the improvement of the dental health of the public. This responsibility also serves as encouragement for dentists to be leaders in their communities. Furthermore, the dental profession owes society the responsibility to regulate itself. Dentists are obligated to become familiar with the signs of abuse and neglect and to report suspected cases to proper authorities as consistent with state law.

The Principle of Justice

The dentist has a duty to treat people fairly. Dentists may exercise reasonable discretion in selecting patients for their practice, but the dentist cannot refuse to provide services for a patient based on race, creed, color, sex, or national origin. Dentists are obligated to provide reasonable arrangements for emergency care for a patient of record when the dentist is not available to provide that care himself. The dentist is obligated to report to appropriate reviewing agencies instances of grossly negligent or continually faulty treatment by other dentists.

The Principle of Veracity

The dentist has the duty to communicate truthfully and to be honest as well as trustworthy in their dealings with people. The dentist shall not represent care being rendered to patients in a false or misleading manner. A dentist is deemed to be providing care unethically in instances where treatment is not based on accepted scientific knowledge or research. It is also unethical for a dentist to perform unnecessary services or procedures. Dentists must not misrepresent their training and competence in a manner that is false or misleading in any material respect.

The American Dental Association recognizes the following specialties. These specialties all have certifying boards that require successful completion of both an accredited educational program and a certifying examination:

- Dental Public Health
- Endodontics
- Oral and Maxillofacial Pathology
- · Oral and Maxillofacial Radiology
- Oral and Maxillofacial Surgery
- Orthodontics and Dentofacial Orthopedics
- Periodontics
- Prosthodontics

Dentists are allowed to announce limitation of their practice to areas of special interest (non-ADA-recognized specialties) as long as they avoid any communication that implies or expresses specialization.¹⁸

The American Association of Oral and Maxillofacial Surgeons also has written a Code of Professional Conduct. The AAOMS Commission on Professional Conduct developed the code. The Commission (CPC) has the responsibility to review complaints brought by a member, fellow, or provisional member or fellow against another OMS, to refer complaints or violations of the code to state boards when appropriate, rule on violations of the code and provide appropriate sanctions, recommend changes to the code to reflect changing circumstances, and assist the AAOMS membership in interpretation of the code. The CPC's jurisdiction is limited to AAOMS fellows and members and their relationships with and privileges within the AAOMS. The AAOMS Code of Professional Conduct and the ADA Code of Ethics mirror each other on many levels. Areas of parallelism include:

- Patient autonomy, self-determination, and confidentiality
- Ensuring proper professional education, training, and competence
- Avoiding personal impairment
- · Promoting welfare of patients and the community
- Fairness and non-discrimination
- Patient abandonment
- Fairness in dealing with colleagues
- Honesty and truthfulness
- Advertising

Areas of the AAOMS Code of Professional Conduct that differ slightly from the ADA Code of Ethics include:

- Itinerant surgery
- Expert witness testimony
- Insurance consultants

Itinerant surgery is defined as elective oral and maxillofacial surgery performed in non-accredited surgical facilities other than the facility or facilities owned and/or leased by the oral and maxillofacial surgery practice employing the OMS. Fellows and members are strongly discouraged from making itinerant surgery a major part of their practice.

- It is unethical if the patient is unfamiliar with the surgeon who performs their surgery.
- It is unethical for the surgeon to delegate their primary patient responsibility.
- It is unethical for the surgeon to perform surgery in an unsafe or unsuitably equipped facility.
- It is unethical for the surgeon to perform surgery in an unsafe or unsuitably staffed facility.
- It is unethical for the surgeon to delegate postoperative care to a person who is not similarly qualified to recognize, treat, and manage all surgical complications.

These provisions of the code do not apply to the occasional performance by a fellow or member from performing surgery in a facility for the purposes of teaching or charity patient benefit.

Oral and maxillofacial surgeons are encouraged to serve as expert witnesses in legal proceedings to assist in finding the truth in matters under consideration. The qualifications for the Oral and Maxillofacial Surgeon expert witness include:

- The OMS expert witness must have direct clinical experience in the specific area of oral and maxillofacial surgery in question.
- The OMS expert witness should be a diplomate of the American Board of Oral and Maxillofacial Surgery.
- The OMS expert witness who is still engaged in private practice demonstrates enough familiarity with present practices to warrant designation as an expert witness.
- The OMS expert witness must have a current valid and unrestricted license to practice in the state in which he or she practices.
- The OMS expert witness must not serve as such in cases where they also served as one of the patient's treating doctors.

Oral and maxillofacial surgeons who serve as insurance consultants are expected to promote the best interests of the patient and fair claims practices by third-party payers.

- An insurance consultant must be currently engaged in the practice of oral and maxillofacial surgery or have enough familiarity with present practices to evaluate treatment on which he or she gives an insurance consultation.
- An insurance consultant must have a current and unrestricted license to practice; however, he or she need not have a valid license in every state in which he or she renders an insurance consultation.
- An insurance consultant should be a diplomate of the American Board of Oral and Maxillofacial Surgery.
- An insurance consultant has the duty to be fair in dealings with patients and providers.
- The consultant must avoid any conflict of interest that would compromise or influence decisions rendered by the consultant.
- The consultant must not prejudge any claim and must render decisions based solely on facts, merits, and clinical circumstances.
- The consultant must be able to explain the decision based on experience, clinical references, and generally accepted opinion in the specialty field.

The CPC also has the authority to rule on areas of advertising, as well as use of the AAOMS seal and the AAOMS slogan, "Saving Faces/Changing Lives." The CPC will respond to written complaints and written request for information submitted by AAOMS fellows and members.¹⁹

Ethical Dilemmas

This section of the chapter deals with ethical dilemmas that a practitioner may be faced with in the daily activities of a private or academic institution faculty practice. These dilemmas are modified to fit the oral and maxillofacial surgery model and are based on ethical dilemmas as published in various past ADA journals.

What are the ethics concerning a patient's request for you to refer him to a new general dentist? As the treating dentist, you are obligated to put the welfare of the patient first. Yet, you also must respect the patient's right to selfdetermination and confidentiality. It is fair to ask the patient why he is making this request. Has there been some problem with the other dentist's office, care, or other reason? Is this request due to a financial situation? Is this request merely a desire on the part of the patient to try another dentist? You have the obligation to encourage the patient to return to the referring dentist and discuss the concerns. Even if you, as the treating dentist, agree that there are issues with the treatment provided by the referring dentist, you must avoid making any disparaging remarks that could lead to a liability action or bring allegations of defamation against you. It is also appropriate to notify the dentist of the patient's request and relay the concerns brought up by the patient.

Who is ethically responsible for patient care in a corporate practice where you are an employee dentist? The doctor-patient relationship begins when you agree to treat the patient. You alone are responsible ethically and legally for the care and treatment of the patient, not the corporate entity. While corporate employment may alleviate day-today operational stress, the doctor-patient relationship exists between you and the patient. As part of a corporate practice, you must not allow potential performance pressure and production incentives to influence or coerce you into performing unnecessary procedures or up-coding the procedures you do perform.

While you are attending a local seminar, a member dentist shares with you information about behavior you believe may be unethical. The obligation of self-governance requires that the dentist be made aware of your ethical concerns. If the dentist informs you that he is able to maximize production by up-coding, billing for procedures not performed, or performing incomplete or ineffective treatment, you should inform him that these practices are fraudulent. It is also appropriate to inform him that these types of practices can lead to expulsion from participation with insurance carriers, charges of insurance fraud, and loss of his license to practice. You also have the ability to request that the dentist discontinue such practices. You have the responsibility to contact the ethics committee of the dental society to file a formal complaint.

What are the ethical implications of using social coupons to expand patient or referral base? This relatively new concept raises many ethical and legal issues. Many companies that provide discount coupons to patients collect the fee charged, keep a portion of the fee as part of their costs, and remit a portion to the dentist (the concept behind Groupon). This may be viewed as fee splitting. A better arrangement of this would be for the coupon company to pay the dentist the full fee and then have the dentist remit the promotional fee to the coupon company. This does not constitute fee splitting. Another ethical issue concerning discounting of fees has to do with billing the insurance company the discounted fee and not the usual and customary fee for a service. This practice constitutes insurance fraud and potentially violates the Stark law. This provision of CMS mandates that Medicare and Medicaid patients must be offered the same discounts as patients not covered by Medicare or Medicaid. If after a clinical examination, appropriate and necessary procedures are required that are not included as part of the coupon offer, the dentist is obligated to inform that patient before performing the procedures. The patient may view this practice as "bait and switch" and outside of informed consent for treatment.

A patient undergoes a procedure requiring antibiotic prophylaxis. The patient refuses to comply, and you dismiss him from your practice. The patient seeks care from another dentist but does not intend to inform the new dentist of this medical necessity, and states he would lie about it on a health history. Should I inform the new dentist of this? This is a conflict between ethical and legal issues. The patient has the responsibility to provide accurate, honest, and complete health history information. The patient also has the right to accept, defer, or decline treatment recommendations. Health history information is confidential and privileged between the dentist and the patient. The privilege belongs solely to the patient and not the dentist, and violation of this privilege may subject to dentist to legal prosecution. Therefore, the patient has the right to refuse the premedication and the treatment.

The dentist has the duty and obligation to promote the welfare of the patient and to do no harm. The dentist can comply with the wishes of the patient by requiring a written signed request by the patient to send part or all of the record. This constitutes authorization to release confidential information. A signed release to transfer the record supersedes the oral request for confidentiality. As an alternative, the dentist can consider sending the entire record to the patient with a note suggesting that he provide all information to the new dentist.

What are the ethical obligations of a dentist who suspects his partner is impaired by addiction and substance abuse? A dentist has the duty to refrain from harming a patient. A dentist with an addiction has an ethical responsibility to refrain from practice that may adversely affect patients. All dentists have an ethical obligation to urge chemically impaired colleagues to seek treatment. All dentists are ethically responsible to report the colleague to the professional assistance committee of the appropriate dental society. The impaired dentist is not required to disclose his impairment to patients. The intent of these requirements is to protect the patient, the public, the practitioner, the partner, and the profession.

What are the ethical obligations of an OMS who places implants for patients in the office of a general dentist? It is considered itinerant practice of oral and maxillofacial surgery when the OMS provides care for patients outside of his or her own office location. In this instance, the OMS must adhere to the provisions of the Code of Professional Conduct as related to itinerant practice. The operating OMS has an obligation to the patient to discuss fully the treatment plan for that patient. The OMS must make records of treatment accessible to the patient, the restorative dentist, and other involved providers, and also make provisions for follow-up so as not to abandon the patient. If the OMS becomes unavailable to provide the continuity of care discussed in this section, this can be interpreted as meaning that the OMS did not have the best interests of the patient at heart, did not communicate truthfully with the patient in reference to the treatment plan (including procedures and costs), and may be abandoning the patient. These behaviors not only are unprofessional, but also can be construed as unethical.

The Politics of Town and Gown

The concept of town and gown is rooted in the Middle Ages and had to do with the competition between the students and faculty of the local universities and the citizens of the community directly adjacent to those universities. The gowns worn by the students and faculty of the university were originally designed to provide warmth and comfort for those who worked and studied in the cold and drafty rooms of the universities. These gowns often were adorned with the colors of the university and signified the scholar's affiliation with it. Ultimately, the gowns served as a social symbol that set apart and distinguished the student or faculty from the townspeople. This social interaction often became adversarial because of economic issues between the towns and the universities, as the universities often were financially independent of the town and were not under its civil authority. The confrontations between town and gown became violent on many occasions. Examples include the Battle of St. Scholastica Day at the University of Oxford in the 1300s, a confrontation between the students of Yale and the citizens of New Haven in the 1800s, and the infamous events at Kent State University in the 1970s. Fortunately, these types of confrontations have become less prevalent as universities in crisis have been "rescued" by the urban dynamics surrounding them. Universities and the communities surrounding them have an incentive to cooperate with each other, as the universities depend on the cities for services and approval for long-range plans, and the towns benefit from public services provided by the universities.^{20,21}

The town-gown "confrontation" in medicine (and dentistry) is largely driven by competitive forces within the community that have a number of contributing factors:

- 1. Competition for the same patient population.
- 2. Concern that patients referred from the community will be absorbed by the university.
- The shift from salaried "hard money" positions to feefor-service models where the academic faculty is expected to generate patient care revenue as their primary income source.
- 4. The perception by the university providers that the community providers are "cherry picking" by referring underinsured or uninsured patients to university providers for care that could be rendered by community-based providers. This practice is often couched in terms stating that a particular case provides an excellent resident educational opportunity.²²

These factors and the historical interaction between town and gown have the potential to create a level of mistrust and an adversarial relationship between community-based providers and providers affiliated with an academic institution. Almost all oral and maxillofacial surgeons who have completed a CODA-accredited residency program have met the same criteria of education, training, and experience to perform the procedures that were included in the clinical curriculum as part of their residency training programs. The community-based OMSs all have the ability to gain hospital privileges, provide care based on their residency experiences, and perform the same procedures for the same patient population as the university-based OMSs. The argument against this premise is that significant numbers of OMSs choose to perform only the procedures that are more lucrative and primarily office based. They see it as inconvenient to admit patients to the hospital and burdensome to take hospital call, which disrupts the functioning of their offices. This practice has the potential to perpetuate the adversarial relationship between town and gown and further drive a wedge between the academic institution and the community-based providers. The reality is that both parties can and should work together for mutual benefit for private practitioners, academic practitioners, and patients from the community. Anything less may be interpreted as being unprofessional and unethical.

This chapter is unusual in that it does not contain strong evidence-based information that relies on years of laboratory research or numerous clinical trials. It does not contain the newest techniques for performance of a recently developed surgical procedure or reporting of a newly discovered disease or pathologic entity. It does contain several abstract ideas, philosophies, and moral and ethical issues that will test the OMS daily as he or she practices. It is designed to make one think about how one conducts themselves regularly within their communities, specialty, and the health care professions. It is this author's hope that the reader will reflect on this information and apply it to make him or her a better provider, a better teacher, a better mentor, and more importantly, a better person.

References

- Hafferty FW, Papadakis M, Sullivan W, Wynia MK: ABMS professionalism definition developed by the Ethics and Professionalism Committee—ABMS Professionalism Work Group, *Adopted*, January 2012.
- 2. Norton A: *10 things that define a true professional*, www.techrepubl ic.com/blog/10-things/10-things-that-define-a-true-professional, July 2010.
- 3. Sox HC, editor: Annals of internal medicine. American Board of Internal Medicine Foundation. *Commitments of the Physician Charter*, 2012. www.abms.org. Accessed January 14, 2016.
- Swick HM: Toward a normative definition of medical professionalism, *Acad Med* 75(6), 612–616, 2000.
- Duff M: Teaching and assessing professionalism in medicine, Obstet Gynecol 104(6):1362–1366, 2004.
- Niebuhr V: Defining professionalism. Professionalism in Medical Education. University of Texas Medical Branch, 2009.
- Medical Professionalism Project: Medical professionalism in the new millennium: a physician charter, *Ann Intern Med* 136: 243–246, 2002.

