

## **Best practice guidelines for the management of clients with voice problems**

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Summary: Vocal rehabilitation is sometimes viewed by generalist speech-language pathologists and young clinicians as an area of practice requiring specialist skills and experience. This opinion arises for several reasons including the lack of clear gold standard assessment methods for clients with voice disorders, the lack of accessibility of the vocal mechanism through non-invasive means, the limited evidence base for the effectiveness of many vocal rehabilitation techniques, and the limited amount of education provided in some speech-language pathology courses in the field of voice disorders. In fact, vocal rehabilitation follows the same learning principles for behavioral modification of any communication disorder and a basic knowledge of voice evaluation and treatment can be achieved by the general speech-language pathologist (SLP). This presentation provides a set of best-practice guidelines in order to inspire general clinicians to feel more confident in the voice domain. The guidelines presented cover the role of otolaryngology evaluation and the multidisciplinary team, the role of patients’ perceptions of their disorder and their vocal needs, voice evaluation procedures, rehabilitation techniques, duration and scheduling of voice therapy, and outcome measures. The guidelines also cover the role of patient compliance and clinician-related factors such as empathy. Each of these aspects will be discussed in the context of both a basic clinical setting and an advanced and fully equipped one.

For this paper, we have selected 10 key best practice guidelines for the management of clients with voice problems.

1. A complete voice evaluation. The voice evaluation includes, at a minimum, the history of the problem, highlighting the main voice complaint and its course and variability; health, psychosocial, and vocal loading factors contributing to the problem; the role of vocal behavior as the genesis of the voice disorder or as a maintenance factor; and the description of vocal parameters using auditory-perceptual analysis. Auditory-perceptual analysis of voice can be performed by means of standardized protocols, which is a worldwide trend. However, in centers specialising in particular populations such as singers or specific disorders such as nasality disorders or neurological conditions, there will be a need to develop more tailored protocols. Use of a standardized protocol facilitates information exchange between different centers. However, because the voice is a multidimensional phenomenon, protocols inevitably represent a specific center, country and professional category profile. There is a wide range of perceptual evaluation protocols available, from which we can highlight the GRBAS scale (Hirano, 1981), Vocal Profile Analysis – VPA (Laver, 1981), Stockholm Voice Evaluation Approach SVEA (Hammarberg, 2000), Perceptual Voice Profile (Oates & Russell, 1998) and CAPE-V (ASHA, 2003). The CAPE-V was designed to allow analysis of a minimum set of perceptual parameters agreed upon by international specialists. The possibility of including additional parameters in the analysis is also afforded by the CAPE-V. The CAPE-V offers an

interesting solution that can be internationally employed, however, specialised clinical needs must be considered and broader investigation of the reliability, sensitivity and validity must be undertaken before it is recommended for general adoption. Up till now, the only comprehensive training materials for a specific perceptual evaluation system are provided for the Perceptual Voice Profile via an interactive CD-ROM package, *A Sound Judgement* (Oates & Russell, 1997). To maximize the clinician's consistency in perceptual analysis, participation in regular rating practice sessions with experts and peers is advised.

2. Diagnostic information from a medical doctor with specialist otolaryngology credentials. Voice treatment requires a medical diagnosis and management. The minimum diagnostic information includes the presence or absence of vocal fold lesions, a description of any vocal fold or laryngeal pathology (its localization, distribution, size, color and presence or absence of contralateral reaction), glottic and supraglottic settings, vocal tract configuration and, whenever possible, a phonoscopic evaluation to assess vocal production and functioning. Phonoscopic evaluation requires that a voice evaluation is performed during laryngeal endoscopy using a series of phonatory tasks (sustained /i/ in habitual voice and at high and low pitch, and loud voice, pitch glides on /i/, and sentences and running speech in habitual and projected modes) (Leonard & Kendall, 2001). Ideally, laryngeal endoscopy will be conducted with stroboscopic light as well as continuous light. Unless examination with stroboscopic light is conducted, inaccurate diagnosis is an inherent possibility, particularly for the MAS category of lesions (minor structural alterations – cysts and sulcus). Effective voice intervention is dependent on the accuracy of laryngological evaluation.

