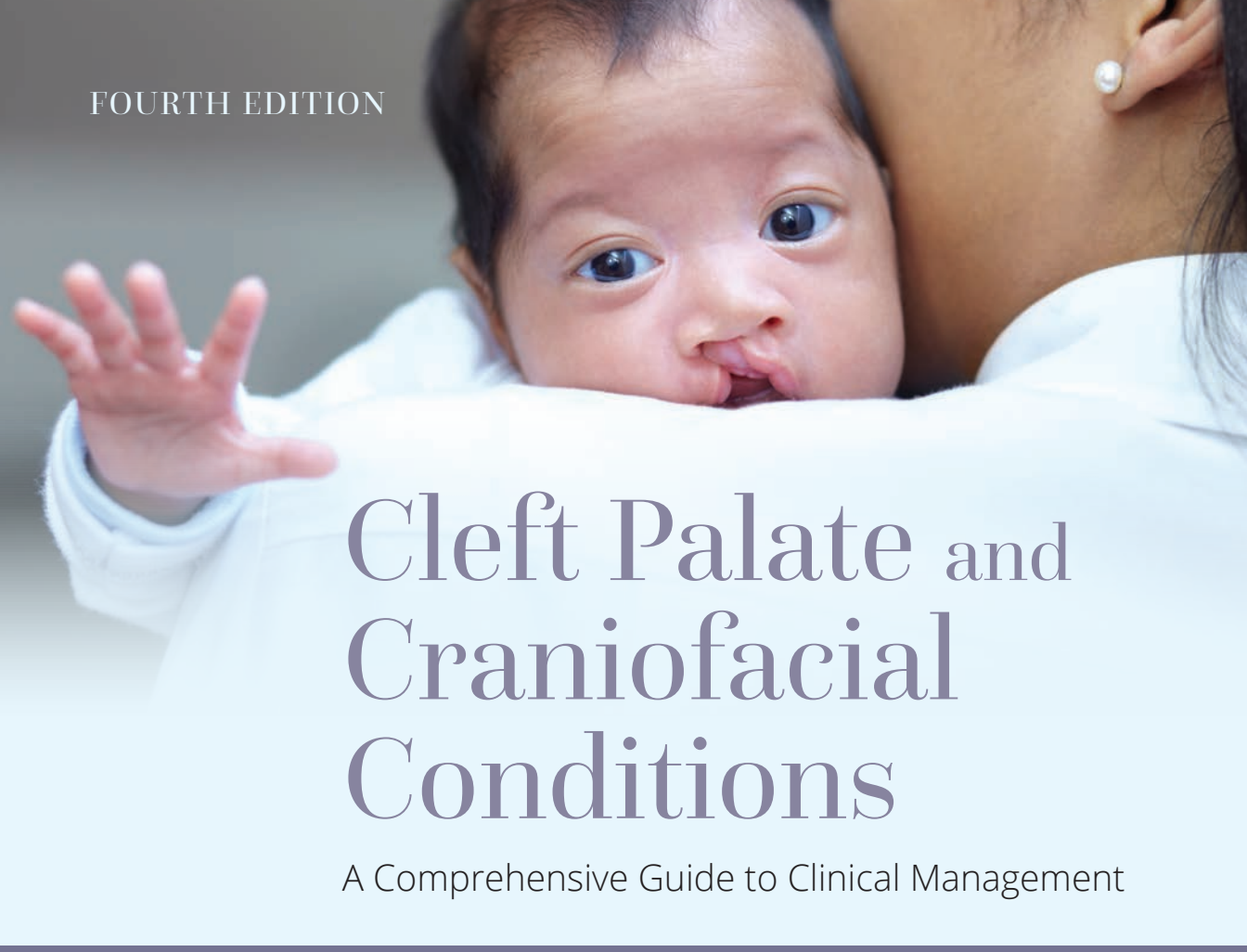

FOURTH EDITION

Cleft Palate and Craniofacial Conditions

A Comprehensive Guide to Clinical Management

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DEDICATION

Th s book is dedicated to the three people who have influenced me most in my life and helped me to be the best that I can be. Without their love and support, I would never have had a career and certainly would not have had the opportunity to write this book . . . now for the fourth time.

The fi st dedication is to my father, who was a wonderful, caring, and talented otolaryngologist whom I always admired. I always wanted to be like my dad when I was growing up.

The next dedication is to my mother, who was the kindest, most thoughtful, and most caring person I have ever known. Once I grew up, I tried to be more like her. (I'm still trying.)

The fi al dedication is to my husband, who has loved me, supported me, encouraged me, and helped me to focus and succeed in my career. For that I will be eternally grateful!