- Niebuhr V: Defining professionalism. Professionalism in Medical Education. University of Texas Medical Branch, 2009.
- Mueller PS: Division of General Internal Medicine and Program in Professionalism and Bioethics: Incorporating professionalism into medical education: the Mayo Clinic Experience, *Keio J Med* 58(3):133–143, 2009.
- Epstein RM, Hundert EM: Defining and assessing professional competence, JAMA 287:226–235, 2002.
- Kirk LM: Professionalism in medicine: definitions and considerations for teaching, *Proc (Bayl Univ Med Cen)* 20(1):13–16, 2007.
- Dyrbye LN, Massie Jr FS, Eacker A, et al.: Relationship between burnout and professional conduct and attitudes among U.S. medical students, *JAMA* 304(11):1173–1180, 2010.
- Reddy ST, Iwaz JA, Didwania AK, et al.: Participation in unprofessional behaviors among hospitalists: a multicenter study, *J Hosp Med* 7(7):543–550, 2012.
- 14. Rau J: Doctors admit to unprofessional behavior in study at 3 Chicago hospitals, *Capsules: The Kaiser Health News Blog*, June 13, 2012.
- Papadakis MA, Teherani A, Banach MA, et al.: Disciplinary action by medical boards and prior behavior in medical school, *New Engl J Med* 353:2673–2682, 2005.
- American Association of Oral and Maxillofacial Surgeons: OMS professionalism: opportunities for supporting your patients, the community, and the future of the specialty, 2007. www.aaoms.org. Accessed January 14, 2016.
- American College of Dentists: *Ethics handbook for dentists: an introduction to ethics, professionalism and ethical decision making,* 2012. Prepared by the American College of Dentists. www.acd. org. Accessed January 14, 2016.
- American Dental Association: Principles of Ethics and the Code of Professional Conduct, revised, April 2012. Prepared by the American Dental Association Council of Ethics, Bylaws, and Judicial Affairs. www.ada.org. Accessed January 14, 2016.
- American Association of Oral and Maxillofacial Surgeons: *The Code of Professional Conduct. Revised*, September 2012. Prepared by the AAOMS Commission on Professional Conduct. www. aaoms.org. Accessed January 14, 2016.
- 20. Town and gown in the Middle Ages. Available at http://en. wikipedia.org/wiki/Town and Gown.
- Brezina D: Town and gown: A medical paradigm that endures today, albeit with promising new collaborations, *Hospitalist*, May 2007.
- 22. Wescoe WC: The town-gown syndrome: pathology, *JAMA* 186(8):785–786, 1963.

2 The Philosophical Basis of a Successful Surgical Practice

TRAVIS A. WITHERINGTON

It had long since come to my attention that people of accomplishment rarely sat back and let things happen to them. They went out and happened to things.

—Leonardo da Vinci

A successful surgical practice is not encountered as a random fortunate occurrence. It is created by intentional design, and it is sustained by active engagement of the owners. The design of the successful practice starts not at the architectural level with bricks and paint, but at the philosophical level with personal introspection and worldly study.

The Definition of Success

Beauty lies in the eyes of the beholder.

-PLATO

The variation among surgical practices is in the emphasis placed on the functional aspects of the practice (goals) and in the ownership arrangement of the company (business models). These goals and business models define the philosophy of the practice. They determine success, relative success, or failure.

A logical and systematic approach to creating a successful practice is to first investigate the goals of the owners. The second step should be to study the business models to determine which is most likely to allow fulfillment of the goals. After these two underlying fundamentals are in place, the efforts of the owners should be channeled toward achieving the identified success.

Goals

If you wish to converse with me, define your terms.

-VOLTAIRE

Goals are the deep, personal driving traits of the owners of the practice. They are the motivations that brought us first to advanced education, second to dentistry as a profession, and finally to surgery as a specialty.

These driving elements began at a very young age when we were asked, "What do you want to do with your life?" They matured and grew in college as we encountered social settings and academic courses that taught us what we found resonant in our hearts and souls. They became clearer during dental school, and they neared maturation in our surgical residencies as we finally envisioned a more singular professional lifestyle for our productive years.

These goals are particular to the individual, and variation is the norm. Understanding this fact is critical to the success of a practice, because a mismatch of goals among surgeons can lead to disharmony if it is not addressed.

Our profession of oral and maxillofacial surgery (OMS) is wonderfully positioned to allow us to realize many different professional and personal goals. We must carefully study these goals to determine their relative position in our hierarchy of assessment. Introspection and reevaluation should continue throughout one's career to correct its course and give it more resonance.

The following categories of goals influence the surgeon:

- Service to humankind
- Profits
- Working in a challenging professional atmosphere
- Freedom of choice
- Working alongside peers
- Education
- Diversity

Service to Humankind

Whenever the art of medicine is loved, there is also love of humanity.

-HIPPOCRATES

Service to humankind is the strongest driving force of OMS doctors. The desire to help others emerges early in life and becomes much stronger once an individual realizes that he or she has the capacity to enact that help. Relieving pain and suffering is a particularly strong motivator for those attracted to surgery, because the profession allows us to be effective quickly. This particular goal is satisfied every day in a surgical practice, but many surgeons are inclined to devote even more time, energy, and resources through donated service. This donated time taken away from a financially productive practice must be reconciled.

Profits

Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal: But lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal: For where your treasure is, there will your heart be also. No man can serve two masters: for either he will hate the one, and love the other; or else he will hold to the one, and despise the other. Ye cannot serve God and mammon. —MATTHEW 6:19-21, 24 (KJV)

There is nothing wrong with making money unless the money is an object of worship. Most professionals incur significant loans to underwrite their education, and the surgical practice must make profits to retire those loans. Profits are also needed to support a surgeon's family, employees, and all of their dependents. Profits are needed to prepare for disabilities and life after surgery. Profits are needed in order to devote time and resources to donated surgical service. Clearly, profits are an appropriate key element in most surgeons' goals.

Working in a Challenging Professional Atmosphere

Life is either a daring adventure or nothing at all. —HELEN KELLER

The opportunity to come to the aid of the sick, injured, or disfigured patient and perform healing surgery in a difficult environment is a significant driver for many surgeons. Trauma, academics, orthognathic surgery, pathology, and cosmetics are exciting and challenging sectors of our profession, and they can be strong attractors. Major surgeries or difficult cases inspire us to succeed because surgeons, in particular, rise to a challenge. Deep satisfaction can also be gained by understanding the complicated anatomy, physiology, pathology, and pharmacology that tip us toward difficult surgeries. It is common for a recently minted surgeon to embrace these complicated surgeries but then experience waning enthusiasm in later years in the face of diminished capacity to endure stress and long hours.

Freedom of Choice

Choose a job you love, and you will never have to work a day in your life.

-CONFUCIUS

Having been constrained by our parents, administrators, teachers, and attending staff for many years, the thought of being in charge of our lives becomes very attractive. The flexibility of being an owner allows a surgeon to adjust both personal and professional schedules to fit a desired lifestyle. That lifestyle might include a family, travel, donated service, sports, education, or avocation. Private practice ownership gives one much more control over life than the other business models, but it comes at a heavy price. That price is substantially increased responsibility.

Working Alongside Peers

Coming together is a beginning, keeping together is progress, working together is success.

-HENRY FORD

The opportunity to share the ups and downs of a professional life with another surgeon is attractive. Surgeons who work together can supply a network of support to endure difficulties and to celebrate successes. Building a surgical team of support staff can go a long way toward this goal, but sharing with a respected peer, and then gaining his or her trust and admiration, is a satisfying experience.

Education

Tell me and I forget. Teach me and I remember. Involve me and I learn.

-BENJAMIN FRANKLIN

Participation in academics runs deep in surgeons, and we embrace this endeavor as participants throughout our career. We must realize that a primary requirement to give rather than receive in education is a capacity to teach. A teacher's heart is a giving and sharing one. A teacher's mind is one that distills complicated issues and then presents them so they can be understood by students. As we think back on the professors that we have known in our lengthy education, we recall those who were gifted, and others who meant well but did not inspire. Before pursuing formal participation in academics, we must honestly gauge our capacity to teach as well as our motivation. Are we motivated by the potential growth of the student or by the glory of being called teacher?

Whether it is working as a full-time academic professor or as a visiting lecturer, sharing in the educational experience can be rewarding. Opportunities to participate in education exist at levels other than surgical residency. Cardiopulmonary resuscitation (CPR) instruction, lecturing at a community college, and presenting at a professional society are other ways to satisfy this goal.

Diversity

There is no such thing as a single goal in a surgical practice. Rather, there are composites of goals, some given more emphasis than others. A practice might emphasize delivering a diversity of procedures, or it might wish to limit certain ones. A practice might emphasize profitability, or it might embrace OMS education at a local residency program. It might limit exposure to major hospital surgeries such as trauma, cancer, and orthognathics, or it might emphasize recruiting those types of patients. The owners might desire a flexible or reduced patient schedule to incorporate personal, professional, and family life outside the practice.

The desires and relative emphasis of the individual owners will define the practice. Consequently, each owner must consider these factors carefully before a practice is designed. Significant variation in emphasis should be expected among doctors, and that diversity should be celebrated and accommodated. The owners must be meticulously honest with themselves and with each other during this design process.

The ranking of these goals should be expected to change as the individual ages, so they should be revisited as time progresses. The cultivation of a successful practice is an ongoing task that does not end with the initial design.

Business Models

The majority of oral surgery practices are for-profit, closely held private companies of limited geographic scope, but there are major differences. Most depend on favorable relationships with patient-referring sources and employ a small number of managerial, clerical, and clinical employees. They typically have a single main office and might have a secondary one that serves a different geographic sector on a more limited basis.

The business models are legal and financial entities whose functions are governed by state law and binding agreements. During the design phase, significant time must be spent in conversation with experts in accounting, human resources, and the law.

The ownership arrangements or business models include variations on these themes:

- Solo
- True partnership
- Entrepreneurial
- Expense sharing

The development of the business model will have a direct impact on the ability of the practice to attain the goals of the owners. Sometimes the model will facilitate the goal. In other cases it will be an impediment.

Solo

The solo surgeon wears all hats. Although the greatest benefit of a solo practice is that issues never need to be brought to a vote, the greatest detriment is the isolation in which those same decisions are made. Taking emergency calls, deciding which insurance plans to enroll in, hiring and firing employees, and buying equipment and office space are all decisions that weigh on the shoulders of the solo owner. In order to succeed, the solo doctor must be adequately versed in all phases of clinical, administrative, financial, and legal business activities.

A solo practice gives the individual owner infinite freedom to select and modify his or her goals initially and in the future. The solo doctor has the most ability to design a practice that maximizes profits.

This business model, at first glance, gives the owner the ability to attain almost all goals because there is no opposition to the owner's choices. The downside is that the surgeon will be professionally isolated except for traveling to other locales and visiting with non-competing surgeons. It can be a lonely existence, but there will be no boardroom arguments over decisions, and the pace of the practice is firmly in the owner's control.

The single goal that is missing is the opportunity to work alongside a peer. However, even that goal might be satisfied when two surgeons share a complicated set of cases. There are work-with-others benefits that might be reaped from building a surgical and administrative employee team in a family atmosphere. The solo surgeon must be a fiercely independent person but will be most likely to succeed when surrounded with competent office staff and advisors.

True Partnership

In this model, the owners have a binding legal agreement that gives voting rights on the functional decisions of the company to each owner and that outlines expectations of performance. In most issues needing a decision, the majority of votes rule, but in major decisions, such as the acceptance or dismissal of a partner, the partnership agreement might require that a vote be unanimous or by a supermajority. The partnership agreement outlines these rights and obligations, and it deserves close analysis by an independent trusted advisor.

In the true partnership model, the ability of the individual owner to pick and choose among the goals is significantly limited by the vote of the other partners. Owners need to obtain permission from their partners to make changes that might conflict with another owner's goals. Consequently, freedom of choice is more limited than with the solo model.

Profitability is typically less in a practice with a true partnership than in a solo practice. The owners in a partnership tend to focus on enjoyable procedures and pursuits rather than on financially productive ones. A partnership also spends more on staff, equipment, and expenses, probably because of a false feeling of having diluted the expense.

The potential for conflict among the owners is so high that it should be expected, and resources should be gathered for conflict resolution.

Entrepreneurial

The entrepreneurial model is a blend of the other models. In this model, there is an owner of the company, and salaried associate doctors are hired to produce professional care. The owner has the right to make the decisions relevant to the practice; an associate doctor has only the rights of an employee.

In this model, the owner is well able to attain goals, but that ability is low for the salaried associate employeedoctors. The burden of responsibility is greater for the owner because of the number and class of employees and the greater amount of time involved in management issues.

Expense Sharing

The expense sharing model is a blend of other ownership models. It is a business relationship between multiple solo or true partnership practices, and the focus is on money. Because the relationship between the practices might be competitive, the only goal that is truly applicable is the one dealing with profits.

As the name implies, this business model focuses on expenses, not income. The intent is to increase profits by reducing expenses through economies of scale. Many financial advisors argue that profits are more readily increased by increasing production rather than by decreasing expense. As with all business models, expert advice is most appropriate before entry into this legal relationship.

Interpersonal Relationships for Success

Our society is based on interpersonal relationships, and our personal lives and our business practices are subsets of the world's society. A successful practice is an extension of a successful person who is fluent in interpersonal relationships.

The Relationship between the Surgeon and the World

We are what we repeatedly do. Excellence, then, is not an act, but a habit.

-ARISTOTLE

In descending order of importance, a simple list of the daily chores of a successful surgeon would be to:

- do excellent work,
- enjoy each day, and
- then do everything else.

To improve is to change; to be perfect is to change often. —winston churchill

First and foremost, a successful surgeon strives for surgical excellence. Obviously there is no such thing as a perfect procedure, but a surgeon can have a mindset of constantly striving for perfection. From the first day of practice to the day of retirement, the successful surgeon seeks to practice his craft with less pain, less swelling, less fear, quicker healing, more predictable outcomes, faster times, and less expense. His handwriting will be on each wound, his signature will be on each op note, and his name will be on each patient's mind. All movements and interactions move toward or away from the path to perfection.

Healthy and rewarding relationships allow a surgeon to enjoy each day. These relationships begin at home and follow the surgeon to the office, and to peers, staff, advisors, patients, and their families. All of these relationships are founded on trust, honesty, and communication. Associations of relationships are based on inference, love, solidarity, social commitment, or business interactions. Law, custom, or mutual agreement regulates these associations. All else follows the first two chores. For the surgeon, there is nothing more important than performing excellent surgery while striving to enjoy professional life.

Relationships between Owners

The owners determine the philosophy of a practice. Only the owner is capable of formulating policy that affects the operational heart of the practice that all others follow. Even when the owner abdicates a role in decision making, that action is in itself a policy decision.

Solo

Most people do not really want freedom, because freedom involves responsibility, and most people are frightened of responsibility.

