

DOCTOR, LAWYER, INDIAN CHIEF: CARE OF THE NONCELEBRITY PROFESSIONAL SPEAKER

By: CELIA ROUTH HOOPER

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Abstract:

For the past 12 years I have had the opportunity of working in two excellent intensive voice therapy programs, one in a large community hearing and speech center and one in a smaller university clinic. I have observed in such nonhospitalbased clinics that the majority of voice clients are an interesting and special group of people—what I term the noncelebrity professional speaker. The purpose of this article is to describe one useful, successful protocol for management of these clients by the speech-language pathologist. The article begins with an introduction to the characteristics of this special population and then describes the referral process and the voice evaluation. Therapy structuring is then considered, including client education, direct voice manipulation, counseling, and frequent voice re-evaluation. The client examples used for illustration are real clients seen by student clinicians with supervision.

A secondary purpose of this article is to dispel the myth among some student clinicians that voice therapy is somehow vague, frightening, or magic. Perhaps this myth exists because voice disorders, like other communication disorders, sit at the intersect of so many biological and behavioral sciences (Siegel & Ingham, 1987). I recommend that we take what we need from all the sciences for a rational, exciting clinical experience in voice therapy.

Article:

TYPICAL CLIENTS

There is no exact, accurate incidence or prevalence data on the clients described in this article (i.e. the individual who uses or abuses his/her voice "professionally," on the job, or in volunteer endeavors). Indeed, the statistics on the incidence of, voice disorders in general are fraught with problems because of varying voice disorder classification systems (Pannbacker, 1984). The individuals described in.. this article could fall under the Brodnitz (1959) categories of "functional" voice: disorders and the Cooper (1973) categories of vocal hyperfunction, vocal nodules, or contact ulcers as well as the Aronson (1985) category psychogenic voice disorders, (which this author prefers).

In any case, these clients are the intelligent, talkative, energetic members of any" community who have self-selected careers or avocations which demand frequent, and sometimes public, speaking. Some examples from my own caseload include:

1. physicians
2. attorneys
3. clergy, professional or lay
4. teachers
5. business: sales, management, consulting
6. amateur actors
7. club or organization leaders
8. local radio, TV personalities
9. speech-language pathology students

It should be evident from the above list that many of the careers are vocally demanding even with an optimum vocal mechanism. The career combined with a potentially (vocally) abusive personality can be a deadly combination. Many of these clients are living a stressful lifestyle with a "type A" personality (Friedman & Rosenman, 1959; Rosenman et al., 1964). Some report job, family or school pressures, poor nutrition, lack of adequate sleep or exercise, occasional recreational or prescription drug abuse and, commonly, a feeling of being "up" or "on" for most of the day (what I refer to in academia as the "teaching high").

These clients usually arrive at the clinic or telephone the clinician quite anxious and state that they are motivated to "fix my voice." Be forewarned that they are goal-oriented, often quite organized and prone to rapid problem-solving. Like professional or amateur singers they may have some information (or misinformation) about the "vocal cords" or "the throat," but may not understand that ". . . at the crossroads of life is the larynx, a barometer of our physical and mental health" (Aronson, 1985).

THE REFERRAL

Referrals of the noncelebrity professional speaker (NPS) to the speech-language pathologist come from the otolaryngologist, the client or his/her employer. Whether by letter or telephone call, each referral source may have different concerns/information but a common goal: voice improvement.

When the otolaryngologist refers a client, typically a report is sent with varying degrees of information. In a nonhospital setting it is rare that the otolaryngologist and the speech-language pathologist see the client together, although this joint effort would be an ideal situation. Therefore, all possible cooperation should be attempted for the continuing education of both the speech-language pathologist and the otolaryngologist. Visit the otolaryngologist and observe as many patients' vocal folds as possible. I invite the otolaryngologist to visit our voice clinic, and encourage collaborative care or clinical research. When the otolaryngologist sends minimal information with a report, I typically follow-up with a telephone call, ask questions ("What else did you see; what else did you do?") and find that physician's reports become more detailed in the future. See Appendix A for two examples of if otolaryngology referrals for the same client. Which one would teach you more about if the client?

The otolaryngologist will document the condition of the vocal folds through sonic method of indirect laryngoscopy: viewing the larynx through a mirror, a right-angle telescope (Klein, 1975), or flexible fiberoptic nasendoscopy (Selkin, 1983; Wilson, Kudryk, & Sych, 1986). More and more of our referral sources are using fiberoptics, a way of viewing the vocal folds during vocalization with the potential of documenting the condition of the folds through photography or video recording. The more we know about the anatomical and physiological deviations that may contribute to the voice problem, the more we can educate the client and document the effectiveness of our own work (See Therapy section of this article).

Other referral sources, such as a self-referral or an employer referral, may offer much information regarding the client's history and the deleterious effects of the voice problem. I refer these clients first to the family physician and/or otolaryngologist. Many clients insured by a health maintenance organization must be sent to the primary care physician first for coordination of care. A medical or surgical procedure may be recommended in place of or in conjunction with our voice therapy program, and a needless evaluation may be avoided by the speech-language pathologist. It is common, in the clients described in this article, that surgery is not recommended even in cases of vocal nodules or ulcers because the primary causal or maintaining factor is vocal abuse.