Ann

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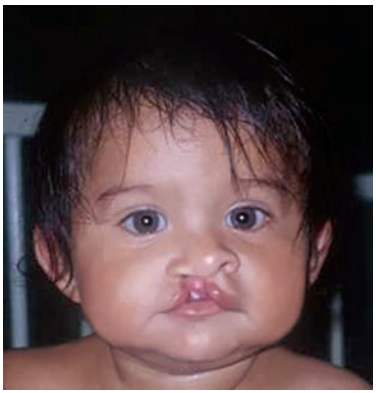
PREFACE



Anticipating the birth of a new baby is usually a very exciting time of life. The expectant couple does many things to prepare for the baby, including setting up a nursery, gathering baby clothes and diapers, and deciding on a name. The parents expect to have a normal baby, with 10 fingers, 10 toes, and an intact face. Usually, they are totally unprepared for the possibility of a different outcome.

Unfortunately, not all babies are born with perfect structures. When a child is born with cleft lip, cleft palate, or other craniofacial anomalies, this is a true shock, especially because it involves the face. What was expected to be a very happy and exciting time becomes a very stressful and emotional time for the parents and other family members. It may be impossible for the parents to see past the anomaly to really appreciate their newborn baby.

Cleft lip with or without cleft palate is the fourth most common birth defect and the first most common facial birth defect. In fact, about 1 in every 700 children born in the United States each year has a cleft of the lip and/or palate. About half of these children have other associated malformations. Cleft palate is a characteristic of well over 400 recognized syndromes.

Although current medical technology is not advanced enough to prevent the occurrence of these birth defects, most of the speech and functional impairments associated with craniofacial anomalies can be improved or even corrected with the help of a team of professionals. To provide the type of care that these patients require, this group of professionals must be specialists within their fields. For true quality care, they must have a thorough understanding of the current methods of evaluation and treatment of these patients.

Considering the incidence of clefts and craniofacial anomalies in the general population, however, all healthcare providers should have at least basic knowledge about the management of these patients and appropriate referrals. In particular, speech-language pathologists must be trained in the basic evaluation and treatment and appropriate referrals of individuals with these conditions, especially considering the fact that they often have a significant effect on speech. Certainly, school-based speech-language pathologists are very likely to have children on their caseloads with a history of cleft craniofacial anomalies, or resonance disorders.

Purpose of This Text

The purpose of this text is to inform, educate, and excite students and professionals in speech-language pathology and the medical and dental professions regarding the management of individuals with clefts or craniofacial anomalies. This text is designed to be a textbook for graduate students and a sourcebook for healthcare professionals who provide services in this area. My goal in writing this text was to provide readers with a great deal of information but in a way that is both interesting and easy to read. As an active

clinician myself, my intent was to make this text a very practical how-to guide as well as a source of didactic and theoretical information.

My ultimate goal with this text is to improve the knowledge of treating professionals who work with individuals who are affected by a cleft or other craniofacial conditions. It is hoped that with this knowledge, they can positively affect the quality of care provided to this population.

Organization

This text was written in a purposeful sequence so that the information from each chapter builds on the information from previous chapters.

Part 1 of this text provides basic information on the normal anatomy of the orofacial structures and the normal physiology of the velopharyngeal valve. Once the normal structures and function are described, information on genetics and patterns of inheritance is covered. The rest of Part 1 consists of information about congenital and acquired craniofacial anomalies and craniofacial syndromes. Once the reader has completed the first section, the reader should have a firm understanding of normal and abnormal facial and velopharyngeal features and the potential causes of congenital and even acquired anomalies.

Part 2 of this text includes chapters on the various functional problems associated with clefts and craniofacial conditions. In particular, this section covers the effects of these anomalies on feeding, speech and language development, psychosocial function, and speech and resonance. After completing the second section, the reader will have an understanding of the number, types, and complexity of the problems that are secondary to clefts and craniofacial conditions. It will then be apparent to the reader that there is a need for multidisciplinary management of these patients in an interdisciplinary setting.

Part 3 of this text covers the various diagnostic methods for assessing speech, resonance, and velopharyngeal function. This section includes the perceptual examination of speech and resonance and the physical examination of the oral cavity and other orofacial structures. There is an overview chapter on instrumentation that is sufficient for graduate students. There are also individual chapters on the various types of instrumental procedures. These chapters are very detailed and written to provide specific information for practicing clinicians who will be using these procedures.

Part 4 of this text covers the treatment of speech and resonance disorders secondary to clefts craniofacial anomalies, and velopharyngeal dysfunction. This section includes surgical management, prosthetic management, and speech therapy. The speech therapy chapter includes specific therapy strategies for achieving placement. In addition, there is a section on achieving carryover using motor learning and motor memory principles.

Part 5 of this text is short but important because it emphasizes the fact that many disciplines are needed to provide care for patients affected by clefts or craniofacial anomalies. The reader will complete this section with an understanding that quality patient care requires interdisciplinary interaction and collaboration in the assessment and treatment of these patients.