-SIGMUND FREUD

The solo surgeon must be a fiercely independent and resourceful person. He or she is more likely to succeed if surrounded by competent staff and advisors. This extended family will support the surgeon in daily activities and represent him in his absence.

Although not necessarily a loner, the solo surgeon must be comfortable with working in a relative vacuum of professional interaction. Often, a solo surgeon will miss critical information affecting decisions of the practice, and will need to scramble to catch up or stay abreast of trends.

True Partnership

More important than the deal is the person in the deal. —RICHARD COLLIER

A successful partnership is based on trust, sharing, and communication. It is not necessarily based on money, but money has an important place in a business, and if there is not enough of it, this will become a divisive issue for the owners.

Sharing is the foundation on which all partnership decisions are made, and communication is a means to develop and maintain rewarding relationships and to reconcile conflicts. A good partner will have a sharing heart and seek the participation of others in professional affairs of education, management, marketing, and human resources. He will have a developed sense of communication and be sensitive to others as he speaks.

Relationships of trust depend on our willingness to look not only to our own interests, but also the interests of others. —PETER FARQUAHARSON

Before signing the partnership agreement, each potential partner's goals must be carefully explored and stated. Conflicting goals should be discovered, and methods of compensation should then be determined to reconcile those conflicting forces. There are ways to make a partnership successful even in the face of conflicting goals. The compensation might be in the form of differentially assigned duties, modification of pay and vacation days, a change in work hours, or differing loads of on-call.

Management

Dr. W., there is more to pulling teeth than pulling teeth. —ANDREW C. CHEUNG

Although a group of partners might assume that the success of their business will be the sum of individual production of the owners, final success will be brought about by decision making and implementation of policy promulgated by the collective ownership. The management side of a partnership is a complex and difficult area for doctors to master, because they have had little or no formal business education. Yet, the business side dictates financial success, harmony with the employees, and the long-term momentum of the practice.

Management by a doctor requires a significant expenditure of time and energy, yet it has no quantification that can be referenced when it comes to allocating compensation among the partners. Whereas the value of surgeries can be quantified by dollars produced, the time spent in business affairs cannot be so readily identified and compensated. For this reason, some sort of division of management responsibilities among the doctors is appropriate. If a partner does not participate in this uncompensated managerial work, the others will resent it.

Management styles that are available to the partnership include:

- Rotation of management assignments among the owners
- Management by committees of owners
- A compensated managing partner (who is a surgeon)
- Salaried professional practice manager
- Chaos

Decision Making

Every man builds his world in his own image. He has the power to choose, but no power to escape the necessity of choice. —AYN RAND

Even when no decision is made, that is still a decision, and it has its consequential impact. Owners will encounter difficult problems that are not readily solved, but that cannot be ignored or postponed indefinitely. In these cases, some decision must be made in order for the practice to move forward.

Although unanimous decisions are desirable, this is rarely the case. Unanimity should not be expected, and polite negotiations must be undertaken to arrive at a decision. A cautious eye should be kept for any individual who bullies or forces his opinion on the group. A referee or an advisor is appropriate to help in arriving at a decision in the presence of a bully.

Small partnerships allow more fluid decision making. However, the greater the number of individuals with voting authority, the more appropriate it becomes to formally conduct the business with *Robert's Rules of Order*.

Communication

Much unhappiness has come into the world because of bewilderment and things left unsaid.

-DOSTOYEVSKY

This critical trait of a partnership must be cultivated and planned and not left to chance. It is not enough to ask that partners speak to each other. The forum and time must be allocated and respected to allow that communication to occur. Without definite planning, communication will occur sporadically and at the whim of chance. It is too important for that.

The best way to provide a forum for communication is a regularly scheduled doctors' meeting. These meetings should be considered sacrosanct, and no conflicts should be allowed. These meetings are chances to explain and opportunities to apologize. Texting, phone calls, faxing, and emails are appropriate for transferring information, but face-to-face meetings are for communication.

The eyes are windows to the soul.

-CICERO

Doctors' meetings should follow a businesslike format with a chairman who collects the agenda, encourages a timely flow of business, brings issues to a vote, and records the decisions for the archive of minutes. This formality will provide fairness to each owner, help position the partnership in decision making, and leave a store of information for future reference.

Good doctor's meetings will serve many functions, including:

- · Analysis of and decision making regarding business issues
- Consultation with partners about challenging cases and conundrums
- Sharing of information gleaned from journals, seminars, or educational meetings

Internal Competition

Competition within the partnership tends to occur because a posted schedule of daily procedures is readily available. Partners will compare their productivity, and this should provoke some healthy competition among friends and peers. However, if viewed in the wrong light, this can lead to resentment of the productive partner or suspicion of favoritism by clerical personnel. The true competition is outside the walls of the practice, and a reminder is occasionally needed to turn the focus outward.

Conflict Resolution

I've always believed that a lot of troubles in the world would disappear if we were talking to each other instead of about each other. An eye for an eye will only make the whole world blind. — манатма gandhi

Pick your battles. In a partnership, there will be enough material to start a war. Life is a continuous confrontation with conflict, and a surgical partnership is a microcosm of life with all of the characteristics of a marriage except the intimacy. Either relationship can be destroyed by the same mechanisms.

The first step in conflict resolution among the partners is to create an opportunity to explain circumstances and offer apologies. If that opportunity is not made available, the chance of resolving the conflict is slim. All of us are subject to misunderstanding or mistaken beliefs about behavior, and a time and place must be made available for a clear dialogue to dispel the misunderstandings.

The End of a Partnership and Succession Planning

In this world, nothing can be certain, except death and taxes. —Ben FRANKLIN

All partnerships come to an end. The ending mechanism is death, disability, or dissolution, and the ending should be carefully designed at the beginning of the company. This ending should be scripted for logic, fairness, and ease, because it will be used.

This true partnership model is the most common model among OMS practices, and it is the one with the most frequent failures. Common sources of acrimonious dissolution are a failure to reconcile the different goals among the owners and a failure to communicate.

A natural progression in a surgeon's career is retirement after a long and successful professional life. Planning for the next generation starts early in order to search for an individual with like-minded goals to assume the practice.

Entrepreneurial

The owner relationships in the entrepreneurial model are variations of the solo or true partnership designs. All decisions, including those affecting employees, will fall to the owners either as a solo owner or a partnership of owners.

While a doctor serving as an employee of a business entity will have a significant effect on the relationships within the practice, the owners will define the true practice philosophy. Many surgeons opt for serving as a salaried associate for a period of time, but because the associate is an employee and not an owner, he will be severely limited in his ability to attain any of his goals.

Expense Sharing Association

The expense sharing business model is strictly a financial arrangement and has little to do with sharing professional relationships. In fact, the owners involved are in competition with each other for business. This practice model should not be confused with a partnership. Although the word "sharing" is used in this title, the only sharing that comes about is in the sharing of money spent for production of income.

A key element in an expense sharing model is communication. The rules for this relationship must be clearly delineated. The rules can be negotiated by a third party, because they have nothing to do with friendship or personal relations.

The Relationship between Owners and Employees

Take care of your people, and they will take care of your customers.

-JOHN WILLIARD MARRIOTT

The surgeon will spend more time with staff than any other group of humans other than family. It follows then that surgeons should surround themselves with wonderful people and devote the time and energy to cultivate those relationships. The staff is a surgeons' extended family, but chosen by the surgeon—unlike his own family.

The success of a company is predicated on hiring the right people, but that process starts with owners who are actively engaged in recruiting, hiring, training, and managing. If owners take a passive role, the outcome may be unpredictable. The task of managing human resources in a surgical practice represents the most challenging, potentially vexing, and time-consuming job of ownership.

Start with good people, lay out the rules, communicate with your employees, motivate them and reward them. If you do all those things effectively, you can't miss.

-LEE IACOCCA

The practice owners must identify the company's mission and become actively involved in the human resources to match that mission. They must:

- Hire the best people and pay them well
- Empower their employees through education and support
- Give them the authority to do their jobs
- Expect good results
- Constantly evaluate their performance and provide feedback

Hiring

A surgeon's practice is a home away from home, and patients are to be greeted as if they were invited to that home. To provide this aura of welcome, the practice needs outwardly focused employees who have genuine smiles and truly care for people. The clinical staff must be gentle and nurturing to bring calm to those in pain and fear.

Those employees who answer the phone and greet the arriving patient have a unique opportunity to make a good first impression for the practice. There is only one chance to make a good first impression, and if that chance is lost, the remaining portion of the relationship with the patient may be difficult. Team function is an important aspect of OMS practice, and the combination of the right people is a powerful tool for the delivery of expert, caring surgical services. All individuals have strengths and weaknesses. Some employees are masterful at interaction with children and the elderly, while others excel at organization. Some have extraordinary manual dexterity. For a team to function well, an effort must be made to match the assets of the members to cover all needed roles of the team.

Training

Owners are responsible for training an employee about expectations for job performance. The employee must be provided with feedback, because surgery is a continually changing profession. The owners should use outside resources such as seminars and conventions for education, but they should not hesitate to provide education solely for the individual employee. Education is an investment, and it will provide a return.

Assigning Value

All humans are inspired by expressions of appreciation and value. Words of affirmation, acts of service, and rewards are good ways to show employees that hard work and talent are noticed and valued.

For greater impact, give gifts in a public forum and positive feedback in front of patients and professionals. The employee review is an opportunity to foster meaningful dialogue for methods for improvement on both sides of the paycheck.

Autonomy

Trust, but verify.

-RONALD REAGAN

After acceptable performance standards have been outlined, employees should be given the autonomy to complete their tasks. The practice should verify compliance with the performance parameters by audits, and feedback should be provided to the employee.

Discipline

All humans make mistakes, and even reliable employees can make errors of judgment. Documentation and timely discussion allows the properly engaged employee an opportunity to learn, to grow, and to modify his behavior. If this does not happen, then the owners have a clear path to follow.

The Relationships between Owners and Referral Sources

Depending on the business model, referral sources might be located within the company, generated by external marketing, or made up of local professionals, especially family dentists. The fruitfulness of attempts to develop productive relationships with referring doctors varies, but communication and excellent service are always key elements of enduring relationships. Gifts and promotions can generate some good will, but once begun, the gift giving will be expected to continue, and it is subject to a competitor supplying a fancier prize.

A hard fact of life is the realization that these relationships are based on "What have you done for me lately?" Performing great work, communicating effectively, and promptly seeing emergencies are expected to continue throughout the lifetime of the relationship.

To refer a patient to a specific surgeon is an act of trust. If the patient has a good experience and the surgery is successful, then the referring doctor is rewarded with having made a good decision in his choice of specialist. Conversely, a poor experience or surgical result can taint the referring doctor as well as the surgeon.

Personal Communications

The most important thing in communication is hearing what isn't said.

-PETER DRUCKER

Personal time with a referring doctor is directly proportional to the volume of referred business. Texting, letters, and email are informational, a phone call is conversational, and a personal meeting is true communication. Do not underestimate the need for face-to-face meetings in order to communicate sincerity.

A surgeon may encounter a patient who is unhappy with his or her family dentist and asks the surgeon for a referral to another dentist. The surgeon should decline this opportunity. After the patient is dismissed, the surgeon should call the affected referring doctor to explain the circumstance and ask for advice on how to handle this delicate issue. This approach will help build a strong professional relationship with that referring doctor.

Educational Opportunities

A rising tide lifts all boats.

-JOHN F. KENNEDY

Because most referring doctors embrace education, presentations at professional societies and study clubs appeal to those interested in bettering themselves. Study clubs are particularly fertile for developing enduring relationships with referring doctors. All professionals enjoy interaction to compare cases and learn from others, so an educationally based club also offers all its members an opportunity to improve their professional care. This rising tide of knowledge brings with it the camaraderie of learning together. The employees of this subset of doctors will also enjoy this educational emphasis, and they will readily participate in a club for staff.

The Relationship between the Surgeon and the Patient

The practice of OMS is an uphill battle. We must entice patients to our business when they would rather be anywhere else. We frighten them. We hurt them. Then, we make them pay us. After all of that, some of us believe we can make the patients like us.

Obligation to Educate

Only the educated are free.

-EPICTETUS

Although trained to cut and sew, surgeons have a most important secondary task, and that is to educate their patients and their families. The surgeon must clearly explain findings from examinations, treatment alternatives, consequences of the avoidance of treatment, outcome predictions, potential complications of treatment, and costs of each treatment option in terms of time, money, and morbidity. Finally, he should state how he would treat the condition if it were found in his own family member. All of this discussion takes time and produces no income, but it is critical to the development of a strong professional relationship with the patient.

Fear and Its Manifestations

Apprehension, uncertainty, waiting, expectation, fear of surprise, do a patient more harm than any exertion.

-FLORENCE NIGHTINGALE

Patients manifest fear and apprehension in different ways, and most manifestations are obvious and easily attended. For instance, fear can manifest as anger. Some individuals may assume an aggressive, verbally abusive attitude with clerical and clinical staff, but once face-toface with the doctor, they become much more reasonable and compliant. The staff should be educated to recognize this aggression, understand its cause, handle it professionally, and not take it personally.

Just Say No

A surgeon will encounter patients who harbor unrealistic expectations of professional care. Ideally the surgeon will realize this during the initial patient encounter and before any treatment. If the surgeon explains that those expectations cannot be met and the patient continues to hold unrealistic beliefs, the patient should be gently but firmly released from the practice. The surgeon should say, "Ms. Jones, you need to find another surgeon." If the patient repeats her needs, the same dismissal phrase should be used. If the patient asks for a referral to another surgeon, the surgeon should decline that request. An unrealistic patient should not be referred to a peer. The surgeon should allow an unrealistic patient to find her own way from his practice so that the surgeon does not waste time, endure heartache, and engage malpractice attorneys. Declination of the opportunity to serve an unrealistic patient should be carefully documented.

I Don't Know

These are three of the most powerful, yet underused, words in a surgeon's vocabulary, but they can sometimes provide a simple solution to an unsolvable conundrum. Early in their careers, surgeons abhor these words, because they might represent a failure on the part of the doctor to study and learn. When a surgeon is presented with a difficult case such as vesiculobullous disease, early implant failure, atypical facial pain, or denied insurance coverage, the most truthful response is, "I don't know." Do not mislead the patient into believing that you know an answer to the problem when in fact you are guessing. It truly is OK not to know, and the patient will respect you for your honesty. There are many disorders of the human body that are understood poorly or not at all, and to admit that truth is not a defeat.

Errors

Don't be afraid to fail. Don't waste energy trying to cover up failure. Learn from your failures and go on to the next challenge. It's OK to fail. If you are not failing, you are not growing. —STANLEY JUDD

All humans make errors. In the OMS profession those errors range from calling the patient by the incorrect name to removing the wrong tooth. Rather than being true surgical complications, these are basic errors that require admission and sincere apology by the surgeon. This act of being human and admitting it goes a long way toward maintaining healthy relationships with patients in the face of difficult circumstances.