THE EVALUATION

The purpose of any voice evaluation is to identify and describe a disorder, determine a prognosis, and make a judgment regarding therapy and/or referral. In the case of the NPS, our evaluative job consists of a preinterview questionnaire, a client interview, voice observation and data collection, and finally data analysis. Interpretation of information takes place at each stage of the evaluation process.

Preinterview Questionnaire

Most voice textbooks contain suggested questions or excellent history questionnaires that are more or less general (Aronson, 1985; Boone, 1977; Cooper, 1973; Greene, 1972; More, 1971; Wilson, 1979). Appendix E contains a questionnaire mailed to clients in our voice therapy program that allows the client to reveal sufficient information about the voice and lifestyle. This questionnaire is somewhat general to allow the client to express himself in a nondirected fashion. Together with information from the referral source or otolaryngologist the clinician may begin forming hypotheses to test in the evaluation. See Appendix B for a client (Dr. R. from Appendix A) response to the first question on the Voice Preinterview Questionnaire.

Interview

The interview with the NPS is the most important diagnostic tool. During the back and forth interchange of conversation the following events take place in a successful interview:

1. The clinician gains historical information about the client's voice complaint, including physical health, medications, and self-treatment.
2. The clinician listens to the voice and makes judgments about the voice in conversation.
3. The clinician learns about the client's personal and interpersonal life and lifestyle.
4. The clinician with good psychologic interviewing and counseling skills (see Aronson, 1985) helps the client with emotional release.

5. The client begins to learn the relationship of physical and mental health as it relates to the larynx; a perfect spot for mind-body troubles. This client begins to see why s/he might be at special risk for voice disorders.

Appendix B outlines some suggested topic areas to help structure interview information needed from the NPS. Three areas may need some more questioning or discussion: occupational voice hazards, vocal image of maleness or femaleness, and recreation/relaxation. I have found these to be potential problem areas for the NPS and sometimes neglected in the interview. When the clinician devotes a little extra time for discussion the client can both reveal and acquire voice information.

Occupational Hazards

When the NPS is asked, "How do you use your voice at work or in daily activities?" s/he usually responds with comments about (a) talking "too much," or (b) talking during extensive public speaking. Speech-language pathologists know that neither one of these two conditions necessarily creates a voice disorder. If so, most college instructors would be without a voice! The clinician should explore situations that exist on the job which may put the voice (and the speaker) under undue strain and stress. Some obvious occupational hazards of the NPS include:

1. shouting above noise
2. lecturing in a poor acoustical environment
3. a speaking in a smoke-filled room
4. adopting the voice of different characters
5. continuing to talk with a cold/flu
6. extensive travel or work in dry, overconditioned air

Find out if the NPS has any current or potential control over the hazardous situations.

Vocal Image of Maleness or Femaleness

Cooper (1973) discussed vocal image as that concept one has of himself as it relates to the sound of the voice. He suggested that when the vocal image includes a disordered voice or potentially harmful unnatural voice, the clinician needs to counsel the client about a new vocal image. I have found that an extension of this concept is helpful with the NPS. Many of these speakers want to sound professional and assertive while maintaining good voice quality, pitch, and loudness. There are separate vocal image issues and voice pathology risks for men and women. It is important to discuss these issues in a sensitive manner with the client without sex-role stereotyping or sexism on the part of the clinician.

Male speakers, in an effort to sound authoritative, adopt a self-perceived "good voice." This includes a low-pitched voice, sometimes lower than optimal for a given speaker. Tension and stress can add hard glottal attacks (coup de glotte), abnormal loudness and abnormal speech stress patterns (Peachar, 1947). The harm in this abusive vocal pattern may be contact ulcers, as described in Appendix C. Men with certain occupations, such as television or radio announcers, may have a vocal image of a powerful, authoritative person. They may not know how to achieve this voice without abuse. The clinician may receive a mixed message; the client may complain of discomfort and hoarseness while admiring the abusive voice.

Female speakers who fit the NPS description are often in occupations previously defined by society as masculine. Consciously or unconsciously they may be adopting a self-perceived (male) assertive voice: low pitch, staccato stress, hard glottal attacks, and excessive loudness. Even those in traditional female roles, such as teacher and women's club leader, may also be under stress and exhibiting tension. These women run the risk of developing vocal nodules, as described in Appendix C. Some authors have anecdotally described women with vocal nodules as aggressive and tense with chronic personal problems. In my experience, at least with NPS clients, I would question such a negative description. In fact, this group tends to be quite an intelligent, outgoing group with a vocal image of a person in charge. They may need counseling by the speech-language pathologist regarding ways to achieve an effective, yet abusive-free voice. Be prepared for a lively discussion!

