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Analyzing Adherence Risk in Voice Clients: A Speech Language Pathologist's Guide

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Analyzing Adherence Risk in Voice Clients: A Speech Language Pathologist's Guide

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Dedication

I dedicate my master's report to my family as well as all the friends that I have made over the course of my graduate school career here at UT. A special thanks to my wonderful parents, Raul and Lucia Rodriguez, who have always encouraged and believed in me no matter what and my brothers, Christopher and Andrew. Without their unending support I would never have achieved what I have achieved thus far and hope to achieve in the future.

I would also like to dedicate this report to my cohort here at UT. This program would not have been the same without all the friendships and memories that we have created together. Without the fantastic support network we created for ourselves this program would have been much more difficult and I cannot express my thanks for all the encouragement, advice, and lesson plans we have shared over the course of the past two years. I'd most especially like to thank my "report buddy" as I could not have completed this without her. I will remember this experience fondly and I am so grateful to have met such wonderful speech pathologists who I know will continue to be valuable colleagues and friends in the future.

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Abstract

Analyzing Adherence Risk in Voice Clients: A Speech Language Pathologist's Guide

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Across the literature it is seen that when trying to enact change in a patient's everyday life there is always some degree of adherence risk. In the field of voice therapy this risk is particularly high. Traditional comparisons of therapy techniques focus only on change achieved as opposed to the ways in which each therapy protocol was carried out. This type of focus minimizes the amounts of adherence risk present in each therapy technique. This risk can have a fundamental impact on the success of therapy. A comparison of the types of adherence risk that exists and the ways they can be minimized is useful for the treatment of voice disorders. This report serves to address issues of adherence risk in voice by examining relevant research outside the field of speech language pathology. It contains information regarding the most commonly seen adherence risks encountered, research on how those risks were addressed in the fields of medicine and physical therapy, and how those techniques can be adapted for clinical use. A comparative analysis of the types of risks present in the most common therapy protocols and how those risks can be minimized is also included. Tables are included in

order to provide the speech language pathologist (SLP) with a user-friendly guide on the possible ways to determine adherence risks present in their client and possible ways to address this risk. Sample dialogue is also provided.

Adherence risk is a key component in voice therapy that is often not being considered when choosing and implementing therapy protocols. There are many factors that make up adherence risk including personality characteristics, motivation, expectations for therapy, ease of use of the technique/instructions, client understanding of implementation, and the nature of the disorder itself. It is useful to look at how such factors are addressed. We're asking our clients to do many things that will change their daily lives: behaviorally, diet-wise, it may even impact the way they feel about themselves. How do we ask them this and expect that it'll actually get done?

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THE PROBLEM

Treatment providers have focused on the issue of cooperation with treatment recommendations for decades. Ideas about the role of the individual during treatment have ranged from the patient as a passive receiver of information to one in which s/he is treated as a partner in the health care process. In a dyad in which one must agree to believe and follow the instructions of someone they may not know very well, problems with adherence often occur. Therefore, countless time and energy has been invested in determining why patients and health care providers make the decisions they do and in determining ways to maximize patient health care benefits. This issue is particularly prevalent in the field of speech-language pathology in the treatment of voice disorders as remediation of voice disorders relies heavily upon client cooperation. The present report provides literature review of the complex external and internal factors that contribute to treatment progress. Within this review suggestions for identifying and adapting effective methods are also provided in an effort to promote best practice and, hopefully, greater treatment gains.

Chapter 1.1: Definitions

The initial purpose of the present study was to explore patient compliance with clinician recommendations and the effect this noncompliance has on treatment in general and voice disorders in particular. However, upon review of the literature, it became apparent that the term compliance was inadequate to accurately express the complex relationship between the patient and health care provider. In more contemporary literature, adherence as opposed to compliance is preferred. Nevertheless, the terms compliance and adherence are often used interchangeably, incorrectly, or misinterpreted. For this reason, for the benefit of the readers of this report, the definitions of these two terms are provided to minimize confusion.

According to the World Health Organization (2003) the terms adherence and compliance are often used to refer to the "extent to which a person's behavior—taking medication, following a diet, and/or executing lifestyle changes corresponds with agreed recommendations from a health care provider" (p. 3). More specifically, however, they refer to nuanced differences in the relationship between the health care provider and patient. According to the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) (as cited in Gillissen, 2007) the differences lie in the degree to which the patient is included and emphasized as a partner in the therapy process. These differences are integral to further discussion and as such will be defined as follows:

COMPLIANCE

According to Haynes, Taylor, and Sackett (1979) a common definition is the "extent to which a person's behavior (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical or health advice" (p. 1 as cited in Roberson, 1992, p. 8)). Compliance is commonly thought of as the degree to which

individuals follow “doctor’s orders”. This is measured in terms of the degree to which an individual complies with the recommended therapy plan. Often 100% compliance is expected and anything less is deemed as varying degrees of noncompliance. Noncompliance is seen as an inability on the part of the patient to comply with the health care provider’s recommendations. Noncompliance is usually seen as a failure on the part of the patient in terms of either understanding or willingness. The relationship is one in which the health care provider issues recommendations and instructions and the patient carries out these instructions.

ADHERENCE:

According to ISPOR (as cited in Gillissen, 2007), adherence is the degree to which an individual’s behavior matches agreed upon recommendations from the health care provider. Another definition posited by Meichenbaum and Turk (1987) is that adherence is the “active, voluntary, and collaborative involvement of the patient in a mutually acceptable course of behavior to produce a therapeutic result” (as cited by Delamater, 2006, p. 72). This definition extends the definition of compliance as it emphasizes that the patient is free to agree or disagree with provider recommendations. Importance is placed on the necessity of agreement in the relationship between health care provider and patient. Adherence, therefore, requires mutual goal setting and choices in the planning and implementation of treatment (something that is of integral and central importance in the conduction of voice therapy) (Delamater, 2006). Nonadherence on the part of the patient is not interpreted as unwillingness or incompetence but as a disagreement with the recommended therapy objectives. In addition, patients can be partially adherent by adhering to one part of the treatment regimen and not another. In conclusion, adherence in an efficient patient/provider relationship means that both parties

have gone through a shared decision-making process in which the preferences, beliefs, and concerns of the patient have been taken into consideration and help inform the decided upon recommendations (ISPOR, 2003; Horne, 2006; as cited in Gillissen, 2007).

In the course of this report, these terms will be discussed in regards to their influence on intervention practices and in terms of the ways in which we can attempt to achieve treatment objectives. The term adherence will be used throughout the remainder of the report when discussing various views on adherence and when discussing the general goal of increased patient response to therapy.

CLARIFICATIONS

It is also important to clarify how individuals will be referred to in this report. The literature discussed and cited in this report covers several areas of study that use a variety of terms to discuss their shared subject of research. Research found in journals of medicine and psychology frequently use the word "patient" to describe therapy recipients and "doctor" or "health care provider" to discuss therapy providers; physical therapy journals may use "patient" and "therapist"; speech language pathology journals most often use "client" and "clinician/therapist". For the sake of consistency, the individuals receiving therapeutic services will be referred to as the "patient" and the individuals providing therapy will be referred to as the "health care provider" (HCP) or "provider" when referring to a doctor, psychologist, or physical therapist. During discussion of speech therapy techniques and objectives the term speech language pathologist (SLP) will be used instead of "health care provider" and the term "client" will be used instead of "patient".

Chapter 1.2: Adherence in Voice Therapy

The Issue of Adherence in Voice Therapy

In the field of voice therapy, the issue of adherence is ever present, as the willingness of the client plays a large role in whether therapy begins and in whether or not significant gains are made. However, there currently exists little information on the types of adherence risk present, possible ways to address those risks, and how to better address the overall task of interacting with clients in order to effect meaningful change in voice therapy. Although it is important to focus on best direct practices for the treatment of voice pathologies, it is also vital to address effective ways to structure the entire therapy experience in a way that will facilitate better behavioral change. Therefore, by examining the ways in which adherence has been considered and addressed in other areas of health treatment as in the present report, the SLP may be better equipped to address similar behavioral issues that commonly arise during voice therapy.

Development of Organic Pathologies

The voice is a by-product of the body's survival mechanisms. It is not necessary to survive and yet is an integral part of who we are as individuals. The source of the voice resides in the larynx. The larynx is a biological mechanism that regulates swallowing, respiration, and phonation. A complex system of muscles and tissues, the larynx allows for the creation of voice by working with the phonatory and respiratory systems to convert sounds from the vocal tract into speech (Dworkin & Meleca, 1997). Speech is created when expirated air from the lungs comes into contact with the outer layers of the thyroarytenoid muscle, or the lamina propria. This muscle and its corresponding layers make up what will hereafter be referred to as the "vocal folds." The movement of air through the larynx causes the vocal folds to (ideally) rhythmically vibrate against one

another. Most benign pathologies (e.g., nodules, cysts, polyps) develop along the outer layers of the lamina propria. When they grow large enough, their mass disrupts the flow and rhythmicity of vibrations and creates the discordant characteristics in quality, loudness, and pitch that indicate a voice disorder (Dworkin & Meleca, 1997).

Vocal pathologies most commonly develop from vocal abuse and misuse. According to Dworkin and Meleca (1997), vocal abuse/misuse include: excessively loud speaking, screaming/yelling, prolonged voice use, strained phonation, making non-speech sounds (e.g., growling), irritation of the mucous membranes from smoke or air pollution, persistent gastro-esophageal reflux, chronic coughing and throat clearing, rhinitis, postnasal drip from sinusitis, and regular consumption of caffeinated or alcoholic beverages (which both have a dehydrating effect) (p. 59). While transient vocal abuse/misuse can irritate the vocal folds, chronic abuse/misuse can result in complex and lasting damage to the vocal folds. The creation of small contact ulcers that can eventually grow into larger granulomas. Chronic abuse such as persistent coughing, throat clearing, or hard glottal attack can contribute to the development of vocal nodules, hemorrhagic polyps, sulcus vocalis, vocal fold hemorrhage, polypoid corditis, etc. Damage to the vocal fold can lead to costly, painful, and lasting injury (Dworkin & Meleca, 1997).

Surgery to correct these vocal pathologies can be expensive and time consuming. The time needed for the initial surgery and the recovery period can take up time, money, and energy that can be better used elsewhere. Voice therapy is usually the initial method used before surgery is performed. Additional voice therapy post-surgery to rehabilitate the damaged folds can be costly and time-consuming. Therefore, the most sensible and efficient approach would be to make sure the initial voice therapy conducted for minor vocal pathologies is constructed in such a way that greater and more long-lasting change

is possible and more drastic measures are not needed. The way in which we can achieve this efficacy is through maximization of adherence to therapy recommendations.

Unfortunately, there are significant data to support different specific strategies for voice therapy, but there is very little information on ways to maximize adherence to these methods. Vocal abuse and misuse often develop from improper patterns of behavior that can easily become habitual. Habituated patterns are those that are most in need of effective adherence in order to achieve measureable change. An analysis of the ways in which we can address the inherent risks present in voice therapy approaches would improve adherence and, in turn, would improve therapy outcomes.

IMPACT ON QUALITY OF LIFE

Illness has a negative impact on quality of life. Depending on the extent and severity of the disorder, there can be economic, social, and psychological consequences. When the disorders are severe (e.g., cancer, immunodeficiency disease) it is easy to see the impact on quality of life. However, more benign disorders can also cause serious economic, social, and psychological consequences.

Having an impact on future, present, and past job performance, as well as negatively impacting social interaction, voice disorders can drastically impact a person's quality of life. In a survey of adults at a voice disorder clinic, 53% reported adverse job effects in the past, 47% felt their present job performance was limited, and 76% believed that their future career and job decisions were restricted by their voice disorder. In addition 61% reported decreased professional self-esteem and 65% reported depression associated with their current voice disorder (Smith, Gray, Verdolini, & Lemke, 1995, p. 121). An individual who is depressed and experiencing low confidence in their

professional abilities is less likely to perform well in their chosen occupation. Individuals who believe their job and career options are limited are less likely to pursue advancement in their chosen career and may even consider changing careers. In a study on women with vocal nodules, participants with vocal nodules (when compared to individuals without nodules) felt their current job performance was limited (29% vs. 2%) and were significantly more likely to consider changing their professional pursuits (26% vs. 1%) (Smith, Taylor, Mendoza, Lemke & Hoffman, 1998, p. 555).

Voice therapy has been shown to lead to increased perceptual and self-reported measures of quality of life. Client adherence is a key factor in whether or not voice therapy achieves improvements in quality of life. In a study on the impact on quality of life on age-related dysphonia, researchers found that voice therapy leads to a significant positive impact in quality of life. However, participants who were judged to have been adherent to speech therapy recommendations experienced the greatest overall improvement in quality of life. Participants who were adherent experienced greater overall improvement by a measure of more than 24 points on the voice related quality of life (VRQOL) measure and those who were found to be partially adherent experienced overall improvement of more than 15 points. Additionally, individuals who were most adherent were more likely to return for evaluations earlier and attended a greater percentage of therapy sessions than those who were partially adherent, suggesting that these participants were more motivated and proactive about treatment (Berg, Hapner, Klein & Johns, 2008, p. 73).

Chapter 1.3: Thoughts on Adherence

Views on the relationship between health care providers (HCP) and patients have developed on a continuum of degrees of cooperation. Early ideas supported the medical model of the HCP as the expert and the patient as the recipient of expert advice. As the 20th century progressed, there was a steady movement away from the traditional treatment approach to a more collaborative and inclusive process that not only included the patient but also made them a vital part of the treatment process. While many of the studies discussed utilized the word "compliance" to discuss the degree to which patients adhere to therapy recommendations, the word "adherence" shall be used throughout the remainder of this report in the interest of continuity and because it is believed to be a more comprehensive term.

THE TRADITIONAL APPROACH VS. THE COLLABORATIVE APPROACH

Traditional methods of promoting health behavior change have often focused on the idea of the health provider as the ultimate authority on necessary change. From the traditional approach the patient's role is to receive and then implement prescribed changes. In the traditional approach, advice-giving (the most common method) is used to transmit knowledge to the patient. The patient is assumed to want to change their behavior (because why wouldn't they?) and it is assumed that their health and the treatment plan provided by the HCP is a major priority in their lives (Delamater, 2006).

An early idea of patient adherence can be found in research by Hayes-Bautista in 1976. His early research focused on determining possible patient motivations behind patient nonadherence with doctor recommendations. His theory posited that patients modified treatment in order to assert control in the patient-doctor relationship. According to his research, patients altered the treatment when they felt the existing treatment

inappropriate. His assertions that in order to gain control both the doctor and patient must engage in a system of convincing and manipulation tactics (with the patient being wrong and the doctor being right), demonstrated the type of thinking popular in medical treatment during this time period.

