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# Foreword

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How can we make learning in audiology more effective? This is the question that we began with in designing the Core Clinical Concepts in Audiology series. Our answer is revealed in the construction of the books of the series in which we seek to provide palatable and useful information to students and practitioners to develop and refine clinical skills for audiology practice.

By and large, texts available for our field provide exhaustive examination of broad topic areas. Although these texts are useful and necessary for advanced scholarship, we currently lack pedagogic materials that focus on basic clinical methods and knowledge. The books in this series are designed for teaching and learning.

These books are written for the student. The scope of practice for audiology has expanded dramatically since the inception of our field. Today's students must acquire a tremendous arsenal of clinical skills and knowledge in a very short period of time. The books of the CCC series are meant to be clear and comprehensible to students, focusing on the content necessary to achieve knowledge and skills for clinical practice. Furthermore, the books are designed to be economical, both financially and in time spent in learning.

These books are written for the clinician. With expansion of the scope of audiology practice, currently practicing clinicians must acquire new skill sets while continuing to serve their patients. Not a small feat. Hard-working practitioners deserve educational materials compatible with the real-world demands of fast-paced and time-limited clinical practice. In response to these needs, the books of the CCC series are designed to be concise. The succinct construction of the series is meant to allow readers to efficiently acquire the essential concepts and skills described in the books.

These books are written for the instructor. Most instructors of audiology courses are familiar with the frustration of searching for materials that cover the topics which reflect the learning

outcomes of their courses. Especially lacking are materials designed to promote clinical learning. The books of the CCC series are designed to focus on specific areas of clinical practice. They are targeted toward the learning outcomes commonly found in audiology curricula. Due to the economical nature of the books, instructors can feel comfortable in creatively combining different Core Clinical Concepts in Audiology books to support the unique and diverse learning demands of specific courses.

These books are written for the user. The needs of the reader are our primary concerns. These books are written to help readers learn to be outstanding clinical audiologists. To be sure, these are lofty goals. The authors of the CCC series books have put forth their best effort to accomplish these goals.

*Objective Assessment of Hearing* by James W. Hall III and DeWet Swanepoel was written to provide a practical guide to the use of objective measures for prediction of hearing sensitivity. Some of the measures described in the text have been around for a long time. Electrocochleography (ECoChG), for example, predates the beginnings of audiology. Other objective procedures, including acoustic immittance measures, have for many years proven their worth in clinical audiology. Yet, we've witnessed in recent years innovative applications for these time-tested procedures, such as high-frequency probe tone tympanometry in neonates or acoustic reflexes in the diagnosis of auditory neuropathy spectrum disorder. Several measures included in the book are relatively new additions to the clinical test battery, among them otoacoustic emissions (OAEs) and the auditory steady-state response (ASSR).

Even seasoned clinicians will appreciate the up-to-date and evidence-based recommendations for practice included in the text. The book was written by two audiologists who indeed "clinically practice what they preach." Newer clinicians and students will appreciate the simply stated broad

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perspective on application of objective tests, and the common sense tips on how to strategically apply objective tests for quantifying hearing ability. As with the other books of the CCC series, the

organization and construction of the book works to provide important and necessary information in a manner consistent with the needs of readers.

James W. Hall III, PhD  
Virginia Ramachandran, AuD  
*Series Editors*

# Preface

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The Core Clinical Concepts Series is designed to present a series of textbooks, each of which addresses a topic in an in-depth and comprehensive manner. *Objective Assessment of Hearing* is the first offering within the Electrophysiology component of the CCC series. In this text, the use of objective audiologic measures available to audiologists is explored in an effort to expand daily application of the measures in the timely and accurate measurement of hearing in infants, children, and adults.

Chapter 1 provides the context for the use of objective measures in audiometric assessment. Chapter 2 is an up-to-date review the varied clinical applications of aural immittance measures, including tympanometry and acoustic reflexes. The inclusion of case studies in this chapter demonstrates the valuable contribution of immittance measures in interpretation of patterns of audiometric findings. In Chapter 3, another electroacoustic procedure—otoacoustic emissions—is explored concisely, with specific reference to the rather unique applications of OAEs in screening for and

diagnosis of auditory dysfunction. Chapter 4 introduces the reader to electrophysiologic measures by describing the invaluable use of electrocochleography in diagnostic audiologic assessment of infants and young children. In Chapter 5, the varied roles of the auditory brainstem response (ABR) are reviewed including applications in hearing screening, frequency-specific estimation of hearing sensitivity, and neurodiagnosis. Bone-conduction and tone burst ABR protocols are outlined, as well as practical strategies and methods for analysis of findings. The auditory steady-state response is covered in Chapter 6, with a simple but complete description of how the ASSR can contribute importantly to estimation of hearing sensitivity. Chapter 7 reviews current evidence-based recommendations for use of objective measures for screening, identification, and quantification and of hearing loss. The final chapter (8) consists of case studies illustrating the multiple clinical uses and advantages of objective measures for diagnostic auditory assessment of infants and young children.