Relationships between the Surgeon and Peers *Professional Organizations*

All organizations need leadership. Good leadership comes from those who are inclined to help advance the members of their profession at the local, state, and national level. Join not for the limelight, but for the opportunity to serve and share.

Professional Jealousy

The worst part of success is trying to find someone that is happy for you.

-BETTE MIDLER

It is a rude awakening for a surgeon to learn that some of his colleagues are not interested in his successes. There will even be instances where professionals have propagated unflattering remarks to discredit a peer. One must learn to celebrate success within the self and turn a deaf ear to unflattering remarks. Only true friends will celebrate one another's accomplishments.

The Experienced Mentor

A mentor is an extension of education in the postgraduate world. Having such an experienced helping person is a blessing. If you don't ask, you will not know.

Visiting Peers

One of the most fruitful sources of help, information, and advice is a peer who is located just far enough away to avoid being a competitor. The entire staff can visit a peer and learn in all aspects of practice.

The Relationship between the Owners and the Community

We were born to unite with our fellow men, and to join in community with the human race.

-CICERO

Participation in community politics and organizations is more than being a good neighbor. It is an opportunity to market the practice. The encounters will build friendships in the community that will directly affect patient demand.

Membership, serving on committees and boards, and mentoring are valuable exposures in the local hospital, service organizations, churches, and educational institutions. OMS doctors who participate in community organizations are stating to the people of the community that they care about them, their businesses, and their families.

The Relationships between the Owners and their Advisors and Vendors

No man is an island.

-JOHN DONNE

Key relationships must be developed with legal, accounting, real estate, and financial advisors, and word of mouth is the best search engine. A surgeon spends many years learning to make an incision, but may be ignorant of the ways of the business world. In some instances, multiple advisors might be needed to find a consensus in a critical field.

Experienced vendor representatives have a broad knowledge of what works and what fails in practices because they have the opportunity to observe marketing and profitability from a distance. Treat them with respect and take advantage of their knowledge.

The Relationships between Owners and Third-Party Payers

No man can serve two masters: either he will hate the one and love the other, or else he will hold to the one and despise the other.

—MATTHEW 6:24 (KJV)

Surgeons owe their fidelity to their patients and not to their payments. If that premise is accepted, then in a dispute between a surgeon and the entity that pays for the treatment, a surgeon will defend the appropriateness of treatment rather than argue over the amount paid.

The Relationship between Surgeons and their Families

This above all: to thine own self be true. —WILLIAM SHAKESPEARE THROUGH POLONIUS

There must be a logical division of time and energy among a surgeon's practice, his family, and himself. There are only 24 hours in a day, and it cannot be expanded. If too many of those precious hours are devoted to a surgical practice, there is insufficient time for family and personal health. If too few hours are allocated to personal fitness, then the surgeon's health will not support the quality time needed for family and loved ones. Time for fitness, for friends, and for family deserves scheduling just like consultations and surgeries. Do not leave this important part of life to chance.

Summation

The difference between a successful person and others is not a lack of strength, not a lack of knowledge, but rather a lack of will.

-VINCE LOMBARDI

Oral and maxillofacial surgery is a wonderful profession that affords OMS doctors the opportunity to bring relief to the suffering, to reap satisfaction from practicing a complex art, and to build dignity forged by hard work. It can be a deeply satisfying vocation enjoyed over a long career while allowing the surgeon to have meaningful interactions with other people.

It is not enough to be a good surgeon with adept fingers and a sharp eye. To be a success in our own eyes, we must study our souls for resonant goals and seek a compatible business model. We must search for like-minded partners, gifted employees, and faithful referring doctors. We must treat patients gently and honestly while we make peace with our peers. We must support our community and frequently seek the counsel of mentors and advisors. We must work as hard for ourselves and our families as we do for our practice. Work diligently toward excellence every day and recall that

When everything seems to be going against you, remember that airplanes take off against the wind, not with it.

-HENRY FORD

3 Oral and Maxillofacial Surgery Career Alternatives to Private Practice

DAVID A. BITONTI, KAREN M. KEITH, JESSE W. LEE, JOHN W. HULTQUIST, N. WHITNEY JAMES, PAUL M. LAMBERT, STANLEY W. SMITH, TIMOTHY O. WARD, GEORGE M. KUSHNER, JANICE S. LEE, MARTHA J. SOMERMAN, ANDREA B. BURKE, MARTIN E. EICHNER



Blue Angels and the USS George H. W. Bush (CVN 77).

Introduction

David A. Bitonti

The traditional career track for the largest percentage of oral and maxillofacial surgeons has been to transition from residency to a private practice opportunity. The purpose of this chapter is to provide information on potential career tracks that offer alternatives to this traditional practice model and that are academically, financially, and personally rewarding. These alternative career opportunities include public service, federal government employment, state government employment, academic and research employment, and a multispecialty dental services organization employment. It is important that practicing oral and maxillofacial surgeons be aware of these opportunities and understand some of what is involved in that particular type of practice, as well as the often unknown or misunderstood portions of these alternative practice opportunities. Whether a decision needs to be made early, following residency completion, or the decision is part of a career transition, these career alternatives to the

The views expressed are those of the authors and do not necessarily represent the views of the Department of Defense, Department of Health and Human Services, Department of Veterans Affairs, and Department of Justice; the United States Army, Navy, Air Force, Public Health Service, Indian Health Service, and Veterans Administration; or the Army, Navy, Air Force, Public Health Service, and Veterans Administration Medical Departments.

traditional private practice model warrant consideration by every oral and maxillofacial surgeon.

United States Army Oral and Maxillofacial Surgery Careers

Karen M. Keith



On March 3, 1911, President William Howard Taft signed legislation establishing the United States Army Dental Corps as a permanent corps of the Army Medical Department (AMEDD). Prior to this date, dental care within the Army was provided by hospital stewards or enlisted members with an interest or training as civilians. Assigned as a hospital steward at West Point in 1858, William Saunders was placed on orders as the first U.S. Army dentist in 1872. Graduate dental education was established in 1921, and the first dentist was sent for oral and maxillofacial surgery training in 1931.1 The history of oral and maxillofacial surgeons (OMSs) within the Army is replete with significant clinical and command roles throughout the 104-year history of the U.S. Army Dental Corps. They continue to contribute immensely to leadership, research, academics, and surgical techniques, even when their time in service is complete.

During World War I, American Expeditionary Force maxillofacial teams that included a surgeon, a dental surgeon, and dental technicians were established with the vision of the plastic surgeon Major Vilray P. Blair. He recognized that dental expertise was required to properly care for the severity of gunshot wounds, complex jaw fractures, and avulsive soft tissue wounds. Protocols for wound management were developed that recognized the unique aspects of facial injuries. This included principles such as mechanical cleansing, minimal debridement, retention of bony fragments with soft tissue attachments, immediate fixation of jaw fractures, adequate drainage, and expeditious evacuation to base hospitals. With less than adequate logistical support, creative splinting techniques were employed.

During this era, wire fixation was used to temporize as well as to permanently stabilize bony fragments, rather than waiting for permanent dental splinting techniques. Oral and plastic surgeon Robert H. Ivy, who trained under Blair, is erroneously credited with the "Ivy loop" technique, but has stated that it originated with Colonel Robert T. Oliver. Oliver was a well-known oral surgeon who became the third chief of the Army Dental Corps from 1919 through 1924. Ivy should be better known for his soft tissue flap to reconstruct through-and-through facial wounds.² The early and consistent care touted by these pioneers continues with Army OMS as members of head and neck teams and as members of Combat Support Hospitals.

Another pioneer and exceptional leader, Major General Robert B. Shira, taught himself oral surgery in the Panama Canal Zone during World War II. Involved in World War II, Korea, and Vietnam, he made significant contributions during his 33-year career. His changes to dental delivery resulted in a 50% reduction in the number of Soldiers lost to battle in Vietnam because of dental disease. As Chief of the Army Dental Corps from 1967 to 1971, he helped establish the Army Dental Intern Program and an oral surgery residency program. At Walter Reed Army Medical Center, he pioneered closed-circuit color television demonstrations of surgical procedures for postgraduate courses. In 1966, he invited Professor Hugo Obwegeser from Zurich, Switzerland, to discuss new techniques in orthognathic surgery.³

This trajectory of illustrious careers and significant contributions of Army oral and maxillofacial surgeons continues throughout our history. Dr. Joe Hall Morris, best known for his Bi-Phase External Fixation Splint and the Orthognathic Surgery Simulating Instrument (OSSI), served 2 years at Fort Benning, GA, from 1951 to 1953. He played a significant role in the biomechanical aspects of the specialty. Ervin E. Hunsuck attained the rank of colonel and had a prolific research and academic career. Most noted for his bilateral sagittal split osteotomy modification, he also invested much research in trauma and fixation techniques. Colonel (Retired) Jan Faulk-Eggleston made her mark as the first female OMS to complete an Army OMS residency program and developed a niche in temporomandibular joint (TMJ) reconstruction. Numerous other OMS have contributed their expertise to the field of cosmetics, cleft lip/palate, and reconstructive techniques within the Army Dental Care System.

Currently, the Army OMS inventory is in the range of 113 officers, including residents. Eleven residents train at one of seven programs, with the number trained based on needs of the Army. In the summer of 2016, two Army residents will attend a civilian institution with the opportunity to earn the medical degree as well as the certificate of OMS completion. Efforts are underway to reinstitute the integration of medical school as part of the Army programs. It was offered from 1994 to 2001, and 86% of these surgeons stayed on active duty until retirement or still currently serve in excess of 20 years. One serves as the OMS Consultant to the Surgeon General (TSG), and four have served as OMS Residency Program Directors.

Two training programs are joint programs with our sister services. The National Capital Consortium (NCC) in Bethesda trains two Army residents annually at sites that include the Bethesda Naval Hospital, Fort Meade, and Fort Belvoir. San Antonio Military Medical Center (SAMMC) at Joint Base San Antonio, Texas, trains two Army OMSs annually with Air Force residents at Brooke Army Medical Center and at Wilford Hall Ambulatory Surgical Center. Collocated with SAMMC is the prestigious Center for the Intrepid and the Dental Trauma and Research Detachment, part of the Triservice Battlefield Health and Trauma Research Institute. The other Army training sites are Eisenhower Army Medical Center at Fort Gordon, GA; Womack Army Medical Center, Fort Bragg, NC; William Beaumont Army Medical Center, Fort Bliss, TX; Madigan Army Medical Center, Joint Base Lewis McChord, WA; and Tripler Army Medical Center, Honolulu, HI.

Applicants to Army OMS residencies can be Health Professions Scholarship Program (HPSP) dental students as well as active duty dentists. Applications include a photograph, dental school transcripts, National Board Dental Examinations (NBDE) results, and results of the National Board of Medical Examiners (NBME). Applicants also complete a telephone interview with a panel of Army OMSs and submit letters of recommendation to attest to their integrity and potential. Potential applicants are strongly advised to spend at least 1 week at an Army training program to shadow residents and discern their commitment to the rigorous lifestyle. The Army Dental Corps conducts a specialty selection board once a year. Packets are independently assessed and rated, and an order of merit list determined. The best-qualified residents are selected for each program based on available positions. Board recommendations are forwarded to the Chief of the Army Dental Corps for approval. Human Resources Command (HRC), in consultation with the OMS Consultant to TSG, will assign residents to training locations based on the order of merit list, the residents' desires, and the OMS Program Directors' assessment.

The OMS residency is a 48-month certificate program accredited by the American Dental Association's Committee on Graduate Dental Education with an experience that rivals any civilian training program. Education is provided via experiences on the OMS service and rotations within the medical center. Trauma rotations are completed at the facility or with affiliated institutions known for high-volume encounters. The 5-month anesthesia rotation includes 1 month dedicated to pediatric anesthesia. Intubated general anesthesia is part of every Army OMS outpatient clinic training experience. A foundational skill, orthognathic surgery is an additional continual strength of all Army residencies.

Successful completion allows the graduate to apply for privileges in the full scope of the specialty. Attainment of board certification is advised as soon as practical. The new graduate should expect to serve a utilization tour for 3 to 4 years at a post where he or she might be the sole surgeon. Surgeons might serve at dental treatment facilities or within hospitals with inpatient and same-day surgery capabilities. Army OMSs also have the opportunity to compete for fellowship training. Craniofacial, cosmetic, temporomandibular joint, and trauma and reconstruction are among the potential fellowships current Army OMSs have completed.

Annual pay for Army oral and maxillofacial surgeons is based on rank, years of service, board certification, and

several specialty specific pay incentives or bonuses. Other benefits of being a surgeon in the Army, available to all Army dentists, include the option of the Active Duty Health Professions Loan Repayment; 30 days of paid vacation earned annually; noncontributory retirement benefits with 20 years of qualifying service; and no-cost or low-cost medical and dental care for the Soldiers and their family. Dental Corps officers also have commissary (grocery store) and post exchange shopping privileges.

The Army Medical Department (AMEDD) has been undergoing a transformation over the past several years. As the health care system transforms, ensuring that the right people are at the right places will become critical. Preservation of surgical skills is vital while contributing to the readiness and wellness of Soldiers. OMS combat support roles have always been impressive. Oral and maxillofacial surgeons supported efforts in the Balkans. In February 2001, at the peak of the Persian Gulf War, 25 OMSs were deployed to support an Army force of 300,000.

Most recently, we have been a nation at war for the greater part of a decade. From 2003 to 2014, more than 30 OMSs deployed in support of Operation Iraqi Freedom or Operation Enduring Freedom, the vast majority of these volunteering. A completely updated oral and maxillofacial surgery instrument and equipment kit was fielded, and an assistant exclusively dedicated to the surgeon assigned. Panfacial trauma protocols were redeveloped in conjunction with our sister services to account for new injury patterns and concerns encountered with the implementation of improvised explosive devices (IEDs) over the past decade. Reconstructive challenges with tissue loss and burns exceeded even those seen during the trench warfare of WWI.⁴ Technologies such as three-dimensional imaging, stereolithography, cone-beam scanners, and even virtual surgical planning have enhanced capabilities to render exceptional care to service members. Incredible advances in regenerative medicine offer promising therapies in the very near future. Collaboration with civilian research institutions has intensified our research strategies. Telemedicine has also proven a valuable asset, offering consultation services to front-line medics, dentists, and even NATO forces treating U.S. service members or handling complex humanitarian cases.

Career paths for Army OMS include education, research and command opportunities: Department of the Army Pamphlet 600-4, Army Medical Department Officer Development and Career Management, discusses the expectations, training, and utilization of Dental Corps Officers. The lifecycle model for surgeons includes: Oral and Maxillofacial Surgeon; Training Officer, Program Director, Assistant Program Director, Advanced Specialty Education Program in Oral and Maxillofacial Surgery; Chief, Surgery Branch, Dental Research Unit; Oral and Maxillofacial Surgery Consultant; OTSG; Chief, Department of Dentistry; Clinic Chief; and Researcher, U.S. Army Dental and Trauma Research Detachment (USADTRD). Oral and maxillofacial surgeons can even be part of Recruiting Command. Surgeons are expected to continue their military education requirements as well as maintain their dental licensure educational requirements. Professional development includes clinical and military milestones depicted through various assignments requiring military education and professional training. Leaders are groomed through continuous professional study, self-development, and operational assignments. All officers are encouraged to attend the Combat Casualty Care Course (C4). Some might receive additional training at Airborne or Air Assault School if opportunities are available. Officers are encouraged to compete for and obtain the Expert Field Medical Badge (EFMB).