Although acknowledging that the patient may feel differently about treatment and want to make changes, the author recommended that treatment providers engage in countering tactics in order to "buy time for his own assessment to run its course" (Hayes-Bautista, 1976, p. 236). The stated goals of such counter manipulation tactics was to "show the patient that the original treatment was indeed valid, and that if she is perceiving a need for a modification when he does not, she is in error" (p. 236). However, this approach makes no concessions towards the idea that the doctor may be in error or that there may be a miscommunication between patient and provider. Since this time, thoughts on the relationship between patient and treatment provider have changed greatly.

Current research (which shall be discussed in greater detail in following sections) emphasizes a more collaborative model that stresses the importance of recognizing and incorporating the autonomy of the patient. This model focuses on developing the client/clinician relationship, the importance of patient education, and the need to develop an understanding of the patient as a whole as opposed to exclusively attending to the area being treated. From this perspective, adherence is a self-management technique. The patient is viewed as an equal and important member of the therapy team. Goals and support are discussed collaboratively and patients are recognized as being fully responsible and in control of the decisions they make regarding therapy recommendations. Progress is therefore achieved when collaboration is successful and behavior change is internalized and executed. For some patients the degree of adherence

demonstrated can be closely correlated with the degree to which they agree with treatment recommendations (Delamater, 2006).

THE HEALTH CARE PROVIDER (HCP)

As providers of treatment to high numbers of patients, HCPs can often develop a negative view of adherence. In the areas of general medicine where the stakes are considerably higher and therapy time is critically limited even small amounts of nonadherence can be seen as grave errors in judgment. Most HCPs have spent a considerable amount of their time and energy becoming as knowledgeable as possible in their chosen fields. Therefore, it is easy to fall into the mindset that patients (who are not as knowledgeable) must be as adherent as possible or no gains will be achieved. Health care providers "see every day the negative effects of poor treatment adherence, and consequently tend to be all or nothing in [our] view of what is needed" (Alvarez, 2002, p. 98). This mindset, while passionate, can negatively impact the therapy process as nonverbal cues can have a crucial impact on the way people respond to situations.

For example, Carney, Cuddy, and Yap (2010) found that simply posing in high-power or low-power nonverbal postures for two minutes had an effect at the physiological, psychological, and behavioral level. Individuals who posed in high-power positions experienced an increase in testosterone, decrease in cortisol (the stress hormone), and felt increased tolerance for risk and increased feelings of power. Individuals who posed in low-power positions experienced the opposite; they felt more stressed, less powerful and less tolerant of risk (Carney, Cuddy, & Yap, 2010, p. 1366). In addition, early research has found that a greater degree of postural mirroring and congruent postures correlated positively with degree of involvement and increased rapport (Charney, 1966; LaFrance & Broadbent, 1976). Similarly, postural incongruence

demonstrated a significant negative relationship with measures of rapport (LaFrance & Broadbent, 1976). Therefore, if a patient comes in and their HCP is displaying unwelcoming nonverbal cues such as seeming hurried, distracted, or is in a posture that seems closed off or imposing, the patient may feel ill at ease and model back the same traits, undermining the development of rapport.

Provider thoughts on adherence can impact the nonverbal manner in which they communicate with their clients and in turn can impact their patients' willingness to adhere to their suggestions for change. The majority of current research stresses the importance of developing the patient/provider relationship. Research that will be discussed in following sections stresses the importance of developing a good working relationship and assesses ways in which to conduct interactions for maximum adherence and efficacy. Examples of the change in mindset can be seen in the change of research questions from "why do they not follow instructions?" to "what do patients consider good adherence to treatment?" (Stimson, 1974, p. 97; Roberson, 1992, p. 7)

THE PATIENT

The patient's point of view is integral in a discussion of therapy adherence. What a HCP may term poor to moderate adherence, a patient may feel is perfectly adequate. The question becomes then, how much is enough adherence and what most motivates a patient to work to achieve "enough"? Various risk factors (discussed in more detail in later sections) are highly relevant to how a patient views the therapeutic process, but the factor most easily influenced by the HCP is the nature of the interactions the HCP has with his/her patients. The importance of the interaction between patient and HCP was observed in an analysis of studies on patient adherence to "doctor's instructions" (Stimson, 1974). Their discussion of the image of the "ideal patient" that is often present

in studies on medication adherence sheds light on the types of reactions that a weak patient/provider relationship can create.

For example, Davis (1968) describes the existence of a tense, one-directional relationship in which non-adherence was not addressed that in turn lead to decreased levels of therapy adherence (as cited in Stimson, 1974, p. 100). Similarly, Francis, Korsch and Morris (1969) found that key factors in nonadherence included "the extent to which patients' expectations from the medical visit were left unmet, lack of warmth in the doctor-patient relationship, and failure to receive an explanation of diagnosis and cause of…illness" (as cited in Stimson, 1974, p. 100).

These findings are mirrored in studies examining the patients' perspectives on medical recommendations and treatment adherence. The main goal of HCPs is usually to recommend the best possible course of treatment to see maximum gains. While these goals are shared by the patient they are filtered through the lens of whether or not the patient believes that their HCP "knows what they're doing." This belief can be negatively affected if the patient does not believe their HCP knows them well enough to treat them; in other words, if they believe their HCP was not paying attention, they may wonder how they can really determine what is wrong with them and the best course of action for treatment. Examples of this patient skepticism toward the HCP can be seen in patient interviews where HCP's began to prescribe treatment midway through listening to the patient's complaints. One patient recounted, "one of these days—one of these days [you'll] write out the prescription before I even tell you what's wrong!" (Stimson, 1974, p. 102). Another described how they went to their HCP because they were feeling depressed and he "only saw him for a few minutes and he wrote a prescription, I didn't want any pills, I wanted to talk to him. I've got the pills but I have never taken them" (Stimson, 1974, p. 102). This last example displays what some may consider a lack of

adherence to the treatment, however, if the patient does not feel that their problem has been properly addressed there is little incentive to adhere.

THE WHOLE BODY APPROACH

The whole body approach is based on the idea that it is important to treat an individual's entire self as opposed to only their illness. Therapy conducted from this point of view places an emphasis on building a strong patient/provider relationship and understanding all the aspects in a patient's life that can impact the way in which they may respond to therapy. As the proportion of time a HCP sees a patient is so short in comparison to the amount of time they must adhere to therapy, it is important to attempt to identify all the barriers the patient may encounter and develop ways in which to overcome these barriers.

Chapter 2.1: Theoretical Constructs

Research into adherence now frequently focuses on ways to incorporate the patient into the health care process and ways in which to better the patient/provider relationship. Subsequently, several useful models have been posited that attempt to explain the psychosocial and behavioral dynamics that influence decision making in the therapy process.

THE HEALTH BELIEF MODEL

The health belief model is a model based in behavioral and psychological theory. The theories that form the foundation of this model relate to the "value-expectancy" approach which looks at decision making under uncertain circumstances. The "value-expectancy" approach believes that behavior can be predicted by how much a patient values an outcome and by the degree to which they expect specific actions to lead to that outcome (Feather, 1959 as cited by Becker, Mainman, Kirscht, Haefner, & Drachman, 1977). Adapted to address health behavior the model includes*:

Readiness to undertake recommendations:

a. Motivation: how concerned is the patient about the disorder and how willing are they to seek out professional help? How willing are they to participate in positive health activities?
b. Perceived threat posed by disorder: how vulnerable does the patient believe they are to the disorder? How serious do they believe the disorder is? Do they believe it can reoccur? How severe do they perceive their present problem?
c. Perceived likelihood that adhering to recommendations will reduce threat: how much confidence does the patient have in their health care provider?

How much confidence do they have in the proposed treatment? How much control do they feel they have over the problem?

Modifying and enabling factors:

a. Demographic/social: age, sex, race, marital status, income, education, etc.
b. Structural: perceptions of the recommended treatment in terms of safety, complexity, cost, duration, difficulty.
c. Enabling: prior experience with taking health care action or with particular treatment recommendation.
d. Sociopsychological variables: personality, social class, peer and reference group pressure, etc.
e. Cues to action: advice from others, mass media campaigns, reminders from health care provider, illness of family or friends, articles in a newspaper or magazine.

Adherent behaviors and likelihood of action:

a. Perceived benefits of preventive action: how much will adhering to recommendations benefit the patient? How efficacious or valuable will adherence be in reducing the disorder?
b. Perceived barriers of preventative action: what are the psychological, financial, physical, or social costs? (also related to "structural factors")

Likelihood of taking recommended preventative health actions:

a. Considering all of the above, how likely is it the patient will adhere to the therapy recommendations?

*The preceding list was modified from Figures 1 and 2 of a study conducted by Becker et al. (1977, p. 349-350). It was adapted from a hypothesized model for predicting and explaining the behaviors of mothers adhering to diet recommendations for their

children. While the model's use of the term compliance is appropriate, as it does not include the patient in the discussion of recommendations, considerations of readiness and motivations can easily be extended to include the patient and therefore can be considered to be useful to address adherent behaviors.

Becker et al. (1997) found that more adherence (and subsequently greater weight loss) was found in mothers who had a "heightened perception of the potential seriousness that illnesses pose to their children" (p. 355). Participants who believed that they had some measure of control and those who believed that it was their own responsibility to take action also displayed greater therapy gains. Gains seen in weight loss studies can be seen as relevant to voice therapy as in both areas: (1) the threat posed is not immediately apparent (e.g., in the case of vocal nodules that can be seen as something that a patient can "live with") and (2) actions may be undertaken for reasons other than to improve health (e.g., patients whose primary concern is perceptual quality as opposed to vocal health) (Becker et al, 1977, p. 351).

THE BIOPSYCHOSOCIAL MODEL

Based on a systems approach, the biopsychosocial model (developed by Weiss and von Bertalanffy and popularized by Engel) is based on the importance of including the patient and their various attributes into treatment. Instead of viewing the therapeutic process along the biomedical approach of interview, diagnose, treat, the biopsychosocial model views the patient as a hierarchy of interrelated systems that impact and influence one another. Therefore, the patient's biological problem (e.g., heart condition, diabetes, vocal nodules) and the way they deal with it can be impacted by various other non-medical factors such as familial issues, personal preference, their community and/or culture. Specific knowledge gained by taking into account reactions to pathology (such as

reports of how the patient dealt with past experiences) can provide integral information into how they will respond to new treatment (which can have a large impact on adherence).

Engel provided the example of a patient who comes into a hospital after their second heart attack. If one followed a traditional biomedical approach, they would determine that this patient had experienced a heart attack and proceed treatment from there. However, following a biopsychosocial approach, an HCP would also recognize the importance of the fact that the patient delayed going to the hospital because they did not want to admit that they were having another heart attack and only left after being convinced that his work was completed (Engel, 1981).

Approached from a voice therapy perspective, it would be important to know that a client had vocal nodes from cheerleading but also to know the following: 1) how much the client valued their ability to cheer (do they feel it defines who they are or can they take it or leave it?), 2) whether or not they felt that their spot would be held for them while they recovered (do they fear being replaced if they cannot participate?), and 3) how their friends would react to the clients need to augment their activities (will they face the stigma of being a "quitter"? Will their friends be supportive of the client's vocal health or will they try to convince the client that it is "no big deal"?).

THE WORLD HEALTH ORGANIZATION

In the World Health Organization's (WHO) 2003 publication on adherence to long-term therapies, there was an attempt to differentiate compliance from adherence and detail the effects that adherence can have on health care practice. Their primary belief was that there should be an active partnership between patients and HCPs that consists of good communication. This partnership was described as being essential to effective

therapeutic practice (World Health Organization, p. 4). Factors thought to influence adherence were: "social and economic factors, the health care team/system, the characteristics of the disease, disease therapies and patient-related factors" (World Health Organization, 2003, p. XIV). The WHO believes an emphasis needs to be placed on patient-tailored interventions that are most effective for the individual patient and on including the patients' family, organizations, and community. Patients need to be supported as opposed to blamed and equal importance must be placed on provider and health care system related factors as patient-related factors. It is vital to view adherence as a dynamic as opposed to static process, and recognize that it may change as therapy progresses. Lastly, it is important to train HCPs in assessing risks for nonadherence so as to better optimize the delivery of interventions (World Health Organization, 2003, p. XIV).

These goals can be seen as similar or complementary to previously discussed models in their focus on the various aspects that can impact treatment of disorders. Where they differ is in the considerable stress placed on the importance of the HCP as the one responsible for identifying possible adherence risks and then working with the patient to address and resolve them. This approach complements the preceding models by adding the importance of training the HCP provider so that they will be more effective at addressing the patients' needs.

THE COLLABORATIVE APPROACH

Disorders that are chronic in nature (e.g., diabetes) or that require a large amount of self-management (e.g., voice disorders) can often be further compromised by poor adherence. Approaches that are highly provider-directed or adherence-oriented may be

uniquely limited as it is harder to control the outcomes of therapy recommendations that must be implemented outside the therapy room. Patients maintain a large degree of independence in carrying out therapy recommendations, as the only time they receive feedback on their adherence is when they report their progress to their HCP. It is therefore in the HCP's best interest to make sure that they provide the patient with therapy recommendations that are manageable and support the patient's autonomy.

Adopting a collaborative approach in which the patient's disorder is seen as something that should be "co-managed" can create this support. Emphasis on setting goals *with* instead of *for* patients and providing ongoing support leads to more effective self-managed behaviors over time (Wagner, 1995; Glasgow et al., 1999; as cited by Delamater, 2006). This approach can be seen to include aspects of the three preceding approaches as it incorporates: (1) gauging a patient's readiness to undertake therapy recommendations; (2) the different systems (personal, environmental, etc.) that play a role in the way in which patients respond to therapy; and (3) viewing the therapeutic process as being highly patient-centered in order to empower the patient and allow them to retain their autonomy. This health care delivery approach aims to allow HCPs to set goals with their patient and then maintain a supporting role. This approach is utilized in hopes that the patient is able to develop self-management skills and implement beneficial health care practices that are sustained over time (Delamater, 2006).

Chapter 2.2: Types of Interventions

BEHAVIORAL

According to Delamater (2006), behavioral interventions require an underlying understanding of when, how, and why patients are unable to engage in optimal self-management behaviors (p. 75). Behavioral interventions focus on augmenting or eliminating harmful behavior and implementing either substitute behaviors or new (healthier) behaviors. Harmful behaviors are identified by the HCP and patient and steps are devised to either eliminate the behavior entirely or replace it with a less harmful behavior. Patients are assessed to determine whether or not improvement has been made and treatment is either continued or modified.