Recreation/Relaxation

This client group desperately needs recreation during the day/week for release of tension and relaxation techniques to avoid excessive tension. The clinician needs to discover if recreation for the NPS truly releases tension or if it is just another source of tension. One man's tennis game is another man's ulcer! Consider recommendations for recreation. A suggestion to "try yoga just while you are in voice therapy" may lead to a positive lifestyle change and life-long wellness.

Failure to relax during the day, both general body relaxation and laryngeal relaxation, may be one of the primary reasons the NPS has a disordered voice. We know that at times of great stress, the usual cortical control of the voice is surrendered to subcortical control and fine laryngeal control is gone. There is a characteristic voice of emotional stress exhibited in situations of great fear, embarrassment, or anger. A more subtle loss of control may be occurring with chronic tension or stress. One of the autonomic nervous system's reactions during stress may be vasoconstriction of laryngeal mucosa, resulting in poor blood supply and drier tissue (Aronson, 1985). The tense person may be at greater risk for tissue change. Explaining this process, even during the initial interview, will help the client understand many of the clinician's questions regarding tension and stress.

Client Examples

Following are some condensed client histories briefly listing client variables to give the reader a sense of the NPS and his/her interesting characteristics.

Barbara S.: Female, business consultant with vocal nodules, tries to sound authoritative, recently divorced, two children, reports personal and job stress, travels 1 weekend per month, no regular exercise, slightly underweight. Age 42. **Rachel R.:** Female college English professor, pinpoint nodules, talks most of 3 days a week, writes 2 days a week, smokes, drinks 6 cups of coffee per day, lectures in poor acoustical environment, reads poetry in smoke-filled coffee house one night a week, sings 2 nights a week at religious services. Age 38.

Michael H.: Male physician in academic medicine, small laryngeal ulcers bilaterally. Lectures to small groups throughout the day. Frequent talking to patients. Loses voice in afternoon. Pushes the voice to continue talking. No caffeine or smoking. Clears throat constantly. Runs four times a week. Sleeps 4-5 hours a night. Recently changed universities. Married with four children. Age 39.

Joan D.: Female, child media specialist for large public library. Has small vocal nodules. Performs three times a day as library "story-time lady." Uses a variety of character voices, some quite abusive. Talks over the noise of preschool children, film projector, record player. Married with one child. Husband has multiple sclerosis and works part-time. At onset of his illness she increased work time from 20 to 40 hours per week. Slightly overweight. Age 36.

Voice Observation and Data Collection

During the interview the clinician is able to make observations of the client's voice in terms of pitch, loudness, and quality. A tape recording of the interview allows the clinician to measure any pre- or postdetermined vocal characteristics for a good description of the conversational voice. If the client is clearing the throat, using hard glottal attack, or having periods of aphonia the number of such events in a given period of time can be counted. The reader is encouraged to refer to the excellent article by Allen (1983) for tips on tape recording.

Step 1: Calibrate the tape recording and attach electroglottograph electrodes.

1. Have client repeat the following after you demonstrate:
[i] regular voice _____
[a] regular voice _____
 2. Have client produce [a] in a breathy voice
[a] breathy _____
 3. Have client slide up and down the pitch scale in a SPEAKING voice (not singing) after you demonstrate.
slide up _____
slide down _____
 4. Have client read the Rainbow Passage.
 5. Have client move up and down the pitch scale in "stairsteps" after you demonstrate.
up _____
down _____
 6. Have client count from 80-90.
 7. Have client repeat:
"I ate an apple and an orange."
 8. Have client prolong [s] and [z] "as long as possible" for a ratio:
[s] _____ seconds
[z] _____ seconds
- [Special Tasks for the Singing Voice]
9. sing [a]
 10. sing [i]
 11. sing a pitch scale up and down
 12. Have client demonstrate vibrato ... sustain for several seconds.
 13. Have trained singers demonstrate recitative ... sustain for several seconds.
 14. Ask client to demonstrate any task s/he finds difficult.

Step 2: Turn off the tape recorder and remove the glottograph electrodes. You are now ready for digital manipulation (i.e. touching the laryngeal neck area to determine the amount of musculoskeletal tension). Tell the client each time *before* you touch the neck.

1. Touch neck at thyroid notch. Have client repeat and sustain an [a]. While s/he is phonating, push GENTLY in on the thyroid notch. If no excessive musculoskeletal

tension, client will exhibit abrupt pitch change. Describe pitch change. Upward? Downward? (Should be downward). Describe the look and feel of external neck.

2. Touch neck at thyroid lamina. Have client repeat and sustain an [a]. Push GENTLY from side to side with thumb and forefinger. Describe pitch change. Note tension or rigidity of laryngeal neck area.
3. Knead the laryngeal neck area gently. Knead any area in which client reports pain. Have client repeat [a] and then talk. Does voice improve? Step 3: Have the client fill out the checklist for sensory and auditory symptoms associated with vocal abuse, as described in Appendix D.