The AMEDD Captain's Career Course (CCC) should be completed between the third and sixth year of service. Intermediate Level Education (ILE) establishes a common Army operational war fighting culture to prepare field-grade officers for service at higher levels of responsibility and in conjunction with other services (joint assignments). Completion of ILE enhances competiveness for promotion to the rank of colonel and is required for Senior Service College (SSC) consideration and attendance. These courses prepare officers for higher-level command and staff duties. Surgeons are encouraged to accomplish the career milestones that make them eligible for the Surgeon General's "A" Proficiency Designator.

In addition to excelling in surgical skills and in surgical mentoring, Army OMSs continue to serve in leadership capacities outside of clinical practice. All Dental Corps officers have the opportunity to broaden their experiences as an Executive Dentist with diverse positions that include DENTAC Commander: Director of Dental Services: TOE Dental Unit Commander; Branch Chief, Dental Research Unit; Dental Staff Officer; OTSG; U.S. Army Medical Department Center and School Health Readiness Center of Excellence (Chief, Department of Dental Sciences); Combat Developments, AMEDD Personnel Proponent Directorate (APPD); Chief, Graduate Dental Education; Dental Surgeon, ACOM; USARC Dental Surgeon; FORSCOM Dental Surgeon; STARC; Regional Dental Command Commander; DENCOM Staff Officer; HRC Branch Chief; Career Development Officer, HRC; Corps Specific Branch Proponent Officer (CSBPO); and Forensic Dentist; U.S. Army Dental Command Commander. With the recent transformation of the Army Dental Corps within the AMEDD regiment, additional opportunities exist regarding the roles surgeons might have. OMSs and Army dentists in general will have the opportunity to command medical treatment facilities, and even strive for the role of Surgeon General.⁵

In the past decade, three Army OMSs have been Regional Dental Commanders. After his role as an OMS Residency Program Director and Regional Dental Commander, Colonel (Retired) Larry Hanson served as the eighth Dental Corps Commander from 2003 to 2006 and is the only oral and maxillofacial surgeon to have held that position. Oral and maxillofacial surgeons have commanded the USADTRD and have been involved with numerous research endeavors. Colonel (Retired) Robert Hale was instrumental in significantly accelerating research in regenerative medicine. Currently, several surgeons hold command positions, from a field dental unit to a Regional Dental Command. One OMS is serving at the Office of the Surgeon General. The 212th Combat Support Hospital in Germany has an OMS integral to that unit, heavily involved in training and preparation of assets to support European missions.⁶

Several Army OMSs have provided lectures at national or regional conferences, including the American Association of Oral and Maxillofacial Surgeons, the American Dental Society of Anesthesiology, and the annual Denver Board Review Course. Several former and current Army OMS serve as examiners for the American Board of Oral and Maxillofacial Surgery. Numerous former Army OMS have left military careers and become presidents of local professional societies, deans of universities, and presidents of national professional associations. They are highly desired candidates for competitive private-sector jobs upon leaving the service.

The contributions of all Army oral and maxillofacial surgeons continue to be appreciated. They provide subject matter expertise when updating field equipment, determining ancillary staff training, eliminating coding variance, and setting standards across the profession. As the Army continues to transform and reengineer its relevancy within our world, Army OMS will continue to ensure the highest level of training and professional development to provide the absolute best surgical services to Soldiers and to lead the Dental Corps into the next century.

United States Navy Oral and Maxillofacial Surgery Careers

Jesse W. Lee



The United States Navy (USN) Dental Corps has a long and storied tradition in which oral and maxillofacial surgeons have played an important role. The Dental Corps, established on August 22, 1912, recently celebrated its 103rd year of supporting America's Navy and Marines. The original authorization authorized 30 acting assistant dental surgeons to part of the Medical Department. The Dental Corps has since grown to more than 1000 officers.

When the United States entered World War I on April 6, 1917, 35 dental officers were on active duty. That number grew to more than 500 by the war's end. Most of these officers were assigned to ships or overseas activities. Two dental

officers were awarded the Medal of Honor during this conflict. World War 1 established the general recognition of the value of dentistry to the Naval Service. Early in 1922, the Bureau of Medicine and Surgery adopted a dental division and the U.S. Navy Dental School was established. By 1941, 759 dental officers were on active duty at 347 dental facilities. Two Dental Corps officers were among those killed in the attack on Pearl Harbor. Less than a month later, the Surgeon General directed that all dental officers become proficient in the treatment of casualties so they might assist in sick bays and operating rooms and assist in the delivery of anesthesia. This became the basis for the role oral and maxillofacial surgeons would play in the Navy in the future. Dental officers, assisted by dental technicians, performed such duties under duress and in some instances at the cost of their lives.

Dental personnel continued their support of our medical colleagues through the Korean conflict and Vietnam. The start of formal oral surgery residency training in the Navy had its roots in the Vietnam conflict. Oral surgeons provided front-line treatment for many injured service members and were an integral part of the forward-deployed medical units. The utility of forward-deployed dentists with medical training was demonstrated in the tragic bombing of the Marine Corps barracks in Beirut, Lebanon, in 1983. This attack left 241 American servicemen dead with 65 seriously wounded. All of the medical staff was killed in the attack. Two Navy dentists with their dental technicians coordinated and delivered emergency care and evacuations of the wounded. They both were awarded the Bronze Star for gallantry under fire.

In July 1984, the Navy began conversion of two supertankers to hospital ships. USNS Mercy (T-AH19) and USNS Comfort (T-AH20) were placed in service in December 1986 and August 1987, respectively. These platforms, with 1000 beds and 12 operating rooms, allow comprehensive oral surgery services worldwide, regardless of the situation, whether war or natural disaster. These, in addition to the forward-deployed fleet hospitals and surgical units allow oral and maxillofacial surgeons to treat patients in need anyplace, anytime.

Throughout the history of the United States Navy Dental Corps, oral and maxillofacial surgeons have played a vital role in the delivery of care. Oral and maxillofacial surgeons fill a wide array of positions across the globe. As with all dental and medical specialties, residency training is the foundation on which the specialty is built. As the specialty of Oral Surgery developed and grew, so did the Navy's programs. At first interested officers were sent to civilian institutions for training. The Navy also aggressively trained officers for 1 year in exodontia to alleviate the great numbers of servicemen requiring treatment. The Navy then instituted inservice training programs for oral and maxillofacial surgeons in the 1970s. Starting with 2 years of training, the programs grew as the specialty grew. Today, the three in-service programs offered by the Navy favorably compare with any in the civilian sector. The Navy trains six in-service residents a year in a 4-year certificate program and will usually send

one or two officers to civilian programs as well. The Navy also sends on average one officer for subspecialty fellowship training a year for reconstruction, cosmetics, or craniofacial surgery. The selection process begins early, 16 months before the initiation of training. From scholarship students in their third year of dental school to senior dental officers, applications come from a wide variety of candidates. Unlike civilian residencies, the selections for the Navy programs are made by a selection board with close consultation from the OMS training community and specialty leader. Applications are evaluated on several criteria including undergraduate and graduate grades, class ranks, board scores, and scores on the Combined Basic Science Exanimation. Letters of recommendation, military potential, and professionalism are also evaluated. This rigorous approach ensures highly qualified, diverse candidates, many of whom have extensive clinical and leadership experience. Our 4-year certificate programs at the Naval Medical Center, Portsmouth, VA, and the Naval Medical Center, San Diego, have long been recognized for their excellence. The joint program with the Army at Walter Reed National Military Medical Center boasts state-of-the-art facilities with the heritages of both previously separated programs.

Each of the Navy's residency programs brings an educational opportunity comparable to any civilian program. A full, broad scope of practice gives residents outstanding hands-on experience in orthognathic surgery, cosmetic surgery, implant reconstruction, pathology including head and neck cancer with reconstruction, trauma, temporomandibular joint treatments, and dentoalveolar surgery. Each program is staffed with at least four full-time, board-certified oral and maxillofacial surgeons, a maxillofacial prosthodontist, pediatric dentist, orthodontist, endodontist, and orofacial pain specialist. Also, there are general dentists who assist in the General Practice Residencies that each of the training programs support. The Navy sponsors residents to participate in fellowship training in cosmetic surgery, palliative and reconstruction surgery, and craniofacial surgery. We support our residents in their pursuit of board certification with review courses and scheduled "mock board" sessions. The Navy Dental Corps candidates have a stellar 97% pass rate over the past 20 years on the ABOMS certification exam.

Oral and maxillofacial surgeons can join the Navy via direct accession and are eligible for the same benefits as surgeons who are trained while in the Navy. The financial assistance program is another avenue for non-active duty oral and maxillofacial surgeons who are interested in a career in the Naval Service while in residency. This program provides a stipend while in school as well as money toward fees, equipment, and housing and a bonus on graduation.

After completion of training, a world of opportunity is available to the OMS. From large training hospital to clinics, from sea to shore, the OMS selects his or her career path. Working closely with the Oral Surgery Specialty Advisor to the Surgeon General, each billet (job position) is carefully filled. With more than 80 spots from aircraft carriers, hospital overseas, and clinics and hospitals stateside, the opportunities to find a spot that meets your personal and professional goals are many. Navy oral and maxillofacial surgeons practice in state-of-the-art facilities with the opportunity to use the latest technology in support of their practice. Digital radiology using cone beam CT imaging is now the standard of care at the majority of our facilities. Virtual treatment planning and remote splint fabrication are now standard at our training programs for orthognathic surgery, TMJ surgery, and implants. We use lasers and piezoelectric equipment in most of our hospitals and clinics. Our facilities at Walter Reed are on the cutting edge of facial reconstruction using transplant technology for our war trauma patients and patients with severe craniofacial anomalies.

The OMS who is looking for challenges beyond clinical care will find the Navy full of opportunity. Currently oral and maxillofacial surgeons have leadership roles throughout Navy Medicine. Positions include Residency Directors, Clinic Directors, Director of Surgical and Dental services, Executive Officers (civilian equivalent to Vice President of a hospital), and Commanding Officer of a clinic, dental battalion, or hospital (the civilian equivalent to CEO of a hospital). Oral and maxillofacial surgeons have served as the chief and deputy chief of the Navy Dental Corps, as Assistant to the Surgeon General of the Navy, and as commanding officers of large support commands. As rank and experience increase, the opportunities in executive medicine become more available. The interested OMS can tailor his or her career to any area of interest. This includes clinical, executive, research, education, or a combination of each. The group practice setting is unique and allows for multiple interests to be satisfied while providing the best in care for our patients. The ability to work closely with other oral and maxillofacial surgeons is one of the most appreciated benefits of military practice. Be it on a nuclear-powered aircraft carrier or overseas in one of our hospitals in Europe, Japan, or the Pacific, you always have the support of your colleagues and comfort in the knowledge that if you have a question or concern, there is another surgeon you can contact who will be able to help (Figures 3-1 and 3-2).

The experiences gained by the military OMS are valuable and readily transferred to the civilian practice of OMS. Former Navy oral and maxillofacial surgeons can be found in all aspects of the OMS community, from Program Directors of large university-based training programs to officers of the American Board of Oral and Maxillofacial Surgery. Most military oral and maxillofacial surgeons leave the military service to practice in the civilian community after their time in the Navy. Many take advantage of the liberal moonlighting policy the Navy has in place at most of its facilities. The Navy OMS truly can chart their own career course, wherever their interests might take them (Figures 3-3 and 3-4).

Oral and maxillofacial surgeons interested in a Navy career may receive additional information by contacting a local Navy Medical recruiter; by writing to the Navy Dental Corps, Career Planner, Bureau of Medicine and Surgery, 5113 Leesburg PK, Falls Church, VA 20598; or by calling



• Figure 3-1 Aircraft carrier operating room.



• Figure 3-2 Shipboard surgery suite.



• Figure 3-3 USNS Comfort (T-AH 20) operating room.



Figure 3-4 USNS Mercy (T-AH 19) hospital ship.

703-681-8919. Additional information about practicing as a Navy dentist can be found at www.navy.com.

United States Air Force Oral and Maxillofacial Surgery Careers

John W. Hultquist



The United States Air Force (USAF) Dental Corps was established in 1949 along with the creation of the Air Force Medical Service. The OMS residency program at Wilford Hall USAF Medical Center on Lackland Air Force Base (AFB) in San Antonio, TX, was the first dental residency in the USAF Dental Corps. It was started in 1957 and graduated its first residents in 1959. Ten years later, an additional OMS training program was started at David Grant USAF Medical Center on Travis AFB in Fairfield, CA, and graduated its first residents in 1971. In 2013, the Air Force and Army programs in the San Antonio area combined to form the San Antonio Military Oral & Maxillofacial Surgery (SAMOMS) residency. SAMOMS functions out of two military facilities in San Antonio-Wilford Hall Ambulatory Surgical Center and San Antonio Military Medical Center. SAMOMS graduated its first residents in 2014.

Opportunities exist to become an OMS in the USAF Dental Corps other than through in-service training. Individuals can be selected for Air Force sponsored training through the Air Force Institute of Technology (AFIT) or by direct accession into the Air Force as an OMS. The Financial Assistance Program (FAP) is also available through the USAF Recruiting Service for OMS residents currently in training who are interested in joining the USAF Dental Corps upon graduation. A wide range of career opportunities exist for the OMS in the Air Force Dental Corps and Medical Service. Career vectors include clinical, educational, and leadership roles. Each year, a Dental Corps Developmental Team meets and vectors AF officers into one of these tracks. A large majority of oral and maxillofacial surgeons in the Air Force will, at some point in their career, be vectored into all three areas depending on level of experience and interests. The size and mission of a particular base or assignment will determine what role an OMS will play.

Early in the career of an Air Force OMS (captains and majors), there is an increased emphasis on their role as a clinician. Most young Air Force OMSs become involved in the academic arena as a junior faculty member in one of the Air Force's multiple Advanced Education in General Dentistry (AEGD) programs. As their career progresses, opportunities arise for a larger role in postgraduate dental education and administration of clinical operations.

As an Air Force oral and maxillofacial surgeon's career progresses and they become a senior-grade officer (lieutenant colonels and colonels), more opportunities arise to become involved in graduate dental education, whether in the AEGD programs or in the Oral and Maxillofacial Surgery residency programs, and in the leadership realm in various administrative and command roles. Senior oral and maxillofacial surgeons function as Department Chiefs, Flight Commanders, or Element Leaders. Their responsibilities include overseeing daily operations and administration of the OMS department and the assigned personnel, officer and enlisted.