INFORMATIONAL

Informational interventions are primarily education based. Individuals are provided with information pertaining to the effects of harmful behavior and are provided with possible ways to augment these behaviors. Informational interventions are less client-specific and are usually administered to groups that are thought to be at risk. Individuals provided with informational interventions may be considered at-risk but may not currently have the disorder about which they are being informed. Follow-up on use of the intervention is not typically conducted and the individuals who undergo it are expected to possess a high degree of motivation and self-efficacy in order for the intervention to be successful.

COMBINATION

Combination interventions are interventions in which information is provided to the patient and behavioral interventions practices are utilized. Individuals who are provided with combination therapy usually possess the disorder in question. Patients are

provided with educational information regarding further possible risks of the disorder as well as behavioral treatment recommendations. Patients are assumed to be motivated to make behavioral change and are educated as to ways to achieve those changes and behavioral techniques that would be useful. Combination approaches are usually more patient-specific in terms of the education and behavioral recommendations provided.

Chapter 2.3: Applied Methodologies

Several useful approaches have been developed over the years to address patient adherence through adaptive evaluative processes. These models focus on meeting the patient where they are currently at and helping them scaffold to higher levels of adherence and behavioral change. Putting the focus on where the patient actually is instead of where the HCP feels they should be allows for greater support of the patients actual needs as opposed to their assumed needs. In addition, this patient specific focus can theoretically aid in the creation of a stronger patient provider relationship.

TRANSTHEORETICAL MODEL (STAGES OF CHANGE)

The Transtheoretical Model (TTM) of behavioral change was developed by Prochaska and colleagues in 1977 and is drawn from several different psychotherapeutic approaches. It has been referred to as the stages of change model because of its focus on "stages" which the patient passes through on their way from being uninterested in enacting behavioral change to making and maintaining behavioral change. It was initially used to treat individuals who smoked in smoking cessation studies and has been expanded to treat other addictive behaviors such as alcohol dependency, weight control, delinquent behavior in adolescents, and preventive practices (Prochaska et al., 1994).

Depending on the source being used, there appears to be between five to seven defined stages in the Transtheoretical Model. In their 1982 study Prochaska and DiClemente described five stages (excluding the preparation stage), which was subsequently expanded to six stages (including the preparation stage). Other sources add a seventh stage, termination, for individuals who have finished with a behavior and will never again resume it (Prochaska, DiClemente, & Norcross, 1992). For the purposes of

being consistent the TTM will be discussed in terms of six stages (excluding termination). The six main stages are: precontemplation, contemplation, preparation, action, maintenance, and relapse (Prochaska & DiClemente, 1983). Patients can move forward through the stages and can also regress backward (requiring help by the HCP in recouping and moving forward again).

Stage of Change:	**Description***	**Characteristics****	**Techniques****
Precontemplation	• Individuals are not currently considering or contemplating behavioral change. • Usually not knowledgeable about risks associated with problem behavior. • May have had unsuccessful attempts and become discouraged. • People in this stage make up a large proportion of individuals engaging in problem behaviors.	• Not currently considering change: • "Ignorance is bliss"	• Validate lack of readiness. • Clarify: decision is theirs. • Encourage re-evaluation of current behavior. • Encourage self-exploration, not action. • Explain and personalize the risk.

Table 2.3: A Stages of Change: Description, Characteristics, and Techniques

Table 2.3: A Stages of Change: Description, Characteristics, and Techniques (Continued)

Contemplation	• Individual becomes aware of desire to change and is considering change in the next six months. • Weighing pros and cons of change. • Ambivalence between pros and cons keeps people stuck in this stage. • Individuals in this stage as well make up a large proportion of people engaging in problem behaviors.	• Ambivalent about change: • "Sitting on the fence" • Not considering change within the next month.	• Validate lack of readiness. • Clarify: decision is theirs. • Encourage evaluation of pros and cons of behavior change. • Identify and promote new, positive outcome expectations.
Preparation	• Pros have begun to outweigh the cons of making behavioral change. • Individuals may have made unsuccessful attempts to change in the past. • May have a plan of action but are not totally committed to the plan. • Traditional action oriented programs are appropriate for individuals in this stage.	• Some experience with change and are trying to change: • "Testing the waters" • Planning to act within 1 month.	• Identify and assist in problem solving regarding obstacles. • Help patient identify social support. • Verify that patient has underlying skills for behavior change. • Encourage small initial steps.

Table 2.3: A Stages of Change: Description, Characteristics, and Techniques (Continued)

Action	• Marks the beginning of actual change in behavior within the last six months. • This is the point where relapse and regression is most likely. • If patient is not adequately prepared for change and committed relapse is more likely.	• Practicing new behavior for 3-6 months	• Focus on restructuring cues and social support. • Bolster self-efficacy for dealing with obstacles. • Combat feelings of loss and reiterate long-term benefits.
Maintenance	• Individuals are in this stage if they have maintained healthier behaviors for at least six months. • The risk for relapse is still present but not as likely as when in the action stage. • Individuals require less effort to engage in productive change processes.	• Continued commitment to sustaining new behavior. • Post-6 month to 5 years	• Plan for follow-up support. • Reinforce internal rewards. • Discuss coping with relapse.
Relapse	• Individuals may relapse to earlier stages. • Depending on the stage where they experienced relapse they may be back at the beginning. • May have become discouraged. • Patients in this stage require the most support from health care providers.	• Resumption of old behaviors: • "Fall from grace"	• Evaluate trigger for relapse. • Reassess motivation and barriers. • Plan stronger coping strategies.

*(Habits Lab at University of Maryland Baltimore County, n.d.)
** (Step-up Program at University of Arizona, 2010, p. 1)

Ten processes of change are applied by patients as they move through the six stages, these include: "consciousness raising, self-liberation, social liberation, self-reevaluation, environmental reevaluation, counterconditioning, stimulus control reinforcement management, dramatic relief, and helping relationships" (Prochaska & DiClemente, 1983, p. 391). Some processes seem to be more useful for patients in early and others in later stages. In their 1982 study, Prochaska and Di Clemente found that individuals who were motivated to quit on their own reported using "affective and cognitive processes more during early stages of change and emphasized behavioral processes during later stages (Prochaska & DiClemente, 1982 as cited in Prochaska & DiClemente, 1983, p. 390). Individuals who were in the early stages (precontemplation and contemplation) of thinking about making change were more likely to look for information (consciousness raising) and reevaluate their feelings about a behavior (self-reevaluation). Individuals in the action stage were more likely to tell themselves they could make the necessary changes (self-liberation), depend on others (helping relationships), and reinforce their good decisions (reinforcement management). Individuals who were in the maintenance stage and some in the action stage were more likely to practice substituting behaviors (counterconditioning) and were more likely to remove unwanted stimuli that could trigger harmful behaviors (stimulus control) (Prochaska & DiClemente, 1983).

Studies regarding the efficacy of the TTM have included the examination of smoking cessation, alcoholism, weight loss programs, and psychiatric conditions. Studies in the field of physical therapy have focused on factors such as adherence to physical exercise regimens and management for chronic pain. Results have indicated that self-

efficacy is lowest during precontemplation and that self-efficacy gradually increases during contemplation and preparation, rapidly increases during the action stage and peaks in the maintenance stage. The opposite trajectory is observed with temptations towards nonadherence. Temptations are highest during precontemplation and decrease gradually, until a rapid decrease at the action stage before they remain the lowest at the maintenance stage (Nigg et al., 2011). Exercise behavior has been significantly correlated with TTM stages. For example, Kim (2007) found that focusing on behavioral and cognitive processes of change distinguished participants across the stages of change. Specifically, measures of self-efficacy as well as a larger focus on the pros of exercise as opposed to the cons differentiated individuals who were in the contemplation stage from persons in the maintenance stage (Kim, 2007).

This approach fits well with the implementation of voice therapy. Its technique of "staging" clients to determine where they are in the process of change can be highly utilized to "stage" clients to determine their readiness for voice therapy. Van Leer, Hapner, and Connor (2008) applied the TTM to voice therapy. In their paper they posited that the TTM had potential to be particularly useful for training the SLP (as opposed to the client). By explaining the way that clients come to make the decisions they do, the TTM: (1) provides an organizational framework for understanding behavior change processes; (2) explains how adherence problem may arise during treatment (in order to prepare the SLP so they do not see relapse as unwillingness to change); and (3) provides strategies to improve treatment adherence (Van Leer et al., 2008, p. 688). Helping the client work their way through the processes of change and develop greater self-efficacy is of utmost importance. Of equal importance for the SLP is to address problems that may occur such as a mismatch in the strategy used to the stage the client is in, dealing with unresolved ambivalence, and clients with poor self-efficacy (Van Leer et al., 2008).

Examples of how the stages of change model has been adapted for use in voice therapy can be found in Appendix B along with materials relevant to use in therapy procedures.

MOTIVATIONAL INTERVIEWING

Motivational interviewing (MI) was originally used as an alternative way to work with individuals with alcoholism. Rollnick and Miller defined it as a "directive client-centered counseling style for eliciting behaviour change by helping clients explore and resolve ambivalence" (1995, p. 326). Similar to the TTM, it also focuses on a patient's readiness for change as opposed to any particular trait the client may possess (Miller, 1983). There has been some discussion of how motivational interviewing can be used in addition to stages of change because of their joint focus on aiding the patient to move towards behavioral change. In MI, readiness for change is seen as a "fluctuating product of interpersonal interaction" and a patient's motivation can be elicited by the HCP (Rollnick & Miller, 1995, p. 327). It is the patient's responsibility to be able to articulate and resolve their own ambivalence and it is the HCP's task is to recognize and directly help the client examine and resolve their uncertainty (Britt, Blampied, & Hudson, 2003). The HCP does so by drawing attention to the differences between a patient's current behavior and stated goals, creating a cognitive dissonance that the patient will (ideally) present arguments to resolve (Festinger, 1957). Empathy is key for this approach as motivation can fluctuate across situations and without empathy resistance may be encountered. Resistance should be explored in a facilitative style as, according to MI, interactions are a partnership as opposed to a one-way communication of advice.

Motivational interviewing is comprised of a series of techniques aimed at non-confrontationally helping the client work through their decision to adopt behavioral change (Miller, 1996). MI techniques are applied within the context of the elements for

effective brief interventions (FRAMES) (The University of Arizona: methamphetamine and other illicit drug education (MethOIDE), n.d.). The core techniques that underlie all other techniques are: "asking open ended questions, using affirmations, forming reflective statements, and providing summaries" (Substance Abuse and Mental Health Services Administration, n.d.).

Elements for effective brief interventions (FRAMES)*
Feedback: Give feedback on the risks and negative consequences of behavior. Seek the client's reaction and listen.
Responsibility: Emphasize that the individual is responsible for making his or her own decision about his/her drug use.
Advice: Give straightforward advice on modifying drug use.
Menu of options: Give menus of options to choose from, fostering the client's involvement in decision-making.
Empathy: Be empathic, respectful, and non-judgmental.
Self-efficacy: Express optimism that the individual can modify his or her substance use if they choose. Self-efficacy is one's ability to produce a desired result or effect.

Table 2.3: B Elements for effective MI interventions

*(University Arizona: methamphetamine and other illicit drug education (MethOIDE), n.d.)

Motivational Interviewing Strategies and Techniques: (SAMHSA)**
Expressing empathy through reflective listening.
Noting discrepancies between current and desired behavior.
Avoiding argumentation and rolling with resistance.
Encourage the patient's belief that he or she has the ability to change.
Communicating respect for and acceptance of people and their feelings.
Establishing a nonjudgmental, collaborative relationship.
Being a supportive and knowledgeable consultant.
Complimenting rather than denigrating.
Listening rather than telling.
Gently persuading, with the understanding that change is up to the person.
Providing support throughout the process of recovery.

Table 2.3: C Motivational Interviewing Strategies and Techniques

**(Substance Abuse and Mental Health Services Administration, n.d.)

Research into the efficacy of MI in the medical field has found it to be effective. Studies have been conducted with individuals with: alcohol dependency, tobacco dependency, bulimia, diabetes, and psychiatric conditions. A large majority of research into alcohol abuse found that in interventions where the patient was interviewed about their drinking and related behaviors and then were given feedback utilizing a motivational interviewing style there were significant reductions in alcohol use. In fact, motivational interventions have been proven to be at least as effective as longer more involved treatments (e.g., cognitive behavioral training or multi-step facilitation methods) (Miller, Benefield, & Tonigan, 1993; Miller, Sovereign, & Krege, 1988; Project Match Research Group, 1993 as cited by Britt et al., 2003). Motivational therapy was found to be more effective for patients who exhibited a higher degree of anger as well as with individuals who were least motived (Project Match Research Group, 1997; Heather, Rollnick, Bell, & Richmond, 1996 as cited by Britt et al., 2003).

Data from the field of physical therapy have demonstrated that MI is effective at improving measures of anxiety, pain self-efficacy and pain intensity when combined with a physical exercise regimen for individuals with chronic pain. MI has also been found to contribute to significant improvements in the patients' mobility and psychological well-being (improving measures of happiness) (Tse, Vong, & Tang, 2012). Other studies have demonstrated that while MI increases rates of physical activity, it is less useful when attempting to achieve long-term adherence to physical exercise regimens (over one year post-intervention) (Harland et al., 1999). However, as the use of MI is being posited for use in voice therapy wherein the client is not expected to maintain the degree of intervention intensity for the remainder of their life, this approach is still considered beneficial.

The MI approach can be easily adapted to the implementation of voice therapy. Given its basis in the treatment of alcohol abuse and the myriad of studies supporting the effectiveness of this approach in other areas of dependencies, MI is ideal for the implementation of a vocal hygiene or voice conservation regimen. Vocal hygiene will be discussed in greater detail in following sections. However, the main premise behind vocal hygiene is that there are behaviors that the client is engaging in that are maladaptive or harmful to their overall vocal hygiene. If these behaviors have become a part of the client's usual routine or are closely tied with their identity, the SLP may be more likely to encounter a heavy degree of resistance. MI's strategies of "rolling with the resistance" and of non-confrontationally emphasizing discrepancies between the client's goals and behaviors would be ideal for working with clients who are resistant to change. Empathetic behaviors as well as the development of a strong client-clinician relationship are of utmost importance and the consideration of these aspects are paramount when utilizing the approach.