Step 3 in the evaluation protocol is illustrated in Appendix D. This checklist is purposefully saved until the end of the evaluation. By this time the NPS has thought about his/her voice and may have a heightened awareness of sensory or auditory symptoms of vocal abuse. It is important to note that this information is highly subjective; many clients are easily influenced by a list of symptoms. Nevertheless, the client's perceptions of his/her own voice are important and the checklist responses may be compared to other data obtained during the evaluation.

Step 4: Review client data from the interview and steps 1 through 5 with the clinical supervisor. Determine issues to discuss in interpretive conference with the client, including:

1. Description of any existing voice disorder using the model of the larynx and drawings of the vocal folds;
2. prognosis for change;
3. preliminary results of voice observation and data collection;
4. referral to any other professional and why; and,
5. recommendations for therapy including type and frequency of therapy. Data Analysis

Although voice can be described using a number of different parameters, vocal intensity and vocal fundamental frequency are the two most widely used clinical descriptors. The utility of these two parameters, however, is heavily determined by the procedures and instrumentation used to collect the original data. For all clinical voice measures equivalence of speaking task is very important. That is, we would expect to see a different fundamental frequency and intensity from the same person producing a sustained vowel at a very low fundamental frequency versus counting to 10 at a comfortable pace. As a result, care must be taken to give all clients the same instructions and then monitor their performance to ensure comparable productions across sessions and speakers.

Instrumentation varies widely across clinic sites, but most voice clinics have access to some instrument for determining average fundamental frequency across an utterance. Such measurements can be made effectively from "live-voice" productions or high-quality audio recordings. We have recently begun computer sampling and analysis of all of our client's speech samples. This process converts the taped samples to digital records using a microcomputer and an analog-to-digital converter. Although this is probably overkill for the calculation of average fundamental frequency, the increased precision of these recordings allows extraction of vocal jitter and vocal shimmer measurements. Jitter and shimmer are measures of the relative stability of the voice in frequency and intensity, respectively. To date, vocal jitter and shimmer have been widely used in vocal research, but have not been widely used clinically. With the recent

development of inexpensive and accurate measurements techniques (Drumright, Seikel, & Wilcox, 1987) such measures should now become much more common.

Although the instrumentation needs for measuring vocal intensity are quite simple (even the VU meter on a tape recorder will work), collecting usable clinical data is very difficult, and requires careful calibration. We know that the intensity of a signal decreases as the square of the distance from the source. So moving a microphone 2 to 4 inches away from a mouth will decrease the signal to one-quarter of its original strength assuming the vocal energy stays the same. So if vocal intensity comparisons are to be made between productions, the mouth-to-microphone distance must be held constant. Clearly the overall strength of a signal will vary with the settings on the audio amplifier or tape recorder. Thus, some constant intensity noise source is needed for calibration of the audio settings prior to each recording. Only in that way, can measures of intensity be compared across recordings settings or times.

Our procedure for clinical recording then begins by attaching our microphone to a custom-made, constant frequency-intensity noise source. This noise source has a bracket for the microphone which insures that at each calibration session, the microphone is a fixed distance from the source. With the noise source activated, the clinician adjusts the audio recording to 0 dB VU. The microphone is then positioned in a custom-made headband which maintains the microphone at a fixed distance of approximately 15 cm from the client's mouth. With the headband in place, the patient is free to move his/her head about without intruding on the integrity of the recordings.

In addition to the audio recording sequence described above, we routinely collect electroglottographic (EGG) recordings from all of our voice patients. Electroglottography produces a record of vocal-fold contact area using electrodes mounted on the neck of the patient. This simple and painless procedure produces time-varying waveforms which permit the usual fundamental frequency, vocal jitter, and vocal shimmer analyses, as well as observations of the actual vibratory mode of the larynx. Thus, we collect usable frequency, intensity, and vocal-fold area information during every evaluation.

Additionally, calculation of the S:Z ratio (Eckel & Boone, 1981), occurrence of falsetto voice and frequency of any occurring abnormality (hard glottal attacks, glottal fry pitch breaks) can be noted for an indication of disordered voice. All items can be used for baseline measurement on the day of the evaluation and can be repeated at periodic intervals to note change/progress during therapy. Because we do not have good standards for a "normal voice," each subject is, in a sense, his own control.

Referrals and Reports

As in any good client management, after the evaluation and during therapy referrals may be made and reports are sent. The NPS may need a referral to a mental health professional—social worker, psychologist or psychiatrist—if problems with living need more help and expertise than the speech-language pathologist can offer. A cautionary note from Aronson (1985) reminds us not to ignore or deny our psychologic support:

Any in-depth study of voice disorders forces us to conclude that so long as clinicians obtain privileged information from patients; so long as people have voice problems

because of life stress and interpersonal conflict; so long as voice disorders produce anxiety, depression embarrassment, and self-consciousness; so long as patients need a sympathetic person with whom they can discuss their distress, will speech pathologists need to consider their training incomplete until they have learned the basic skills of psychological interviewing and counseling." (p. 271)

All voice clients do not need a referral to a mental health professional, and certainly not necessarily the NPS.