3. Taxonomic classification of the dysphonia. A comprehensive evaluation includes both a medical and a speech pathology diagnosis, specifying the etiological aspects that are the basis of the dysphonia as well as the aspects of vocal functioning that are affected by the underlying condition and impact of the dysphonia on the patient's quality of life. This evaluation data allows the clinician to assign a classification to the disorder, ie, “.. the attribution of a voice problem to a particular class of disorders” (Verdolini, Rosen, Branski, 2006, p1). The classification of the voice problem tells us far more than the diagnosis alone does and also facilitates communication between the different professionals involved in the management of the patient. A valuable recent contribution for this purpose is the Classification Manual for Voice Disorders (CMVD-I) (Verdolini, Rosen, Branski, 2006).

4. SLP intervention. A global approach can be used as a general framework for the routine clinic. This framework encompasses three interlinked components: vocal education and counseling (basic vocal hygiene guidelines, use of voice rules, vocal warm up and cool down strategies and tips to increase vocal endurance), psychosocial assessment and counseling (assessment and management of psychosocial factors contributing to, and resulting from, the voice problem) and direct vocal training (vocal exercises). Whenever it is possible, these three components should be included in the patient's treatment: the vocal education and informational counseling and management of psychosocial factors – designated the foundation or basis of the work – and direct vocal training. The importance of the foundation component is widely accepted; however some groups who defend the use of a psychodynamic approach for voice disorders question the value of training the voice through exercise. It is important to understand that such vocal training is not a mechanical repetition of pre-

conceived exercises; instead it involves active searching for a motor gesture that results in optimal vocal production. The basic SLP concerns are to: analyze the patient's vocal behavior, understand their vocal output, help the patient to alter their vocal functioning to modify the vocal output and achieve the best possible voice, consider the multifactorial impact of the intervention techniques and offer efficient rehabilitation services.

5. Therapeutic probes. Therapeutic probes are invaluable for diagnostic purposes and to check adherence to intervention strategies. Therapeutic probes are an important resource, both for the young clinician and for situations where there is diagnostic uncertainty or the case is particularly difficult. For diagnostic purposes, 2 to 4 sessions can be profitably used to analyze the outcomes of selected strategies, exercises or probes. A therapeutic probe is positive when there is a better voice or easier phonation, a reduction of a vocal fold lesion or surrounding edema, or even a worse voice but reduction of the lesion or easier phonation. Everything must be registered to a posterior analysis. For evaluation of the patient's adherence, therapeutic probes can be used to verify the patient's commitment to guidelines and exercises, their empathy with the clinician and the presence of negative psychological interference.

6. Exploratory intervention approach. Like a therapeutic probe, this is a short-term approach used when diagnosis is ambiguous (difficult cases, not enough semiotic data and lack of AVA correlations). Another reason for adopting an exploratory approach is when the underlying vocal tract behavior is not clear. In these cases, different methods for reducing the vocal deviations must be used, even if there is no clear rationale. All strategies must be documented and their results carefully registered. In some rare cases, the dysphonia may resolve even in the absence of a precise diagnosis; however this situation will be an exception.

7. Pre and/or post-surgery rehabilitation. For benign lesions of the vocal folds where surgery is recommended, a multi-disciplinary ENT-SLP team effort is crucial. The ENT and the SLP must have no communication problems! Pre-surgery rehabilitation is usually a short intervention involving 1 to 4 sessions. The main goals are to help the patient understand how and why surgery is required, to provide informational counseling about post-operative recovery, to help the patient adhere to post-operative voice rest and rehabilitation, to reduce hyperfunctional vocal behaviors, and for the clinicians to obtain an in-depth understanding of the client and their vocal pathology. Post-surgery voice rest and rehabilitation is crucial in cases of microsurgery for benign lesions (Murry, 2001; Casper & Behlau, 2002). It is important that the SLP and ENT establish the basis of any dysphonia that remains after surgery (e.g., whether the dysphonia has a functional and/or organic basis) and that appropriate rehabilitation methods are implemented. Following the period of voice rest (commonly 4-7 days), the SLP will have a vital role in ensuring that the client's return to full voicing is gradual and carefully monitored. Ideally, the SLP will guide the patient through use of vocal exercises involving low-impact stress in the early stages after voice rest (Branski, Verdolini, Sandulache, Rosen, & Hebda, 2006).