The MI approach can also be adapted for use in monitoring adherence to therapy recommendations. When utilizing more direct approaches (discussed in following sections) such as resonant voice therapy, vocal function exercises, and voice amplification MI can be adapted to monitor how often a client has utilized the exercises. By having the client keep a log, the clinician can monitor adherence and, if adherence is low, can utilize open-ended and directive questioning to determine what barriers are contributing to the low adherence (e.g., did not have time, forgot, etc.). The use of MI can allow for the client to "talk through" the barriers and, in response, the SLP can help the client "brainstorm" ways to overcome/remove those barriers. By stressing the client's own responsibility for achieving outcomes, MI also allows the SLP to empower their clients. The SLP is there to help guide the client to think of the best possible solutions

him or herself. Examples of how to adapt motivational interviewing for use in voice therapy can be found in Appendix (insert) along with relevant materials for the use of the approach in therapy procedures.

ADHERENCE RISK FACTORS

Adherence risks are present for both patients and HCPs. In the case of the patient they may be dealing with a myriad of other issues that they may not feel comfortable sharing with the HCP such as personal or professional stressors that may negatively impact their ability to successfully adhere to a healthcare regimen. On the other hand, the HCP may also be dealing with professional issues such as time constraints (an overloaded caseload), unawareness of their potentially problematic "bedside manner", and lack of knowledge of how to provide proper patient education, gauge understanding of complex recommendations, and structure those recommendations so that they can be easily carried out by patients autonomously.

Chapter 3.1: The Patient

Adherence risk factors for patients can develop for a variety of reasons. It is important to consider all health, social, psychological, and environmental factors that may negatively impact a patient's ability to adhere to therapy recommendations. If a patient is dealing with a multitude of serious issues at one time, it is easy to understand how they might "prioritize" their issues and focus on addressing the ones with the seemingly highest urgency. If the patient is a busy student, a young working individual, a worried parent, a money conscious retiree, or even a person with no distracting influences at all, personal health can (and does) often fall by the wayside. Often with disorders that are not considered to life threatening or "scary" (e.g., a nodule that forms from yelling), there is a missing sense of urgency that therapy recommendations should be followed. It is the job of the HCP, therefore, to identify possible treatment barriers patients may face and (if possible) devise ways for patients to reduce or eliminate them. The experience of living with a disorder can be influenced by a myriad factors, including how severe a disorder is, how a patient feels about their disorder and their ability to remediate it, and their current support system.

HEALTH FACTORS

Disorder Severity: Risks

According to the health beliefs model (Feather, 1959) a patient's thoughts and beliefs about a disorder, the likelihood they may get it, and how severely it will affect their life and overall health can have an impact on how adherent they will be to treatment recommendations. While actual severity of an illness can effect a patient's adherence, perceived adherence can also have an effect. DiMatteo, Haskard, and Williams (2007) found that adherence was significantly positively correlated with patients who believed

that their illness was either treatable or preventable with patients being 2.5 times more likely to adhere. The greatest adherence risks were found with patients who were most severely ill with serious disorders (DiMatteo et al., 2007, p. 521). Interestingly, patients were 1.5 times more likely to not adhere if they did not believe that their disorder was a threat because of its severity. Patient self-rating of severity can also negatively impact adherence, with individuals who have more severe disorders being significantly less adherent if they rated their disorder more severely than patients who believed they were healthier (DiMatteo et al., 2007). These results seem to demonstrate that patients need to believe their disorder is serious enough that it needs to be addressed but not so serious that they have lost all hope that there is anything that can do to ameliorate the disorder. In sum, patients who believe they can affect change and who believe that their disorder is indeed changeable appear to display the highest adherence rates and therefore have the highest likelihood of benefitting from therapy. In contrast, patients who are diagnosed with much more severe disorders, are in worse health and perceive themselves to be in worse heath are significantly less likely to be adherent.

Disorder Severity: Strategies

What seems to be important then when addressing the adherence risks that occur in relation to disorder severity is that patients are made aware of the health risks that are either currently present or that could occur if their disorder is not adequately addressed. An effective patient/provider relationship is necessary for building this awareness. A weak relationship may make the patient believe their HCP is just trying to "scare" them, and may create unwanted resistance. However, resistance may occur regardless of how strong the relationship is, which is where the MI strategy of "rolling with the resistance" can be used to avoid argumentation. A skilled HCP can bring the subject back to

increasing awareness of risks when the patient appears more open to the discussion, either later in the session or in future meetings.

Early studies in the medical field in the 1960s and 70s investigated the merit of the use of fright tactics to increase adherence to clinical recommendations. Leventhal and Watts (1966) found that people subjected to high-fear movies on lung cancer were much less likely to make use of free x-ray booths located outside the theatre than persons who viewed a moderate and low threat movie on lung cancer. If the persons feels that their disorder is extremely severe, they will be much less likely to utilize proactive health measure than individuals whose risks are brought to their attention but who are left with the notion that their disorder is still treatable. The most relevant and adaptable strategy used in fear-based smoking cessation studies is the creation of "specific action instructions" designed for patients use outside the therapy room. Action instructions are plans of attack developed by both the patient and the interventionist in which problem scenarios are identified and possible substitutive acts are established to avoid harmful behavior. In a study by Leventhal, Jones, and Trembly (1966) the development of "action instructions" appeared to help link a patient's willingness to change a behavior to the emotional response elicited by fear-evoking information.

In the treatment of voice disorders SLPs often find themselves treating patients who have a vocal pathology that may not be quite severe but which may become more severe if not treated properly and in a timely manner. Thus, it is important for the SLP to stress that these disorders may not be severe now but could become severe later. Emphasizing the preventative and proactive nature of treatment while underscoring that there is an important issue that must be addressed now could aid in increasing client adherence towards treatment recommendations. Additionally, the development of "action plans" to deal with problem situations would be extremely helpful as most behavioral

changes suggested in therapy are expected to be maintained long-term. These plans serve as a basis for the use of MI strategies that emphasize self-efficacy and responsibility for their own change. Patients who have been given plans to deal with situations have gone through the process of actively thinking out how to deal with temptations that, if unprepared, they may be more likely to give in to (negatively impacting their view of their self-efficacy).

SOCIAL FACTORS

Psychological Correlates: Risks

A patients' psychological well-being can also greatly influence the degree to which they adhere to therapy recommendations. Depression may occur in patients diagnosed with a disorder. If the disorder affects something so central to someone's sense of self (such as their voice) it can have a negative impact on how they view themselves and how they react to therapy. A meta-analysis by DiMatteo, Lepper and Croghan (2000) found that patients who were experiencing depression were three times more likely to not adhere to treatment. Depressed mood can impair focus and motivation as well as impact the energy with which a person participates in therapy. Sometimes this depression is easily noticeable (displayed by flat affect or an overall negative disposition in the therapy room). Oftentimes, however, patients may use more subtle statements (e.g., "I've been doing my exercises when I can but I've had a lot of things going on lately, this might not work for me") that the HCP may not pick up on if not being vigilant.

Psychological Correlates: Strategies

Assessing for a patient's psychological state is of great importance during the assessment portion of therapy as well as throughout the therapeutic process. It is important to pay attention to statements that may give insight into underlying emotional

states that may increase the likelihood of nonadherence. Depression can lead to a decrease in beliefs of self-efficacy, a skill that is vital to achieving gains in treatment. Motivational interviewing techniques such as reflective listening are a useful technique if an HCP suspects a patient may be depressed. If an HCP notices that their patient has expressed several anti-efficacy statements that display negative emotions towards themselves such as "I can try but I probably won't be able to do this because I can't really do many things" or "I'm worthless when it comes to remember to do anything", several MI techniques can be utilized. Reflective listening can provide a way for the HCP to empathize with the patients' feelings, for example, "I get the feeling that you're putting a lot of pressure on yourself to change and that you're not sure if you can do it because of past setbacks". If the patient responds in the affirmative, the HCP can attempt to gently guide the patient to discuss the successes they have made thus far as opposed to all the setbacks, focusing on the positive while complimenting them on their current progress. Additionally, statements such as this are a good indicator as to what stage of the TTM the patient may be in. If they have begun to regress from the "action stage," they may require extra support to regain their momentum. While this is most certainly not adequate for any patient suffering from severe depression, it may be adequate to allow for HCPs to recognize a present risk and try to address it before it grows and causes the patient to lose significant progress.

Social/Familial Relationship: Risks

In addition to personality profile, the client's familial background and support system plays a crucial role in adherence towards treatment goals. If there is low family or partner buy-in, the client may lack the support necessary to implement each and every therapy recommendation. As cited in DiMatteo (2004) "assistance and support from

friends and family have been implicated in promoting patient adherence by encouraging optimism and self-esteem, buffering the stresses of being ill, reducing patient depression, improving sick-role behavior, and giving practical assistance" (p. 207). Social support can be vital when others do not consider the health behavior change needed as critical. For example, if an important part of a patient's therapy regimen is to reduce gastro-esophageal reflux (GERD) and they live in a house where the consumption of fast food is frequent, this can create an environment unsupportive to therapy. Worse yet, if their partner/family member actively encourages the voice client to engage in the problem behavior (e.g., attempting to get them to eat hot wings because they are eating hot wings) this could contribute to the problem as opposed to reducing it. Research into the effect that different types of social support has on therapy outcomes demonstrates there is a strong positive correlation between increased adherence and patients who received practical and emotional social support (DiMatteo, 2004). Higher rates of adherence were also present in individuals who came from families that were more cohesive and less in conflict. (DiMatteo, 2004).

Social/Familial Relationship: Strategies

Although it would be impossible (and not in the scope of practice) to address all the social and familial issues that may negatively impact a patient during therapy, SLPs can act as a another facet of social support. Directive motivational interviewing techniques can allow the HCP to gauge what aspects of a client's social background may pose the greatest risks to treatment adherence. Patient education directed towards helping the patient educate others about their needs may also be indicated. The MI strategy of engaging in decisional balance discussions wherein the HCP guides the patient through discussing the good and "less-good" aspects of their behavior and how their social

supports can play a negative or positive role may be used to help the patient self-identify "bad influences" without the HCP having to point them out. Taking the earlier example of working on reducing GERD, the HCP can ask questions such as "What are some of the good things about your eating fast food? [Patient answers] Okay, on the flipside, what are some of the less good things about eating fast food? Who do you usually eat fast food with?"(Sobell & Sobell, 2008). The HCP can then gauge where the patient is "at" by using readiness to change strategy, asking "How would you feel about asking [friend/family member] to eat somewhere else or at a place that has multiple food options?" (Sobell & Sobell, 2008). Their answers may indicate that they feel comfortable to make this request. Conversely, they may indicate that more patient education on how to talk to others about the therapy process is necessary. One useful strategy would be to bring the patient's social supports into the therapy process. Allowing the patient's support system to see what is being worked on may stress the importance of the process and in effect make them co-providers of therapy by allowing them to see the role they can play in helping their loved one getting healthier.

ENVIRONMENTAL FACTORS

Demographics: Adherence

Considerable research has been conducted into determining whether there are demographic factors that can give insight into why certain patients are more likely to adhere to therapy recommendations than others. Although researchers have explored populations that are more at-risk for certain disorders, few, if any, studies have found links in gender, race, education, or any other factor that would demonstrate more adherence issues in one group as opposed to others. Davis (1968) considered several possible explanations for "defaulting" behavior in patients including, but not limited to:

personal characteristics, the regimen prescribed, how influential non-medical persons were, and the types of interactions had by the HCP and patient (Stimson, 1974, p. 100). Davis (1968) discovered that less complex treatment regimens had a positive impact on treatment adherence and that poorer interactions between the patient and provider led to increases in nonadherence (as cited in Stimson, 1974). Patient adherence to therapy recommendations decreased when the HCP approached the interaction authoritatively and did not make attempts to address non-adherence. Adherence decreased when tension was created during interactions and was not addressed. Finally, adherence was low in interactions where HCPs sought information from the patient without giving them any feedback in return (Davis, 1968 as cited in Stimson, 1974, p. 100). However, no links were found between the patients' personal characteristics and their nonadherence to therapy recommendations.

Research as to the demographic factors that affect voice therapy attendance has been mixed. Smith, Kempster, and Sims (2009) examined whether patient-related factors could be identified for patients who have positive voice change and patients who do not. They found that individuals with lower Voice Health Index (VHI) scores at onset of therapy coupled with fewer medical/laryngeal diagnoses and a less severe voice disorder had more successful outcomes. They also found that persons who completed voice therapy tended to be younger, employed, and female. Conversely, patients with more health and occupation issues, higher VHI scores, and more severe and complex diagnoses were at greater risk for nonattendance. One notable and highly troubling statistic was that 44% of the patients for whom voice therapy was recommended never began therapy at all. (Smith et al., 2009).

Others studies have found that client demographics cannot be used to generalize a clients' response to therapy. For example, Hapner, Portone-Maira, and Johns III (2009) found that while overall dropout rates in voice therapy were high (around 65%) there was no significant correlation in the rate of dropout with race, age, gender, diagnosis, or perceptual or self-rated differences (on the VHI or CAPE-V) (p. 337). As each client is an individual, an individualized approach has been shown to be the most effective when conducting treatment. Although demographic influences have not been substantiated, personal factors, environmental and social factors, and the client/clinician relationship all play a role in the amount of adherence to treatment regimen seen.

Patient Risks and Health Care Provider Strategies	
Risk:	Strategy:
More Severe Diagnosis	Patient education and creation of "action plans" relevant to health behavior change and diagnosis. Patient counseling to stress that condition is treatable in some ways. Creation of strong patient/provider relationship so that the HCP may act as another source of support in the therapy process.
Less-Severe Diagnosis	Patient education that stress disorder may be less severe but is still important to address. Development of "action plans" to deal with situations relevant to health behavior change and diagnosis. Creation of strong patient/provider relationship so that the HCP may act as another source of support and trusted source information in the therapy process.
Depression	Counseling and support. Resources on additional supports available along with period "check-ins" of the patient's mental status to determine whether or not referral is necessary. Creation of strong patient/provider relationship so that the HCP may act as another source of support in the therapy process.
Misunderstanding of recommendations	Frequent checks on patient education and understanding. Adaptable responses. Creation of a strong patient/provider relationship in which the patient feels comfortable enough to express confusion without fear of reprisal.

Table 3.1: Patient Risks and Strategies

Table 3.1: Patient Risks and Strategies (Continued)

Improper patient education	Checks on patient education and understanding. Creation of a strong patient/provider relationship in which the patient feels comfortable enough to express confusion without fear of reprisal.
Lack of family/friend buy-in	Patient education aimed at helping the patient education their family/friends. Possibly bringing the family into the therapy process so that they may feel a part of the process and may be more willing to act as a co-provider of therapy.
Fear/Anger over diagnosis	Counseling and support techniques (motivational interviewing) and proper staging to determine whether they require more support or whether they may need to be referred out or more extensive counseling.
Social Isolation	Resources on social support. Motivational interviewing and staging to determine where the patient is at in the therapy process.
Health Beliefs and attitudes	Motivational interviewing to identify resistance and current beliefs. Creation of a strong relationship to engender trust so that change can be implemented.