Features

- **Chapter outlines:** The outline of each chapter helps readers navigate through the content and find information quickly.
- **Figures:** This text includes almost 700 figures. These photos and illustrations are meant to enhance comprehension of information and concepts discussed in the chapters.
- **Case studies:** Several chapters include patient case studies to illustrate how chapter information applies to real-life situations.
- **Speech Notes:** Chapters regarding anomalies and surgeries have boxed sections called *Speech Notes*. These sections highlight how these anomalies or surgeries affect speech and resonance.

- **For Review and Discussion:** A list of questions and topics for discussion is included at the end of each chapter. The purpose of this section is to help the reader synthesize and apply information presented in the chapter. Instructors can also use this section for class discussion, student homework, or essay exams.
- **Definitions:** Selected technical and medical terms are presented in bold and defined within the text and in the glossary.
- **Glossary:** There is a glossary of terms at the end of the text that defines all the medical and technical terms that were bold in the individual chapters. The student may find that studying the glossary is helpful for learning much of the information in the text.

Online Resources

The following resources are available for students and instructors. For more information on how to access these resources, please visit go.jblearning.com/cleftpalate.

- **Cleft Notes:** The *Cleft Notes* are basic summaries in table format provided for each chapter. There are some compare-and-contrast aspects of these tables to help students assimilate the information. There are two versions of the Cleft Notes—a blank version for students to use when taking notes or studying, and a filled-out version for instructors. By completing the Cleft Notes, the students are engaged in more active learning and have a study guide for test preparation.
- **Handouts:** There are online handouts on a variety of topics that are covered in this text. These handouts are designed primarily for parents but can also be helpful to other professionals who are not familiar with the topic area. The handouts are designed so the user can print them directly from the website.
- **Videos:** There are 295 videos/animations/audio files online. These videos illustrate different types of speech and resonance disorders. There are videos of evaluation techniques, including nasopharyngoscopy, videofluoroscopy, and even nasometry studies. Finally, there are videos of speech therapy techniques that are effective with this population and also with other individuals with speech sound disorders. These videos are designed to help the viewer develop diagnostic and treatment skills by watching and listening to each video as many times as necessary. Because these videos are short and carefully edited, they facilitate better learning than direct observation in a clinic.
- **PowerPoint Presentations:** There are PowerPoint presentations, which include important figures and photos, for each chapter. These presentations can be used by the instructor for classroom teaching.
- **Testbank:** Assessment questions are available in a variety of different formats, including multiple choice, labeling, matching, and true/false.
- **Image Library:** The image library provides access to all the art in the textbook. This resource can be searched using keywords and subject areas.

New to This Edition

- **Photos:** Many new photos have been added, most of which are in color.
- **Drawings:** Anatomy figures have been rerendered for consistency and improved quality.
- **Tables:** Many chapters have information summarized in tables for easy learning. There are also tables of terms for normal and abnormal craniofacial, oral, dental, and pharyngeal structures and anomalies.
- **Chapter Text:** Chapters have been heavily edited with a focus on making the information clear, concise, and easy to read.
- **Chapter Order:** The chapter order has been reorganized for better flow.
- **Research Updates:** Information within the text and the references have been updated to reflect current research and literature.

Format Notes

Service providers must be sensitive to the emotional and psychological needs of the patient. Sensitivity to the feelings of the patient is often overlooked by well-meaning service providers. It is easy to forget that we deal with real people, not just interesting cases. This lack of sensitivity is sometimes reflected in the terminology that is used in the literature and in daily use. I recall listening to a speech given by an adult who was born with a cleft palate. As he described his childhood, he pointed out that being called a "cleft palate child" evoked very negative feelings. Fortunately, this type of phrase is becoming "politically incorrect," just as the term "harelip" has in the past. Using the anomaly as an adjective to describe the individual is certainly insensitive to the feelings of the person who was born with this anomaly. Therefore, it is preferable to use "patient-first" terminology as in "child with a cleft"

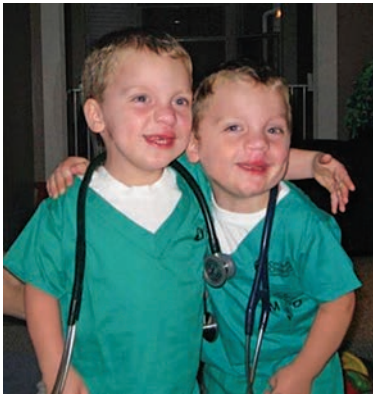
The reader will note that the word "child" is frequently used throughout the text for the individual with the anomaly. This is because the speech and resonance disorders secondary to cleft lip/palate and craniofacial anomalies are usually addressed during childhood. However, it should be understood that this information also applies to adults with the same anomalies.