A more common referral may be to an otolaryngologist (ENT) if the original referral source was an internist or family practitioner. Most likely the original referral will be from an ENT and the speech-language pathologist will need to send reports to that individual. A telephone call to the ENT after the evaluation report is received is beneficial for:

1. good client care
2. professional education (both professions!) professional relations
3. an increase in appropriate future referrals.

THERAPY

There are many good voice therapy texts and workbooks with excellent suggestions to reduce and eliminate vocal abuse (Aronson, 1985; Boone, 1977; Cooper, 1973; Greene, 1972; Moore, 1971; Prater & Swift, 1984; Wilson & Rice, 1977). It is not the purpose of this article to review all available techniques. Techniques appropriate for each individual client can be selected from among many choices. Regardless of the approach used, there are three essential components to therapy for the NPS: (a) client education, (b) direct-voice manipulation, and (c) vocal-image counseling. I recommend that each of the three be a part of every therapy session.

Client Education

Client education begins with the evaluation during the initial interview and interpretive conference. The client should leave the evaluation with some basic general knowledge about the larynx. At least s/he should leave with a list of suggestions and a drawing of the vocal folds! But this information is new and strange, just as it is to beginning student clinicians, and will need to be repeated and explained in many ways.

Topics to cover during client education include basic anatomy and physiology of the larynx, characteristics of vocal behavior (pitch, loudness, quality), the physical environment and voice, and the mental environment and voice. During discussion of anatomy and physiology have models and pictures—even rubber bands—for demonstration. Explain the relationship of pitch, loudness, and quality as if you were on a television talk-show; accurate yet interesting! Help the client discover ways to alter or compensate for harmful physical environmental stresses, such as noise and poor acoustics. Similarly, help him/her discover ways to foster a healthy mental environment by decreasing tension and stress. Detailed descriptions and discussions by BOTH the NPS and the clinician should take place to help the NPS feel in control of his/her voice.

Direct-Voice Manipulation

In addition to information about the voice the client needs to learn techniques to eliminate vocal abuse and achieve easy onset of phonation. NPS clients, as a result of vocal abuse, have a primary voice quality disorder. Thus, voice quality is the behavior to be changed in therapy.

Because of the increased mass of the vocal folds pitch may also be lower and loudness may be reduced, but as voice quality improves so do pitch and loudness. It is a mistake in therapy for the clinician to make pitch or loudness a primary focus by using unnecessary exercises.

General suggestions for any voice therapy approach to eliminate vocal abuse and move toward normal phonation include:

1. initial "exercises" to achieve easy onset of phonation without hard glottal attack (coup de glotte);
2. gradual exercises to reduce, then eliminate glottal fry;
3. gradual exercises to reduce, then eliminate any other sensory or auditory symptoms of vocal abuse (See Appendix);
4. initial and continuing out-of-clinic therapy program to achieve faster results and generalization;
5. constant biofeedback, both in the clinic and in out-of-clinic programs, including auditory, visual and tactile biofeedback;
6. continuing exercises to reduce laryngeal musculoskeletal tension;
7. continuing bibliotherapy about the voice, including material from speech-language pathology literature and general speech communication literature.

Vocal Image Counseling

The groundwork for discussions of vocal image, both past vocal image and the "new" vocal image, was laid during the interview. Initial therapy sessions can focus upon the client's perception of his/her disordered voice or his/her past adult voice. Remember, these clients are often quite successful in life and may not have had a communication disorder per se. They may not agree that the past voice was "had." Instead they may have more productive discussions of desired vocal impressions or desired speech in general. Later therapy sessions can focus upon the new vocal image. Discussions can compare the new, less abusive voice, with the client's desired image. Usually, by the time the voice is near normal the client has heard favorable comments from friends or family members. These comments aid in vocal image counseling and can be quite helpful.

These three components of therapy—client education, direct-voice manipulation, and vocal-image counseling—vary in percentage of time spent on each one in any given session. I recommend, if possible, an initial intensive voice therapy schedule for optimal change and faster results. A suggested schedule might be:

Weeks 1-4: therapy 3-4 times per week;

Weeks 5-8: therapy 2-3 times per week;

Weeks 9-12: therapy 1-2 times per week;

Weeks 13+ or whenever new voice has generalized to home and work settings: monthly, quarterly, then semiannual rechecks

Of course, different schedules may be used. But if an initial intensive voice therapy program is used change should occur within a few weeks, as measured by the listener's ear, the clinician's instrumentation, and the ENT's examination.

Voice Re-evaluations

A voice re-evaluation of the NPS should replicate the voice observation and data collection activities performed at the original evaluation. These re-evaluations can be performed every x number of sessions and can serve many purposes. They can chart progress to show the effects of treatment. They can chart the generalization and maintenance phases of therapy. The results, in summary or tabular form, can be included in progress reports sent to referral sources. These results can be shown to the client for reinforcement and motivation. Like a successful dieter hopping on the scale, many of these clients eagerly await the next re-evaluation data! Table 1 illustrates data collected from the client at the initial evaluation, at 6 weeks after the initiation of intensive therapy, and 3 months after direct therapy ended.