Other leadership opportunities exist in the Air Force including Squadron Commander and Group Commander. Squadron commanders oversee the operations and administration of an entire department of dentistry, which includes all specialties of dentistry. These positions require more administrative time, and thus clinical time is somewhat reduced. Group commanders manage much larger organizations beyond that of just dental personnel and operations. These organizations are usually larger outpatient medical facilities or can be complete inpatient facilities with full surgical capabilities.

As previously stated, Air Force OMSs can be involved in education throughout all aspects of their careers. Thirteen of 14 stateside locations maintain AEGD programs (1-year or 2-year). In addition, 12 full-time faculty positions are available at the Air Force OMS residency programs in San Antonio and at David Grant Medical Center in northern California. Included at these two sites are program chairmen positions and program director positions. These individuals function similarly to their civilian counterparts and are responsible for daily operations, educational curriculum, and accreditation.

Currently, there are a total of 19 locations worldwide that have at least one OMS assigned. Excluding Lackland AFB and Travis AFB, 13 locations have two assigned oral and maxillofacial surgeons and the remaining 4 have one OMS assigned. Of the 12 stateside locations being manned by Air Force oral and maxillofacial surgeons, all but 1 of those maintains an AEGD program. Most of these programs are located in or near large metropolitan areas such as Washington, DC, San Francisco, Las Vegas, San Antonio, and St. Louis. Locations outside the lower 48 states include Anchorage, Japan, the United Kingdom, and Germany.

Another great opportunity in the Air Force is to be able to practice full-scope oral and maxillofacial surgery. OMS clinics are either located in large medical centers or large outpatient surgical facilities, or collocated within dental clinics. All locations have access to operating rooms and inpatient facilities, whether within the Air Force medical facility itself or at a civilian hospital that has an agreement with the military treatment facility.

Most bases provide a wide range of services to meet dental and medical needs from not only the active duty military population but also their dependents and military retirees and their dependents. Certainly dentoalveolar and implant surgical services are a large portion of the workload, but pathology and reconstructive services are also offered if available. Orthognathic surgery is available at all Air Force locations with OMSs; most locations have an in-house orthodontist for a treatment team to manage functional dentofacial abnormalities and malocclusions. Facial cosmetic surgery can also be provided on a fee-forservice basis.

The management of maxillofacial trauma is paramount to the mission of all military oral and maxillofacial surgeons. Craniofacial and neck injuries are managed via a team approach working side-by-side with otolaryngology, plastic surgery, and oculoplastic and neurosurgery colleagues, ensuring a well-orchestrated collaborative effort. Air Force OMSs also manage maxillofacial trauma locally as needed and as the facility capability allows. Typical injuries involve sports-related or recreational activities but can also encompass motor vehicle collisions or assaults.

All Air Force facilities with OMSs are outfitted with state-of-the-art equipment and technology. Digital radiography and cone-beam CT imaging is available at all locations with an OMS clinic. Full stereolithographic modeling capabilities are readily available and are used to enhance treatment of trauma, craniofacial anomalies, and pathologic conditions. Laser, piezoelectric surgery, and hyperbaric oxygen chambers are available at a select number of medical centers with OMS capabilities.

An Air Force OMS also enjoys the opportunity for professional collaboration with other Air Force OMSs or other dental and medical specialists. All oral and maxillofacial surgery practices in the Air Force exist within a large group practice setting with orthodontists, prosthodontists, periodontists, endodontists, and general dentists. Collaborative treatment planning conferences are standard practice in the Air Force. These include dentofacial deformities boards and implant boards, as well as collaboration with their medical colleagues on craniofacial anomalies, sleep medicine, and head and neck tumor boards. Opportunities also exist to collaborate with civilian colleagues. Local continuing education symposia, journal clubs, and professional societies are available in which to participate.

Board certification is emphasized in the Air Force Dental Corps, especially oral and maxillofacial surgery. The Air Force has an outstanding record in oral and maxillofacial surgery, with more than 97% or all eligible surgeons achieving diplomate status with the American Board of Oral and Maxillofacial Surgery while on active duty. Also, every opportunity is extended to Air Force OMSs for funding the costs of board certification and attendance at board review courses. Competency and currency are also a major emphasis of the Air Force Medical Service, so, whenever possible, attendance at national meetings and continuing education courses is granted and funded.

Each year, the Air Force Dental Education Committee convenes to consider applications for various postgraduate dental programs. Air Force OMSs can be selected for fellowship training, which includes facial cosmetics, temporomandibular joint, tumor and reconstructive surgery, and craniofacial and cleft surgery. The fellowships are sponsored through the Air Force Institute of Technology and are completed at accredited civilian locations.

There are multiple benefits of being active duty military. These include professional liability coverage, medical and dental health care, and access to commissary and base exchange shopping. Additionally, each base offers various recreational activities in the local area and reduced rates on tickets for sporting events, amusement parks, and other venues. There are also multiple bonuses offered to the Air Force OMS including a monthly dental bonus, yearly dental bonus, yearly incentive pay specifically for the OMS, and board certification pay. Housing is also available on base, or the OMS can receive a basic allowance for quarters to rent or purchase a home off-base. Active duty members and their families are moved to their locations at the government's expense.

United States Public Health Service Oral and Maxillofacial Surgery Careers

N. Whitney James



The United States Public Health Service (USPHS) is directly under the Health and Human Services and is one of the seven uniformed services. It is composed of branch services

that include the Indian Health Service, National Institute of Health, Center for Disease Control and Prevention, National Health Service Corp, Federal Bureau of Prisons, and the National Oceanic and Atmospheric Administration. It also provides substantial health care services to the United States Coast Guard and backup services for the Department of Defense. The scope of practice and career opportunities for the oral and maxillofacial surgeon (OMS) are varied with a broad scope of services in the USPHS in-patient and out-patient hospital based programs. These programs extend from urban community hospitals to isolated rural clinics as well as provide consultation to outlying satellite clinics as an OMS Area Regional Consultant to National policies as an OMS National Consultant. OMS providers also participated in providing continuing education to the medical and dental communities on local and national levels to elevate the knowledge and clinical skills of other health care providers in the Public Health Service environment. Supervisory, administrative, and research positions are also available.

The Indian Health Service is the largest of the branch services within the USPHS with the greatest number of hospitals and OMS providers. These providers come into the USPHS under three scenarios:

- · An OMS provider may receive a Congressional Commission and function as a Commissioned Officer of the USPHS. As a Commissioned Officer of the USPHS, the OMS Dental Officer is assigned to a hospital-based program to provide in-patient and out-patient services for that program. The Commissioned Officer also, in coordination with other USPHS Service Branches, has opportunities to participate in deployments in the event of national emergencies or natural disasters, or to assist and support the Department of Defense in its various programs as needed. Some overseas opportunities are also available as needs arise. A commissioned officer may also be assigned to other positions of supervision, administration, or research in any of the various branches of service within the USPHS. Temporary duty station assignments and mobility are also an option to the commissioned officer
- An OMS provider may be hired as a federal employee functioning as a Civil Servant. The Civil Servant is directly hired by a Federal hospital program that is under the direction of the Indian Health Service. A Civil Servant does not participate in deployment activities. Mobility is an option for the Civil Servant.
- As a direct contracted hire to a Tribal Program. A Direct Tribal Hire is directly hired by a tribally governed program and is an employee of that tribe or group of tribes. These programs are directed and administered by a Native American Tribe or a group of Tribes known as a "638 or Self Determination Program." As a direct contract hire, temporary duty assignments or mobility is not an option.

Pay, retirement programs, and benefits vary with each working option within the U.S. Public Health Service.

Veterans Affairs Oral and Maxillofacial Surgery Careers

Paul M. Lambert, Stanley W. Smith, Timothy O. Ward



The Department of Veterans Affairs (VA) comprises three components: veteran health care (VHA), veteran benefits (VBA), and national military cemeteries (NCA). VHA provides health care through the VA Medical Centers (VAMC), Outpatient Clinics (OPC), Community-Based Outpatient Clinics (CBOC), and VA Community Living Centers (VA Nursing Home) programs. VHA evolved from the first federal soldiers' facility established for Civil War veterans of the Union Army in 1865.

In 1918, Congress tasked two Treasury agencies with operating hospitals specifically for returning World War I veterans. They leased hundreds of private hospitals and hotels for the rush of returning injured war veterans and began a program of building new hospitals. Today's VHA continues to meet veterans' changing and challenging medical, surgical, and quality-of-life needs. New programs provide treatment for traumatic brain injuries, post-traumatic stress, suicide prevention, women veterans, and more. VA has opened outpatient clinics and established telemedicine and other services to accommodate a diverse veteran population, and it continues to cultivate ongoing medical research and innovation to improve the lives of America's patriots.

VHA operates one of the largest integrated health care systems in the world and the largest in the United States with 150 medical centers, nearly 1400 community-based outpatient clinics, community living centers, Vet Centers, and Domiciliaries. Together these health care facilities and the more than 53,000 independent licensed health care practitioners who work within them provide comprehensive care to more than 8.3 million veterans each year.

VA oral and maxillofacial surgeons (OMSs) enjoy extremely fulfilling careers caring for those who have served in defense of our nation—the most appreciative patient population that you will ever be privileged to serve. Currently, personnel returning from Iraq and Afghanistan have challenged VA OMSs with the responsibility for reconstructing and rehabilitating patients suffering from major facial, head, and neck injuries. The magnitude of their oral and maxillofacial injuries provides a challenging scope of surgical practice.

A career as an OMS with VA offers a future that is dynamic, innovative, and collaborative. As valued members

of an interdisciplinary health care team, VA OMSs enjoy the flexibility to move within the VA structure and the freedom to practice wherever an opening exists. In return for their commitment to quality health care for our nation's veterans, the VA offers its dentists competitive salaries, first-rate employment benefits, educational support, and tuition reimbursement programs while still retaining the ability to practice privately.

The hospital-based practice of oral and maxillofacial surgery offers opportunities and challenges that typically are not found in other environments. VA dentists and other dental professionals use the full scope of their skills and knowledge in their daily practice and are regularly challenged by patients who can be medically, physically, or emotionally compromised. Many VA medical centers offer the opportunity to work in a rewarding and collaborative fashion with other specialists providing comprehensive cuttingedge care, including head and neck surgery. Appropriately trained OMSs also independently manage head and neck pathology. All patient care is performed in an environment that adheres to the strictest protocols for infection control and assurances for quality patient treatment.

The VA is committed to a philosophy of technologydriven care that enhances staff performance and improves patient results. VA dentists work with today's state-of-the-art technology that directly pertains to patient treatment. Digital imaging, clinical operating microscopes, dental implantology, cone beam radiographic imaging, stereolithographic modeling, and computer-assisted design/computer-assisted manufacturing (CAD/CAM) are but a few of the advances that are in use by VA dentists, on a daily basis in some centers.

After years of development, the VA now has the most comprehensive electronic health record system in the nation. The health record puts each veteran's medical records, laboratory results, consults, radiographs, ECGs, and much more at the fingertips of dentists and the entire patient care team as they work together to design treatment interventions. The dental record component of the electronic health record is a sophisticated program that allows the clinician to view treatment plans, write notes, and monitor progress while seamlessly recording production data and other administrative tasks. Because the system is linked to every VA facility across the country, the care team can instantaneously pull up a traveling veteran's records to examine critical components (e.g., medications, medical problem list, or imaging reports) while making informed patient care decisions.

The VA also uses technology to enhance professional development. Computer-based networking (mail groups), regular teleconferences, and monthly ADA CERP approved webinar programs and other online training enable VA dentists across the country to obtain new information, share research, and exchange best practices.

OMSs with a special interest in clinical research or training find a rich environment at the VA. Many VA OMSs help guide students' fieldwork experiences. Others conduct ongoing research in such wide-ranging areas as laser-guided imaging, chairside point-of-care diagnosis or disease management using proteomics, and dental implantology. Historically, VA OMSs have been well published in nationally recognized professional journals. These education and research missions are further strengthened by the VA's affiliations with all schools of dentistry and 107 of the 125 schools of medicine. The VA provides training for a majority of America's medical, nursing, and allied health professionals. Roughly 60% of all medical residents obtain a portion of their training at VA hospitals, and VA medical research programs benefit society at large. The VA supports 380 dental residency training programs, providing a rich educational opportunity that welcomes OMSs as part of the faculty. Faculty appointments are encouraged, and time is available for active participation.

The VA Office of Dentistry has established a dental practice-based research network known as VA Dentists Engaged in Research (VADER). This network is composed of VA dentists who conduct research in their practices to address the issues and challenges that clinicians face daily in treating their patients. All VA dentists are invited to participate. Study areas of particular interest to OMSs are currently being developed, including medication-related osteonecrosis of the jaw (MRONJ), hyperbaric oxygen therapy, and earlier diagnosis of oral cancer. The MRONJ problem is the type of issue suited for investigation by VA dentists and the VADER dental practice-based research network. Although case series manuscripts and treatment guidelines have been published, additional welldesigned clinical studies are required. VA dentists also participate in the ADA Professional Products Review.

Those surgeons interested in leadership positions within VA may apply for several excellent leadership development programs offered locally, regionally, and nationally. These include the Leadership Development Institute, Executive Career Field Candidate Development Program, and Leadership VA. OMSs may follow in the footsteps of those who have gone before them and assume positions at the medical-center level, including but not limited to chief of dental service; chief of staff; associate chief of staff for education; and chief of primary care.

At the system-wide level, OMSs have served on work groups dealing with developing clinical pathways for acute and chronic pain management, and diabetes. They have occupied positions at the highest policy-making level, including Assistant Under Secretary of Health for Dentistry. In that capacity, they have directed the entire scope of dental service delivery, including recommendations for manpower, resource allocation, standards of care, performance measurement, technology, quality improvement, education, postdoctoral training, and a host of other related issues.

VA OMSs may participate in organized dentistry at the local, state, regional, and national level. OMSs may serve on and chair committees and may serve as delegates and officers. Many OMSs have been elected to leadership positions in regional and national health care organizations, including president of the American Association of Oral and Maxillofacial Surgeons.

OMSs interested in a VA career may receive additional information by contacting a medical center in their area directly; by writing to the Department of Veterans Affairs, Placement Service, 1555 Poydras Street, Suite 1971, New Orleans, LA 70112; or by calling 1-800-949-0002. Employment information can also be found on the Internet at www.vacareers.va.gov. Additional information about practicing as a VA dentist can be found at www.va.gov/dental or https://www.usajobs.gov, keyword VA DENTIST.

Academic Oral and Maxillofacial Surgery Careers

George M. Kushner



University of Louisville Oral and Maxillofacial Surgery Team 2014-2015.

Academic surgeons play a critical role in the ongoing advancement of the specialty of oral and maxillofacial surgery. Residents are the lifeblood of any specialty, infusing new energy and ideas that advance our field. Training these residents is one of our most important roles as academic oral and maxillofacial surgeons. Ensuring that residents are properly trained is a time-intensive and lengthy process that occurs over 4 to 6 years. The academic oral and maxillofacial surgery faculty is an important component of the overall workforce of the specialty, as this is a major focus of our dayto-day activities. The academic faculty is charged with training the next generation of oral and maxillofacial surgeons.