Chapter 3.2: The Health Care Provider

Adherence issues can also develop from risk factors encountered by the HCP. While the patient is dealing with internal and external issues relevant to their diagnosis and the way it impacts their life, the HCP is potentially dealing with managing the disorders of a multitude of individuals that can range in age, severity, and many other factors. Experience, while essential for effective evaluation and treatment can sometimes work against the HCP. If not vigilant, the HCP can fall into the trap of making assumptions about patients based on the observable features of their case. These assumptions may be logical and unbiased, but they may also lead the HCP to overlook less visible indicators of possible adherence risk. Assumptions about a patient's disorder, his/her understanding of treatment, and his/her ability to fully participate in treatment can lead to over- or underestimations in recommendations that can eventually lead to poor treatment results. It is therefore in the best interest of the HCP to be aware of possible adherence risks on their part as well as their patient.

MEDICAL SYSTEM FACTORS

Time Constraints and Professional Presence: Risks

Time constraints, whether they be personal, professional, or both can negatively impact the therapy process. HCPs who are pressed for time are less vigilant of subtle cues that could suggest underlying depression or confusion from improper communication of treatment recommendations. These factors have been shown to negatively impact adherence, which will in turn affect treatment gains. Social support provided by the HCP has been shown to improve adherence to treatment recommendations related to weight

loss, diet, and medication in patients with chronic illness (Sherbourne, Hays, Ordway, DiMatteo, & Kravitz, 1992; as cited in Delamater, 2006). It has also been shown that patients who are more satisfied with their relationship with their HCP demonstrate better adherence to treatment (Von Korff, Gruman, Schaefer, Curry, & Wagner, 1997; as cited in Delamater, 2006). The previously discussed research into nonverbal characteristics also demonstrates how perceived "unfriendly" traits such as appearing rushed or behaving in a dominating authoritative manner can cause discord in the patient – HCP relationship.

Time constraints can negatively impact health care treatment in several ways. As professionals it is important that HCPs attempt to stay informed as to the best practices available for their chosen professions. Participating in continuing education and taking notes when one-time popular treatments are proven less effective or new techniques are proven more effective is vital. The way HCPs present themselves and the information that this provides (intentional or not) can impact the confidence a patient has in their HCP and subsequently the confidence they feel in their abilities. A study by Bray and Cowan (2004) in the field of physical therapy showed that proxy-efficacy, or the confidence one has in the abilities of a third part to function effectively on his/her behalf, can directly impact a patient's own beliefs on their efficacy. In specific, Bray and Cowan (2004) found that in an exercise program, early beliefs about proxy efficacy and attendance predicted self-efficacy later in the program (p. 71). In addition, greater belief in proxy-efficacy at the end of the program predicted greater exercise intentions after the conclusion of the program. Therefore, it is important that HCPs not only are knowledgeable about the recommendations they provide to their patients, but are confident when providing them and believe in the results they will bring.

Time Constraints and Professional Presence: Strategies

These risks can be addressed in several ways. First, HCPs should attempt to make sure that they have set aside adequate time for each patient's session and that there are no pressing time concerns either before or after the therapy session. HCPs pressed for time and thinking about what they need to do next may appear visibly distracted and rushed, which may prompt the patient to leave out important information they might ordinarily have provided had they felt they had adequate time to express their concerns. Second, while it is impossible to stay current with all the research that is being produced for every aspect of their job, it is important that HCPs thoroughly research any recommendations they are making to a patient. If they are recommending that someone take a certain course of action, they should be knowledgeable enough to answer any relevant questions on the topic or be willing to find that information if necessary. Conveying that they believe in the procedures they recommend and that these recommendations are sound is important to imbue patient confidence in the HCP and in the procedures themselves by extension.

TREATMENT-RELATED FACTORS.

Patient/Provider Relationship: Risks

As has been consistently discussed in this report, a strong patient/provider relationship is critical in order to maximize the possible benefits of therapy. A weak or uncertain relationship between a patient and their HCP can lead to countless issues. A patient that feels that their HCP is a source of criticism or judgment as opposed to a source of useful and beneficial information is much less likely to take their "advice" (e.g., therapy recommendations). If these recommendations are in conflict with the advice of a trusted loved one (e.g., "It can't hurt to skip your exercises/medication a few times"), they may be more inclined to accept the counterproductive advice of their social network

as opposed to the treatment recommendations of their HCP. The same can be said if the patient does not believe that the HCP "knows what they're doing". As discussed in the article on proxy-efficacy, if a patient feels their HCP is knowledgeable and competent, they are more likely to feel that they too can be knowledgeable and competent. The fact of the matter is, if a patient does not like or trust their HCP, the odds of adherence is low. If they do not believe that their HCP has their best interests at heart or has sufficient knowledge to be effective, they are significantly less likely to adhere to any recommendations coming from this source.

Patient/Provider Relationship: Strategies

In their meta-analysis of physician communication as it relates to patient adherence, Haskard-Zolnierek and DiMatteo (2009) identified several essential elements of the patient/provider relationship. These elements include: "verbal and nonverbal communication, effective questioning and transmission of information (task-oriented behavior), expressions of empathy and concern (psychosocial behavior), and partnership and participatory decision-making (Bensing & Dronkers, 1992; Roter, Frankel, & Hall, 2006; Roter, Stewart, & Putnam, 1997). These elements clearly correlate with the approaches put forth by the biopsychosocial model and collaborative model and put into practice by the TTM and MI approach. Importance should be placed on grounding therapy in approaches that stress the partnership of the interaction and focus on creating a strong therapeutic alliance. Extensive but respectful interviewing and rapport building is essential in the first 1-2 sessions of therapy. While the impulse to "get started right away" on therapy objectives may be strong, it is important to temper this impulse with the knowledge that building a trusting relationship with the patient has the greatest chance of leading to better overall gains in the long run.

Proper Patient Education: Risks

Good communication is paramount when conducting therapy. An HCP who is unclear or overly complicated in their explanation of treatment recommendations can end up confusing the patient about the proper way to carryout a regimen. A weak patient/provider relationship can make the patient feel less inclined to ask for clarification and, if no clarification is given, proper adherence is less likely. A study by Haskard-Zolnierek and DiMatteo (2009) found that patients were at 19% higher risk of nonadherence when their HCP had communicated poorly in comparison to patients whose HCP communicated well (p. 826). Furthermore, when HCPs received communication training the odds of their patients adhering to recommendations was 1.62 times higher than HCPs who did not receive communication training.

When educating the patient about proper steps to take it is first important to ask, "What exactly is the patient most interested in accomplishing and what changes can lead to accomplishing those goals?" While setting goals to "improve vocal quality" and "reduce gastroesophageal reflux" are all well and good, these goals must be operationalized in a way that allows for progress to be tangible to the patient. In many cases change is occurring but may be slow or subtle. If the patient has not been educated properly on how to recognize that their efforts are being productive, they may become discouraged and reduce their efforts.

Proper Patient Education: Strategies

Effective communication between the patient and their HCP has been found to increase "patients' satisfaction, health status, recall of information, and adherence" (as cited in Haskard-Zolnierek & DiMatteo, 2009, p. 827; Hall, Roter, & Katz, 1988;

Stewart, 1995; Ong, De Haes, & Hoos, 1995). Proper education on how to recognize the outcome of their efforts to change can help patients from relapsing into previous behaviors. Proper staging with the TTM can aid the provider in recognizing if their patient education was insufficient. If patients make statements to the effect that they are not sure if what they are doing is actually working, the use of reflective listening and supportive strategies can help the HCP identify where in their explanation there may have been confusion or where the patient feels improvements are not being made. After reevaluating the patient's beliefs or needs the HCP can either correct their misconceptions or adjust therapy procedures as deemed appropriate.

Training for the HCP can also be beneficial in the case of proper patient education. Studies have shown that proper education can aid in the "transmission and retrieval of important clinical and psychosocial information, facilitate patient involvement in decision making, allow for an open discussion of benefits, risks, and barriers to adherence" and can "build rapport and trust while offering verbal and nonverbal support and encouragement" (as cited in Haskard-Zolnierek & DiMatteo, 2009, p. 832; Falvo & Tippy, 1988; Waitzkin, 1985; Charles, Gafni & Whelan, 1997; Greenfield, Kaplan, & Ware, 1985; Guadagnoli & Ward, 1988; Chewning & Sleath, 1996; O'Connor, Legare, & Stacey, 2003; Stewart, Brown, & Boon, 1999; Fiscella, Meldrum, & Franks, 2004; Beck, Daughtridge, & Sloane, 2002).

Complexity of Recommendations: Risks

How easy a technique is to use and how understandable the instructions are can greatly impact the degree to which a patient will adhere. If an approach is perceived as too complicated or confusing, it is very likely that the client will not adhere or (worse)

not adhere but tell the HCP they are adhering. Recommendations that are too complex or that contain a multitude of steps can seem daunting and may create resistance in patients who do not fully understand them. Research has shown that lower adherence to a treatment regimen more often occurs when a regimen is more complex and requires changes to a patient's lifestyle (Haynes, Taylor, & Sackett, 1979 as cited in Delamater, 2006, p. 72). Reduced adherence is also common when symptoms are not apparent (Haynes, et al., 1979). When regimens are too complex, patients may attempt to simplify them in ways that reduce the overall benefits of their efforts. Additionally, if there is a weak or frictional patient/provider relationship, the patient may not tell the HCP they are making changes, which may lead the provider to assume current efforts are not effective and may lead them to make changes that are unnecessary at best or harmful at worst (in the case of medications).

Complexity of Recommendations: Strategies

The easiest way to make sure that treatment recommendations are not overly complex is to simply ask the patient. If the HCP has developed a good relationship with the patient, the patient will feel comfortable telling the HCP that certain things are confusing or take too long. If the treatment recommendations were created in concert with the patient, they will hopefully have been created at a level where the patient feels they will be successful at adhering and the HCP feels that it is adequately targeting treatment goals. Patients adhere better when the treatment regimen "makes sense to them" (Delamater, 2006, p. 72). However, many patients may be uncomfortable expressing confusion or concern if they feel they will be judged as "dumb" or "difficult" because of their lack of understanding. Therefore, empathetic motivational interviewing skills should be utilized to stress that there are no stupid questions, that the process of

health behavior change is in itself complex, and that HCPs are willing to take the time to make sure everything is completely understood because that is what is in the best interest of the patient. Open-ended questions are useful for eliciting any initial doubts. Questions targeting areas of possible concern can be used as follow ups to probe for any concerns the patient may be reluctant to express and to probe for patient understanding (to ensure proper patient education). In addition, it is also important to validate patient's concerns and not regard them as inconsequential. While some concerns may be unwarranted or inaccurate they represent the knowledge that a patient finds important. If their concerns are inaccurate it is up to the HCP to provide accurate information. Doing so lets the patient know that they may voice their beliefs without fear of judgment. This trust will allow the patient to be more truthful about how adherent they are being to a regimen which will help the HCP to augment treatment as needed. However, if the patient feels that questions or concerns will be dismissed, they may be discouraged from asking future questions and may make incorrect assumptions about the course of action they should take. Also, it is important for HCPs to keep in mind if one patient is confused, other patients may be confused and their patient education may need to be re-evaluated. An example of a possible scenario follows:

HCP: "We've reviewed your treatment recommendations and the steps we'd like you to take. Do you have any questions?"

Patient: "No I don't really have any questions…..."

HCP: "Ok. Well how about we run through what a typical day would look like to address [goal 1]. This exercise is something that needs to be done…[waits for patient input]

Patient: "Twice a day [patient looks down]"

HCP: "Yes, twice a day, three days a week. And we talked about how [insert days] would be the easiest days for you to do them?"

Patient: "Yes those would be the best days, is it ok if I change the days if something comes up?"

HCP: "Absolutely, as long as you're trying to keep to the amount of practice we established per week, and you're really focusing on the form over just "getting them done" [smiles] You also want to try to space them out a bit so you're not getting a ton of practice at some points and none at other points"

Patient: "Ok, I was wondering if it was ok to adjust the schedule or if it was really strict".

HCP: "That's a great question"

Table 3.2: Health-Care Provider Risks and Strategies

Health Care Provider Risks and Strategies	
Risk:	Strategy:
Lack of established rapport	Make establishing a good rapport and relationship a priority. If necessary, the first session or couple of sessions may be used to define the patient's needs and expectations and to establish the HCP as reliable and friendly source of help and information.
Taking an authoritative manner	Attempt to avoid taking an authoritative manner with patients. Approaching therapy from a collaborative model of therapy, utilize appropriate motivational interviewing techniques to establish the responsibility of the patient in the therapy process. Doing this establishes the patient as an important and responsible party and may aid in developing self-efficacy and increased adherence.
Overestimate readiness to change/confidence in ability to achieve change/sense of importance about change	Use of TTM staging techniques can aid the HCP in determining where in the therapy process a patient currently is. Patients who are not ready to change yet may be incorrectly labeled as "uncooperative" or "noncompliant" when they are in fact not yet ready to enact change. Supportive statements that validate the patient's feelings about change but leave space for them to come to a different decision empower both the patient and the HCP and allies them as opposed to putting the at odds.

Table 3.2: Health-Care Provider Risks and Strategies (Continued)

Arguing or blaming patients for illness (through verbal or nonverbal means)	While it is important to stress the responsibility that the patient has in treatment, the HCP should take care in making statements that hint that the patient is uniquely culpable and has behaved in a way that is erroneous. If the patient themselves produces self-blame statements, the HCP should use motivational directive questions and statements that guide the patient towards seeing that they have many opportunities to work on "good" habits and should not focus on all the times they gave in to "bad" habits. Nonverbal cues can have as big an impact as words when it comes to conveying judgment of others behaviors.
Use of Scare Tactics/Improper patient education/ Improper gauging of understand of recommendations	Education is important, but while scaring the patient into behaving may work in the short run, it creates an adversarial relationship between the patient and provider. Patients who feel that their HCP is a source of continual bad news or judgment are much less willing to share setbacks for fear of possible reprisal. Communication training may be a useful way to identify the most effective ways to communicate with patients. Proper education, not hand-picking the most psychologically influencing information, should be utilized.
Overly complex recommendations	HCPs should take care to remember that patient's lives are just as busy as theirs. The creation of a plan that is realistic and that has been crafted to work around any perceived barriers that may affect adherence is most beneficial for achieving gains. Treatment plans that address all aspects of a disorder at one time, while thorough, can actually discourage the patient into not doing any part of the therapy plan for fear that it is too complex to even attempt. Therapy recommendations should short, individualized, and written down (as studies have demonstrated that patients often do not remember many of the recommendations given to them during treatment). Working together with the patient on a plan allows the patient to feel they are an important part of the process (increasing responsibility and self-efficacy), helps the provider identify possible risk areas, and may aid the patient in remembering how to implement the process. A strong patient/provider relationship allows the patient to feel that they may say something if they are confused and will not be judged for their confusion.