TABLE 1. Client voice data at (1) initial evaluation, (2) end of treatment phase after 3 months of therapy, and (3) 6 months after initial evaluation. Client: Forty year old female, high school teacher with vocal nodules. At measurement (1) nodules were present. At measurement (2) they were "pinpoint," or diminishing. At measurement (.3) they were gone.

	<i>Average Af, for [a] *PIG program</i>	<i>f. range for</i>	<i>Task/Data</i>		
			<i># glottal fry in Rainbow Passage, 1st paragraph</i>		
(1) Initial evaluation	154 Hz	150-158Hz	28		
(2) 2-month postevaluation	186 Hz	178-190Hz	0		
(3) 6-month postevaluation	184 Hz	178-190Hz	0		
			<i>1 min conversation:</i>		
	<i>[a] prolongation</i>	<i>Pitch breaks</i>	<i>Glottal fry</i>	<i>Hard glottal attack</i>	<i>S:Z ratio</i>
(1) Initial evaluation	6 sec.	2	21	4	20:6
(2) 2-month postevaluation	12 sec.	0	2	0	18:14
(3) 6-month postevaluation	14 sec.	0	1	0	20:15

*PIG Program (Drumright, Seikel, & Wilcox, 19871).

CONCLUSIONS

In this article I have attempted to present to the readership a special subgroup of voice clients, the noncelebrity professional speaker. The presentation of a suggested management protocol is intended to challenge the reader. Compare this protocol with others designed for the same type of client or different clients. And, most importantly, see that good voice therapy for this group is exciting, organized and measurable.

This article has not directly addressed the concept of prevention of voice disorders with the NPS, but the reader can easily see that there are personal wellness strategies which could possibly prevent voice pathology from occurring. NSSLHA Journal readers are encouraged to consider the Prevention of Communication Disorders Position Statement (Committee on Prevention of

Speech, Language, and Hearing Disorders, 1987) in relation to this type of client. Prevention with this group will likely require nontraditional professional involvement in the form of public education.

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REFERENCES

- ALLEN, G. (1983). Some tips on recording speech/language samples. *NSSLHA Journal*, 11,10-17 .
- ARONSON, A. E. (1985). *Clinical voice disorders* (2nd ed.). New York: Thieme.
- BOONE, D. R. (1977). *The voice and voice therapy* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- BRODNITZ, F. S. (1959). *Vocal rehabilitation-A Manual*. Rochester: Academy of Ophthalmology and Otolaryngology.
- COMMITTEE ON PREVENTION OF SPEECH, LANGUAGE AND AMERICAN SPEECH, LANGUAGE AND HEARING DISORDERS, (1987). *Prevention of communication disorders: A position statement*. *Asha*, 29,51-52.
- COOPER, M. (1973). *Modern techniques of vocal rehabilitation*. Springfield, IL: Charles C. Thomas.
- DRUMRIGIIT, D. G., SEIKEL, J. A., & WILCOX, K. A. (in review). *PIG: Peak-picking by Interactive Graphics*, Submitted to *Journal of Speech and Hearing Research*.
- ECKEL, F. C., & BOONE, D. R. (1981). The s/z ratio as an indicator of laryngeal pathology. *Journal of Speech and Hearing Disorders*, 46,147-149.
- GREENE, M. C. L. (1972). *The voice and its disorders*. Philadelphia: J.B. Lippincott.
- KLEIN, H. C. (1975). Routine telescopic laryngoscopy. *American Family Physician*, 11, 86-89.
- MOONE, G. P. (1971). *Organic voice disorders*. Englewood Cliffs, NJ: Prentice-Hall.
- NATION, J. E., & GRAM, D. M. (1977). *Diagnosis of speech and language disorders*. St. Louis, MO: C.V. Mosby.
- PANNBACK, NI. (1984). Classification systems of voice disorders: review of the literature. *Language, Speech, and Hearing Services in Schools*, 15,169-174.

PEACHER, G. (1947). Contact ulcer of the larynx: Part IV: A clinical study of voice re-education. *Journal of Speech and Hearing Disorders*, /2,179-180.

PEACHER, G., & HOLLINGER, O. (1947). Contact ulcer of the larynx: The role of re-education. *Arch. Otolaryngology*, 46, 617-621.

PRATER, R.. & SWIFT, R. (1984). *Manual of voice therapeutics*. San Diego: College-Hill Press.

SELKIN, S. G. (1983). -How I do it." Flexible fiberoptics for laryngeal photography. *Laryngoscope*, 93,657-658.

SIEGEL, G. M., & INGHAM, R. J. (1987). Theory and science in communicative disorders. *Journal of Speech and Hearing Disorders*, 52, 99-104.

WILSON, D. K. (1979). *Voice problems of children*. Baltimore: Williams & Wilkins.

WILSON, F. B., & RICE, NI. (1977). *A programmed approach to voice therapy*. Austin, TX: Learning Concepts.