8. Selection of effective direct voice therapy approaches. Some patients benefit from an eclectic approach to voice therapy which can include several techniques such as whole body work (e.g., Alexander technique); respiratory exercises that promote effective coordination

between breathing and vocalization; laryngeal de-constriction methods such as silent breathing; tongue and lip trills and other exercises involving vocalizing through a semi-occluded vocal tract; resonance-based techniques; laryngeal manipulation (manual circumlaryngeal therapy) and so on. When an eclectic approach is taken, it is critical that the clinician has a clear rationale, preferably based on the underlying vocal behavior that requires change, for each technique selected. Other patients will benefit from more programmatic voice therapy, with a structured program, such as the LSVT<sup>R</sup> for Parkinson's Disease (Ramig, Bonitati, Lemke, Horii, 1994), the Accent Method (Kotby, 1995) for clients with hyperfunctional voice problems, or Vocal Function Exercises for occupational voice users with vocal endurance problems (Stemple, 2000; Roy, Weinrich, Gray, Stemple, Sapienza, 2003). Criteria for the selection of specific methods include: the specific diagnosis and voice evaluation findings, the specific vocal behaviors that require change, the patient's prognosis and their occupational and social vocal demands, the known effectiveness and efficiency of the selected technique, personality traits of the patient and the experience of SLP with the specific technique. Although the evidence base for the efficacy and effectiveness of voice therapy methods is far from complete (Oates, 2004) it is incumbent on the SLP to keep up to date with the research literature, to critically evaluate that literature and to apply the relevant evidence to their selection of therapy techniques for individual patients.

9. Scheduling for vocal rehabilitation. The most effective number and frequency of therapy sessions is still unclear (Carding, 2000; Speyer, in press) and relies on the clinician's experience and expert opinion. Voice therapy can be scheduled as an intensive (daily) program or a twice or once-a-week program. A short, intensive schedule will be appropriate if the patient has an imminent performance or public speaking commitment or if the patient needs to temporarily re-locate to another city to access voice therapy services. However, for long-term behavioral change, regular therapy sessions over a longer time period are likely to offer a more stable result. In addition, there is not enough research evidence as to the most effective and efficient way to train and practice specific vocal exercises (e.g., duration of execution of the exercise, duration of resting periods between series of exercises, number of repetitions, frequency and strength of performance, etc). Many questions regarding vocal exercise physiology require further scientific research. In general, immediate vocal changes are usually relatively easy to produce but stable, long-term modifications are not always straightforward to achieve. As well as the overall scheduling of therapy sessions and the specific timing of each component of vocal exercise training, it is important to plan for the maintenance or conditioning phases of rehabilitation (e.g., on-going use of vocal warm-up and cool-down exercises after discharge from therapy).

10. Monitoring progress, treatment outcomes and discharge from therapy. In the distant past, laryngological evaluation was the primary instrument used for monitoring treatment outcomes. In the last decades, laryngological and auditory-perceptual analyses in combination have been used. More recently, acoustic and aerodynamic analyses (including multi-parameter indexes such as the Dysphonia Severity Index, Wuyts et al., 2000) have also been incorporated, but there is considerable uncertainty as to the reliability, sensitivity and validity of these instrumental measures. Nowadays, the patient's self-perception of the problem is considered paramount. A good perceptual, aerodynamic and acoustic result is not enough; the patient needs to be satisfied with the outcome. The negative impact on his/her quality of life

must be reduced after treatment. The most commonly used quality of life tools are the VHI (Jacobson, Johnson, Grywalski, Sillbergleit, Jacobson, Benninger, Newman, 1997), V-RQOL (Hogikyan & Sethuraman, 1999) and VAPP (Ma, Yiu, 2001). Clinicians should note that a simple translation of these instruments into languages other than English is far below the minimum criteria for their utilization. A translated instrument must be shown to be psychometrically sound when administered in the new language (Behlau & Gasparini, 2007). On discharge from voice therapy, it is important to understand the difference between the curative and quality of life perspectives. The medical perspective in voice treatment is often to achieve 'cure' of the disorder while the SLP's perspective is often focused more on the patient's quality of life, in line with modern conceptualizations in health care (WHO, 1997). Comprehension of this difference is essential to avoid patient frustration and a misinterpretation of outcome. Voice is multidimensional and it has to be clear that a visual laryngeal examination *per se* and/or other measures of impairment are not enough to judge the rehabilitation result. Voice at discharge can vary from normal to adapted. The goal is to obtain the best voice possible to meet the patient's occupational and social needs.

There are several areas of vocal treatment that can be improved, of which we highlight: research evidence for the effectiveness of voice therapy methods; the application of vocal exercise physiology to vocal rehabilitation; understanding of vocal fold healing after surgery; the most effective scheduling for voice therapy; comprehension of the difference between short-term and long-term treatment results; the influence of complaint duration and degree of dysphonia on treatment outcome; and the influence of patient compliance and personality on treatment outcomes

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