

Practical Audiology for Speech-Language Therapists

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Anyone working in the field of Communication Disorders is undoubtedly aware of the fundamental link between audiology and speech-language pathology. Basic audiological knowledge is imperative for the speech-language pathologist to adequately assess and treat the client with communication impairment. In this book, Janet Doyle aims to provide the speech-language pathologist (SLP) with information that will assist in making clinical decisions. She highlights the relevance of basic audiology knowledge for the speech-language pathologist, and certainly keeps in mind the practical information needs of the clinician. Portions of the book do provide the rudimentary principles of audiology, perhaps serving as a well-needed “refresher” course for the SLP. Ms. Doyle also renders practical information on the more recent developments in audiology, particularly relating to such currently hot topics as “Cochlear Implants” and “Central Auditory Processing Disorder”. The author acknowledges that while not all of the content may be relevant to every SLP’s practice, at least some of the contents are pertinent to all speech-language therapists. Depending on the speciali-

zation of the SLP in a particular area, more reading may certainly be required, however, this book should at least act as an efficient precursor to the SLP’s decision on whether or not additional information is necessary.

The book is organized into nine chapters that individually cover the stated topic. The author efficiently uses cross-referencing between chapters, linking the core concepts of audiology to the practical application of these concepts by the SLP. Chapters 2 through 9 each begin with a section on the principles to be discussed, derived from the broad chapter subject. This sets the reader up nicely for the information about to be presented. Many chapters also contain a section “Clinical Decisions for the Speech-Language Therapist”. If at any time I found myself asking, “So how does that information relate to what I do?”, after reading this section I usually had my answer. The book also makes ample use of practical diagrams and charts to aid in the understanding of the principles discussed in the text. Closing out each of Chapters 2 through 9, the author also provides a “Summary of Key Points”, again attempting to relate the information in the chapter to the clinical setting of the SLP. Additional reference information that the author felt was not imperative to the chapter directly, but would be of value to the reader, is also contained in appendices.

Chapters 2 through 5 review much of the basic audiological knowledge that SLPs learned in their graduate programs. “Sound and Hearing” is

reviewed in terms of basic structure and anatomy. The author also provides a comprehensive overview of useful acoustic terminology. The chapter entitled “Forms of Hearing Difficulty” is next reviewed. I especially liked how the author made this information useful to me as a SLP by explaining the effects of the different losses on speech perception and language development, and then by outlining and discussing in capable detail, the clinical decisions for the SLP relating to the type of loss. Although the author frequently stresses that hearing loss is an individual experience, her explanations of these losses provided me with basic information regarding, “What does this type of loss really mean for my client, and my approach to therapy?”. The author’s review of “Forms of Hearing Assessment”, as well “Screening of Hearing and Middle-Ear Function”, were indeed exhaustive and in my opinion, serve as an excellent source of information for the SLP. I do recognize, however, that SLPs who work primarily with clients who have hearing impairments may have more direct application for this information. In presenting the information regarding assessments, Ms. Doyle continually stressed the SLP’s responsibility to accurately comprehend the information provided by the hearing test(s) and the relationship to therapy preparation. The importance of hearing screening, and the SLP’s responsibility related to this is also discussed in extensive detail. The author again provides practical advice, discussing common procedural problems in hearing screenings, and then suggests solutions to

these dilemmas. Realistic case examples are also presented. A section is also devoted to tympanometry screening by SLPs, an area which is apparently undertaken in Australia (the author's residence), however, is not, to the best of my knowledge, applicable to SLPs in my region.

My favourite chapter in the book was Chapter 6: "Audiograms and their Interpretation". Whenever I attend an educational event I consider that if I can take away but one piece of information/knowledge that I can practically use in my everyday work, then that event was worthwhile. Although there was an abundance of such wisdom throughout this book, my most efficient utilization was found in the author's discussion of interpreting audiograms. The author explains a 'four-step procedure for understanding dB-HTL audiograms, in terms of a quadrant approach. The implications of hearing loss are explained in practical terms according to what quadrants the loss falls within. While it is acknowledged that persons with very similar audiograms can differ considerably in their communication abilities, the information derived from this 4-step approach for the clinician is invaluable. It will certainly guide me in basic interpretations of my clients' audiograms. Additional subject matter in this chapter includes helpful indicators on how the SLP can use the information in the audiogram to set up therapy rooms, and remind the SLP to be vigilant in ensuring that the client's audiogram is current, as such factors as training one how to use audition can affect such outcomes. An array of current audiological terminology related to audiograms is again presented to the reader. The chapter closes with 10 questions that the SLP may find beneficial when reading audiograms. This

was my favorite chapter because I could take away information and instantaneously put it to use with my clients.