Acknowledgments and Thanks

There are so many people that I would like to acknowledge for their help with this edition of the text. Many thanks go to the members of our VPI/Resonance Team at Cincinnati Children's, including Jenn Marshall, Shyla Miller, Cara Werner, Margaret (Meg) Wilson, and Sarah Woodhouse. They were very helpful in providing feedback, developing the Cleft Notes, and reviewing videos. Special thanks go to Cara Werner, who proofread the entire manuscript and online content. She also provided very valuable suggestions. I would like to thank the members of the Cleft and Craniofacial Center at Cincinnati Children's for being such great colleagues, mentors, and friends! I have learned so much through our professional interactions over the years. Finally, I'm very grateful to Laura Pagluica and her entire team at Jones & Bartlett including Rebecca Feeney, Vanessa Richards, Thais Miller, and Troy Liston. It was such a great experience working with them. I have been very impressed with the entire company and the quality of their products.

Final Words

I am very grateful for the opportunity to share with you what I have learned through my clinical practice over the years. I sincerely hope that through this text you will be educated, enlightened, and inspired to provide superior clinical services for individuals with clefts or other craniofacial conditions.



CREDITS

All photos courtesy of the Cleft and Craniofacial Center at Cincinnati Children's Hospital Medical Center.

KEY TO PHONETIC SYMBOLS

Vowels	
Symbol	**Examples**
/i/	b**ee**, s**ee**
/æ/	h**a**t, c**a**t
/ɑ/	f**a**ther, p**o**t
/ɚ/	teach**er**, moth**er**

Consonants		
Symbol	**Letters**	**Examples**
/ʔ/	glottal stop	bu**tt**on, mi**tt**en
/ʃ/,	sh	**sh**oe
/ʒ/	zh	meas**u**re
/ʧ/	ch	**ch**air
/ʤ/	j	**j**ump
/θ/	th	**th**in
/ð/	th	**th**en
/ŋ/	ng	si**ng**

Note: This key includes only the phonetic symbols used in this text.

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Ann W. Kummer, PhD, CCC-SLP, FASHA, is the former senior director of the Division of Speech-Language Pathology at Cincinnati Children's. Under her direction of over 35 years, the speech-language pathology program at Cincinnati Children's became the largest pediatric program in the nation and one of the most respected. Dr. Kummer is professor of clinical pediatrics and professor of otolaryngology at the University of Cincinnati (UC), College of Medicine.

Dr. Kummer has done hundreds of national and international lectures and seminars in the areas of cleft palate and craniofacial anomalies, resonance disorders, velopharyngeal dysfunction, and business practices in speech-language pathology. She has taught the craniofacial anomalies course for five universities. She has also written numerous professional articles and 22 book chapters in speech pathology and medical texts. In addition to this text, she is one of the authors of the text *Business Practices: A Guide for Speech-Language Pathologists*. Dr. Kummer is the co-developer of the Simplified Nasometric Assessment Procedures (SNAP) test (1996) and author of the SNAP-R (2005), which is incorporated in the Nasometer™ equipment (PENTAX Medical). She holds a patent on the nasoscope, which is marketed as the Oral & Nasal Listener™ (Super Duper, Inc.). She was one of the main developers of workflow software that won the 1995 International Beacon Award through IBM/Lotus. (Derivative software is marketed by Chart Links.)

Dr. Kummer has received numerous honors, including Honors of the Southwestern Ohio Speech-Language-Hearing Association (1995); Honors of the Ohio Speech-Language-Hearing Association (OSLHA) (1997); Distinguished Alumnus Award from the Department of Communication Sciences and Disorders, University of Cincinnati (1999); Fellow of the American Speech-Language-Hearing Association (ASHA) (2002); named one of the top 25 most influential therapists in the United States by *Therapy Times* (2006); Honors for Distinguished Service, Department of Otolaryngology–Head and Neck Surgery, University of Cincinnati (2007); named one of the 10 Most Inspiring Women in Cincinnati (2007); inducted into the National Academy of Inventors, Cincinnati Chapter (2010); Distinguished Alumnus Award, College of Allied Health, University of Cincinnati (2012), Elwood Chaney Outstanding Clinician Award from the Ohio Speech-Language-Hearing Association (OSHLA) (2012); Annie Glenn National Leadership Award, Ohio School Speech Pathology Educational Audiology Coalition (OSSPEAC) (2014); and the Media Outreach Champion award from ASHA (2014). In 2017, she received Honors of the Association from ASHA, the highest award given by the association.

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I would like to thank the reviewers who were kind enough to read through chapters and offer their advice. Their comments were greatly appreciated and most of their suggestions were incorporated in this edition.

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