One of the main reasons for choosing an academic career is being in a stimulating environment. Interacting with residents and students on a daily basis provides a constant source of motivation. Faculty are constantly pushed to explain "why" to our mentees. It is commonly said that you cannot adequately perform a procedure until you can teach it to someone else. Oral and maxillofacial training programs are often located within academic health sciences centers. These centers are tertiary care referral centers that receive the most challenging clinical patients. Trauma, pathology, infections, and reconstruction dilemmas are dealt with on a weekly basis. This affords faculty to have a wide scope of practice within our specialty. One of the factors that attracts potential faculty is the ability to have major surgery as a significant portion of their practice.7 Academic oral and maxillofacial surgery faculty are part of a team and thus gain fulfillment from the collegial interaction with our colleagues.

Cases can include a multidisciplinary dental rehabilitation patient with our orthodontic and prosthodontic colleagues; a trauma patient treated with our general surgeons, neurosurgeons, and orthopedic surgeons; or a complex medical patient undergoing organ transplant that requires extraction of teeth before the transplant procedure. Providing clinical care for these extremely complex patients demands teamwork from the treating doctors but is very rewarding.

Many of the oral and maxillofacial training programs are based in dental schools. The presence of strong oral and maxillofacial surgery faculty provides the unique opportunity to future practicing dentists as to the scope of our specialty. The current dental students are our future referral base.

How oral and maxillofacial surgery faculty interacts with dental students and other graduate dental residents can have a profound impact on future relationships. Another important charge to academic oral and maxillofacial surgery faculty is to foster and nurture good relationships within the dental schools.

Many oral and maxillofacial surgery training programs are hospital based. OMS faculty has the unique opportunity to interact with our medical colleagues in providing quality patient care. OMS training programs at academic health care centers frequently treat patients at a level 1 trauma center. Providing care of the injured patient is one of the basic provisions of surgical care. Oral and maxillofacial surgeons have a long history of providing excellent care of maxillofacial injuries at our trauma centers. OMS faculty lead the team of residents in providing care for some of the most critically injured patients the region. Providing care to the traumatized patient is a huge benefit the people of your community or region. The American College of Surgeons, the main organization involved in trauma center verification, has recognized oral and maxillofacial surgeons for their contribution in care of the injured patient.

All OMS training programs, whether dental school based, hospital based, or free-standing facilities, have the opportunity to interact with our medical colleagues on a very close basis. This interaction allows OMS faculty to educate our medical colleagues about our dental specialty. Many aspects of oral and maxillofacial surgery can be considered medical, such as trauma, pathology, reconstruction, cleft lip and palate, obstructive sleep apnea, and TMJ surgery.

Educating our medical colleagues as to the scope of our specialty can provide a source for additional patient referrals and strengthen the position of OMS within the health care system.

For example, the University of Louisville offers a 6-year double degree OMS training program. OMS residents spend 2 years in medical school and interact with medical students. The medical students and faculty know and understand what the specialty of oral and maxillofacial surgery entails. During the general surgery year, OMS residents rotate on other medical/surgical subspecialties and further advance the knowledge about our specialty. Just as important during OMS training is the resident interaction with our other dental specialties. This relationship solidifies future referral patterns and educates our dental colleagues as to the scope of oral and maxillofacial surgery. The OMS faculty is the driving force behind this complex interaction of activities that forges the relationship of oral and maxillo-facial surgery with both dental and medical colleagues.

Research is another important task that is largely delegated to the academic OMS faculty. Research is vital to advance any profession and is essential in the field of health care.⁸ Much of the clinical care delivered today is based on research and named evidence-based care. The surgeon's practice in the future will surely change in ways based on the best available research.

Research simply asks "Why?" or "Is there a better way?" All accredited OMS training programs must engage in scholarly activities. Scholarly activity can range from having a fully funded research laboratory with PhD investigators to poster presentations at the local dental meeting showcasing OMS departmental activities. Either way, OMS training programs are advancing the science of the specialty of oral and maxillofacial surgery. The OMS faculty is again the driving force behind the research activities. In reviewing journals covering the specialty of oral and maxillofacial surgery, the majority of published articles come from academic institutions. OMS faculty also attempt to nurture the inquisitive quality within each resident in the hope that this will continue in the future. OMS faculty constantly motivates the residents to be the best surgeons that they can be. This is one way we can grow the next generation of academic OMS faculty.

According to the American Association of Oral and Maxillofacial Surgeons (AAOMS) website, the following statistics were obtained for 2014-2015:

Oral and Maxillofacial Surgery Training Program Statistics

Accredited OMS training programs 101

Single-degree programs 55

Double-degree programs 46

Programs offering both single- and double-degree training 19

Oral and Maxillofacial Surgery Training Program Locations

Hospital-based training programs 43 Dental school based training programs 38

Medical school based training programs 10

Federal services training programs 10

There are approximately 250 oral and maxillofacial surgery residents starting an accredited program each year.

One can easily ascertain that the diversity of academic OMS faculty must be significant to fulfill all of the needs of the OMS residents. There are common aspects of all OMS training that must be covered in every accredited OMS training program. However, many sites offer training expertise in expanded-scope oral and maxillofacial surgery. Head and neck oncology, pediatric craniofacial and cleft lip/ palate, and cosmetic surgery are being advanced by OMS academic faculty at their respective institutions. Dental implantology is a rapidly growing field that is predicted to grow steadily in future years. Dental implants have given our patients options that were not available in the past. The acceptance of dental implants by patients is constantly increasing as the benefits of implant treatment are realized. Fellowships in these advanced areas are available to OMS residents who want to further pursue these areas of interest.

Despite the advantages of an academic OMS career, there is a constant shortage of OMS academic faculty. Inadequate faculty numbers is a common infraction at OMS site visits, which occur every 5 years. Many academic programs have vacant faculty positions and are currently looking for qualified OMS faculty members. Only a small number of graduating residents pursue an academic career. Academic OMS faculty, once on board at an institution, often leave for an alternative career pathway, which often is the private practice sector. Recruitment and retention are the major problems for qualified academic OMS faculty.⁹

There are many potential reasons for this disparity. Financial disparity is at the top of the list. Academic positions generally pay less than private practice opportunities. Graduating OMS residents often have a debt load in the hundreds of thousands of dollars.⁵ This debt load may be increased if a double-degree program was completed where medical school tuition was required.

Graduating OMS residents may not be able to meet their loan payments and living expenses based on an academic salary. The salary disparity in conjunction with increasing student/resident debt has profound implications for all aspects of dentistry, both academic and the private sector.

Another disadvantage of the academic OMS is the loss of control of the practice. Many OMSs are fiercely independent and choose a career where they have greater control of the practice. The surgeons have devoted a significant portion of their lives and considerable expense to gain the goal of being an oral and maxillofacial surgeon. In return, the surgeon wants to "call the shots."

Private practice surgeons have the option of controlling practice hours, days of the week, participation in insurance plans, hiring and firing of staff, and employee compensation, along with other practice variables. In the academic realm, many of the decisions are made by the institution with little or no input from the surgeon.

Additionally, there appear to be declining resources for academic institutions. State-supported institutions have felt a continuous decrease in financial support to the sponsoring institutions, which trickles down to the dental school or medical school program. Federally funded research is declining and more difficult to obtain. The patient care workload increases along with the pressure to generate more clinical income to offset the losses from decreasing institutional support. The net effect is less time for research and scholarly activities. Many academic OMS faculty are feeling the squeeze and are disappointed and frustrated.

The future still remains very bright for academic oral and maxillofacial surgery. There is a dedicated core of OMS faculty. The faculty meets yearly at the AAOMS annual meeting to discuss problems and continually search for solutions. The OMS Faculty Section has a governing body and bylaws to function adequately in the complex milieu of academic health care. The OMS faculty section is a forum

• BOX 3-1 Advantages and Disadvantages of a Career in Academic Oral and Maxillofacial Surgery

Advantages

Stimulating environment (constant learning and education) Wide scope of practice (major and minor surgery) Opportunity to train the next generation of oral and maxillofacial surgeons

Part of a team with dental and medical colleagues Opportunity for research and scholarly activities

Disadvantages

Generally lower pay than private sector Giving up control of the clinical practice Increasing financial pressures to generate clinical income to offset declining institutional support

for all academic educators, both graduate and undergraduate. The OMS Faculty Section communicates well with AAOMS and other stakeholders to help all involved understand OMS faculty challenges. There has been tangible change for the better. Academic OMS faculty salaries have been increasing and the gap with private practice salaries is closing.

Faculty Educators Development Awards (FEDAs) have been established to entice younger faculty to academic careers by decreasing the financial constraints. Financial incentives are paid to promising young OMS faculty who stay in academics. The Faculty Section has pooled resources to create a National Curriculum Database (NCD). Faculty were asked to contribute lectures in an area of their interest or expertise to a national databank. Accredited OMS training programs have access to this lecture bank to facilitate adequate training of their residents in areas where the faculty may not have expertise. Academic OMS faculty are sharing the resources for the betterment of all, rather than acting as lone entities. The specialty of oral and maxillofacial surgery has placed a tremendous responsibility on the academic OMS faculty, the charge of educating the next generation of oral and maxillofacial surgeons. As in the past, the academic OMS faculty have always risen to the challenge and performed. This dedication to the profession will continue into the future (Box 3-1).

Surgeon-Scientist Oral and Maxillofacial Surgery Careers

Janice S. Lee, Martha J. Somerman, Andrea B. Burke

Progress in medicine and dentistry relies completely on research to advance knowledge on health and disease and to improve methods of prevention, diagnosis, and treatment of diseases. Oral and maxillofacial surgery (OMS) is no exception. A research career in OMS can be extremely rewarding; it is a career path in which one can truly delve into questions and problems with widespread impact that can change the course of treatment and improve patient outcomes.

Most surgeon-scientists are in academia and affiliated with a university. However, there are career opportunities for surgeon-scientists in government institutes, such as the National Institutes of Health (NIH), U.S. Food and Drug Administration (FDA), and Centers for Disease Control and Prevention (CDC). The Department of Veterans Affairs (VA), along with the United States Army, Navy, and Air Force, also provide opportunities for research careers for oral and maxillofacial surgeons.¹⁰ National organizations that also have research careers include the ADA Foundation Dr. Anthony Volpe Research Center (located on the campus of the National Institute of Standards and Technology). Other opportunities may be found in industry, where private-sector pharmaceutical, biotechnology, and medical device companies provide approximately 58% of U.S. biomedical research and development (R&D) funding.¹¹⁻¹³

Research in OMS can include clinical, translational/ applied, and basic science. Clinical research typically includes studies on patient outcomes and clinical trials, new methods and technologies, retrospective reviews, phenotype to genotype, and population-based or epidemiologic studies. Evidence-based medicine, particularly randomized clinical trials, remains the most valued method of research.¹⁴ Translational research includes clinical, preclinical, or animal studies that provide an iterative loop from bench (laboratory/basic research) to bedside (clinical application) and back. The intent is to accelerate the transition from basic research to human application. On the other hand, knowledge gained from clinical research may highlight the need to address fundamental unknowns through basic research in order to improve clinical outcomes or address unexpected outcomes. Basic research focuses primarily on understanding the mechanisms at the cellular and molecular level that control cells, tissues, and organs in states of health and disease. Other categories may include educational research, health policy research, and biomedical informatics (big data) research. Each of these forms of research can provide substantial knowledge and progress in OMS.

The foundation for a successful career in research involves strong training in research and good mentoring. Ideally, the earlier the exposure to research and the earlier determination that research is a true interest for an individual, the more time and guidance a person may have to delineate specific areas of research interest. Students in high school and college now have biomedical programs that introduce them to careers in biomedical research and medicine/dentistry. Additional training programs that are offered by OMS departments and dental/medical schools should be explored to solidify an interest in research. The NIH and National Institute of Dental and Craniofacial Research (NIDCR) have several levels of training programs on campus (Bethesda, MD) through the Division of Intramural Research. This includes the Medical Research Scholars Program (a 1-year program for medical or dental students), the Dental Summer Research Internship, the NIDCR Clinical Research Fellowship (for those who have obtained a DDS/DMD and have demonstrated a research background), and the standard research postdoctoral fellowships (www.nidcr.nih.gov/careersandtraining/Fellowships/). A surgeon-scientist fellowship at the NIDCR (for those who have been accepted into an OMS program or completed an OMS program with evidence of a research background) is being explored.

Previous studies have shown that resident research experience is correlated with a greater likelihood of pursuing an academic medical career.¹⁵ Currently, there are few OMS programs that provide the full span of research; thus it requires a proactive effort, resourcefulness, multiple contacts, and networking to identify an OMS program that may foster future surgeon-scientists. Research is not done in isolation, and going beyond OMS departments may be necessary. Team science and collaborations with multiple researchers have made great strides in bridging the gap from basic science to application. Examples include (1) craniofacial tissue engineering that involves material scientists, cell biologists, bioengineers, and surgeons; (2) head and neck cancer therapies that involve immunologists, hematologistoncologists, cell biologists, and surgeons; (3) craniofacial anomaly therapies that involve developmental biologists, biochemists, geneticists, bioinformaticians, and surgeons; and (4) TMJ therapies that involve pain specialists, neuroscientists, bioengineers, pharmacologists, cell biologists, immunologists, and surgeons.

A common question is the necessity of an additional degree, such as a master's or PhD. The NIH R01 funding data suggests that PhDs and MD-PhDs receive greater funding than MD or DDS/DMD awardees.¹⁶ However, the type of research and the level of necessary funding should dictate a person's pursuit of additional degrees. Because of the time that these degrees add to an OMS residency, it behooves candidates to discuss these career options with mentors, associate deans for research, and OMS program directors. The length of time required to pursue these degrees, however, is not significantly different from other surgical specialties that train surgeon-scientists.

A distinguishing feature of surgeon-scientists, compared to their clinical colleagues, is the pursuit of research funding. In a climate where biomedical funding has not increased, as in the doubling period of the NIH, obtaining a grant of any kind has become extremely competitive. Grant-writing workshops, grant management teams, and solid research mentoring remain critical to the success of the surgeon-scientist.

The NIH and NIDCR have various grant mechanisms that may assist a surgeon-scientist at different levels of his or her career: pre- or postdoctoral fellow, career-development, new-investigator, and established scientist awards. Predoctoral fellow awards (F) provide support for those interested in a dual degree (DDS/DMD-PhD). Postdoctoral fellow awards (F) provide support for trainees at academic institutions to broaden their scientific background. Mentored or career development awards (K) provide clinician-scientists with the opportunity to continue training while pursuing independent research. Research project grants (R) are for investigator-initiated research studies, available for new investigators and established surgeon-scientists. The NIH also provides a Loan Repayment Program (www.lrp.nih.gov) to clinical investigators engaged in research.