The customary technological approaches to working with hearing loss, hearing aids, assistive listening devices, tactile aids, and cochlear implants, are next addressed. A synopsis of the differential characteristics of these devices is nicely presented, along with substantial information regarding such topics as "operating features" and "complexities in hearing -aid fittings". While I did not consider this information necessary for the average SLP, it may undoubtedly be beneficial to those specializing in the area. Much of this chapter serves more as a reference on the technological approaches, but the author still offers some useful points to the clinician. Troubleshooting of hearing aids, as well as a section on clinical decisions for the SLP provide excellent information to the clinician. A cursory discussion of cochlear implants is also provided. Although the chapter does afford the reader with information on the fundamentals, anyone dealing extensively with these devices would require further information for which the author provides ample references.

While the author's chapter on "Speech Reading" clearly was accurate, in my opinion, it provided the least amount of useful /new information for the SLP. Ms. Doyle includes a discussion on the visibility of speech, relating to such articulatory features as tongue elevation, stops vs. nasals, and voicing distinctions. As this information forms what I consider to be the rudimentary elements of articulation therapy, I thought it better suited to a book entitled "Practical Speech-Language Pathology for the Audiologist", and perhaps it was unnecessary given

the target audience of this book. Nonetheless, the author does offer some worthwhile information for the SLP (e.g., context effects and providing information regarding cued speech). I particularly liked the section on clinical decisions for the SLP, as well as the recommended speech reading tests... this is useful, practical information.

Another chapter in which I found an abundance of applicable information was in the author's presentation of "Central Auditory Processing Disorder" (CAPD). Ms. Doyle devotes an entire, detailed chapter on CAPD, providing the clinician with a comprehensive overview of the disorder, appropriate tests, and management techniques. A profile of the child with CAPD is also prepared, signaling the "red flags" that the SLP should consider when CAPD is suspected. The detailed clinical examples provided make the information "real". The author discusses retrocochlear disorders in relation to memory and coding problems, highlighting for the clinician how CAPD can influence learning in other forms, other than just interrupting the processing of auditory information. In presenting such a thorough synopsis of CAPD, the author is also keen to point out that the concept of this complex disorder is not without its criticisms, and she impartially informs the reader of various critiques. Information is also presented on the differential diagnosis of CAPD vs. Attention Deficit Disorder (ADD), recognizing the still "unclear" linkage between the two. Finally, the therapist is provided with a list of informal management techniques appropriate for the CAPD client, while also learning about specific aspects of the more formal management programs and the theory behind their success. While it is recog-



nized that CAPD is an extremely complicated disorder, Ms. Doyle does an exemplary job of introducing the major aspects of CAPD to the reader.

The final chapter in this book is entitled "Integration" and ties together the primary messages from the book in the form of case examples. In this format, the author illustrates to the SLP how the audiological information presented is indispensable if we desire to appropriately manage our hearing impaired clients.

Overall, Janet Doyle does an excellent job of reaffirming the crucial link between Audiology and Speech-Language Pathology. She reintroduces us to basic audiology and the "terms" we once knew, and updates us on the more recent developments in this technologically advancing field. If I have not used this word enough throughout the review, I will use it again.... practical. This was obviously the author's intent and, in my opinion, she has met this goal successfully. Though a certain amount of theory is of course necessary, the main focus of the book is information that can be readily put to clinical use by the speech-language pathologist.

Guide to Dysarthria Management: A Client-Clinician Approach

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In the *Guide to Dysarthria Management: A Client-Clinician Approach*, the author intends to provide a "comprehensive resource [which] addresses assessment, program planning, and intervention for individuals with dysarthria" (p. 3). The author also seeks to provide a complete program which promotes the empowerment and active participation of clients in planning their intervention and monitoring progress. Specific goals are related both to the speech-language pathologist and the client with the motor speech disorder. Those goals specific to the speech-language pathologist include the identification of the motor speech disorder, provision of information to the client and members of his or her family, and aiding in the development of a functional intervention program. Goals related to the client encompass the appreciation for the nature of his or her dysarthric symptoms, being an active participant in planning intervention, and learning to monitor personal goals and related progress in communication. Kaye suggests that there is a need for a resource which includes educational handouts, assessment tools, and activities for intervention all in one comprehensive book. This suggestion is based on a perceived need to reduce the time and financial constraints on the intervention provider. Further, Kaye advocates increased involvement of the client in intervention programming and evalu-