WILSON, F. B., KL7DRYK, W. H., & SYCH, J. A. (1986). The development of flexible fiberoptic video nasendoscopy (FFVN). *Asha*, 28, 25-30.

APPENDIX A

Two otolaryngology reports on the same client, a 40-year-old male college professor who participates in community theatre productions and sings in his church choir.

Report A, insufficient information:

"I am referring to you a patient, Dr. R., who reports hoarseness. He had a history of contact ulcers which have resolved—negative findings today. Can you help him?"

Report B, more information:

"I am referring to you a patient by the name of Dr. R. He has seen me on several occasions in the past year for hoarseness. This was associated with erythema and contact ulcers in the interarytenoid area of his larynx. He clearly was having a history of voice abuse approximately a year ago at this time. After therapy of voice rest, the contact ulcers eventually resolved with his voice returning to near normal. The patient, however, still complains of the development of hoarseness with prolonged speaking and difficulty singing. I feel that he needs your evaluation to prevent further voice abuse as well as voice singing lessons. He will be seeing you in the near future to undergo evaluation and recommendations in regard to speech therapy. I also will be setting him up to be evaluated by a voice (singing) teacher. The most recent examination of the vocal cords shows normal movement with no laryngeal pathology. No ulcerations, nodules or other lesions are identified."

APPENDIX B

Client response to the first question on the Voice Preinterview Questionnaire.

Question: Describe the nature of your voice problem. Include information as to the onset of the problem, development of the problem over time, and current nature of the problem.

Reply: In May a year ago I was diagnosed as having ulcers on the cartilage of the vocal cords. The problem had probably developed back in January during an extended (2-3 day) coughing fit while I was traveling and unable to get medical help. Although the ulcers are long gone and the cords look healthy, I have trouble projecting my voice or speaking for long periods of time. I also used to sing great and now I sing lousy-am seeing someone in the music department for voice lessons and would appreciate your sharing your findings with her. I have trouble with my voice now lecturing, singing, and reading bedtime stories to my daughter (I like to use lots of characters' voices when I read)!

APPENDIX C

Common characteristics of, and reactions to, vocal abuse in the noncelebrity professional speaker.

Contact Ulcer(s)

More common in men;

also called granuloma

associated with men who use a forced lower pitch and are under stress associated with hard glottal attacks, laryngeal and general musculoskeletal tension and abnormal bursts of loudness laryngeal mucosa erodes at junction of middle and posterior third of vocal folds, intercartilaginous area, tips of vocal processes of arytenoid cartilages hard underside of one vocal process strikes soft mucosa of opposite side-an irritating overlap granulation tissue forms then ulcerated crater with raised edges forms occurs unilaterally or bilaterally

APPENDIX D

Checklist for sensory and Auditory Symptoms Associated With Vocal Abuse Name

Date

Sensory symptoms.

Eliminated

- 1. Nonproductive throat clearing
- 2. Coughing
- 3. Progressive vocal fatigue following brief or extended vocal usage
- 4. Acute or chronic irritation or pain in or about larynx or pharynx
- 5. Chest pressure and/or pain
- 6. Neck muscle tension
- 7. Swelling of veins and/or arteries in the neck
- 8. Throat stiffness
- 9. Rapid vocal fatigue
- 10. A feeling of a foreign substance or "lump" in throat
- 11. Ear irritation or tickling or earache
- 12. Repeated sore throats
- 13. A tickling, tearing, soreness or burning sensation in the throat
- 14. Scratchy or dry throat
- 15. Tenderness of anterior and/or posterior strap muscles
- 16. Rumble in chest

- ___ 17. Stinging sensation in soft palate
- ___ 18. A feeling that talking is an effort
- 19. A choking feeling

- ___ 20. Tension and/or tightness in the throat
- ___ 21. Chronic toothache without apparent cause
- 22. Back neck tension
- _ 23. Headache
- 24. Mucus formation
- 25. Tenderness around the larynx
- 26. Tracheal pressure
- 27. Pain at base of tongue *Auditory symptoms*
 - 1. Acute or chronic hoarse/rough voice
 - 2. Reduced vocal range
 - ___ 3. Inability to talk at will and at length in variable situations
 - 4. Tone change from a clear voice to a breathy, raspy, squeaky, foggy, or rough voice
 - ___ 5. Repeated loss of voice

- ___ 6. Laryngitis
 - 7. Voice breaks
 - ___ 8. Voice skips
 - ___ 9. Voice conies and goes during the day or over a period of months
 - ___ 10. Clear voice in the morning with tired or rough voice in the afternoon or evening
 - ___ 11. Missed speech sounds

Source: Orosz, P. (1981). The Cleveland Hearing and Speech Center (adapted by the author, 1985).

Vocal Nodules

More common in women; associated with emotional stress, body tension, and/or interpersonal problems sometimes singing associated as contributory cause
laryngeal tissue reacts to friction/ trauma at junction of anterior and middle third of vocal folds
begins with submucous hemorrhage, swelling (edema) or redness
later fibrosis forms and nodule appears semicircular and gray or white (epithelial tissue develops)
usually occurs bilaterally

APPENDIX E

Voice history questionnaire mailed to voice clients to be returned before the evaluation.