The OMS Foundation provides research support grants and student research training awards (http://omsfoundatio n.org). And in an effort to support young academic surgeons, the American Association of Oral and Maxillofacial Surgeons (AAOMS) created the Faculty Educator Development Award (FEDA) to promote academic recruitment and retention. We have included a list of additional funding agencies to be considered.

The maintenance of integrity and professional conduct in research is of utmost importance. The surgeon-scientist must be prepared to understand conflict of interest in research, particularly in funding and funding sources. Conflict of interest has been defined as "a set of conditions in which professional judgment concerning a primary interest (such as a patient's welfare or the validity of research) tends to be unduly influenced by a secondary interest (such as financial gain)."17 Additionally, the surgeon-scientist must have a thorough understanding of their institutional review board (IRB) in order to conduct research on human subjects, whether it is a survey, chart review, or interventional study. The function of the IRB is to protect human subjects throughout the course of a research project. These boards were formed in response to the research abuse of humans such as the Tuskegee Syphilis Study. The aftermath of such egregious violation of human protection includes informed consent, the 1979 Belmont Report, and the Office of Human Research Protections.¹⁵

Research in OMS can change the way we practice by determining the etiology of diseases, developing novel treatments, enhancing standards of care, and creating new health policies. The opportunities for a research career in oral and maxillofacial surgery are vast and can provide a career filled with variety, flexibility, and satisfaction.

Key points:

- 1. Research is critical to OMS clinical practice.
- 2. Start early in exploring your research interest and cast a broad net, even beyond OMS.
- 3. Mentors are important.
- Research integrity includes understanding conflict of interest and human subject protections.

Funding Opportunities

- NIH/NIDCR (F-awards, K-awards, R-awards—www. nidcr.nih.gov/grantsandfunding/Types_of_Grants_Award ed_by_NIDCR/FundingMechanisms/Funding%20Mec hanisms.htm)
- OMS Foundation (omsfoundation.org)
- AAOMS (www.aaoms.org)
- AO CMF (https://aocmf.aofoundation.org)
- American College of Oral and Maxillofacial Surgeons Foundation (www.acoms.org)

- American Dental Education Association (www.adea.org)
- American Cleft Palate-Craniofacial Association (www.acpa-cpf.org)
- Osteo Science Foundation (www.osteoscience.org)
- Defense Advanced Research Projects Agency (DARPA, www.darpa.mil)
- University funds/awards
- Patient-advocacy foundations (e.g., March of Dimes, www.marchofdimes.org)

Dental Support Organizations

Martin E. Eichner

Many recent oral and maxillofacial surgery residents graduate from their training programs with a tremendous debt load. Student loan balances from undergraduate, dental school, and in some cases medical school tuitions are commonly in the hundreds of thousands of dollars. This makes it very difficult to open a new practice, buy an existing practice, or buy in as a partner/shareholder to an existing practice. Paying off debt may add stress to the challenge of practicing oral and maxillofacial surgery after residency. Many new OMS practitioners would like to start a family and purchase a house, but are worried about cash flow immediately out of residency or fellowship. Dental Support Organizations (DSOs) give the new OMS an alternative to private practice oral and maxillofacial surgery.¹⁸

The traditional model of OMS has the doctor responsible not only for the clinical aspect of taking care of patients in the office and hospital, but the business aspect of running the practice. The doctor must set fees, collect fees, hire staff, fire staff, manage payroll, keep an eye on the overhead, be up to date with state and federal laws and regulations, buy supplies, maintain equipment, pay rent, sign insurance contracts, file insurance claims, market the practice, and run study groups.

Many new practitioners are overwhelmed by the business aspect of private practice, and want to concentrate on patient care and becoming proficient in all aspects of OMS.

DSOs exist in many forms. The ADSO, or Association of Dental Support Organizations, is a national organization that enables DSOs to collaborate and improve the model. When an OMS joins a DSO, he or she is able to concentrate on patient care. The DSO conducts the business aspect of the practice. The doctor receives a salary and the DSO employs all members of the office team. The DSO also manages all the aspects of private practice noted earlier. A DSO may claim that the OMS will be more productive because he or she is freed from running the business aspect of the practice. There are claims that more oral and maxillofacial surgery will be performed, which will address issues of access to care. The DSO may negotiate with retailers for discounted rates on supplies because they are able to buy larger quantities and in bulk for multiple locations. The DSO is able to market to member dentists on a larger scale as opposed to what individual doctors may be able to do on

their own. DSOs also run continuing education programs for the doctors, and are able to monitor outcomes and care delivered to patients.

The ADSO member DSOs agree that they should not interfere with clinical judgment and treatment planning. All oral and maxillofacial surgery treatment planning is based on the doctor's clinical judgment, and all surgery is performed based on his or her own decision making.

This model of practice of OMS is rapidly changing, evolving, and growing. Where it will be in 10 to 20 years is unknown. The DSO is an alternative to private practice for OMS practitioners who want to free themselves from running the business side of an OMS practice. There may be more time for clinical growth and less time spent on other tasks.

Conclusion

David A. Bitonti

The traditional private practice of oral and maxillofacial surgery is the more often chosen career path following residency training. The goal of this chapter was to provide background information for the OMS completing residency training, as well as OMSs seeking a career change or transition. All of the mentioned career opportunities and paths provide an avenue for a rewarding practice in oral and maxillofacial surgery, regardless of the career stage. In certain career paths, there may be specific age restrictions and physical requirements; however, points of contact and clarifying information are easily readily available to the interested OMS. There are varying ways to give back and to contribute to the specialty that is our calling. Take advantage of researching and becoming informed about all career opportunities before making a final decision on a career path, and know that other, equally rewarding opportunities exist should a career path change be a part of the future.

References

- 1. Passo SA, King JE: Highlights in the history of Army dentistry, US Army Med Dept J 8–25, 2011. Jan-Mar.
- Hyson JH, Whitehorne JWA, Greenwood JT: A history of dentistry in the United States Army to World War II, Washington, DC, 2008, Borden Institute.
- Will MJ, Goksel T, Stone CS, et al.: Oral and maxillofacial injuries experienced in support of Operation Iraqi Freedom I and II, *Oral Maxillofac Surg Clin N Am* 17(3):331–338, 2005.
- 4. Chapter 8: Dental Corps. In *Department of the Army pamphlet 600-4*, Washington, DC, 2007, Army Medical Department Officer Development and Career Management Headquarters, pp 37–41.
- Bitonti DA, Steinle MA, Powers DB, et al.: Oral and maxillofacial surgery careers in the military and Department of Veterans Affairs, Oral Maxillofac Surg Clin N Am 20(1):17–26, 2008.
- Laskin DM: Factors influencing oral and maxillofacial surgeons to select or leave an academic career, *J Oral Maxillofac Surg* 52:174–176, 1994.

- Aziz SR, Ziccardi VB, Janal M, Ramnauth S: Career perceptions of young academic oral and maxillofacial surgeons, *J Oral Maxillofac Surg* 65(4):762–765, 2007.
- Walker TW, Cascarini L, Brennan PA: Educational paper: research in oral and maxillofacial surgery, *Br J Oral Maxillofac Surg* 48(8):629–632, 2010.
- Lanzon J, Edwards SP, Inglehart MR: Choosing academia versus private practice: factors affecting oral and maxillofacial surgery residents' career choices, *J Oral Maxillofac Surg* 70(7):1751– 1761, 2012.
- 10. Moses H 3rd, Dorsey ER, Matheson DH, Thier SO: Financial anatomy of biomedical research, *JAMA* 294:1333, 2005.
- 11. Dorsey ER, de Roulet J, Thompson JP, et al.: Funding of US biomedical research, 2003-2008, *JAMA* 303:137, 2010.
- 12. Olson S, Merrill SA, et al.: *Measuring the impacts of federal investments in research: a workshop summary*, Washington, DC, 2011, National Academies Press.

- Lee JS: In search of the highest quality: levels of evidence in oral and maxillofacial surgery, J Oral Maxillofac Surg 72:2102, 2014.
- 14. Stewart RD, Doyle J, Lollis SS, Stone MD: Surgical resident research in New England, *Arch Surg* 135:439, 2000.
- Feldman AM: The National Institutes of Health Physician-Scientist Workforce Working Group report: a roadmap for preserving the physician-scientist, *Clin Transl Sci* 7:289, 2014.
- Thompson DF: Understanding financial conflicts of interest, N Engl J Med 329:573, 1993.
- 17. United States: National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research: The Belmont report: ethical principles and guidelines for the protection of human subjects of research, Bethesda, MD, 1978, The Commission.
- Management perspective on practice (special issue), J Am Coll Dent 82(1), 2015.

4 OMS Practice Transition: Decisions for the New Surgeon and the Established Surgeon

R. LYNN WHITE

Introduction

Probably the two most important decisions in the private practice life of an oral and maxillofacial surgeon (OMS) concerns how, when, and where a new surgeon enters into practice, then conversely, how and when a senior surgeon exits an established practice. These are also two of the decisions with the most important effect on personal finance and lifestyle issues. Both decisions should be the result of proactive preparation and careful planning.

As a backdrop for this discussion, we should look at some of the basic demographics of our specialty. The "baby boomer" generation is an expanding cohort within the OMS ranks. This generation represents the largest portion of established practitioners and the generation that might now be contemplating retirement and/or a significant reduction in practice hours. This subset group will be looking toward bringing a new surgeon into these respective practices. Roughly one half of the members of American Association of Oral and Maxillofacial Surgeons (AAOMS) are in solo practice, with another ~20% in a two-surgeon practice. The balance is spread over increasingly larger groups, although groups with more than six surgeons represent only ~5% of the total.¹

The scenario of an expanding number of older-generation surgeons compared to the relatively small and static number of graduating OMS residents sets up an increasingly disproportionate supply-and-demand situation. Simply stated, the supply of graduating residents may not be able to meet the demand of established surgeons to bring in a new surgeon and bolster the needs of their existing practices. Ultimately, this will result in increased competition among existing practices to attract new surgeons and induce them to come on board. The bottom line to consider is how best to plan for a practice transition that is fair, equitable, and transparent in its negotiations, structure, and ultimate agreedupon settlement. The expectations and perspectives of all parties, regardless of the arrangement (associateship, partnership/buy in, buy out), need to be identified and understood.

What follows are guidelines for both the graduating resident and the established practitioner. They are written in the first and second person, so as to directly and personally address the issues of entrance planning considerations for the new surgeon(s) and exit planning strategies for the senior surgeon(s).

Entrance Planning: Considerations for the New Graduate Surgeon

Now What?

As some of you approach the last 2 years of your OMS residency, you should begin to assess how and where you want to begin your career in what I truly consider to be the best specialty in all of health care. Some of you will contemplate and hopefully pursue an academic faculty appointment. As I did when I was on the AAOMS Board of Trustees, I would heartily encourage you to do so. A small portion of you might consider a career in a branch of the federal services. Most of you, however, will pursue a career as a private practitioner. In doing so, you will have the following basic options:

- 1. Starting your own (solo) practice
- 2. Joining an existing solo practitioner
- 3. Joining an existing two surgeon practice

- 4. Joining an existing (larger) group practice
- 5. Signing on with a Dental Maintenance Service Organization (DMSO)
- 6. No commitment, only associate status with an existing practice

In your consideration of these choices, there are many questions (factors) that should go into your decision, many of which are obvious, and some of which may not be. I feel the most pertinent of these to be:

- 1. In what part of the country would you prefer to locate?
- 2. If you are married (or are about to be), where would your spouse want to live?
- 3. If you have children, where are the areas that are more "kid friendly" and have the best educational support systems?
- 4. What is your debt load, and what is the best situation to retire that debt?
- 5. Do you want to have solo responsibility for your practice?
- 6. Would you prefer to have a mentor and senior surgeon who can help you and support the practice while you transition into a more responsible role?
- 7. Do you only want to be an associate with no equity in a practice?
- 8. Do you want to practice the full scope of oral and maxillofacial surgery?

My commentary about the listed questions (and admittedly, there are more that could be posed) is that most are distinctly personal. I do, however, have a definitive comment about the last one. Given the horizon for health care delivery and health care economics, it is incumbent on the young oral and maxillofacial surgeon to establish a practice that embraces all aspects of our contemporary specialty. Granted, there are varied degrees of compensation for different procedures, especially given the expenditure of time and effort by the surgeon. Going forward, however, there will be significant competition for the "teeth and titanium" dollar as well as a drop off in the level of compensation for these procedures by third-party insurers. It is vital, therefore, that you remain a comprehensive and flexible practitioner as you begin your professional career.

Planting the Seeds

To have optimal success in private practice, you should plant positive seeds at the beginning—seeds that will germinate and grow into something of which you can be proud and which will go on to support you and your family well. Let's go back to the basic options that were mentioned earlier and examine each one with appropriate overview. They are as follows:

 Starting your own practice: To borrow from Dickens, this can be "the best of times, and the worst of times." On the positive side, you will be your own boss and will have complete control of your staff. This gives you the opportunity to create a practice that reflects your personal and professional ideals. There can be significant upside if you have low debt, and if you can get your practice facility built out (before you arrive to practice), your staff selected, and your financing arranged to be reasonably loaded to allow for sequential payback. If, however, you enter practice with a significant debt load, you could very well find the stress of servicing past, present, and future debt to be quite burdensome. It is especially problematic to generate practice revenue flow while at the same time marketing your practice through face-to-face visitation with your referring doctors and their staffs. Add to this the responsibility of taking hospital call at various hours, and the need to "juggle all the balls in the air" becomes quite a task.

- 2. Joining an existing solo practitioner: This will probably be the most common scenario for someone entering into the private practice market of 2015-2018. The demographics of all regions of the country suggest that most of the baby boomer generation OMSs are in solo practice. Logic dictates that this demographic group will be the one that will present the greatest opportunity for flexibility and simplicity when you evaluate and negotiate becoming part of an existing practice. To me, the benefits of associating with an established practitioner far outweigh any downside possibilities, provided you are diligent in your selection process. The senior surgeon has already developed a referral base, has established a relationship and track record with a financing institution, and has a staff in place. This established practice will allow you the time to focus on developing your own referral base (which will probably include some of the existing referring doctors) and developing a relationship with your staff members (at least some of whom you might share with the senior surgeon). With the practice having an established banking relationship, you will get more favorable rates for your existing debt repayment, and for your anticipated buy-in to or buy-out of the practice. I will go into options and associated details for buying into, or buying out, a practice in a subsequent section.
- 3. Joining an existing two-surgeon practice: The characteristics of this choice will be similar to joining a solo practice, with the difference that you will be dealing with two individuals, with potentially different perspectives and personalities. Most probably, especially if the practice has been together for several years, there will be coherence and a shared practice philosophy between the partners. Typically, but not always, there is an age differential, with the senior surgeon considering retirement. Again, I will go into buy-in and buy-out options in a following section.
- 4. Joining an existing (larger) group practice: The dynamics and logistics of this scenario are more complex; however, many of these large groups have an established protocol for bringing a new surgeon into the group. Typically, these groups are in larger cities and have more than one practice location, often multiple locations.