ation of program success in order to promote carryover, as well as to impact the functioning of the individual in daily activities. The *Guide to Dysarthria Management: A Client-Clinician Approach* is intended for use with adolescents (ages 12 or older) and adults who have dysarthria and may be used by either a speech-language pathologist or by a student under the direct supervision of a certified speech-language pathologist. The book is organized in four major sections: 1) Getting Started, 2) Education, 3) Therapeutic Exercises, and 4) Carryover. Subsections are included within each section which include instructions for the professional, and this is followed by reproducible materials for the client. With exception of some parts of the assessment section, the book represents a relatively succinct resource for the "ever-traveling" speech-language pathologist.

In the first section of the book, Kaye provides three forms for comprehensively evaluating parameters of motor speech. For example, the first form includes an assessment of oral motor function, laryngeal function, sequenced movements, speech production (i.e., specific phonemes), intelligibility in reading and in structured conversation. The second form includes an inventory of dysarthric symptoms and the impact on communication as perceived by the client. The third form includes an analysis of intelligibility, voice volume, rate of speech, prosody, resonance, and phonation as judged by the client.

The first part of the assessment tool includes tasks which are all part of standard motor speech evaluation, as well as an intelligibility rating. Unfortunately, the parameters as defined herein are sometimes vague and may not provide enough sensitivity to pro-

vide a baseline for determining the efficacy of treatment. For example, speech production is evaluated within single words that are constructed such that specific phonemes are evaluated in initial and medial positions of words. The words are either read or imitated by the speaker with dysarthria and are evaluated by the speech-language pathologist on-line as either accurate, imprecise, or omitted. Obviously, the clinician could transcribe the word and then evaluate it for other types of errors typically found in dysarthric speech (e.g., voiced-voiceless distinctions, cluster reductions, spirantization of plosives, etc.) but this information is not included in this particular assessment tool, leaving this detail to the savvy clinician. Further, if this tool is used to evaluate treatment efficacy, having the same person who treated the person with dysarthria transcribe the patterns of speech would inflate the results since familiar listeners often understand dysarthric speech better than unfamiliar listeners. This confounding variable is avoided in such intelligibility measures as the Assessment of the Intelligibility of Dysarthric Speech (AIDS; Yorkston & Beukelman, 1981), or the Computerized Assessment Intelligibility of Dysarthric Speech (CAIDS; Yorkston, Beukelman, & Traynor, 1984) which have an unfamiliar listener judge speech samples of dysarthric speech for intelligibility. Another difficulty with the instrument proposed by Kaye relates to both assessment of connected speech in reading passages and structured conversation. First, no rating of overall intelligibility is proposed, which may indicate overall limitation of function within a conversation. Secondly, dimensions such as articulatory performance, phonation, rate, volume, prosody, and reso-

nance are rated, but mostly as adequate, too much of an attribute (e.g., hypernasal, too loud, rapid, etc.) or not enough of an attribute (e.g., slow, imprecise, monotone, too soft, hyponasal, etc.). These attributes are most important to classifying dysarthric speech (e.g., Darley, Aronson, & Brown, 1975) and are frequently a focus of intervention. Therefore, rating these perceptual attributes on, for example, a 5-point scale (e.g., normal, mild, mild-moderate, moderate, and severe) may be more sensitive for documenting change than merely recording the absence or presence of a speech feature. This change may make for a more sensitive tool. Despite these suggestions, the area of motor speech function and assessing intelligibility are best left to measurement tools which have already been assessed for validity and reliability (e.g., CAIDS; Yorkston et al., 1984; AIDS; Yorkston & Beukelman, 1981; or the Frenchay Dysarthria Assessment; Enderby, 1983). Perhaps the assessment tools/lists provided could be used as probe materials when formal measures are not required.

The author also proposes use of an inventory of dysarthria which records the client's perception of his or her communicative abilities and difficulties (e.g., "Are there situations in which you are hesitant to speak? How self-conscious are you of your speech?", etc., p. 31). This is an important addition as the speech impairment may not always be meaningful to the client for the purposes of everyday activities and social participation. Finally, a speech analysis is included in which the client rates him or herself for a variety of communicative competencies using a video- or audio-taped reading passage and conversation. This evaluation is also very important since increasing self-aware-

ness may promote carryover to conversation.