UNIVERSITY OF KANSAS
SPEECH AND HEARING CLINIC
2202 Haworth Hall
Lawrence, KS 66045
Voice Preinterview Questionnaire
NAME: _____ DATE: _____

ADDRESS: _____

DAYTIME PHONE #: _____ EVENING PHONE #: _____

AGE: _____ DATE OF BIRTH: _____ MARITAL STATUS: _____

NAME OF SPOUSE OR CLOSEST RELATIVE: _____

ADDRESS: _____

HIGHEST GRADE COMPLETED IN SCHOOL: _____

PRESENT OCCUPATION: _____

EMPLOYER: _____

REFERRED TO CLINIC BY: _____

THIS FORM COMPLETED BY: _____

Describe the nature of your voice problem. Include information as to the onset of the problem, development of the problem over time, and current nature of the problem.

How would you describe the voice you are using now? Is this your usual voice? How does it feel?

Is your voice different from the way it used to be?

Has your voice affected your work? Your social life? Your emotional state?

Describe previous professional help, therapy, treatment, or evaluations of the problem. Include places and dates.

Describe any past major medical treatment.

Describe any current medication or treatment and other information which might be of help to the clinician.

APPENDIX F

Outline of voice interview topics to help structure information needed from the noncelebrity professional speaker.

Interview Topics: VOICE HISTORY

Name: _____ Date: _____

Address: _____ Phone: _____

Sex: _____ Evaluation Date: _____ (Note to Clinician:

During client interview observe client's pitch, loudness, quality, body posture, tension level, and breathing patterns. You may expand, alter or omit questions covered on the voice preinterview questionnaire.)

I. HISTORY OF PROBLEM

A. Who referred you?

For what reason?

B. When/how did the problem begin?

What else was happening at that time in your life?

Medical?

Psychological?

Voice use?

Have the symptoms changed over time?

Consistency?

Severity?

Type of problem?

C. Have you ever been evaluated for this problem?

By whom? When?

With what findings?

With what recommendations?

D. Have you ever been treated for this problem?

By whom? When?

In what way?

With what results?

E. Have you tried anything on your own to help this problem?

What was tried?

For how long?

With what results?

F. How would you describe the *voice* you are *using* now?

Is this representative of your current speaking voice?

How does it sound/feel?

Does it vary? How?

G. How does this voice differ from the voice you had prior to this problem?

V. VOICE USE HISTORY

A. How would you describe your typical talking?

Loud/soft?

Rapid/slow?

B. How do you use your voice at work or in daily activities?

Frequency/duration (amt.) Loudness/eff^ort (type)

C. How do you use your voice at home?

Frequency/duration (amt.) Loudness/effort (type)

D. How do you use your voice in social situations?

Frequency/duration (amt.) Loudness/effort (type)

E. Do you use your voice in singing?

Frequency/duration (amt.) Loudness/effort (type)

F. Do you use your voice in any other (unusual) ways?

G. Does your voice get better/worse in humid weather? in air conditioning?

Source: Carpenter, M. A., The University of Kansas, 1983 (adapted by the author, 1986).

Note: Celia Routh Hooper was Clinic Director and Visiting Assistant Professor with the University of Kansas, Speech and Hearing Clinic, at the time this paper was written.

11. ATTITUDE TOWARD VOICE/VOCAL IMAGE

A. How has your voice affected you?

Your work/vocational plans?

Your social/family interactions?

Your emotional state?

Your physical condition?

B. Do you think you have a good voice for a woman/man?

C. What reactions do you think you get from listeners?

What have they said/done?

D. What adjustments/changes have you had to make because of your voice? What would your reaction be if these were permanent changes?

E. What have you been told caused the problem?

What do you think caused the problem?

F. If voice therapy is recommended, would you be interested?

What problems would you see in undertaking therapy?
What would you want/expect to result from therapy?

III. MEDICAL HISTORY

- A. What is your general health history?
Surgeries/Illnesses/Accidents?
Treatment/Medication?
- B. How would you describe your recent/current health?
What physical complaints have you had recently/currently?
- C. Do you (have you) had any problems with
Swallowing/breathing?
Allergies/sinus?
- D. Do you (have you) had any pain/discomfort in the mouth/throat?
While talking? While swallowing?
- E. Do you cough/clear your throat frequently?
Do you drink/smoke? How much?
Do you work/live near physical irritants?
- F. How good is your hearing?
Has it been evaluated?
- G. What do you do to relax?
What kind of exercise do you get? Do you enjoy it?

IV. PSYCHOLOGICAL HISTORY

- A. How would you describe yourself as a person?
Tense/relaxed?
Hi energy/low energy?
- B. How would you describe your work/home environment? Stressful/relaxed?
Pleasant/unpleasant?
- C. What particular stresses have you/do you experience?
- D. Have you ever received counseling?
From whom? When? For what reason? With what
results