SUMMARY

"Patients adhere well when the treatment regimen makes sense to them, when it seems effective, when they believe the benefits exceed the costs, when they feel they have the ability to succeed at the regimen, and when their environment supports regimen-related behavior" (Delamater, 2006, p. 72). In order to be most effective, HCPs should focus on developing recommendations that are patient-centered. They should foster a collaborative relationship in which patients are in the proper mindset to listen and internalize new recommendations. These recommendations should aim to be simple to follow and the HCP should make certain that the treatment makes sense to the patient and that they believe the costs do not exceed the benefits. This can be achieved by including patients in decision making processes, seeking their input about where they feel the highest risks of nonadherence are, helping them to develop plans and strategies to avoid treatment barriers when they occur, and including loved ones when appropriate.

APPLICATIONS IN VOICE THERAPY

Various non-speech factors have an impact on the efficacy of voice therapy. According to Dworkin and Meleca (1997) important factors that greatly impact a person's reaction to speech therapy is their "personality and psychological, intellectual, emotional, social, environmental, professional, and familial background" (p. 59). The adherence risks that affect speech therapy clients are identical to the adherence risks experienced by all patients with health diagnoses. The ways that they differ are in the sense of urgency and importance that may be placed on speech therapy recommendations.

In the case of clients who come in with severely affected vocal quality the sense of the importance of therapy recommendations may already be present. However, disagreements regarding the benefits of treatment recommendations can lead to nonadherence. Additionally, for clients with less severe diagnoses in which the development of preventative or rehabilitative behaviors are the goal, adherence issues can arise in the complexity of treatment and in the amount of infringement on normal activities that is felt by the client. For example, Haynes et al. (1979) has demonstrated that adherence is negatively affected when symptoms are not apparent and treatment requires lifestyle changes. Therefore, the ways in which the speech language pathologist (SLP) can augment therapy processes can differ significantly from the way in which a physician may recommend preventative behaviors. While the seriousness of quitting smoking because of the associated cancer risks is easily understood, less relatable are health changes suggested when the issue is a vocal pathology. However, while other HCPs (e.g., physicians) may see their patients once or twice a year, an SLP is much more likely to see their client consistently over a longer period of time. This extended contact

allows for a greater degree of interaction, putting SLPs in the optimal position to develop a strong client/clinician bond and develop a truly collaborative relationship. By adapting the discussed methods that have been shown to be effective for more brief interactions, SLPs may be better able to optimize therapy recommendations for maximum adherence.

The implementation of voice therapy is most effective when approached from a collaborative model of treatment in which the SLP attempts to consider all the biopsychosocial aspects that can impact a client's progress. Research has shown that there are no generalizable demographic characteristics that predict the ability to adhere. Therefore, the core of adherence risks lies in improperly assessing a client's beliefs, wants, and needs at the start of therapy. The transtheoretical model of health behavior change and MI techniques can be used as a guide to properly assess when a client is ready to change, how to get them to a point where they are ready to change, and how to move them along the stages in a way that they are able to receive the most benefit from the therapy process. TTM techniques can be useful for assessing for "readiness to change" and for helping clients get to the point where they are ready to make change. A combined approach of TTM techniques and MI techniques are useful after a client has reached the "action" stage and is ready to change. MI techniques can help an SLP identify motivations for change, determine understanding, and prompt clients to produce change plans themselves by emphasizing their own unique self-efficacy and responsibility for change. TTM techniques can also be used to determine if regression has occurred and to help the client deal with the psychological effects of "failing".

Chapter 4.1: Voice Therapy Effectiveness

The effectiveness of voice therapy seems to vary based on the type of treatment being utilized, the length of therapy time, and the ways in which progress is measured. Often effectiveness of therapy is evaluated as a whole or by an individual therapy technique. A study by Carding, Horsley, and Docherty (1999) evaluated the effectiveness of direct versus indirect voice therapy techniques in the treatment of patients with functional dysphonia. Their study of 45 patients contained a non-treatment control group, an indirect treatment group, and a combination indirect plus direct (hereafter referred to as "combination direct") treatment group. Indirect therapy consisted of typical techniques such as: vocal rest, patient education and counseling, elimination of abuse, and a vocal hygiene program. Direct therapy included: laryngeal relaxation, coordination of breathing, establishing and maintaining appropriate tone, elimination of glottal attack, and pitch variation and control. The eight-week study found that while both treatment groups achieved treatment gains, the most effective form of therapy was a combination of direct plus indirect therapy. In total, 46% of participants in the indirect-only group compared to 93% in the combination direct group demonstrated improvement. At the conclusion of the study, participants who did not see improvement with indirect-only therapy were given combination direct therapy. Nine of ten participants displayed significant voice changes upon completion (Carding, Horsley, & Docherty, 1999). This seems to indicate that there is not one technique that is far superior to all others. This can be viewed an issue if one takes the view that all the techniques are the same. However, the finding that the most effective form of therapy was a combination approach suggests that individual approaches are much more effective when combined. With this in mind, it is up to the SLP to find the best combination of approaches to address each client's

complaints on an individualized basis. This individualization is useful as treatment regimens can be tailor-made to match the client. Adherence risks specific to each technique can be identified by understanding what each technique is asking of the client. The following discussion of the components of each type of approach (direct therapies and indirect therapies) is therefore warranted.

Chapter 4.2: Direct Therapies

Direct therapies utilize a physical therapy approach to voice disorders. They posit that vocal muscles, like any other muscle of the body, can suffer from strain and harm if used improperly. Direct therapy is an attempt to affect change in either the mechanics or physical strength of the vocal mechanism to correct faulty vocal production and reduce possibly harmful methods of voice production (Carding, Horsley, & Docherty, 1999).

FRONTAL FOCUS: VOCAL FUNCTION EXERCISES

Vocal function exercises focus on training the client to exercise their voice to protect it from strain and to teach them to use their voice in a way that is less harmful to the vocal folds. Described by Stemple and colleagues in 1994, vocal function exercises "strengthen and rebalance the subsystems involved in voice production" (Roy et al. 2003, 672). These subsystems include resonance, phonation, and respiration. When using this approach, clients are required to practice four specified exercises (including pitch glides using particular phonetic contexts and pitch and vowel prolongations) two times each at least two times a day. These exercises are practiced for 6 to 8 weeks and are produced as softly as possible with an emphasis on "forward placement of the tone" (Roy et al., 2003, 672). The end goal of this therapy is that the client is able to maximize the subsystems that impact the production of voice.

Adherence Risks:

As these exercises are targeted towards highly specialized subsystems of the body, the client may not have previous knowledge of the areas addressed and all information provided may be entirely novel to the client. These exercises are also particularly vulnerable to adherence because they require that the client practice for several days in a row as strength building is best accomplished when practice is

consistent. In addition, these exercises may be seen as "awkward" intrusions in a client's everyday life as they ask the client to do things with their voice that may be perceived as strange to those who are unaware of their purpose. If the client is unable or unwilling to explain the function of VFEs it may lead to resistance in performing them in any place where they might be overheard and may also have a negative effect on the ability of friends and family to provide social support. This, in effect, may limit the places and times wherein the client is able to adhere to therapy recommendations. Additionally, if the client does attempt to explain the VFEs and has insufficient information to do so, the client's explanation may lead to additional misunderstandings that may undermine the effectiveness of the treatment (e.g., friends/family provide support for exercises that are being performed incorrectly which may reinforce incorrect patterns of behavior).

Therefore the adherence risks most relevant to the use of vocal function exercises are:

1) Understanding of proper execution
2) Perceived difficulty
3) Perceived time constraints and "strangeness"
4) Practice two times daily for multiple days in a row

Address by:

Vocal function exercises require a high degree of self-sufficiency on the part of the client. Therefore, it is important that clinicians first verify that the client is at the "action" stage of change and is motivated to make needed efforts. Empathetic listening and stressing the responsibility of the client in making change is important when using this technique as any lack of self-efficacy will dramatically decrease possible benefits. If a client is not yet at the action stage and is still contemplating whether or not change is

necessary, the SLP and client can utilize the first few sessions to determine at what exact stage the client may be in. If they are in the contemplation stage and are considering change but still weighing the pros and cons, the SLP can evoke change talk (detailed in the Appendix A) to explore decisional balances, discuss what is necessary for change, and explore goals and values. Based on the feelings or beliefs a client is expressing, the SLP can choose from multiple MI strategies to "meet the client where they are at."

The issues inherent in vocal function exercises can be addressed in several ways. First, while the idea of frontal focus may be easily understandable to the clinician, achieving that level of understanding on behalf of the client may require additional explanation during initial sessions. Handouts, diagrams, video examples, and even examples of the clinician themselves performing the exercises can be used to supplement proper patient education. Letting the client know that you are willing to "sound silly" just like them can help create a stronger bond between client and clinician and create a more personal connection to the exercises which, in turn, may help the client remember to do them. Second, whenever new protocols are being addressed it is important to "check in" with the client every so often to verify that the client still understands everything that is being asked of them. Asking at least once in each session if the client has any additional questions can create specific times where the client can express any concerns they may have over the material. Third, simplifying the directions and providing video examples for each exercise can reduce the complexity of the regimen. The SLP should also make sure the client is an integral part of creating the practice schedule. Considering the best times for "working in" practice and any barriers that might occur will allow the SLP and their client to "think through" strategies to address any barriers to practice. By having the client pick the times they are best able to practice, the client is able to take ownership of their program and progress. As VFEs are usually performed for 6-8 weeks, it is also

useful to consider any upcoming events that may impact a client's ability to adhere. These considerations can also be made when constructing a practice schedule. Creating a practice log will allow the SLP to keep track of the client's adherence and will serve as a physical reminder to the client to utilize their exercises. It is important to take several initial measures and then progress measures as therapy continues. If a client is able to maintain adherence and gains are beginning to be made, evidence that their hard work is paying off can serve as additional motivation towards continual adherence.

FRONTAL FOCUS: RESONANT VOICE THERAPY

Resonant voice therapy also focuses on retraining the neuromuscular system of the voice. First described by Lessac and further explored by Verdolini and colleagues, the main focus of resonant voice therapy is to teach the client to vocalize in a more resonant, easier way. This is achieved by teaching the client to shift focus from the level of the larynx and bring it up to the level of the oral cavity. This has the effect of limiting the strength and intensity of vibrations at the level of the larynx. The movement also theoretically reduces the damage done to already compromised mechanisms by allowing the affected area to recover without subsequent laryngeal stress compounding the damage. Clients are taught to feel and focus on the vibrations in the oral cavity and to use this increased resonance to allow them to project their voice without increasing the intensity of vibrations at the level of the vocal folds. When used properly, "resonant voice is associated with vocal folds that are barely adducted or barely abducted" (Roy et al., 2003, 672). The ideal voice produced from this technique is produced with a minimal phonatory effort, is acoustically strong, and is minimally impacting (Verdolini-Abbott, 2013).

Adherence risks:

Similar to vocal function exercises, resonant voice therapy can also appear overly technical. With its focus on producing "anterior oral vibrations" and the explanation of "vibratory stress at the level of the larynx" it may seem daunting for new patients who do not consider their larynx as a factor in speaking until it stops functioning properly. This strategy can also appear vague if explained improperly. Attempts to make it more relatable can cause further confusion if patients are told to bring their voices up to the level of their faces. The same risks of keeping up with exercises are also present as is the risk that the patient will feel that the costs outweigh the benefits of the therapy. This technique faces a higher risk of nonadherence as it requires the client to focus on changing the overall production of their vocal quality as opposed to working exercises into their schedule twice a day. A client who is not firmly in the taking action stage of change may not have achieved the level of commitment necessary to undertake this approach. Therefore, careful assessment is necessary when considering this course of action for a client. Lack of patient and family buy-in can negatively impact therapy progress as well.

Address by:

Simplifying the explanation of the technique, but in a way that does not lead to additional confusion, is essential. First, appropriate patient education that periodically assesses client understanding is key. Physical cues such as drawing attention to the vibrations in a client's oral cavity and paying attention to the way it feels can help a client internalize and remember proper placement of vocal focus. Second, discussing the importance and benefits of the approach can help address skepticism of the effort requirement needed to adopt the new way of voicing. Motivational interviewing techniques such as evoking preparatory change talk can help the client to voice their

desires to change. Utilizing affirmations, the SLP can validate that the desire to change is crucial and is a necessary strength for therapy. Reflective listening can be used to attempt to resolve ambivalence about the necessary effort and can reconcile the initial effort needed to implement therapy with the possible gains. An "easing in" process where the client uses resonant voice a little more each day can help to gradually integrate the technique into their daily lives. Finally, a strong client/clinician relationship is needed to achieve client adherence. Asking the client to "try this out for a few weeks" and promising to augment treatment if necessary will only be effective if the client has trust and faith that their clinician has their best interest at heart.

Chapter 4.3: Indirect Therapies

Indirect therapies utilize a behavioral approach to voice disorders. They address vocal dysfunction as an overall problem that is affected by different contributing and maintaining factors. The underlying idea is that harmful vocal behavior results from placing "excessive demands on the voice, abusive behaviors that are detrimental to the voice, personal anxiety and tension levels, and/or a lack of knowledge of healthy voice production" (Carding, Horsley, & Docherty, 1999, 74). Thus, correction requires informing the client of proper vocal behaviors and creating a reasonable approach to lessen or reverse voice symptoms. Appropriately determining which stage of change a client is in is vital to approaching indirect approaches properly. If a clinician assumes that a client is at a further stage then they actually are, the clinician may be too insistent in their statements when more supportive statements are necessary. Clients who are not yet ready to change may need support to evaluate their feelings regarding their disorder and what needs to be done. Helping the client explore their decisional balance can help the client evaluate what is most important to them. This information can be used to develop discrepancy arguments to help move the client towards a later stage of change where they will be more receptive to more directive motivational interviewing techniques. Some indirect methods (such as voice amplification) can be utilized at the start of therapy as patient-buy in for the technique is low. However other techniques, such as vocal hygiene and vocal conservation, can be started in the initial stages from the start of therapy but may require substantial conversation and cooperation on behalf of the client to be used effectively and efficiently outside the therapy room.