The second section of the book includes educational information which helps lay the groundwork for helping clients and their families better understand the nature of their dysarthria. These information pages can be reproduced and are written in clear terms, understandable by a layperson. Further, communication strategies for both the client, and the communication partner are included. These strategies are a good synopsis of those offered by Yorkston, Kennedy, and Strand (1996), and are clearly written to affect the communicative environment for the person with dysarthria.

Intervention exercises comprise the bulk of the book. These exercises target oral-motor function, respiration, phonation, articulation, volume, rate, and prosody. Each subsection includes user instructions for the speech-language pathologist and for the client, an introduction to the topic addressing how each subsystem impacts speech production, and finally, an activity which increases awareness of that function. In general, Kaye provides functional exercises for targeting these goals with clear, reproducible worksheets that can be given for home practice. The author also admits that while specific techniques are provided, that the book must be used as a resource only, and more specific information related to particular techniques may need to be investigated if the clinician is unclear about models underlying these techniques, etc. All components of intervention in dysarthria are found within this section of the book, including strengthening exercises and procedures, compensatory strategies, and information related to prosthetic devices. Clinicians who



work in a more formal clinical setting can also use instrumental (feedback) procedures to help the client monitor changes.

The specific organization and/or clarity of particular subsections of the book could be strengthened. For example, included in subsection of "therapeutic exercises" is a comprehensive list of oral-motor exercises. Although this list seems complete, instructions could be improved in their clarity by offering some visual information to accompany verbal instructions which may be quite complex (e.g., "Move your tongue in a clockwise circular movement about your lips..."), p.100), especially for those individuals who have neurological involvement. Some of the organization of the material could also be altered to help target specific goals. For example, sentences for targeted phonemes may be improved by organizing lists into increasing length sentences (e.g., five word sentences, six word sentences, etc.). This may help to meet respiratory goals as well. Further, inclusion of minimal pairs would aid those who frequently target voicing contrasts (e.g., "pat" vs. "bat"). These lists can be found in other resources but would be useful and time-saving if provided in the present book.

Rate exercises offer a variety of approaches such as the syllable-by-syllable method, chunking, the alphabet method, and pacing methods, as based on current research. After performing the rate exercises (as well as those targeting volume and prosody), there follows a section in which the client judges the method he or she deems most comfortable and effective. This is an appropriate method since it allows the client to contribute to clinical decision-making, thereby empowering

the client and increasing motivation and promoting carryover to everyday activities. This approach is consistent with the rationale and the author's motivation for writing this book.

The final section of the book includes some activities to promote carryover. For example, these activities include real-world tasks such as asking the librarian for a particular book or magazine, asking for a cup of coffee at a coffee shop, asking about a special item at a restaurant, or visiting friends and discussing a particular topic. The client is then asked to rate him or herself on communicative performance. Group activities are also included for the busy clinician who needs ready-made activities to promote support among group members, as well as increased awareness of communicative difficulties. This skill is especially important since self-awareness is critical for long-term motor learning.

Finally, the appendix includes reading passages, conversational topics, a section on instrumentation and biofeedback methods, and some case profiles. These subsections are functional additions although they only offer enough material to get the clinician started. For example, reading passages are limited to a few quotations and a few paragraphs. Obviously, this material would have to be supplemented if intervention was to proceed for several weeks/months. The subsection on instrumentation is extremely practical as prosthetic devices are often used in conjunction with behavioural therapy. A list of suppliers and contact information is also included.

In conclusion, over the past few decades, speech-language pathologists, as well as all rehabilitation providers, have been encouraged to look beyond

a specific impairment brought about by "disruptions in body function or structure" (World Health Organization, 2000). Instead, the focus has more recently been on functional daily activities, thereby affecting the quality of the life of those affected by communication disorders. By promoting a dynamic, interrelated focus in conjunction with the speech-language pathologist, the client is empowered and becomes motivated to succeed. In this spirit, Kaye has contributed a valuable resource for intervention with clients with dysarthria. Although broad in focus, the *Guide to Dysarthria Management: A Client-Clinician Approach* offers an efficient resource for those clinicians who need an "all-in-one" package. However, caution must be employed with the specific assessment tools since they have not been tested for reliability or validity. Finally, those clinicians who seek further clarification regarding specific methods must research this information elsewhere. In this respect, this book must be supplemented with reliable, valid assessment tools, as well as other resources which target similar goals when the encompassed exercises have already been mastered. Overall, however, the *Guide to Dysarthria Management: A Client-Clinician Approach*, written by M.S. Kaye would make a nice addition to a clinical resource library to help graduate students in Speech-Language Pathology and/or beginning speech-language pathologists in providing meaningful intervention to those individuals with dysarthria.