VOICE AMPLIFICATION

Voice amplification (VA) is one indirect method of voice therapy that is particularly popular for clients who have just undergone surgery or for those who require considerable amplification for extended periods of time. It is based on principles similar to those that underlie vocal function exercises and resonant voice therapy, that vocal abuse is a result of traumatic vibration of the vocal folds. By amplifying the voice through electronic means the client will have less need to strain their voice and "over-vibrate" their voice mechanism. Amplification allows them to be heard above ambient noise and, as a result, gives their vocal folds a "break." Voice amplification may be recommended for patients who frequently speak to large groups of people, for patients who must be able to project their voice for extended periods of time (e.g., singers, teachers, public speakers); for individuals in hospitals who have recently undergone vocal trauma from surgery/intubation, etc.; and for clients who have reduced control over their vocal folds such as individuals who are hypophonic or whose voice has lost intensity due to aging.

Adherence risks:

The adherence risks present in vocal amplification usually lie in issues related to device maintenance and use. Clients who do not understand how to properly use their amplification device may become easily discouraged and not use it because it "doesn't work." Assorted issues related to device maintenance include: remembering to change/charge the batteries, bringing extra batteries, adjusting amplification to the appropriate rate, knowing how to troubleshoot malfunctioning equipment, keeping the device in proper working order, and knowing how to effectively and easily transport the device from place to place. Additionally, there may be some reluctance on the part of

some clients to use artificially augmented means of speech as it may make them stand out in a way in which they are not comfortable.

Address by:

The best technology in the world is useless if a client will not use it because they do not understand how to use, manage, or fix it. Speech language pathologists recommending use of vocal amplification should begin with discussion of the therapeutic goals. The client should know exactly what using this device would do for their voice and the overall health of the vocal mechanism. The SLP should then discuss with client the ways in which the client can develop autonomy in the use of their device. If the device is meant to only be used in certain instances, the SLP can discuss which scenarios are best suited for use of the device and help the client troubleshoot possible issues that might occur in these scenarios. If the device is meant to be used for an extended period of time to allow for healing of the vocal folds, proper education into the use and care of these devices is critical as frequent malfunctions may prompt the client to discontinue use. If the device is meant to be used as a permanent solution to a hypofunctional voice disorder, counseling techniques should be used to help the client deal with the associated emotional and psychological issues related to long-term use.

VOCAL HYGIENE

Vocal hygiene education (VH) has always been a cornerstone of voice therapy. The vocal hygiene approach focuses on (a) identifying and augmenting phonotraumatic vocal behaviors; (b) the type and quantity of vocal use; (c) proper hydration; and (d) possible problematic diet and lifestyle choices that may be contributing to vocal harm. The idea is that vocally harmful behaviors will be replaced by less harmful substitute

behaviors. When utilizing a vocal hygiene protocol, the SLP will often engage the client in a discussion of how they use their voice, their diet and activities, and possible behaviors that may be impacting their voice. The hope is that by discussing how a client uses his/her voice, the SLP will be able to identify "problem areas" and help teach the client how to reduce or eliminate them.

Adherence risks:

Improper client education and unrealistic expectations on the SLPs part can lead to poor adherence. When surveyed as to the degree of confidence they felt conducting vocal hygiene therapy compared to other therapy protocols, therapists routinely reported that they felt the same degree of confidence carrying out vocal hygiene protocols as compared to protocols for voice amplification and vocal function exercises (Roy et al. 2001, Roy et al. 2002). Research has demonstrated that clinicians considered vocal hygiene protocols to be easy to conduct. However, this reported ease might be limited to their understanding of what they will need to ask the client to do. When looking at the clients' understanding and adherence to what is being asked of them ease of use is considerably lessened. This point of view is heavily clinician-centered. When considering risks, more focus should be placed on the client considerations inherent in vocal hygiene therapy.

Depending on the severity of the health risks, the vocal hygiene approach may require substantial change in the client's lifestyle choices. Therefore, considerable resistance may be encountered at the start of therapy. Clients may never be 100% ready to change all the things that need to be changed in order to promote best vocal hygiene. Speech language pathologists that are too insistent that the client adhere to all suggestions may engender large amounts of resistance and may also facilitate the development of an

adversarial relationship between the client and clinician that is not conducive to effective therapy. Personality and personal characteristics play a large role when conducting VH therapy. Clients who are more outgoing and extroverted may have a hard time making lifestyle changes that require them to reduce the amount of speech or activities that may negatively impact their voice (e.g., yelling, drinking, eating out). The addictive nature of many of the items on the "bad vocal hygiene" list is large. Alcohol, smoking, sugar, fatty foods, and personality characteristics like talking loudly or making loud noises to emphasize one's point can be extremely hard to reduce unless highly motivated. Therefore, while individuals at the action stage may experience the most success with increased vocal hygiene, individuals in the precontemplation and contemplation stages require the most support and technique use.

Address by:

In one study by Roy et al. (2001) researchers posited the idea of the "vocal diet." In their 2001 comparison study of vocal hygiene education and vocal function exercises they express that, "if the patient observes the diet for a sufficient duration, it is assumed that improvement in both vocal fold tissue and voice function should follow" (Roy et al., 288). This comparison of a voice regimen to a standard "diet" was used to draw connections between the behavior change necessary for weight-loss and the behavior change necessary for improved vocal production. Although this was a useful and relevant analogy, the authors took no further steps to actually address the "real world" consequences of that "diet." The authors conceded that instituting changes in lifestyle might be more difficult than utilizing specific exercises or equipment, but they did not provide any suggestions on how to deal with the differences in difficulty level.

When discussing patient adherence, it is important to address issues such as ease of use and the amount of work it takes in order to complete a task. If you give a patient a list of voice suggestions and then you have them monitor themselves only weekly (Roy et al, 2002) or do not have them monitor themselves at all (Roy et al., 2001), clients are liable to forget exactly how much they did or did not do or may not keep track of whether they were complying at all. When using a protocol based on monitoring behavioral change this is extremely inefficient. By focusing on the difficulty of a program from only the SLP's perspective we are leaving out half the equation. When we seek to determine how confident an SLP feels providing vocal hygiene education and use their confidence level as evidence for how effective they will be, we are assuming that because a protocol is easy for the SLP to carry out, it will be equally easy for the client to adhere to. This is a false assumption. It makes sense that an SLP would feel confident conducting vocal hygiene education. The SLP need only be knowledgeable about the basic anatomy of the speech mechanism, the ways in which lifestyle choice and voice use can affect it, and the ways in which s/he can reduce or eliminate these abusive behaviors. From the SLP's perspective, their only task is to give the client the suggestions, explain how to carry out these suggestions, and stress their importance. If the client has questions, the SLP may or may not provide clarification. From the perspective of the client, however, they are being asked to fundamentally change the way in which they conduct their lives and consciously manage the choices they are making. This can often turn out to be too large a burden for the client to handle.

This is why the analogy of the "vocal diet" is useful. If one considers the magnitude of the lifestyle changes being posited, this analogy makes a lot of sense. It is important to consider the actual implications for a client embarking on this "voice diet." Proper staging can greatly aid is increasing the effectiveness of this approach. In the early

stages of the TTM, clients may need extensive support while they attempt to develop higher degrees of self-efficacy. The clinician must be able to roll with resistance they find. By exploring decisional balance they can help the client explore their own motivations for changing and help them see both sides of the issue (changing or staying the same). Once the SLP identifies the client's goals they can focus on emphasizing discrepancies to help point out the gaps between the client's goals and their behaviors. If the SLP and client have developed a strong relationship, the client will be able to make arguments for change on their own. If a weak relationship exists, this type of decisional imbalance can be misinterpreted as judgmental and be counterproductive. If there is a strong client/clinician relationship, the SLP will be better able to demonstrate the effectiveness of therapy (success stories, explanations of merits of change). The use of a monitoring log will help the client remain vigilant of their choices until they can see the effectiveness of the therapy (which in itself can be self-motivating). The client and clinician can also cooperate to create scripts for clients to use with family and friends and to help the client develop coping mechanisms.

VOICE CONSERVATION

One final method of indirect therapy is known as voice conservation or the use of "confidential voice." This therapy approach trains the patient to use a softer (yet still loud enough to be heard) voice that does not utilize full closure of the vocal folds. The idea is that the client is loud enough to talk to someone next to them but perhaps not loud enough to talk to someone across a large room. This approach is a compromise between complete vocal rest and using the voice as it is normally being used. The end goal of voice conservation is that the traumatic collision of the folds is avoided and that existing pathologies on the folds have the opportunity to lessen or at least not become any worse.

Confidential voice can be used for patients whose vocal strength is extremely compromised (e.g., post-surgery or for those who have been intubated) or with patients who have been over-adducting their vocal folds and have created traumatic lesions. This method can be used so that speech is possible while at the same time allowing for healing of the vocal folds.

Adherence Risks:

Confidential voice is typically used with patients whose vocal pathologies are not as serious. For this reason, risk of nonadherence can be higher as their voice pain can be viewed as "no big deal." As always, improper education can be detrimental. Specific to this technique, clients who are not properly educated can mistake whispering for confidential voice. While some forms of whispering that do not put strain on the voice are acceptable, the more strained, abrasive form of whispering can lead to more injury to an already compromised vocal mechanism. In addition, clients may not want to use a technique that they consider to be whispering as they may believe it ineffective. Confidential voice requires a client to actively monitor the volume of his or her own speech while it is being practiced. Moments of increased excitement or stress can (understandably) lead to lapses in adherence. Thus, the use of this technique requires reminders (possibly from outside sources). Lack of family/friend buy-in and client buy-in is a large adherence risk because without outside help the client may inadvertently lapse into nonadherence and without external or internal cues may continue to produce a harmful voice for long periods of time. Because these moments of nonadherence may be inadvertent and possibly unrecognizable to the client, he/she may attribute higher degrees of adherence and report back low degrees of effectiveness. This can lead both SLP and the client to believe the technique is not working and may lead to a switch in treatment

recommendations to something that is more effortful and less effective for the client. Thus, lack of self-awareness can contribute to adherence issues when using confidential voice.

Address By:

Increasing client awareness of when they are properly using the technique through affirming statements can help the client build their awareness and self-efficacy. Realizing they are using the techniques correctly can improve client beliefs about being able to achieve change. Client education about how to use confidential voice and how to not whisper (as they are not the same thing) is very important as clients may believe whispering is a suitable substitute or may believe that confidential voice is ineffective if they do not know the difference between whispering and confidential voice. Designating set times to utilize confidential voice can help the client make use of this strategy part of their routine. Educating the family as well can help create external cues to continue adhering when not in therapy. If the client does not recognize the necessity and importance of treatment, the SLP can educate the client (without scaring) about possible risks. The SLP can also emphasize future costs that can be eliminated if the problem is addressed now. The SLP can address the importance of this technique as a way of keeping further harm from being caused to their voice. This can help underlie the importance of using a small measure to make the use of much larger measures down the line unnecessary.

CONCLUSION

Treatment for health behavior concerns will always be somewhat difficult as it is an area of work in which people are asked to change habits that have long become ingrained in their daily routines. However, these behaviors can be changed. In fact, the will to change and make better decisions is ever present in both those seeking out treatment and those providing the treatment. Individuals who seek out treatment want better health outcomes and those providing it have often dedicated a significant portion of their lives to figuring out the best ways to make that happen. Therefore, the issues that can develop in between receiving treatment and achieving associated gains are of great concern as they can impede the goals of the HCP and those of the patient.

Analyzing the ways in which we can better address roadblocks to making change has been the subject of copious research for over 50 years. Many well thought out and well-researched approaches have been developed to help people achieve the change they so greatly desire. Utilizing this research in a way that can better serve voice therapy clients, a portion of the population that often finds difficulty seeing returns on their efforts, can help both the clients themselves and the clinicians who serve them to attain the goals that are of great importance to both parties. Examining the complex dynamic that exists between client and clinician and the various models and techniques that can aid in understanding how people react to the change process can help speech language pathologists better understand how to help their clients get what they want. And in the end, isn't that what all HCPs really want too?

Appendix A: Motivational Interviewing

MOTIVATIONAL INTERVIEWING STRATEGIES: RATIONALES AND EXAMPLES (SOBELL & SOBELL, 2008)

Effective use of motivational interviewing techniques in therapy requires effective rationales and examples of how these techniques can be incorporated. Sobell & Sobell (2008) of NOVA Southeastern University developed an extremely useful handout titled *Motivational Interviewing Strategies and Techniques: Rationales and Examples*. As this handout does not target one specific behavior it is easily applicable to voice therapy. It covers multiple areas that span the entire process of therapy and the change that is targeted. These areas are: "Asking Permission" (communicating respect for the client), "Eliciting/Evoking Change Talk" (change talk associated with beneficial outcomes), "Exploring Importance and Confidence" (identifying goal importance and client confidence in them), Reflective Listening" (building empathy), "Normalizing" (recognizing change is difficult), "Decisional Balancing" (pros and cons), "Columbo Approach" (identifying discrepancies), "Statements Supporting Self Efficacy" (increasing self-confidence), "Readiness to Change Ruler" (identifying where a client is in the change process), "Affirmations" (recognizing successes, efforts, and strengths), "Advice/Feedback" (recognizing how feedback is given is important), "Summaries" (linking what client expressed to other topics/expanded topics), and "Therapeutic Paradox" (getting the client to argue for the importance of changing) (Sobell & Sobell, 2008). It provides useful examples and rationales for each section to enable the therapist to be fully knowledgeable about why they are conducting therapy in this manner. It can be accessed at: http://www.nova.edu/gsc/forms/mi_rationale_techniques.pdf

MOTIVATIONAL INTERVIEWING: OARS

The core techniques of motivational interviewing are often referred to as OARS. This acronyms stands for: open ended questions (O), affirmations (A), reflective statements (R), and

summaries (S). The Substance Abuse and Mental Health Services Administration (SAMHSA) provides a brief list of quick skills and techniques that can be easily overviewed if time is an issue or brevity is necessary. The information has been inserted into the following table for easier access and the link for the original webpage has been provided:

OARS:*
Ask open-ended questions (O)
Below are some examples of how you can ask open-ended questions.
Invite individuals with co-occurring disorders to tell their story in their own words without leading them in a specific direction.
Elicit what is important to the individual.
Establish rapport, gather information, and increase understanding.
Demonstrate genuine interest and respect.
Help the person go deeper and provoke thought. The practitioner's goal is to encourage thinking that envisions a different future.
Affirm a person's autonomy and self-direction.
Provide opportunity to hear oneself speak.
Asking sounds like:
"How are things going?"
"What is most important to you right now?"
"Hmm... Interesting... Tell me more..."
"How did you manage that in the past?"
"How would you like things to be different?"
"What will you lose/gain if you give up XXX?"
"What do you want to do next?"
"How can I help you with that?"
Use Affirmations (A)
Providers can empower individuals by using language that affirms their strengths. Examples of Affirmations include:
“I’m really glad you brought that up.”
“I think what you are doing is really difficult. I’m really proud to be working with you on this.”
“So many people avoid seeking help. It says a lot about you that you are willing to take this step.”
“What have you noticed about yourself in the past few months since you started coming here?”

This question is designed to prompt the consumer to self-affirm.
Form Reflective Statements (R)
Practitioners can show individuals that they are listening and understand issues from their perspective by using reflective statements. The use of reflective statements also allow individuals to hear their own words and resolve ambivalence. Depending on the individual's stage of change, practitioners may use different types of reflective statement.
Provide Summaries (S)
Summaries can be used for multiple purposes. For example, summaries can be used to:
Highlight important aspects of the discussion
Shift the direction of conversations that become "stuck"
Highlight both sides of an individual's ambivalence about change
Communicate interest and understanding of an individual's perspective

*The preceding information in its original form can be found at: (http://www.samhsa.gov/co-occurring/topics/training/skills.aspx)

MOTIVATIONAL INTERVIEWING: THE BASICS

This website provides printable information in PDF format that is highly useful for the practice of MI techniques in therapy. It includes an overview, updates on the theory itself, MI use in assessment, and several presentations that are useful to familiarize oneself with the approach and ways that it has been updated and augmented. Permission for the use of these documents has been given for endeavors that are educational in nature. The basics of motivational interviewing are detailed at: http://www.motivationalinterview.org/quick_links/about_mi.html. This document provides definitions of the approach for both the lay person and a practitioner. Its overview of MI discusses the "spirit" of the approach and the guiding principles that make up the foundation of motivational interviewing. The following documents are also provided on the main page of the Motivational Interviewing website:

An Overview of Motivational Interviewing (referenced above)	http://www.motivationalinterview.org/Documents/1%20A%20MI%20Definition%20Principles%20&%20Approach%20V4%2001 2911.pdf
Towards a Theory of Motivational Interviewing	http://www.motivationalinterview.org/Documents/nihms146933%20(1).pdf
Towards a Theory of Motivational Interviewing Presentation	http://www.motivationalinterview.org/Documents/MItheory.pdf
What's New Since MI-2?: An Update on MI	http://www.motivationalinterview.org/Documents/Miller-and-Rollnick-june6-pre-conference-workshop.pdf
What Makes it Motivational Interviewing?	http://www.motivationalinterview.org/Documents/Miller-june7-plenary.pdf
MI Assessment	http://www.attcnetwork.org/userfiles/file/NorthwestFrontier/Vol.%209%20Issue%2010.pdf

FRAMES MODEL: THE UNIVERSITY OF ARIZONA: METHAMPHETAMINE AND OTHER ILLICIT DRUG EDUCATION

For brief interventions, Hester and Miller (1995) devised the FRAMES model. Found on the Methamphetamine and Other Illicit Drug Education (MethOIDE) webpage of the University of Arizona, the FRAMES model describes a brief description of ways to address drug dependency. Modified for the treatment of voice disorders it can be described as follows:

Feedback: (F)	Give feedback on the risks and negative consequences of vocally abusive behavior. Seek the client's reaction and listen.
Responsibility: (R)	Emphasize that the individual is responsible for making his or her own decision about his/her lifestyle choices, vocal conservation, vocally abusive behaviors, technique use.
Advice: (A)	Give straightforward advice on modifying vocally abusive behaviors.
Menu of options: (M)	Give menus of options to choose from, fostering the client's involvement in decision-making.
Empathy: (E)	Be empathic, respectful, and non-judgmental.
Self-efficacy: (S)	Express optimism that the individual can modify his or her vocal behaviors if they choose. Self-efficacy is one's ability to produce a desired result or effect.

The preceding information in its original form can be found at:
http://methoide.fcm.arizona.edu/infocenter/index.cfm?stid=242

Appendix B: Transtheoretical Model (TTM): Stages of Change

THE TRANSTHEORETICAL MODEL OF BEHAVIOR CHANGE (THE HABITS LAB AT UMBC)

The following information is an overview review of the Transtheoretical Model of Behavior Change created by The HABITS Lab at the University of Maryland, Baltimore County.

The Transtheoretical Model Stages of Change (TTM; Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992) cited by the Habits Lab at University of Maryland Baltimore County, n.d.)
Precontemplation: Individuals in the Precontemplation stage are not thinking about or intending to change a problem behavior (or initiate a healthy behavior) in the near future (usually quantified as the next six months). Precontemplators are usually not armed with the facts about the risks associated with their behavior. Additionally, many individuals make unsuccessful change attempts, becoming discouraged and regressing back to the Precontemplation stage. The inclusion of the Precontemplation stage represents a significant contribution of the TTM, as individuals in this stage comprise a large proportion of individuals engaged in risky or unhealthy behaviors. In comparison to many traditional, action-oriented theories of behavior change, which view individuals in this stage as resistant and unmotivated, the TTM can be useful in guiding treatment and prevention programs by meeting the needs of these individuals, rather than ignoring them.
Contemplation: An individual enters the Contemplation stage when he or she becomes aware of a desire to change a particular behavior (typically defined as within the next six months). In this stage, individuals weigh the pros and cons of changing their behavior. Contemplators also represent a large proportion of individuals engaged in unhealthy behaviors, as ambivalence between the pros and cons of change keeps many people immobilized in this stage. Resolving this ambivalence is one way to help Contemplators progress toward taking action to change their behavior.
Preparation: By the time individuals enter the Preparation stage, the pros in favor of attempting to change a problem behavior outweigh the cons, and action is intended in the near future, typically measured as within the next thirty days. Many individuals in this stage have made an attempt to change their behavior in the past year, but have been unsuccessful in maintaining that change. Preparers often have a plan of action, but may not be entirely committed to their plan. Many traditional action-oriented behavior change programs are appropriate for individuals in this stage.
Action: The Action stage marks the beginning of actual change in the criterion behavior, typically within the past six months. By this point, where many theories of behavior change begin, an individual is half way through the process of behavior change according to the

Transtheoretical Model. This is also the point where relapse, and subsequently regressing to an earlier stage, is most likely. If an individual has not sufficiently prepared for change, and committed to their chosen plan of action, relapse back to the problem behavior is likely.
Maintenance: Individuals are thought to be in the Maintenance stage when they have successfully attained and maintained behavior change for at least six months. While the risk for relapse is still present in this stage, it is less so, and as such individuals need to exert less effort in engaging in change processes.
The Stages of Change addresses a facet of behavior change ignored by many other theories, namely that change is a process that occurs over time. It should be noted here that while progression through the Stages of Change can occur in a linear fashion, a nonlinear progression is more common. Often, individuals recycle through the stages, or regress to earlier stages from later ones, rather than progress through the stages in a linear sequence. Change often comes at it's own pace – often quickly and in bursts, rather than a consistent rate. It is not unusual for someone to spend years in Precontemplation and then progress to Action in a matter of weeks or months.
Decisional Balance: Two components of decisional balance, the pros and the cons, have become critical constructs in the Transtheoretical model. As individuals progress through the Stages of Change, decisional balance shifts in critical ways. When an individual is in the Precontemplation stage, the pros in favor of behavioral change are outweighed by the relative cons for change and in favor of maintaining the existing behavior. In the Precontemplation stage, the pros and cons tend to carry equal weight, leaving the individual ambivalent toward change. If the decisional balance is tipped however, such that the pros in favor of changing outweigh the cons for maintaining the unhealthy behavior, many individuals move to the Preparation or even Action stage. As individuals enter the Maintenance stage, the pros in favor of maintaining the behavioral change should outweigh the cons of maintaining the change in order to decrease the risk of relapse.
Self-efficacy: This construct reflects the degree of confidence the individual has in maintaining their desired behavioral change in situations that often trigger relapse. It is also measured by the degree to which the individual feels tempted to return to their problem behavior in these high-risk situations. In the Precontemplation and Contemplation stages, individuals' temptation to engage in the problem behavior is far greater than their self-efficacy to abstain. As individuals move from Preparation to Action, the disparity between feelings of self-efficacy and temptation closes, and behavioral change is attained. Relapse often occurs in situations where feelings of temptation trumps and individual's sense of self-efficacy to maintain the desired behavioral change.

(TTM; Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992) cited by the Habits Lab at University of Maryland Baltimore County, n.d.)

The Processes of Change

Overt and covert processes take place during the stages and are vital to a client's ability to successfully move through the stages. These ten processes are subdivided into

behavioral processes and cognitive/affective experiential processes. The following table has been constructed with information created by the HABITS Lab at UMBC:

Experiential Processes:
Consciousness raising **–** Knowledge and awareness about the individual and their problem behavior is increased.
Dramatic relief – Emotions about the individual's problem behavior, and available treatments or solutions, are aroused.
Environmental reevaluation **–** The impact that the individual's problem behavior has on their environment is reassessed.
Self-reevaluation **–** Cognitions and emotions regarding the individual, especially with respect to their problem behavior, are reassessed.
Social liberation **–** Attempts are made to decrease the prevalence of the individual's former problem behavior in society.
Behavioral Processes:
Reinforcement management – Positive behavioral changes are rewarded.
Helping relationships – Trusting and open discussion about the problem behavior is received by a supporting individual(s).
Counterconditioning – Positive alternative behaviors are substituted for the individual's problem behavior.
Stimulus control – Stimuli that may trigger lapse back to the problem behavior are prepared to be coped with, removed, or avoided.
Self-liberation – Choosing a course of action to change the problem behavior, and committing to that choice.

(Habits Lab at University of Maryland Baltimore County, n.d.)

Overview of the Stages

The Step Up Program created by the University of Arizona (2010) provides a more brief guide to Prochaska's and DiClemente's Stages of Change model. This model includes characteristics and techniques useful at each stage. A more extensive discussion of the first three stages of change (pre-contemplation, contemplation, and preparation) including: goals, concerns, and sample statements can be found at:

http://www.stepupprogram.org/docs/handouts/STEPUP_Stages_of_Change.pdf

While geared towards weight loss, these sample goals and statements are easily applied to voice therapy when utilizing a vocal hygiene approach as the first three steps of the stages of change are most critical when working towards creating behavior change to improve vocal hygiene. Once the action stage has been reached MI techniques can be utilized to move the client further along in the change process.

Transtheoretical Model of Behavior Change Measures

The following measures are cited from The Habits (Health and Addictive Behaviors: Investigating Transtheoretical Solutions) Lab at the University of Maryland, Baltimore County. The authors of these measures state that these measures are in the public domain and free to use.

University of Rhode Island Change Assessment Scale: URICA

The URICA is useful in assessing motivational readiness for change in clinical processes and can be used to measure outcomes. Several measures are presented related to drug use, alcohol consumption, and smoking. However the general format is one that is used to gauge perception of a problem at the start of therapy. The psychotherapy version of the change assessment scale may be most suited for use in voice therapy. This version describes a nonspecific "problem" and gauges strength of agreement with change statements. Statements that are more severe (e.g. #30 "After all I had done to try and change my problem, every now and then it comes back to haunt me") can be omitted or dialed down in intensity depending on the degree and severity of the voice issue. Measures may be found at: http://www.umbc.edu/psyc/habits/content/ttm_measures/urica/index.html

Self Efficacy Scales

Self-efficacy scales measure ability to discontinue harmful health behaviors. Self efficacy measures are provided for alcohol consumption, drug use, and smoking. While the alcohol and smoking scales are useful if these are harmful behaviors the client engages in, the nine item version of the smoking self-efficacy scale is most applicable to voice therapy. It gauges confidence in abstaining and is useful if vocal hygiene or lifestyle modifications are necessary. While less applicable if the approach is vocal conservation or the use of vocal amplification, it can be used to decrease behaviors such as overuse of voice or activities that precipitate increase GERD symptoms. Multiple measures can be found at: http://www.umbc.edu/psyc/habits/content/ttm_measures/self-efficacy/index.html

Situation Temptation Scales

These measures gauge temptation to participate in harmful health behaviors. Similar forms are used for situational temptation as for self-efficacy. Again, the nine item short form for smoking is most adaptable. Multiple measures can be found at: http://www.umbc.edu/psyc/habits/content/ttm_measures/situation/index.html

Processes of Change Questionnaire

Included questionnaires span the processes of change for alcohol consumption, drug use, and smoking. All can be used as needed. The short form 20-item smoking version of the processes of change is most easily adaptable for voice when attempting to reduce vocally abusive behaviors as they reference temptation, recalling information about negative consequences, and changing the environment to suit the client's needs. Prompts such as "I stop to think that smoking is polluting the environment" and "I notice that nonsmokers are asserting their rights" can be omitted or exchanged for more relevant

prompts such as “I use my techniques” or “I ask others to help me remember to reduce [vocally abusive behavior]”. Multiple measures can be found at: http://www.umbc.edu/psyc/habits/content/ttm_measures/processes/index.html

Decisional Balance Scale

Creating decisional balances is important in gauging how committed a client is to enacting behavioral change. Self-reported measures of how a client perceives the pros and cons of engaging in the harmful voice behavior can guide clinicians when they are creating goals for therapy. These measures cover alcohol consumption, drug use, and smoking. Depending on whether these are harmful behaviors the client engages in these measures may be used as necessary. The 20-item questionnaire on weight loss can be easily adapted to either the use of direct techniques, specific vocally abusive behaviors such as food consumption related to gastroesophageal reflux disease (GERD), or overuse of the voice by substituting this behavior for the act of losing weight in the question prompt. Several questions, specifically those related to body image and feelings of personal attractiveness can be omitted. As these questions are all related to the impact health actions have on a client’s lifestyle, it is suited for use in developing pros and cons for reducing vocally abusive behaviors or can be adapted to the inclusion of specific exercises or practices into everyday life. Multiple measures can be found at: http://www.umbc.edu/psyc/habits/content/ttm_measures/decisional/index.html

Staging Algorithms

Created for smoking, this algorithm helps clinicians determine where a client is in the stages of change. If voice clients are heavy smokers it may be necessary to gauge whether or not they are amenable to changing or reducing this behavior if the continuation of smoking will have a large impact on voice therapy outcomes. Individuals

who are not ready to change their smoking habits may need to be approached more cautiously when making therapy recommendations. The staging algorithm can be found at: http://www.umbc.edu/psyc/habits/content/ttm_measures/staging.html

Measures developed for research purposes: Cancer Prevention Research Center

The Cancer Prevention Research Center has developed multiple measures useful for assessing stages of change in a variety of areas related to: smoking, exercise, coping and stress, psychotherapy, weight control, substance abuse, and alcohol. They are available for research purposes. Measures related to exercise, weight control, alcohol consumption, and smoking are available at: http://www.uri.edu/research/cprc/measures.htm#Smoking (Prochaska, 1991).

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